FMGE CLINICAL VIGNETTES.

Volunteered by FMGs

Concept and Design : Dr Rajiv Dhawan

FMGE CLINICAL VIGNETTES

Individually we are one drop.
But together, we are an ocean.

FMGE CLINICAL VIGNETTES

PREFACE

My Dear FMG friends

It gives me immense pleasure to introduce you to this collection of clinical statement based MCQs for FMG examination. This is the fruit of hard work of many FMG volunteers from different parts of our country. They have done a lot of research to find out the high yield questions for your practice.

This free for all book pdf is aimed to give you the collection of clinical scenarios which you can practice to get an idea about the approach to solve such questions in the examination. These questions have certain key points to focus to get the right answer.

How to use this free pdf?

Please solve 30 questions from this book every day. Also, do three revisions of all these questions.

I wish you good luck for your examination.

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CONCEPT AND FORMAT

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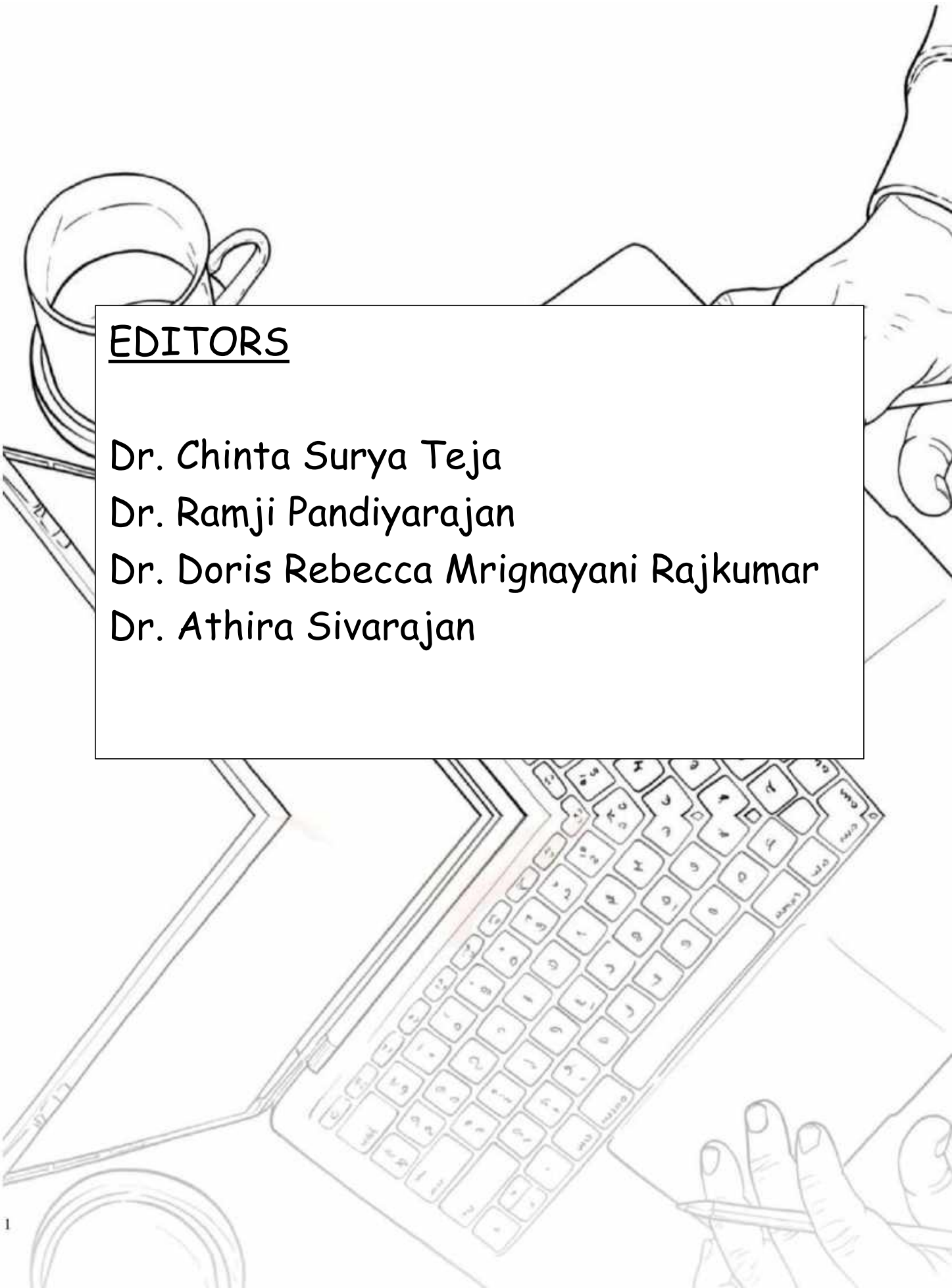

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INDEX

MEDICINE

1. **Cardiology .....page 03-82**
2. **Respiratory .....page 83-139**
3. **Endocrine .....page 140-203**
4. **Neurology .....page 204-265**
5. **Rheumatology .....page 266-303**

Pediatrics .....page 304-357

Orthopedics .....page 359-443

Dermatology .....page 444-501

Psychiatry .....page 502-537

Radiology .....page 538-574

CARDIOLOGY

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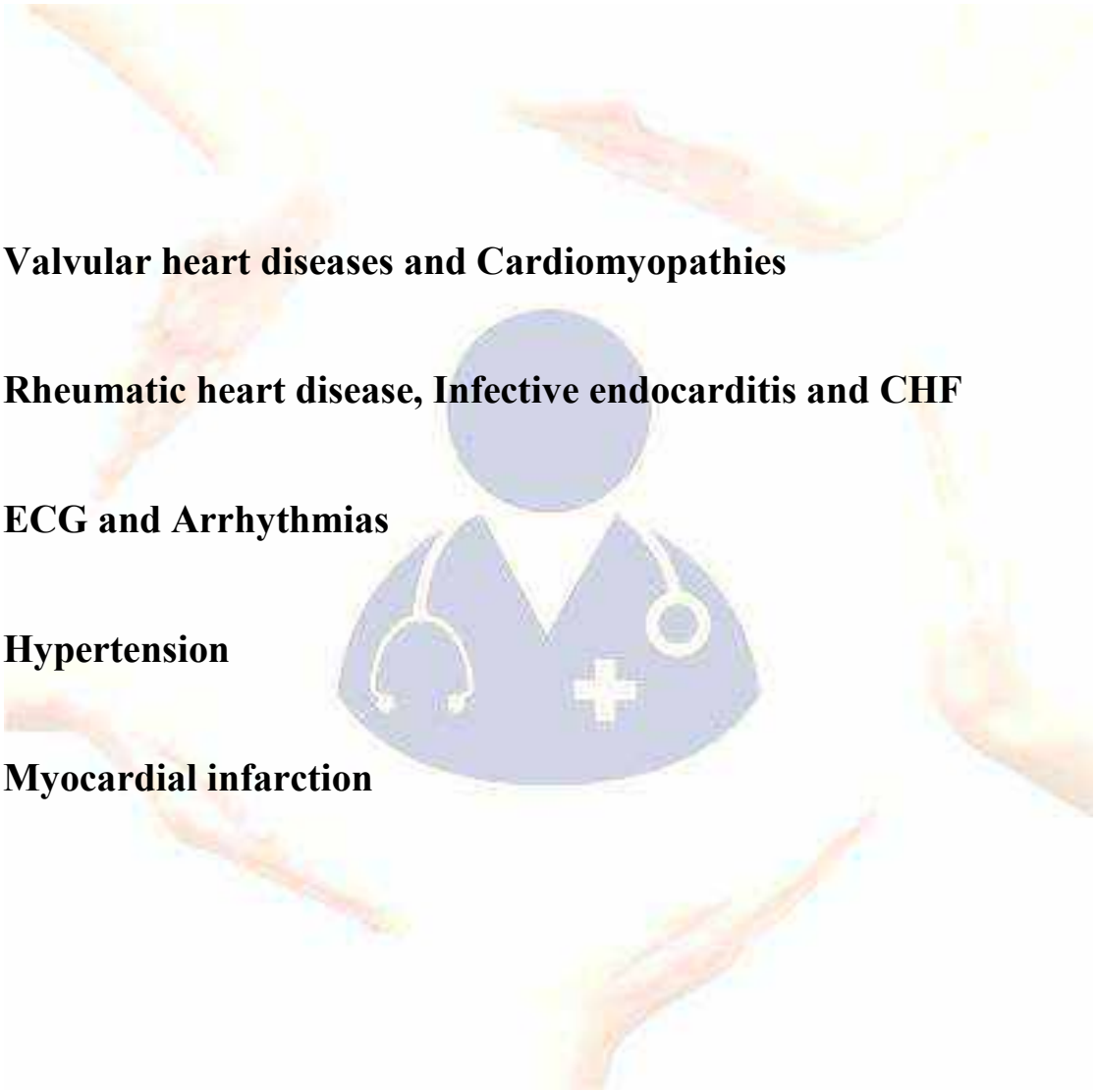
"Never give up on what you really want to do. The person with big dreams is more powerful than one with all the facts."

INDEX



- **Valvular heart diseases and Cardiomyopathies**
- **Rheumatic heart disease, Infective endocarditis and CHF**
- **ECG and Arrhythmias**
- **Hypertension**
- **Myocardial infarction**

VALVULAR HEART DISEASES AND CARDIOMYOPATHY

1. A 70 year old male is brought to the casualty with a sudden syncopal episode while jogging in the park. He is currently alert and describes substernal heaviness and shortness of breath. His lungs have bibasilar rales and his BP is 120/80mmHg. Which is the classical finding expected in this patient?

A. Ejection systolic murmur with wide split S2
B. Harsh holosystolic murmur with soft S2
C. Ejection systolic murmur with soft S2
D. Harsh pansystolic murmur with loud S2

Answer: C

The diagnosis in this case is Aortic Stenosis (AS)

The clinical presentation of **SAD** triad
Syncope on exertion,
Angina (secondary to LVH) and
Dyspnea (secondary to increase in LVEDP leading to increased left atrial pressure and congestion in lungs – pulmonary stenosis)
in geriatric age group points to diagnosis of aortic stenosis. Apex beat character in AS – Heaving (strong impulse is felt on the finger which lifts it up)

The auscultatory finding seen is of ejection systolic murmur aka crescendo-decrescendo murmur radiating to the carotid artery known as carotid thrill.

Soft S2 is due to poor mobility of stenosed valves.

Point to keep in mind is that HTN may lead to AS due to degenerative calcification associated with atherosclerosis. So in question, hypertensive old patients may also be given as a hint.

Choice A is wrong because in AS narrow split S2 is heard or even paradoxical split S2 i.e. P2A2 as there is delayed closure of the aortic valve but the pulmonary valve is closed on time.

Choice B and D are wrong because ejection systolic murmur is heard in AS. Pansystolic and holosystolic murmurs are the same.

Keywords: SAD triad, geriatric patient, substernal heaviness

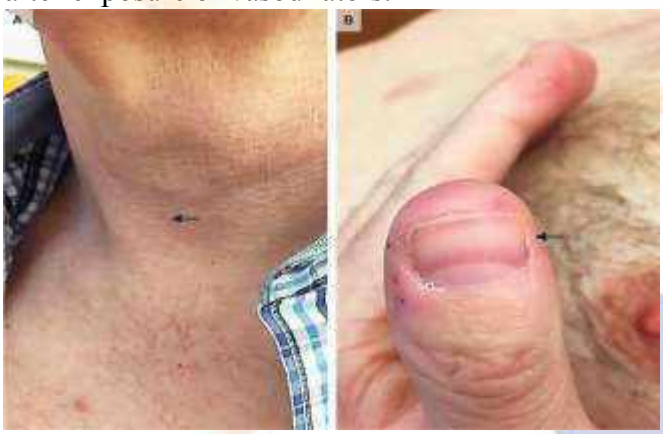
DIASTOLIC MURMUR

Early	Mid	Late
Graham steel murmur	Mitral stenosis murmur	Carey coombs murmur Seen in Rheumatic carditis
Mild Aortic regurgitation Or pulmonic regurgitation	Austin flint murmur (severe aortic regurgitation)	

SYSTOLIC MURMUR

Ejection systolic murmur	Pan systolic murmur	Late systolic murmur
Aortic stenosis	Mitral regurgitation	Mitral valve prolapse
Pulmonary stenosis	Tricuspid regurgitation	

2. A 50 year old male was referred to the cardiology clinic for evaluation of exertional dyspnea. On physical examination his blood pressure was 142/57 mmHg. While the patient was sitting upright, the right carotid artery was visibly pulsatile, with systolic swelling and rapid diastolic collapse. The tip's of the patient's index finger and thumb as well as nail bed of thumb exhibited capillary pulsation. On auscultation a mid diastolic murmur is heard. What happens to this murmur after exposure of vasodilators.



A. Accentuated
B. Longer duration
C. Shorter duration
D. Softer

Answer : D

The diagnosis in this case is Aortic Regurgitation (AR).

Other important signs and their descriptions:
Corrigan pulse : Rapid and forceful distention of arterial pulse with quick collapse
Quincke sign : Capillary pulsations seen on light compression of nail bed.
Traube sign : Systolic and diastolic sounds (pistol shots) over the femoral artery
Duroziez sign : Bruits heard over femoral artery.

The mid diastolic murmur seen in Aortic Regurgitation is Austin Flint murmur.

Aortic regurgitation leads to increase in Left ventricular pressure and the blood hits the anterior leaflet of mitral valve and vibrations are produced known as Austin flint murmur.

Vasodilators dilate aorta and pressure decreases in aorta therefore less blood flows back and murmur is softer.

Low Diastolic BP values are seen in

1. Aortic Regurgitation
2. A-V malformation
3. Aortic dissection

Extra mile :

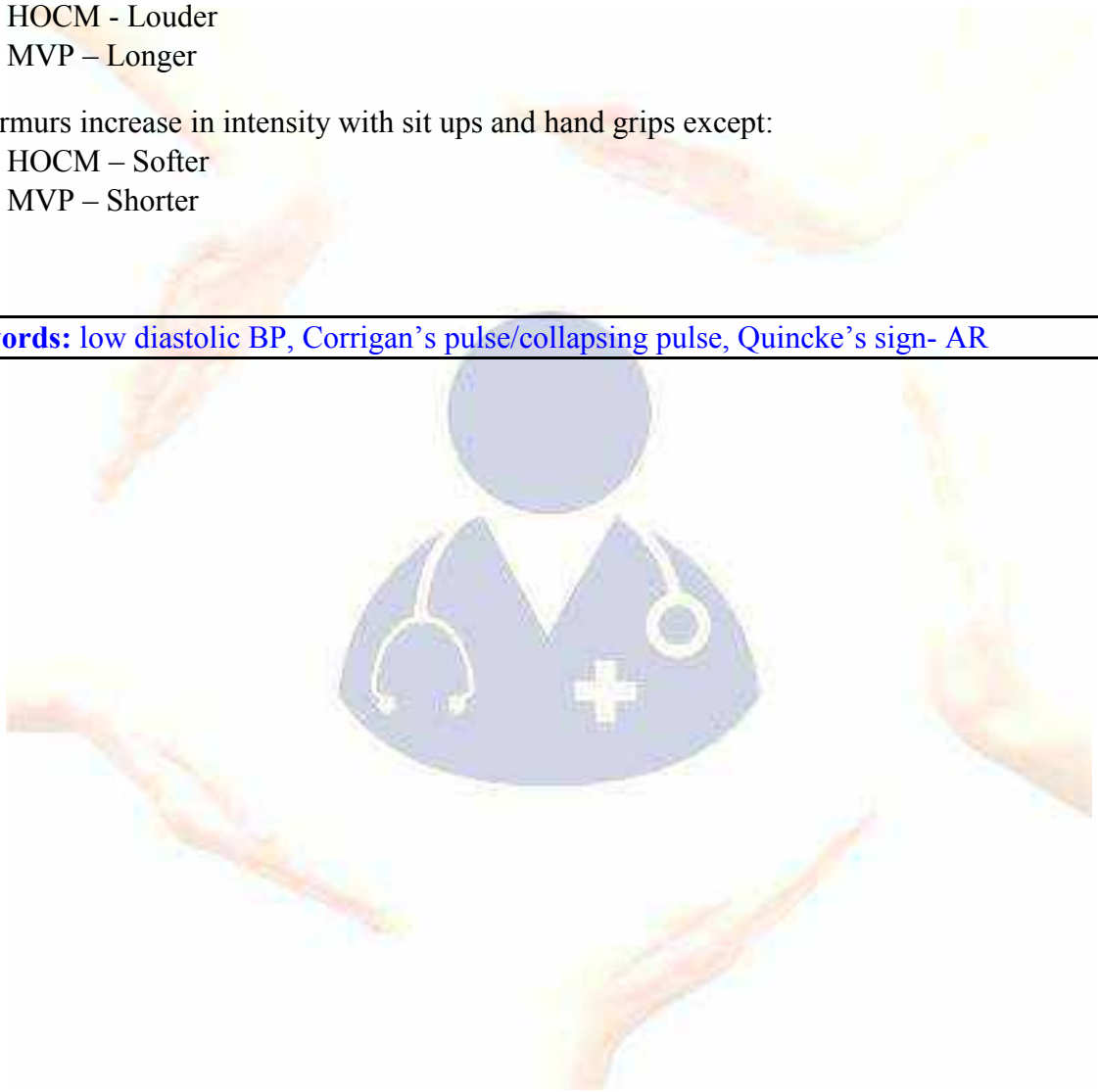
All murmurs decrease in intensity with valsalva, standing and amyl nitrate inhalation except:

1. HOCM - Louder
2. MVP – Longer

All murmurs increase in intensity with sit ups and hand grips except:

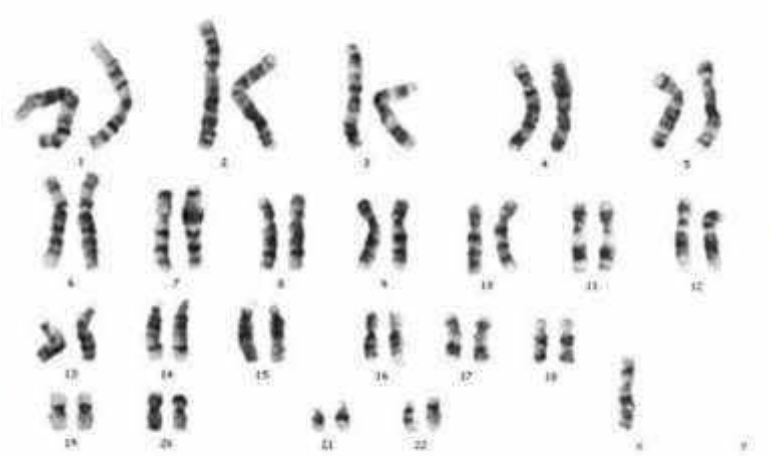
1. HOCM – Softer
2. MVP – Shorter

Keywords: low diastolic BP, Corrigan's pulse/collapsing pulse, Quincke's sign- AR



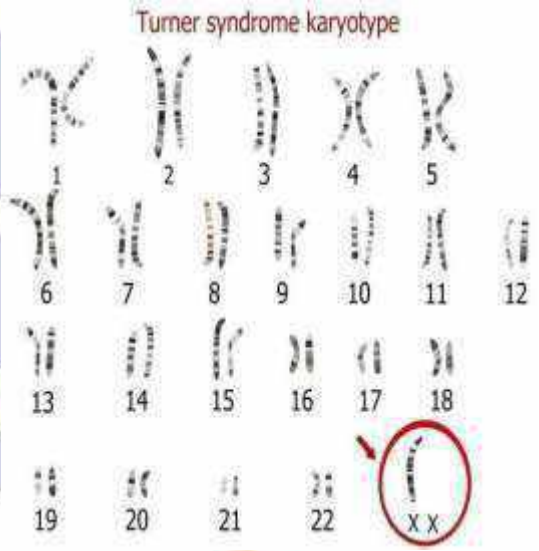
3. A 13 year old girl is brought with short stature, short webbed neck and widely spaced nipples and the diagnosis was confirmed after karyotyping. What is the cardiac anomaly this girl is most likely to present?

A. Atrial septal defect
B. Coarctation of aorta
C. Patent ductus arteriosus
D. Tetralogy of fallot



Answer : B

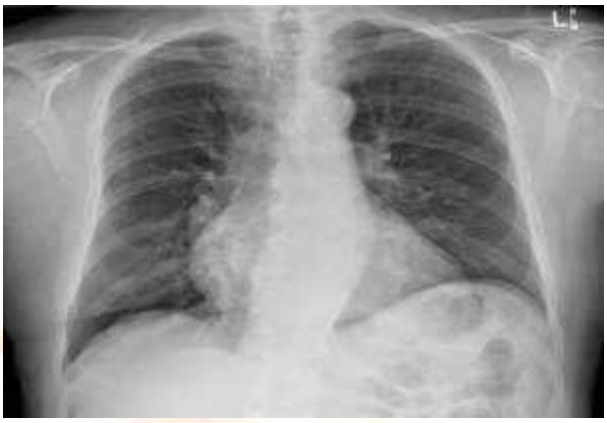
The diagnosis is Turner's syndrome : short stature, short webbed neck, broad chest with widely spaced nipples. Other features include low posterior hairline gonadal dysgenesis infertility and primary amenorrhea.



The associated cardiac anomaly in Turner's syndrome is Bicuspid aortic valve > Coarctation of aorta.

Keywords: Turners syndrome- short stature, short webbed neck, widely spaced nipples Cardiac anomaly in Turners- bicuspid aortic valve> coarctation of aorta

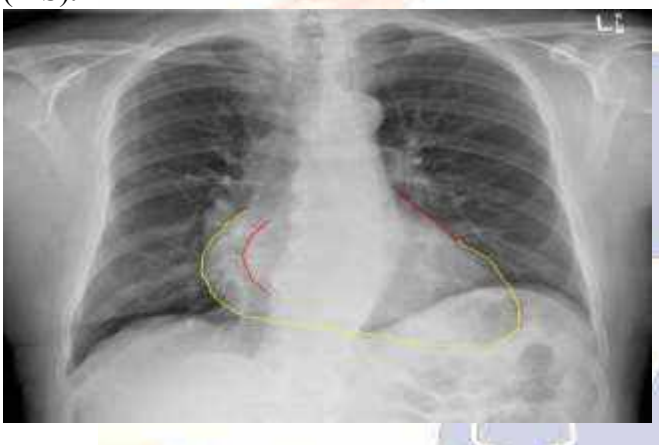
4. Chest X-ray was done for a 60 year old man who presented with chest heaviness and shortness of breath. Which is incorrect about this patient?



A. Reverse split S1
B. Carey coombs murmur
C. straightening of left heart border
D. Seagull murmur

Answer : D

The diagnosis in this case is Mitral Stenosis (MS)**.**



Left atrial enlargement is depicted by straightening of the left cardiac border (red) and a double right heart border (red). The remaining cardiac silhouette is outlined in yellow. This points to the diagnosis of Mitral Stenosis.
Therefore option C is correct as straightening of the left heart border is seen in mitral stenosis.

Option A: Mitral valve stenosis leads to slow transit of blood from LA to LV and therefore it may lead to delayed closure of mitral valve. There may come a point where both mitral and tricuspid valves may close at same time which is referred to as single S1. If patient is still not treated then there may be reversal of S1 i.e. T1M1

Option B : Carey coombs murmur is characteristic murmur of rheumatic etiology which is the most common cause of Mitral stenosis

Option D: seagull murmur is an early diastolic murmur and it is a feature of Mild Aortic Regurgitation.

Keywords: mitral stenosis- straightening of left cardiac border, double right border, reverse split S1

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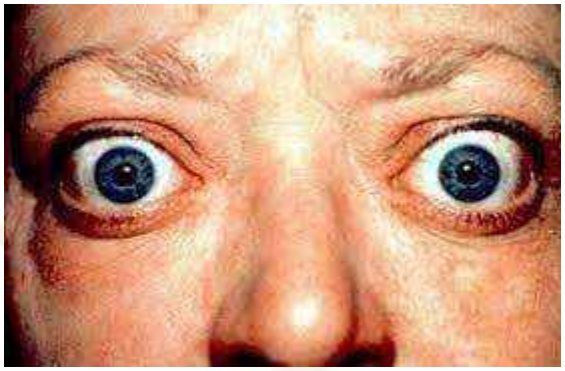
5.A 28 year old female presents with a history of 9 kg weight loss in the last 3 months despite an increased appetite. She also complains of diarrhea, anxiety and amenorrhea. Examination reveals fine tremor, brisk reflexes and systolic murmur is heard throughout the precordium.Her urine pregnancy test came negative. What is the most likely finding on examining the pulse?

A. Pulsus alternans
B. Irregularly irregular pulse
C. Pulsus paradoxus
D. Collapsing pulse



Answer : B

The diagnosis in this case is thyrotoxicosis. Female, weight-loss despite an increase in appetite, amenorrhea, tremors and brisk reflexes all point towards thyrotoxicosis.

Thyrotoxicosis can be associated with Atrial fibrillation and therefore irregularly irregular pulse can be a presentation of thyrotoxicosis.

Option A: Pulsus alternans is a feature of left ventricular failure.

Option C: Pulsus paradoxus is a feature of Cardiac Tamponade.

Option D: Collapsing or corrigan's pulse is a feature of Aortic Regurgitation.

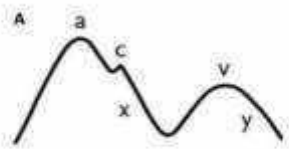
Extra mile:

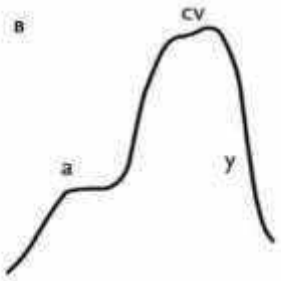
ABCD of pulse:

A	Pulsus Alternans Anacrotic pulse	Left ventricular failure Aortic stenosis
B	Pulsus bisferiens	HOCM
C	Corrigan/collapsing	Aortic Regurgitation
D	Dicrotic pulse	Dilated cardiomyopathy

6. A 30 year old male who is i.v drug user presented with a history of worsening lethargy and confusion. O/E- PR: 130 bpm and BP: 120/80, raised JVP and large "v" waves and a large systolic murmur. A palpable, pulsatile liver is felt when hepato-jugular examination is attempted. What type of murmur is most fitting with this patient's presentation

A. Pulmonary stenosis
B. Functional Murmur
C. Tricuspid stenosis
D. Tricuspid regurgitation





Answer: D

The diagnosis is Tricuspid Regurgitation.

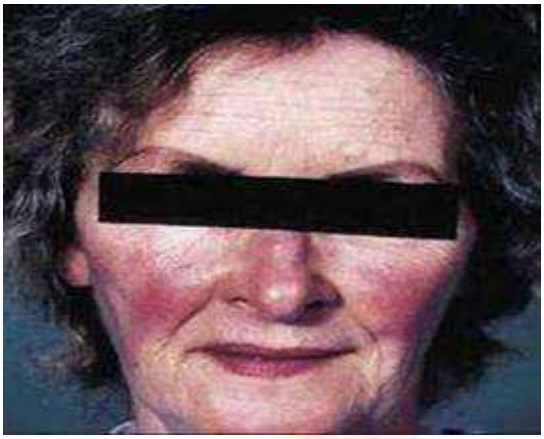
Findings in Tricuspid Regurgitation:
JVP: Absent x wave
Large V wave (CV wave) – Lancisi sign
Steep y descent
Hepatomegaly, pulsatile liver.
Pansystolic murmur which increases with inspiration known as Carvallo sign.

Fig A: Normal JVP
Fig B: JVP of Tricuspid Regurgitation

Extra mile:

Tricuspid stenosis	Tricuspid Regurgitation	Pulmonary stenosis	Pulmonary Regurgitation
Large a wave, Blunted y	Large v wave Steep y descent	Large a wave	Large a wave
Mid diastolic murmur	Pansystolic murmur	Ejection systolic murmur	Graham steel murmur

7.A 53 year old comes to your OPD with this presentation. What is your diagnosis?



A. Aortic regurgitation
B. Aortic stenosis
C. Mitral stenosis
D. Mitral regurgitation

Answer: C

The diagnosis is Mitral Stenosis.

The given image shows mitral facies which is a feature of mitral stenosis.

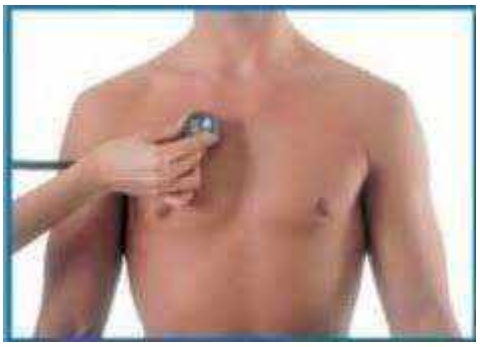
In severe mitral stenosis low cardiac output produces vasoconstriction, peripheral cyanosis which is seen in lips, tip of nose and cheeks.

Occasionally along with these malar flush is seen due to vasodilation (vascular stasis) in malar area

Leading to rosy cheeks while the rest of the face has a bluish tinge due to cyanosis.

Keywords: Mitral Stenosis-mitral facies/malar flush

8. In the picture which area is being auscultated?



A. Aortic area
B. Pulmonic area
C. Mitral areal
D. Tricuspid area

Answer: A

The image represents that aortic area is being auscultated as the stethoscope is placed on the right 2nd intercostal area just lateral to the sternal border.

Aortic area: between 2nd and 3rd intercostal spaces at the right upper sternal border.

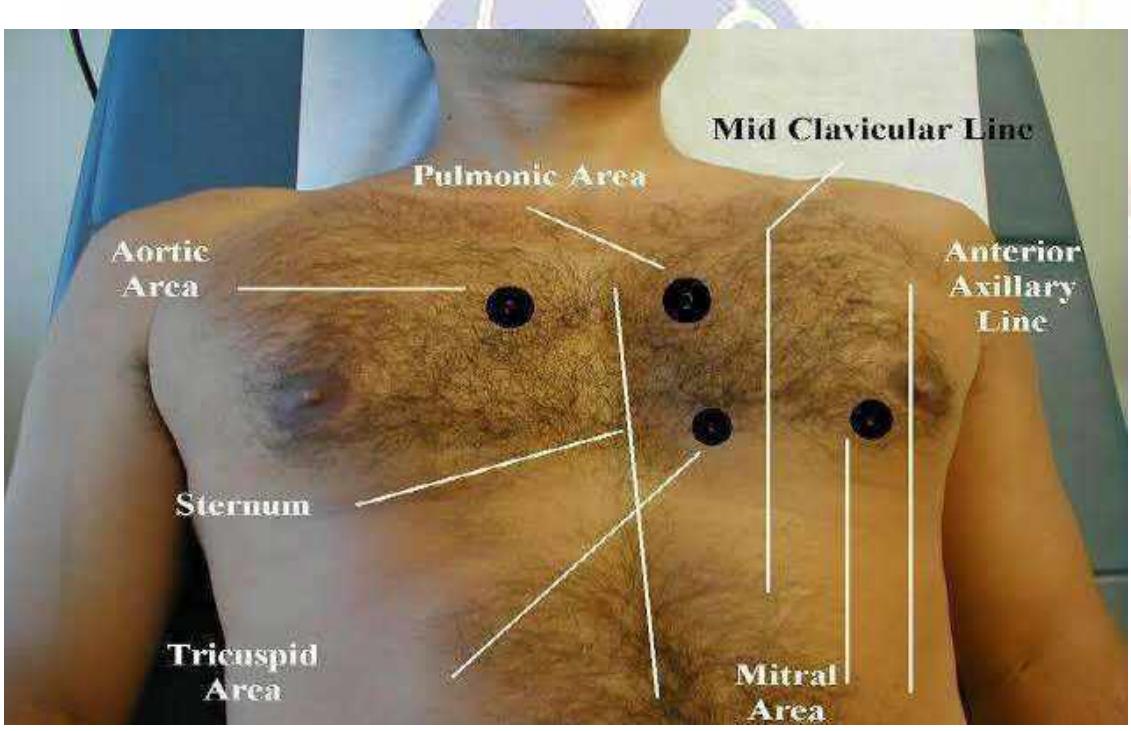
Pulmonic area: between 2nd and 3rd intercostal spaces at the left upper sternal border.

Mitral area: between 5th and 6th intercostal spaces in the mid clavicular line (apex of heart).

Tricuspid area: between 3rd, 4th, 5th and 6th intercostal spaces at the left lower sternal border.

Extra mile:

MNEMONIC – All Patients Take Medicine



9.A young asymptomatic female is observed to have a mid systolic click on routine examination. Valves are likely to show?

A. Myxomatous degeneration
B. Aschoff bodies
C. Calcific degeneration
D. Ruptured chordae tendineae

Answer: A

The diagnosis in this case is Mitral Valve Prolapse (MVP) aka Barlow's syndrome or floppy valve syndrome.
Presence of mid systolic click in an asymptomatic female suggests a diagnosis of MVP which is associated with myxomatous degeneration of mitral valves

Ruptured chordae tendineae may be seen in mitral valve prolapse but these patients are usually symptomatic with significant Mitral Regurgitation.

Keywords: young asymptomatic female with mid systolic click-MVP

10. A 60 year old man with severe myxomatous mitral regurgitation is asymptomatic with a left ventricular ejection fraction of 50% and an end systolic diameter index of 2.9cm/m^2. The most appropriate treatment is?

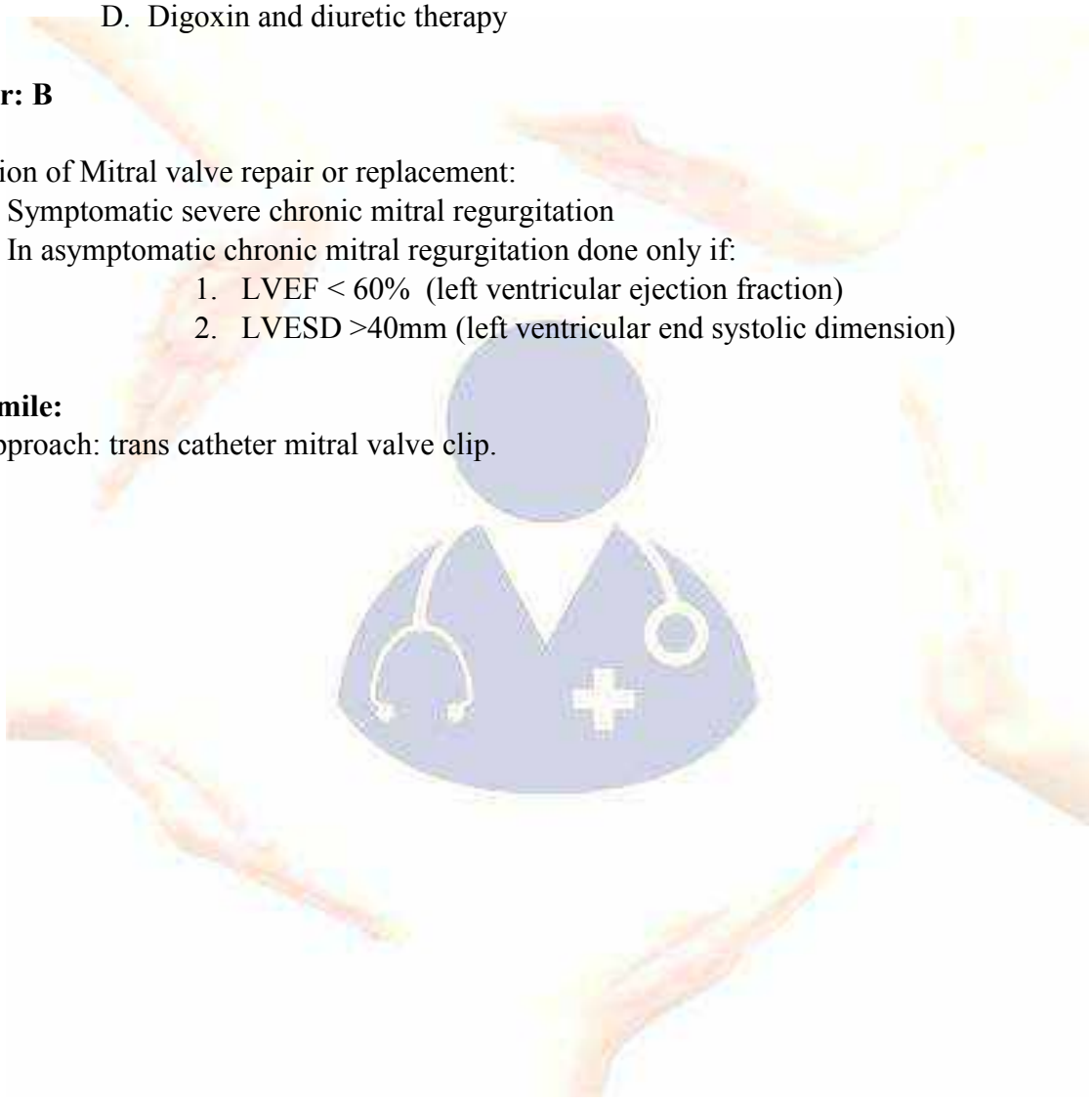
    A. No treatment
    B. Mitral valve repair or replacement
    C. ACE inhibitor therapy
    D. Digoxin and diuretic therapy

Answer: B

Indication of Mitral valve repair or replacement:

1. Symptomatic severe chronic mitral regurgitation
2. In asymptomatic chronic mitral regurgitation done only if:
    1. LVEF < 60% (left ventricular ejection fraction)
    2. LVESD >40mm (left ventricular end systolic dimension)

Extra mile:
New approach: trans catheter mitral valve clip.



11. A multiparous woman who delivered normally 2 weeks ago suddenly developed dyspnea with cardiac failure. She has no history of cardiac disease. She had tachycardia and peripheraledema. Her hemoglobin was 9 gm/dl. Her echo revealed an ejection fraction of 35%. What is the most likely diagnosis?

    A. Acute MI
    B. Deep vein thrombosis with pulmonary embolism
    C. Peripartum cardiomyopathy
    D. Amniotic fluid embolism

Answer: C

The diagnosis is Peripartum cardiomyopathy (PPCM)

PPCM is diagnosed when the following 3 criteria are met:

1. Heart failure develops in the last month of pregnancy or within 5 months of delivery.
2. Ejection fraction < 45%.
3. No other cause for heart failure with reduced EF can be found.

Option A: Acute MI is ruled out as chest pain at rest, elevated cardiac-markers or ECG changes are not present.

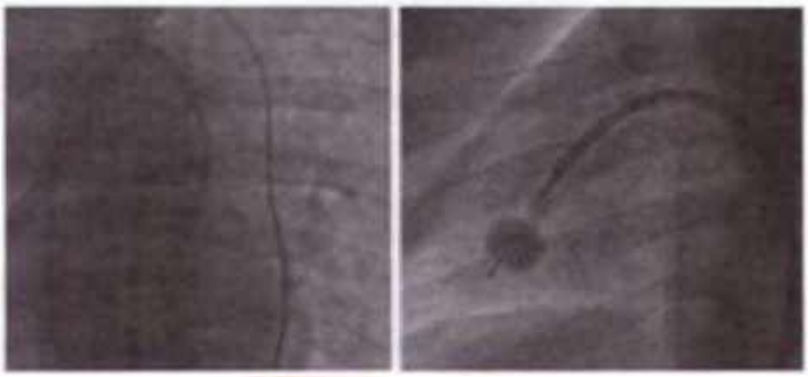
Option B: DVT with PE develops suddenly and is a close answer but point against echo finding of only low EF. In PE, echo shows right ventricular dyskinesia with or without tricuspid regurgitation. The interventricular septal deviation is also seen.

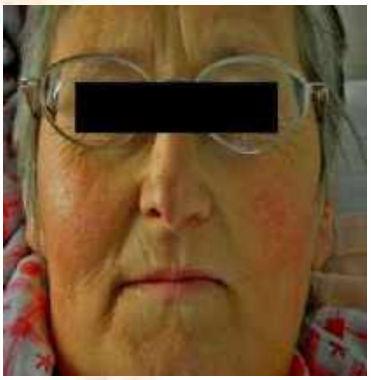
Option D: Amniotic embolism is ruled out as it occurs immediately during active labour.

Keywords: cardiac failure in last month of pregnancy or within 5 months of delivery, no history of cardiac disease, EF <45%

12. Which is the valvular lesion being repaired in this 45 year old female with malar flush?

A. Mitral regurgitation
B. Mitral stenosis
C. Aortic stenosis
D. Aortic regurgitation





Answer: B

The image shows a percutaneous balloon valvotomy procedure being performed.
Malar flush mentioned in question points towards mitral facies which is seen in mitral stenosis.
Orifice of mitral valve <1.5 cm^2 (severe MS) < 1cm^2 (critical MS) : procedure of choice is
Percutaneous mitral balloon valvotomy (PMBV)

Options A and D are ruled out since the procedure is valvotomy which worsens regurgitations

Option C: Surgical treatment in aortic stenosis – Trans catheter aortic valve replacement due to high chances of calcification of aortic valve

13. A man with chronic alcoholism is most likely to develop which type of cardiomyopathy?

    A. Pericarditis
    B. Myocarditis
    C. Hypertrophic cardiomyopathy
    D. Dilated cardiomyopathy

Answer: D

Most common cause of DCM - Alcohol

Most common cause of HOCM - Autosomal dominant, Ch 14, β myosin gene involved

Most common cause of RCM - Amyloidosis

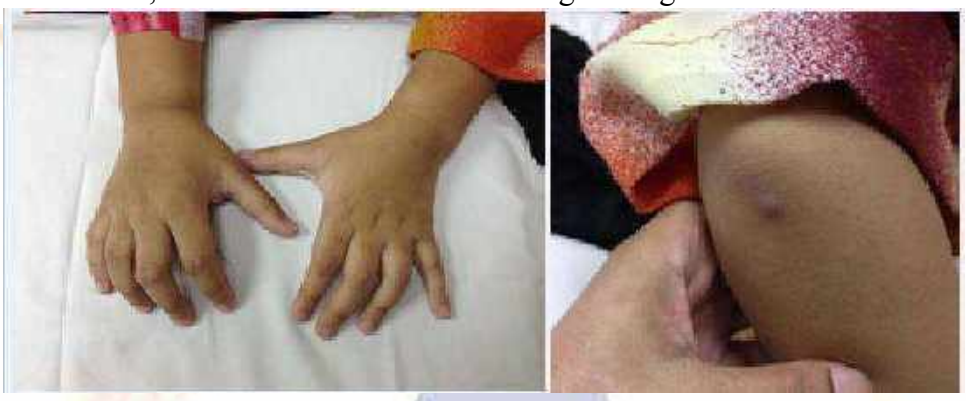
Most common cause of Takotsubo cardiomyopathy – Catecholamine toxicity.

Extra mile:

Holiday heart syndrome **:** An acute cardiac rhythm and/or conduction disturbance associated with heavy alcohol consumption (binge drinking) in a person without other clinical evidence of heart disease.

RHEUMATIC HEART DISEASE, INFECTIVE ENDOCARDITIS AND CHF

14. A 6 year old boy has been having fever of 39 degree Celsius, the parents have noticed swelling in his ankles which then disappeared and appeared back in his knee joint. The parents also recalled that the child had a recent throat infection. On physical examination, the doctor noticed the following findings.



Lab findings showed elevated ASO titers and acute-phase reactants. In order to prevent development of further episodes of the condition, the doctor prescribed Penicillin V as a secondary prophylaxis. How long should the boy be taking this medication?

A. Life long
B. Next 5 years
C. 21 years of age
D. Next 10 years

Answer: C

Based on the Jones criteria, the patient is diagnosed with rheumatic fever without any cardiac involvement. According to AHA, the recommended duration of secondary prophylaxis for a patient having rheumatic fever without carditis is 5 years after the last attack or 21 years of age (whichever is longer). The patient is 6 years old only. Therefore the duration of prophylaxis must be until he is 21 years old and option B can be ruled out by this also.

Option A- Life long treatment can be given to patients of rheumatic fever with persistent valvular disease. Since there is no evidence of cardiac involvement in the question, this option can be ruled out.

Option D- Next 10 years can be the right answer if the patient has rheumatic fever with carditis. Therefore this option can be ruled out.

Keywords: age, recent throat infection, fever, joint pain which is migratory, subcutaneous nodule, elevated ASO titers and no evidence of cardiac involvement.

15.A 10 year old girl came in due to involuntary hand movements. Upon taking history, the parents told that her handwriting is getting worse and that her grades have come down. The child was suffering from joint pains which were associated with fever 6 months ago. On examination, the child moves her hands frequently and erratically. ASO titers were normal. The doctor explained to the parents that this is Sydenham's chorea which is a late neurological feature of rheumatic fever. What is the treatment of choice for medically refractory chorea?

A. No treatment is required
B. Carbamazepine
C. Haloperidol
D. IVIg

Answer: D

Sydenham's chorea commonly occurs in the absence of other manifestations, follows a prolonged latent period after group A streptococcal infection, and is found mainly in females. The choreiform movements affect particularly the head and upper limbs. Though it can resolve on its own, medications like valproate, phenobarbitone, steroids can be given for symptoms to subside. In cases of severe chorea refractory to other treatments, IVIg is considered the treatment of choice.

Option A-This usually resolves within 6 weeks but sometimes may take up to 6 months. This could be the answer in cases of mild chorea which can be managed just by providing a calm environment.

Option B and C-Carbamazepine/sodium valproate/haloperidol can be given for severe chorea.

Keywords: involuntary hand movements, poor handwriting, ASO titers normal (since chorea is a late neurological feature, ASO titers normalize by the time of diagnosis)

16. A 14 year old female from Uttar Pradesh, India came in with the history of recurrent sore throats which started 3 weeks ago. She also complains of chest pain and tender joints which was migrating from one joint to another. On examination, there was (+) pericardial friction rub and ECG showed P-R interval prolongation. Antistreptolysin O titer is 400 Todd units/Ml. Which of the following is incorrect regarding the criteria used to diagnose this condition?

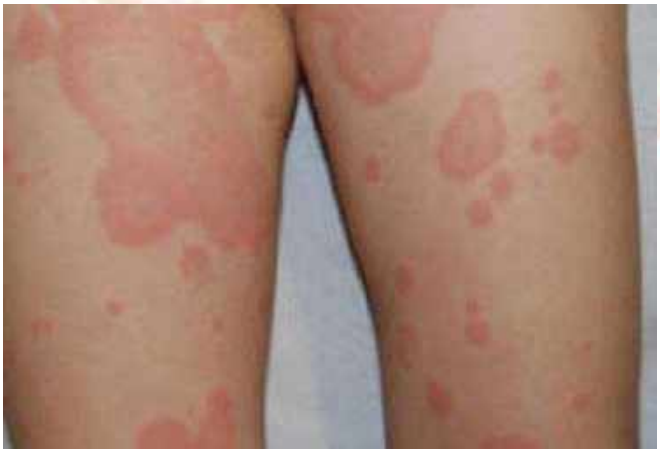
A. Polyarthritis must be present to diagnose arthritis
B. ESR >30 mm/h
C. CRP >3 mg/d
D. Erythema marginatum

Answer: A

According to the 2015 update of Revised Jones Criteria, India is categorized under moderatehigh risk populations.
These are the changes made for moderate-high risk populations:
-even involvement of a single joint is sufficient: arthritis/arthralgia (low-risk populations polyarthritis/polyarthralgia)
-fever >38 degree Celsius (low-risk population ≥38.5 degree Celsius)
-ESR ≥ 30 mm/h (low-risk populations ≥60 mm/h)

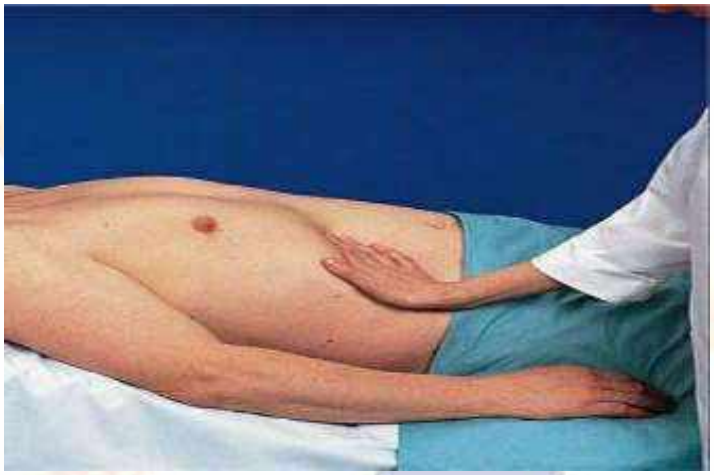
Option B and C are correct as India falls under moderate-high risk populations.

Option D- Erythema marginatum is a common criteria for both low and moderate-high risk populations. This begins as pink macules that clear centrally, leaving a serpiginous, spreading edge as shown in the image below. It occurs usually on the trunk, sometimes on the limbs, but never on the face.



Keywords: India, recurrent sore throat, migratory joint pain, chest pain, (+) pericardial friction rub which implies pericarditis, P-R interval prolongation (can occur when myocardial inflammation affects electrical conduction pathways) and elevated ASO titers.

17. A 60 year old came with the complaint of easy fatigability and shortness of breath. He says it worsens when he lies down. After checking his vitals, the physician notices that his extremities are cool and he decides to perform the maneuver shown in the following image. Identify.



A. McBurney's test
B. Murphy's test
C. Abdominojugular reflux test
D. Test for checking hepatomegaly

Answer: C

In the given image, the examiner is applying sustained (~15 seconds) pressure on the abdomen to check for abnormal elevation of jugular venous pressure.
In the early stages of heart failure, the venous pressure may be normal at rest but may become abnormally elevated with sustained pressure. This is called positive abdominojugular reflux.

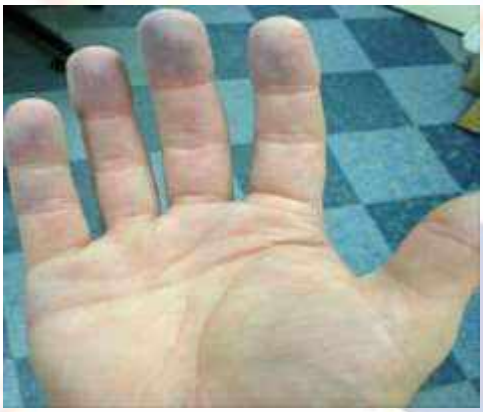
Option A- McBurney's test is done to diagnose appendicitis and the test is done over the right side of abdomen, one-third of the distance from the anterior superior iliac spine to the umbilicus.

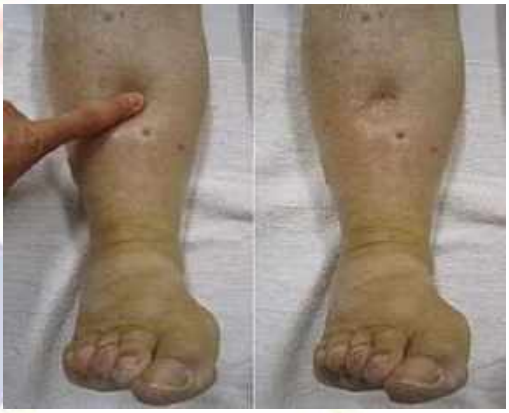
Option B- Murphy's test is done to diagnose acute cholecystitis where the patient is asked to take a deep breath. The given history clearly points out that it is a case of heart failure. Therefore this can be ruled out.

Option D- Hepatomegaly can be assessed during palpation of the abdomen. There is no role of applying sustained pressure.

Keywords: easy fatigability, shortness of breath, orthopnea are important symptoms seen in heart failure patients. Raised JVP, Kussmaul sign (raised JVP on inspiration),(+) abdominojugular reflux, B/L pitting pedal edema, B/L fine crepitations - heart failure.

18. A 52 year old female came to the Emergency Room with labored breathing. She was not able
to complete a sentence due to shortness of breath. Her vitals were checked, and she was given supportive treatment after which she stabilized. The patient claimed that she was not able to sleep for the last few days because of a cough. The physical exam showed the following findings in the images below. On auscultation, there were bilateral fine crepitations. The doctor orders for a biomarker. Which of the following biomarkers would help in the diagnosis of patients with heart failure?





A. LDH-1
B. Myoglobin
C. BNP
D. Troponin

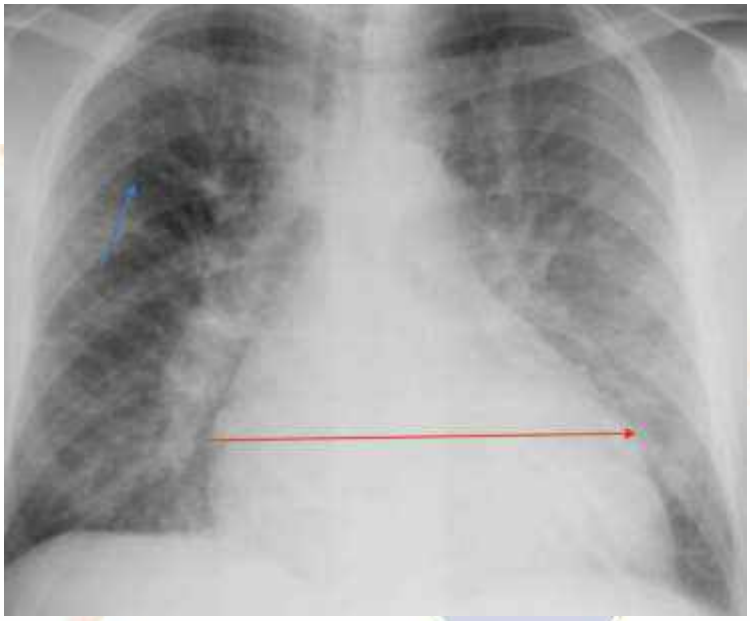
Answer: C

Circulating levels of natriuretic peptides are useful and important adjunctive tools in the diagnosis of heart failure. Both B-type natriuretic peptide (BNP) and N-terminal pro-BNP (NTproBNP),which are released from the failing heart, are relatively sensitive biomarkers for the presence of heart failure. They are also helpful in ruling out non-cardiogenic causes of heart failure.

Option A,B and D- are useful in the diagnosis of myocardial infarction and therefore are ruled out.

Keywords:labored breathing, unable to complete a sentence, cyanosis, nocturnal cough, bilateral fine crepitations.

19. A 67 year old man with a history of chronic hypertension came in with difficulty of breathing. A chest x-ray was done and findings are in the image below. The following are included in the management of this patient except?



A. Morphine
B. Oxygen
C. Placing him in Trendelenburg position
D. Nitroglycerine

Answer: C

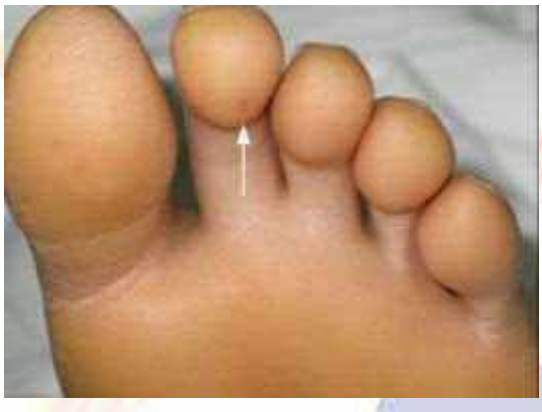
The chest x-ray clearly shows an increase in the CT ratio (red arrow) and the presence of Kerley B lines which are thickened interlobular septa (blue arrow). Both are suggestive of acute pulmonary edema. Placing the patient in Trendelenburg position would only worsen the condition. Therefore, reverse Trendelenburg would be helpful.

Option A,B and D are given for acute pulmonary edema treatment. Morphine is given to reduce the edema, Oxygen is given through non-invasive ventilation and Nitroglycerine acts by reducing the preload and afterload.

Keywords: Treatment of acute pulmonary edema in congestive heart failure can be remembered by the mnemonic LMNOP.

Lasix
Morphine
Nitroglycerin
Oxygen
Position (reverse Trendelenburg)

20. A 32 year old female was brought to the hospital with a history of high grade fever for two weeks and weight loss over the last two months. Her BP was 126/70 mm Hg and pulse was regular with the rate of 90/min. Upon examination, a new holosystolic murmur which was best heard over the cardiac apex was present. On palpation, splenomegaly was present. Skin examination showed the following finding given in the image below. The following are true about the lesion except?



A. Mostly occur in fingertips and toes
B. Non-tender
C. Occurs due to immune complex deposition
D. Falls under minor criteria

Answer: B

The image given above depicts Osler nodes. They fall under immunologic phenomena under the minor category of Duke's criteria. They are painful, violaceous nodules seen on the pulp of fingers and toes. They are formed due to immune complex deposition in the skin.

Option A,C and D are true statements regarding Osler nodes.

Keywords:high grade fever for two weeks, weight loss, new regurgitant murmur, splenomegaly, Osler nodes.
Other possible important findings in infective endocarditis- Roth spots, Janeway lesions, subungual hemorrhages.

21. A 45 year old female who is diagnosed with rheumatic heart disease came with the complaint of fever for more than 2 weeks. On examination, the splenic tip was palpable. NS1 negative, Widal test negative. What will be your first differential?

A. Portal hypertension
B. Infective endocarditis
C. SLE
D. Amyloidosis

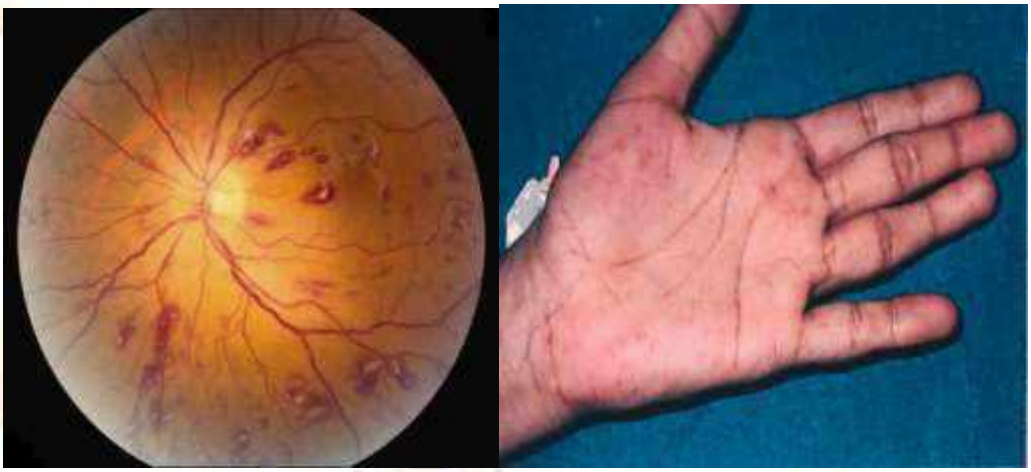
Answer: B

Vegetations may embolize to the systemic circulation and may reach the spleen causing abscess there which may be palpable on examination. Infective endocarditis is more common among patients with pre-existing heart diseases. Almost 15-50 % of patients have splenomegaly.

Option A,C and D- these conditions have splenomegaly as a manifestation. However, with the given history our first differential will be infective endocarditis.

Keywords: pre-existing heart disease, fever for more than 2 weeks, (+)splenomegaly

22. A 39 year old female came due to intermittent high grade fever, chills, dyspnea and cough for the past two weeks. Her BP was 110/80 mmHg and pulse rate 109/min. In addition, she had multiple non-tender macular spots over hands and feet. Fundus examination showed the following finding. Echocardiography showed the presence of vegetations in the mitral valve. A culture test was done which came out to be negative. The physician prescribed Ceftriaxone 2g/d IV as a single dose for 4 weeks. What could be the causative organism in this patient?



A. Staphylococcus aureus
B. Streptococcus viridans
C. Coagulase negative staphylococcus
D. Cardiobacterium hominis

Answer: D

Cardiobacterium hominis comes under the HACEK group which are responsible for culture negative endocarditis. They can be treated with third generation cephalosporin.

Option A-Staphylococcus aureus is overall the most common organism causing infective endocarditis. It is also the most common cause for hospital acquired endocarditis, endocarditis among IV drug abusers and right-sided endocarditis.

Option B-Streptococcus viridans is responsible for causing subacute bacterial endocarditis and endocarditis after dental procedures.

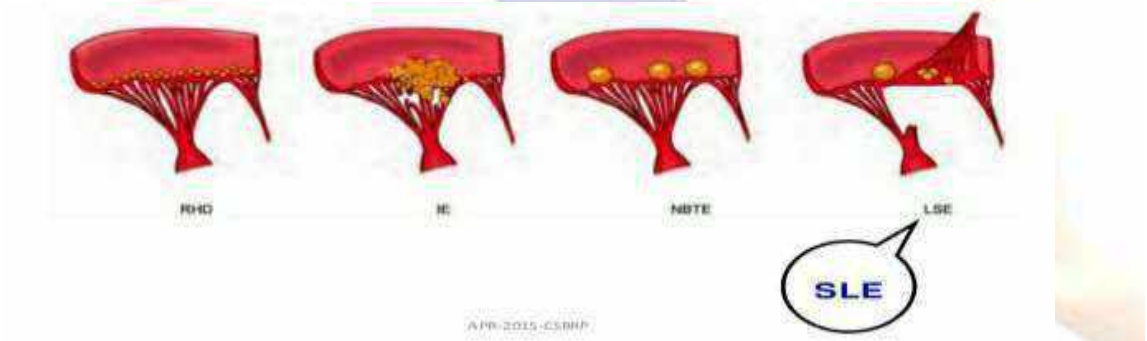
Option C- Coagulase negative staphylococcus causes early prosthetic valve endocarditis (less than 60 days)

23. A 17 year old female with a history of pleuritic chest pain and joint pains came to her doctor because she noticed an erythematous rash on her face. Further workup showed a positive antinuclear antibodies (ANA) titer, anemia, leukopenia and mild thrombocytopenia. The liver and renal profiles are within normal range. Echocardiography revealed vegetations present in the undersurface of valves. Which type of endocarditis is seen in this condition?

A. Nonbacterial thrombotic endocarditis (NBTE)
B. Infective endocarditis
C. Libman-sacks endocarditis
D. Rheumatic heart disease

Answer: C

The history clearly gives us the diagnosis of Systemic Lupus Erythematosus (SLE). Libmansacks endocarditis is a form of non-bacterial endocarditis that is associated with this condition. It has a predilection towards the undersurface of heart valves, thereby damaging the chordae tendineae.



Option A- NBTE has sterile vegetations which are small, warty and are present along the lateral surface. They can be seen in malignancies.

Option B- In infective endocarditis the vegetations are large, bulky and irregular. They are present in valve cusps.

Option D-In RHD, small, warty, firm and sterile vegetations are seen along the lines of closure.

Keywords:17 years old, female, butterfly rash on face, pleuritic chest pain, joint pain, (+) ANA, anemia, leucopenia, thrombocytopenia and Libman-sacks endocarditis are seen in SLE.

24. A 56 year old female presents to the emergency department with chest pain, fever, fatigue, and arthralgia. Her past medical history is significant for dilated cardiomyopathy and a dental procedure just a few weeks before treatment. The most likely organism that would cause endocarditis in this patient will be?

A. Lactobacillus spp.
B. Streptococcus viridans
C. Enterococci
D. Eikenella corrodens

Answer: B

The primary portal for Streptococcus viridans is the oral cavity. Since the patient already has a history of dilated cardiomyopathy and underwent a dental procedure just a few weeks before, there is a high risk for bacterial seeding in the heart valves and development of infective endocarditis.

Option A-Sporadic cases can be caused by unusual organisms such as Lactobacillus and Corynebacterium species.

Option C-Enterococci as a pathogen in endocarditis are becoming more prevalent in elderly patients with heart valve disease, prosthetic valves and gastrointestinal or urogenital tracts.

Option D- Eikenella comes under the HACEK group which is responsible for culture negative endocarditis. They can be treated with third generation cephalosporin.

Keywords:past history of pre-existing heart disease and dental procedure.

25. A 6 year old girl was rushed to the emergency department with a heart rate of 40/min. Her elder brother claims that he saw her playing with her father's Digoxin medication bottle. What will be the drug of choice for digoxin overdose?

A. Lidocaine
B. Magnesium
C. Digibind
D. Phenytoin

Answer: C

Digoxin acts by blocking Na-K ATPase, thereby increasing contraction. It also has a vagomimetic action, decreasing heart rate. The most common side effects are nausea and vomiting. Digoxin toxicity causes arrhythmias. The drug of choice in severe, massive overdose of digoxin is Digibind (Digoxin antibody).

Option A,B and D-They are used in moderate over dosage associated with increased automaticity.

Keywords: Digoxin toxicity causes sinus arrest and ventricular bradycardia.

26. A 68 year old male with dilated cardiomyopathy remains symptomatic in NYHA class 2 due to chronic heart failure. On examination his pulse is regular, 95/min, BP 135/90 mmHg, auscultation did not reveal any abnormalities. Which of the following drugs is responsible for increasing the survival of the patient?

A. Milrinone
B. Furosemide
C. Losartan
D. Dobutamine

Answer: C

Losartan comes under Angiotensin Receptor Blockers (ARBs) which block the RAAS, thereby reducing the workload on the heart which will help in the survival of chronic heart failure patients.

Option A- Milrinone is a phosphodiesterase 3 inhibitor (PDE 3 inhibitor)

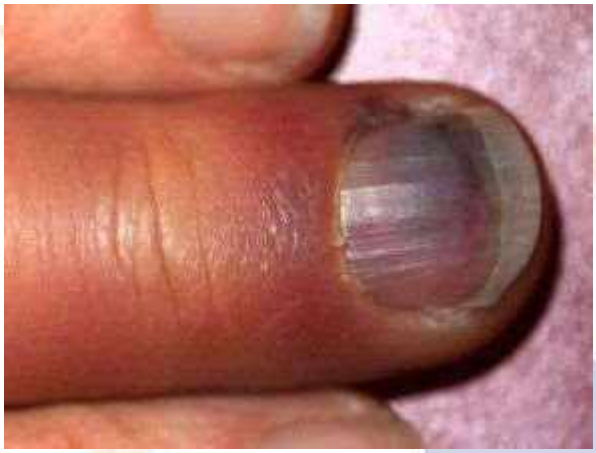
Option B-Furosemide is a loop diuretic and is the drug of choice for pulmonary edema with or without congestive heart failure.

Option D-Dobutamine is the inotrope of choice for congestive heart failure patients.

Option A,B and D are used in the management of symptoms in CHF.

Keywords : Beta blockers are contraindicated in acute CHF
ACE inhibitors, ARBs, beta blockers, Spironolactone are important drugs which help in the treatment of chronic CHF thereby increasing survival.

27. A 40 year old patient who had mitral valve replacement recently was admitted with persistent fever, chills and malaise. On physical examination the following was seen. Laboratory results revealed anemia, leukocytosis, elevated ESR,CRP and (+) rheumatoid factor. Based on what criteria do we evaluate and diagnose this patient?



A. Jones criteria
B. Duke criteria
C. Framingham criteria
D. Rifle criteria

Answer: B

Duke criteria is used to diagnose Infective endocarditis and is based on clinical, laboratory, and echocardiographic findings commonly encountered in patients with endocarditis.

Option A- Jones criteria is used in the diagnosis of rheumatic fever.

Option C- Framingham criteria is used in the diagnosis of congestive heart failure.

Option D- Rifle criteria is used in the classification of acute kidney injury.

The history given in the question points towards infective endocarditis thereby rules out option A,C and D.

Keywords: recent mitral valve replacement done, persistent fever, subungual hemorrhage (image), anemia, elevated ESR,SRP, (+) rheumatoid factor.

For the diagnosis of infective endocarditis,

Documentation of two major criteria, of one major criterion and three minor criteria, or of five minor criteria allows a clinical diagnosis od definite endocarditis.

28. You are walking on the road and a 4 year old girl suddenly collapses before you. As an emergency care provider where should you attempt to perform a pulse check?

A. Carotid artery
B. Femoral artery
C. Brachial artery
D. Both A and B

Answer: D

Carotid artery and femoral arteries are used to perform pulse checks in BLS on children from 1 year of age to puberty.

Option C-Brachial artery is used below 1 year of age.

Keywords: The 2010 AHA guidelines recommend starting CPR before initiating rescue breathing.
The correct sequence of events for BLS:
Assessing the victim → activating emergency medical services →rapid use of an

ECG AND ARRHYTHMIAS

29. A 42-year-old male with no past cardiovascular medical history comes to the ED with a complaint of shortness of breath and lower extremity edema for 1 month. He is afebrile with a heart rate of 160 beats per minute, respirations 20 per minute, blood pressure 140/90 mm Hg and oxygen saturation 92% on room air. His jugular venous pressure is markedly elevated. Lung exam reveals diffuse rales. A II/VI systolic ejection murmur is appreciated at the right upper sternal border. An S3 heart sound is present, and the point of maximal impulse, or PMI, is laterally displaced; no S4 is heard. There is 3+ pitting edema up to his knees. His ECG confirms atrial fibrillation with an uncontrolled ventricular rate. What is the most appropriate initial management?

A. Intravenous amiodarone
B. Intravenous ibutilide
C. Intravenous diltiazem or metoprolol
D. Intravenous digoxin

Answer : C

The patient's heart rate is significantly elevated in the setting of atrial fibrillation, and he is hemodynamically stable; thus, slowing his heart rate with nondihydropyridine calcium channel blockers (diltiazem, verapamil) or beta-blockers is reasonable.

Option A,B And D :Converting his rhythm to sinus is not the initial approach in a hemodynamically-stable patient (amiodarone, ibutilide or direct current cardioversion). Further investigations need to be performed first to determine the etiology prior to restoring sinus rhythm if clinically indicated.

Why not D :Digoxin alone is not generally recommended to lower heart rates in atrial fibrillation and is best used when systolic heart failure is present, but along with beta-blockers.

Keywords: 42 year old, Increased heart rate, hemodynamically stable, ECG confirms atrial fibrillation.

30. Intravenous diltiazem is administered; his heart rate decreases to 80 beats per minute, and his blood pressure is 120/80 mm Hg. Initial laboratory studies reveal an undetectable thyroid stimulating hormone, or TSH, level, and he is found to be markedly hyperthyroid. Endocrinology is consulted and orders oral propranolol to treat the hyperthyroid state. About 30 minutes after the first oral dose, the patient becomes markedly hypotensive, unresponsive and experiences a pulseless electrical activity, or PEA, cardiac arrest. Which of the following statements is true:

A. Propranolol is not safe in general with diltiazem
B. The left ventricular systolic function needed to be known prior to administering nondihydropyridine calcium channel blockers (diltiazem, verapamil) or beta-blockers
C. The patient likely has underlying conduction system disease making him more sensitive to AV blocking agents
D. Amiodarone therapy should have been utilized

Answer – B

This patient has hyperthyroid induced atrial fibrillation. He presented initially with congestive heart failure symptoms (dyspnea, lower extremity edema) and had signs of heart failure on examination (elevated jugular venous pressure, rales in lungs, an S3 heart sound, lower extremity edema). Hyperthyroidism itself can cause systolic heart failure, but a tachycardia-mediated cardiomyopathy could have been present, considering the patient had been experiencing symptoms for 1 month prior to hospitalization.

In general, nondihydropyridine calcium channel blockers (diltiazem, verapamil) or beta-blockers can be given cautiously if there is no suspicion for systolic heart failure, and echocardiography can be done when first available. However, in the above case, there should have been concern for reduced systolic function based on his presentation and physical examination.

Nondihydropyridine calcium channel blockers (diltiazem, verapamil) and beta-blockers (propranolol) are safe to use together as long as systolic heart function is

Option D :Amiodarone therapy is dangerous in the setting of a hyperthyroid state, as it has a large amount of iodine in its chemical structure and can worsen hyperthyroidism.

Keywords: Dyspnea, lower extremity edema suggest heart failure signs, elevated JVP, rale in lungs, S3 Heart sound.

31. A 79-year-old female with chronic hypertension presents with palpitations and dizziness. She is found to be in atrial fibrillation with an uncontrolled ventricular response (heart rate 160 beats per minute). Her blood pressure is 132/82 mm Hg, respirations 18 per minute and she is afebrile. Physical examination is normal, except for the irregularly irregular heart rhythm and tachycardia. Which of the following is the appropriate next step in management?

A. Intravenous amiodarone
B. Emergent direct current cardioversion
C. Intravenous digoxin
D. Intravenous diltiazem or metoprolol
E. Flecainide 300 mg orally once

Answer - D

The initial management in a hemodynamically-stable patient with uncontrolled heart rates from atrial fibrillation is a nondihydropyridine calcium channel blockers (diltiazem, verapamil) or beta-blocker. If heart failure is present, caution is advised until the systolic function (ejection fraction) is known.

Option A :Amiodarone to restore sinus rhythm (rhythm control strategy) is not appropriate in a stable patient when rate controlling has not even been attempted. This drug has many toxicities (see amiodarone toxicity) and should be avoided if possible.

Emergent direct current cardioversion is reserved for hemodynamically-unstable patients (hypotension, chest pain, end-organ hypoperfusion).

Option C :Digoxin alone is not recommended for initial therapy due to less efficacy to lower the heart rate and possible toxicities. If systolic dysfunction is present, it would be a reasonable choice. Digoxin is also frequently used in combination with nondihydropyridine calcium channel blockers (diltiazem, verapamil) or beta-blockers, if they fail to control the heart rate.

Option D :Flecainide 300 mg orally once can be used in “lone atrial fibrillation” patients (no structural heart disease or coronary artery disease); however, this is not a good initial management strategy until further testing (echocardiography, stress testing) has been performed. Flecainide and other class IC antiarrhythmic drugs must be given in combination with an AV blocking drug (nondihydropyridine calcium channel blockers, beta-blockers or digoxin) in order to prevent rapid conduction of atrial activity through the AV node to the ventricles.

Keywords: Chronic Hypertension, palpitation, irregularly irregularly heart rhythm

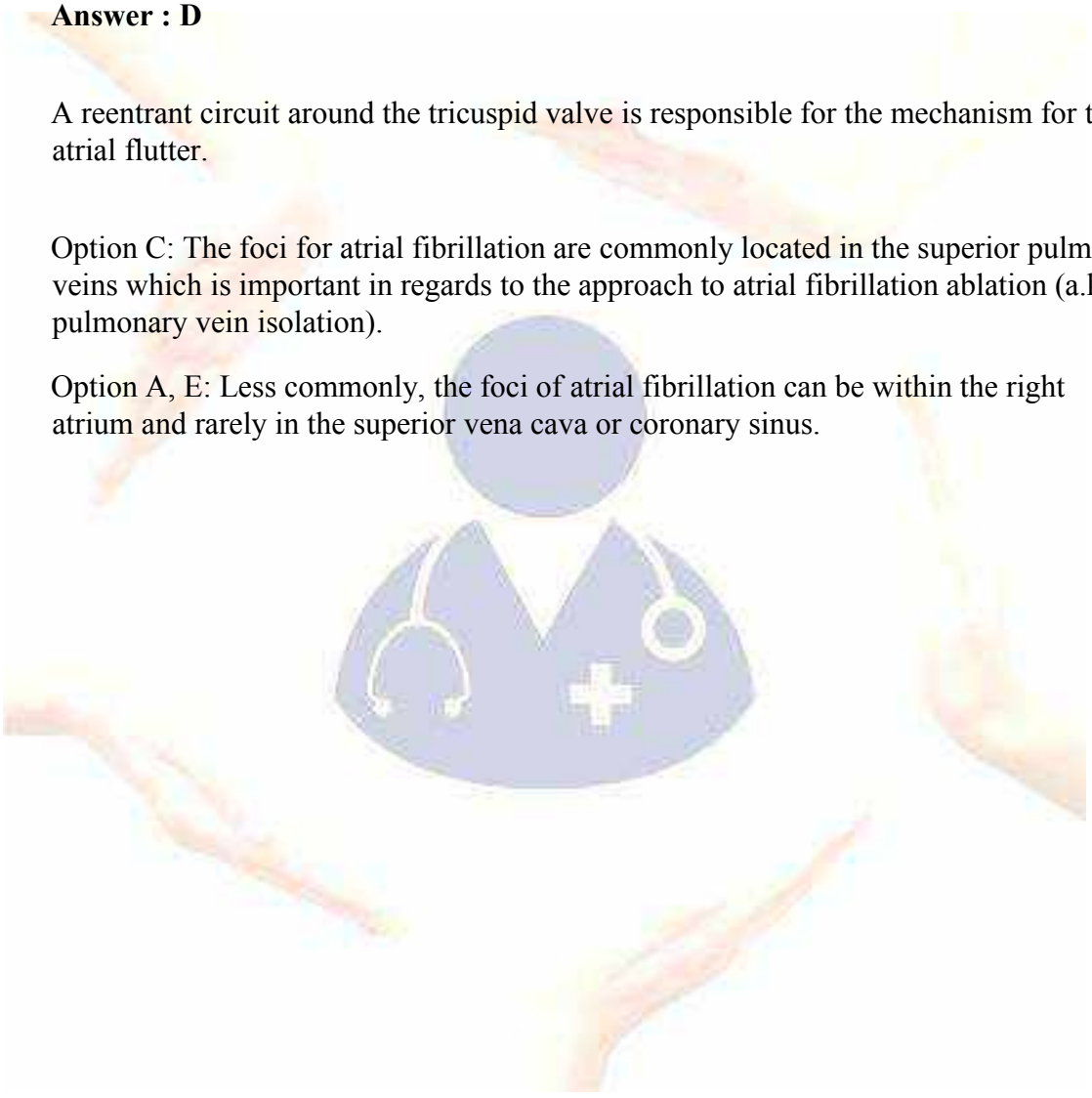
32. Which of the following is not a common anatomical foci for atrial fibrillation?
    A. The coronary sinus
    B. The right atrium
    C. The pulmonary veins
    D. The tricuspid valve annulus
    E. The superior vena cava

Answer : D

A reentrant circuit around the tricuspid valve is responsible for the mechanism for typical atrial flutter.

Option C: The foci for atrial fibrillation are commonly located in the superior pulmonary veins which is important in regards to the approach to atrial fibrillation ablation (a.k.a. pulmonary vein isolation).

Option A, E: Less commonly, the foci of atrial fibrillation can be within the right atrium and rarely in the superior vena cava or coronary sinus.

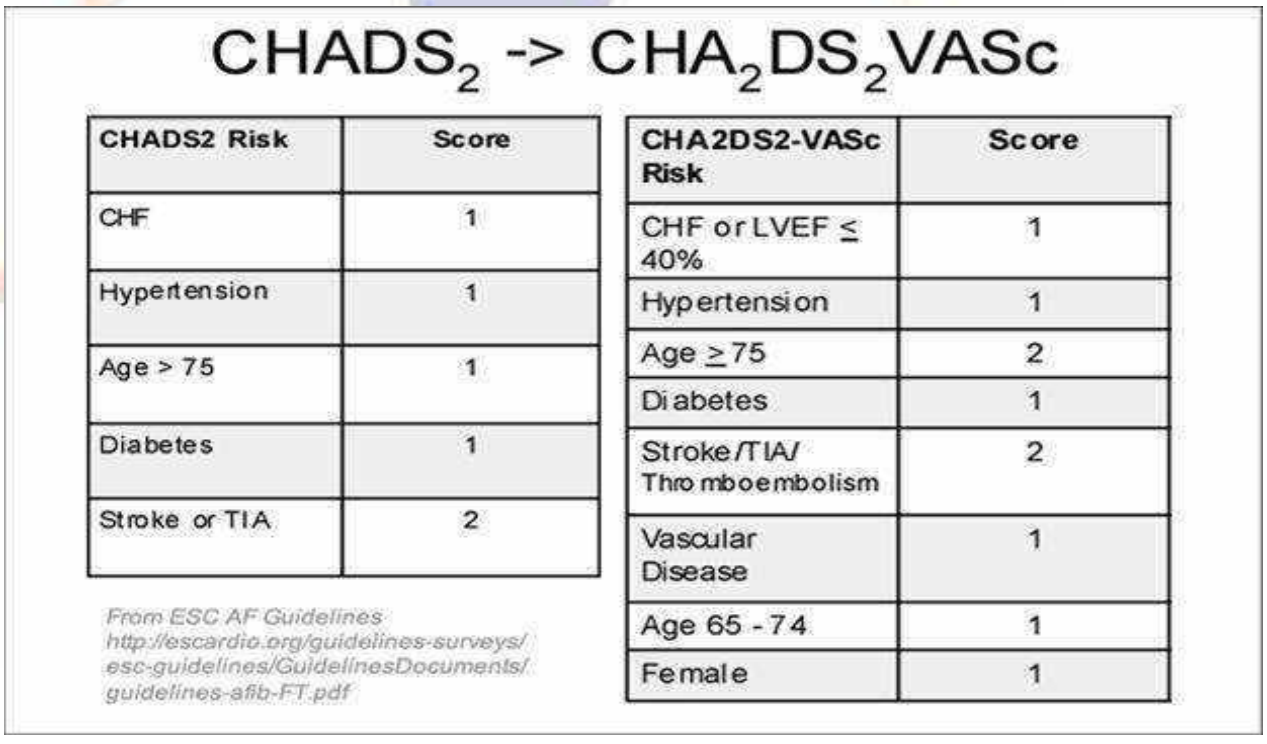


33. Which of the following is NOT included in the CHADS 2 scoring system to determine annual stroke risk in atrial fibrillation patients?

    A. Congestive Heart Failure
    B. Diabetes mellitus type II
    C. Hypertension
    D. Female gender
    E. Age > 65

Answer : D

Female gender is included in the CHADS 2 Vasc score, however not the CHADS 2 score which is the original scoring system used to determine thromboembolic stroke risk in atrial fibrillation patients. The CHADS 2 score has been largely replaced with the CHADS 2 Vasc score. The CHADS 2 score uses age > 65 and does not include an additional point for age > 75. Vascular disease history (peripheral arterial disease, previous MI, aortic atheroma) is not included in the CHADS 2 score, but is included in the CHADS 2 Vasc score.



34. Which of the following drugs does not significantly lower heart rate during physical activity?

    A. Beta-blockers
    B. Non-dihydropyridine calcium channel blockers
    C. Digoxin
    D. Sotalol

Answer : C

Digoxin does not lower heart rates significantly during physical activity and is in general not recommended for use without a beta-blocker or calcium channel blocker being administered simultaneously.

Option A: The heart rate increase during physical activity is largely mediated via the sympathetic nervous system and beta-blockers work by inhibiting that response.

Option B: While to a lesser degree, non-dihydropyridine calcium channel blockers also reduce heart rate during activity.

Option D: Sotalol has beta-blocker properties.

35. Which of the following is not a common anatomical foci for atrial fibrillation?

A. The coronary sinus
B. A 78 year old female with uncontrolled atrial fibrillation despite digoxin and betablockers
C. A 58 year old male with end-stage renal disease on hemodialysis
D. A 35 year male with a dilated cardiomyopathy and an ejection fraction of 15%

Answer : D

Non-dihydropyridine calcium channel blockers (diltiazem, verapamil) decrease AV conduction by antagonizing voltage gated calcium channels decreasing intracellular calcium. Since these drugs reduce left ventricular inotropy (contractility) via the same mechanism, they are in general not advised to be used in the setting of left ventricular systolic dysfunction (reduced ejection fraction). If the left ventricular systolic function is only mildly reduced, these agents can be used at lower doses with caution.

Option A: Hypertrophic cardiomyopathy is not a contraindication to non-dihydropyridine calcium channel blocker use.

Option B: When atrial fibrillation is not controlled with other AV blocking agents, nondihydropyridine calcium channel blockers can work well to lower the heart rate further.

Option C: Non-dihydropyridine calcium channel blockers are predominantly not cleared through the kidneys and are safe with renal disease.

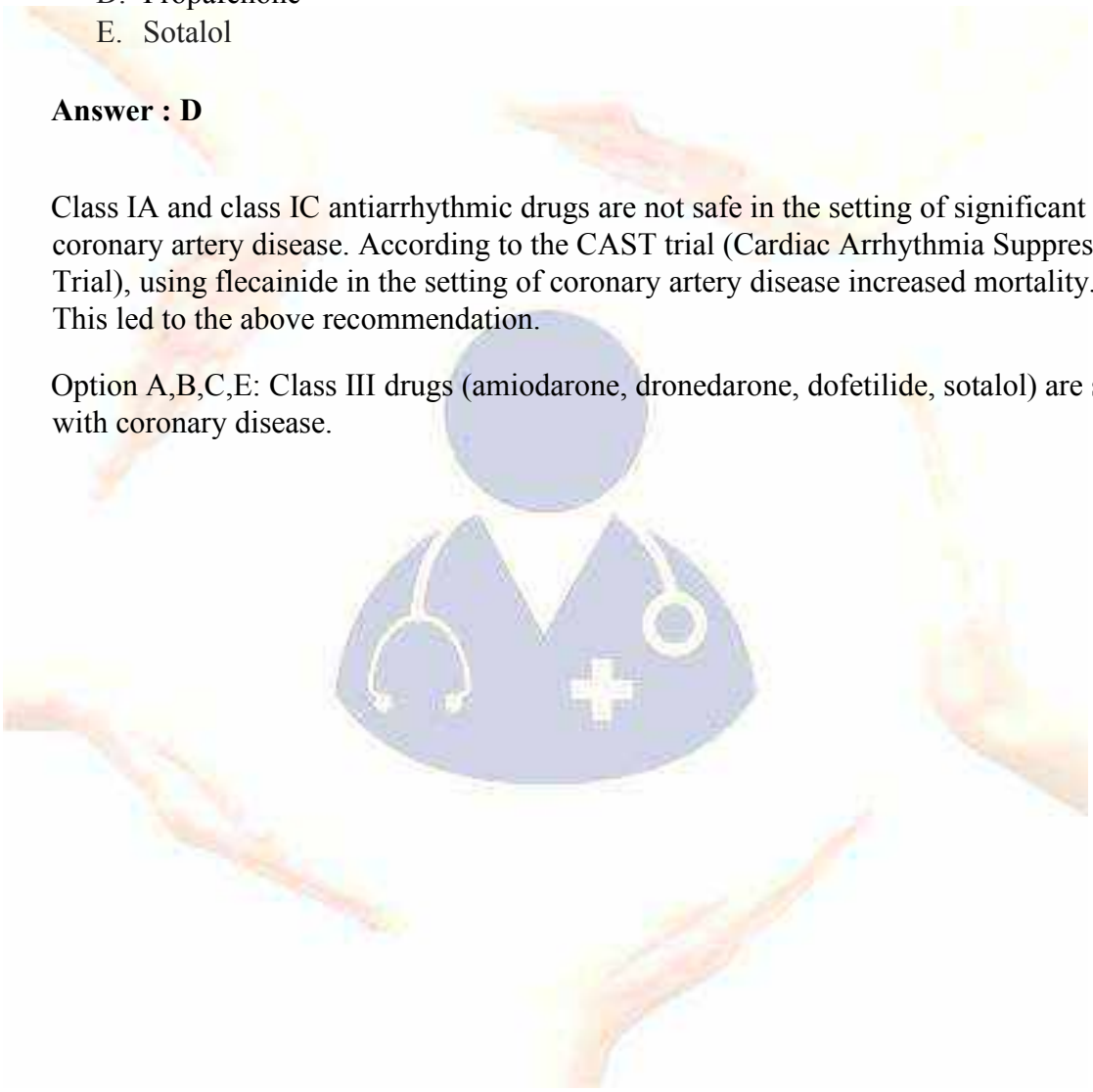
36. Which antiarrhythmic drug is not safe in patients with significant coronary artery disease?

    A. Amiodarone
    B. Dronedarone
    C. Dofetilide
    D. Propafenone
    E. Sotalol

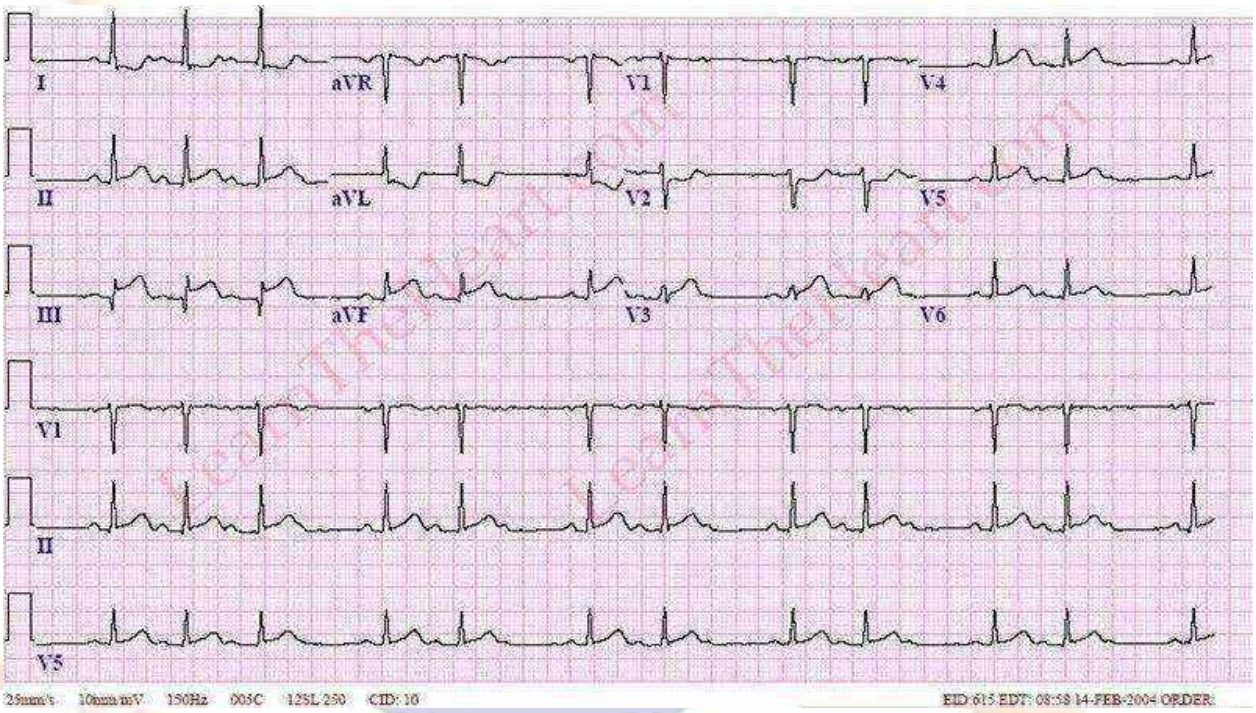
Answer : D

Class IA and class IC antiarrhythmic drugs are not safe in the setting of significant coronary artery disease. According to the CAST trial (Cardiac Arrhythmia Suppression Trial), using flecainide in the setting of coronary artery disease increased mortality. This led to the above recommendation.

Option A,B,C,E: Class III drugs (amiodarone, dronedarone, dofetilide, sotalol) are safe with coronary disease.



37. A 55-year-old male with a history of hypertension, dyslipidemia and diabetes presents to the emergency department with substernal chest pain radiating to his left arm. He has diaphoresis and shortness of breath. He has vomited twice and now is intermittently feeling lightheaded.His temperature is 37.4°C, heart rate is 70 bpm, blood pressure is 110/70 mm Hg and respiratory rate is 24 breaths per minute. His physical exam reveals no jugular venous distention (JVD), mild bibasilar rales on lung exam, his heart sounds are regularly irregular, and an S4 heart sound is present. His ECG is below.



What are the main findings according to the ECG tracing?

A. 1st degree AV block
B. 2nd degree Type 2 AV block
C. 2nd degree Type 1 AV block
D. None of above

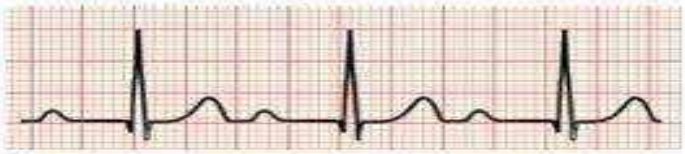
Answer : C

The ECG findings include:

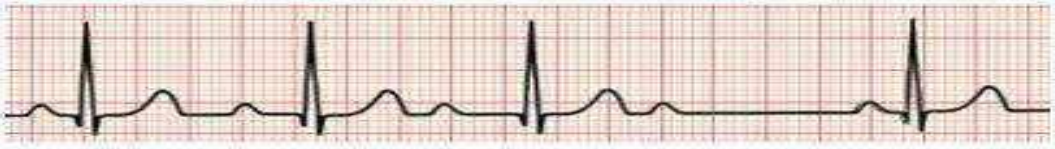
1. Sinus rhythm with 2nd degree type I AV block (Wenkebach)
2. Inferior ST segment elevation MI (leads II, III, and aVF) with reciprocal ST depression
   (leads I and aVL)

Extra mile :

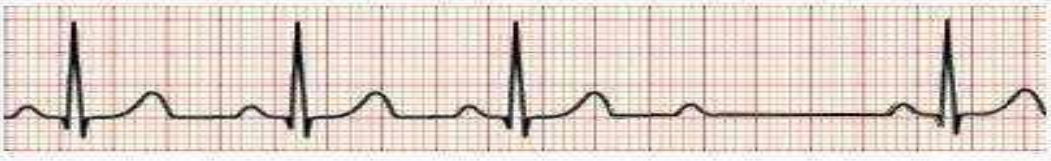
First degree AV block



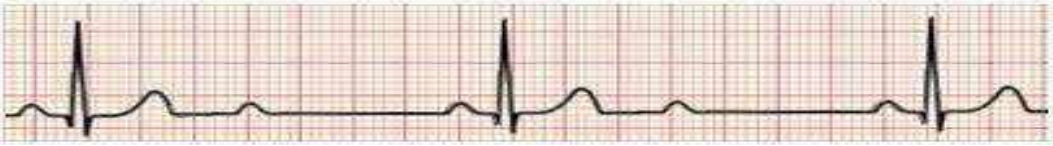
Second degree AV block (Mobitz I or Wenckebach)



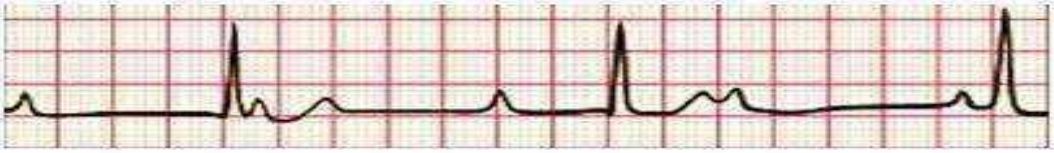
Second degree AV block (Mobitz II)



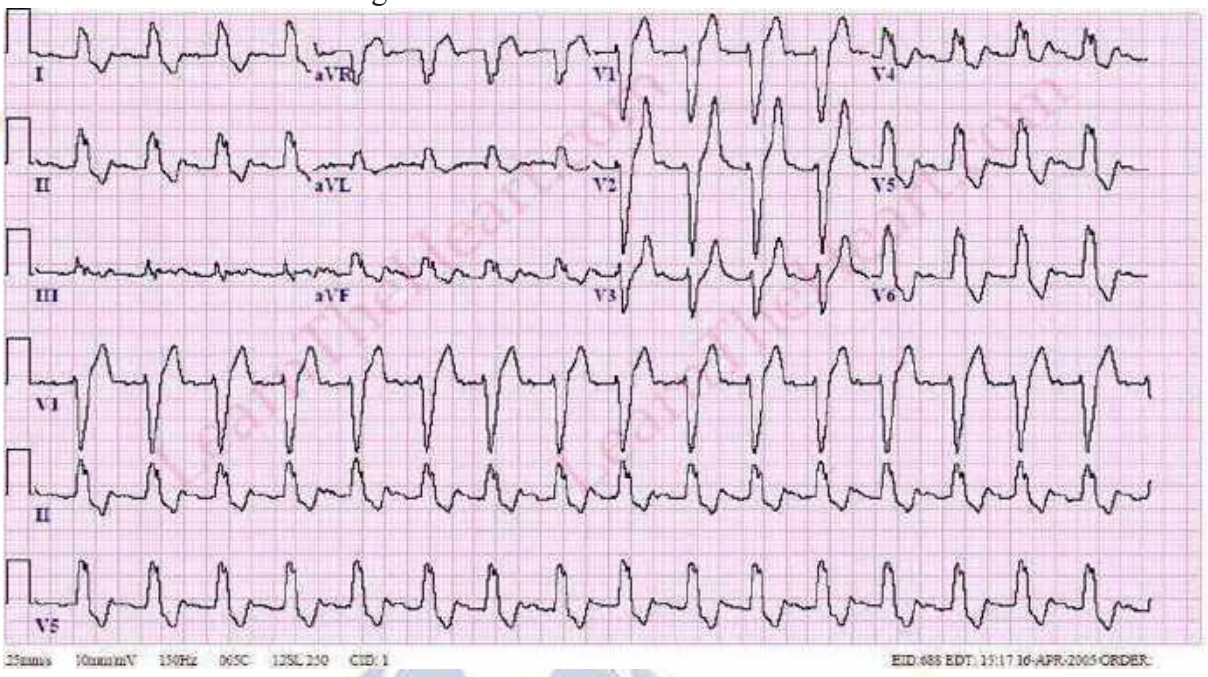
Second degree AV block (2:1 block)



Third degree AV block with junctional escape



38. A 62-year-old female with a history of hypertension, diabetes and end-stage renal disease requiring hemodialysis presents to the emergency department with increasing shortness of breath and dizziness. She actually passed out twice in the last 1 hour. She missed her last two dialysis sessions. Below is her ECG tracing. 1: What are the ECG findings?



A. 2nd degree Mobitz 2
B. 2nd degree Mobitz 1
C. Complete heart block
D. 1st degree AV block

Answer : D

First-degree atrioventricular (AV) block is defined as a PR interval of greater than 0.20 seconds on electrocardiography (ECG) without disruption of atrial to ventricular conduction (figure). The normal measurement of the PR interval is 0.12 seconds to 0.20 seconds. When the PR interval is prolonged more than 0.30 seconds the first-degree atrioventricular block is called "marked".The presence of first-degree AV block on ECG represents prolonged conduction in the AV node, which is commonly due to increased vagal tone in younger patients and fibrosis of the conduction system in older patients

Option B: Second-degree type I AV block is specifically characterized by an increasing delay of AV nodal conduction until a P wave fails to conduct through the AV node

Option A: The PR interval may be normal or prolonged, however it is constant in length.

39. Broad complex tachycardia, due to ventricular tachycardia is suggested by all except?

A. Fusion beats
B. AV dissociation
C. Capture beats
D. Termination of tachycardia by carotid sinus massage.

Answer : D

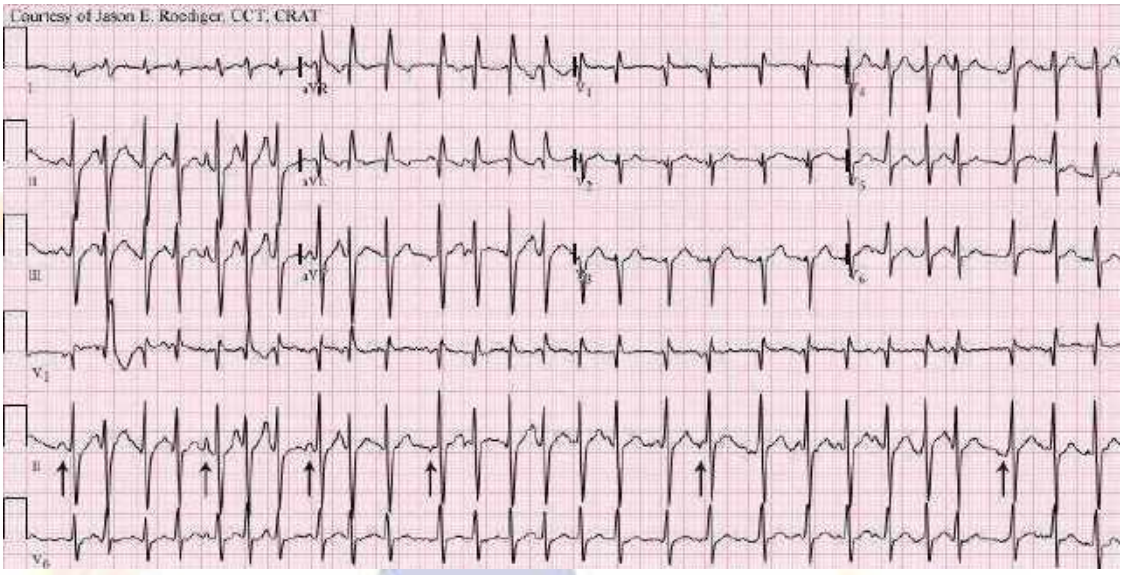
Termination of Tachycardia by carotid sinus massage suggests a broad complex tachycardia due to supraventricular tachycardia with aberrancy Note :

1. AV dissociation – The presence of AV dissociation implies that atrial and ventricular activity are occuring in dependence of each other. AV dissociation can occur in patients with ventricular tachycardia and retrograde conduction block.

2. Fusion beats – results from activation of ventricle by two foci, one supraventricular and the other ventricular

3. Capture beats – indicates activation of the ventricle by a conducted supraventricular rhythm resulting in a shorter coupling interval and a QRS of normal morphology.

40 .Comment on the diagnosis of the patient on the basis of ECG



A. Multifocal atrial Tachycardia
B. Atrial fibrillation
C. Mobitz 2 Heart block
D. Wolf parkinson white syndrome

Answer : A

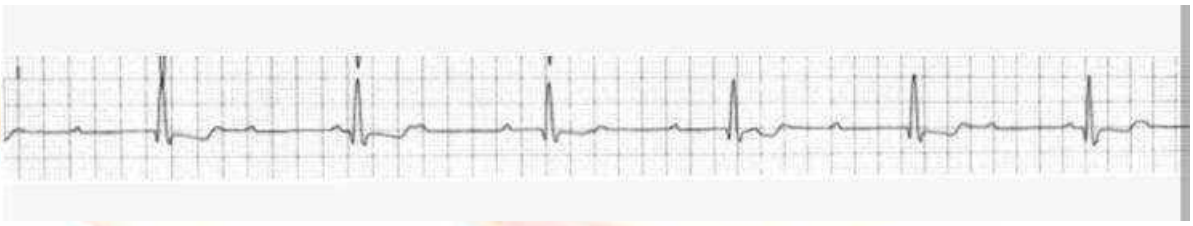
Multifocal (or multiform) atrial tachycardia (MAT) is an abnormal heart rhythm, specifically a type of supraventricular tachycardia, that is particularly common in older people and is associated with exacerbations of chronic obstructive pulmonary disease (COPD) The HR of the patient is variable. Notice the change in R-R interval in lead 2.

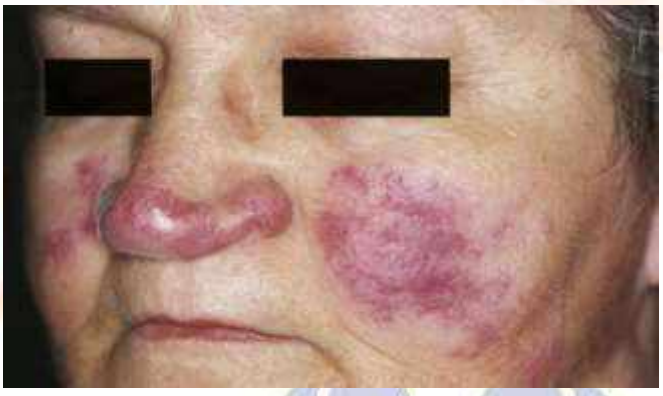
Option B **:** Ruled out as Atrial fibrillation has absent P waves.

Option C : Ruled out as Mobitz 2 Heart block has Bradycardia.

Option D : Ruled out as WPW syndrome has Delta waves with broad QRS complex is not seen.

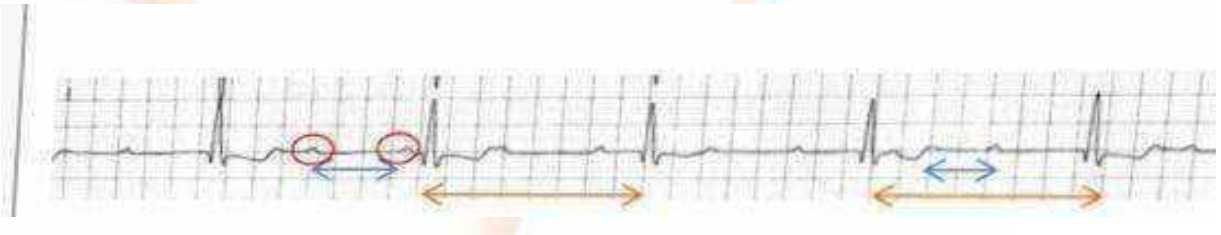
41. A 35 year old. A teacher by profession. On examination, has normal heart rate and pulse.
Has developed skin lesions and related episodes of syncope on sudden change of position.
You go for ECG , which will show?





A. Complete heart block
B. First degree heart block
C. Second degree heart block
D. 2:1 heart block

Answer : A



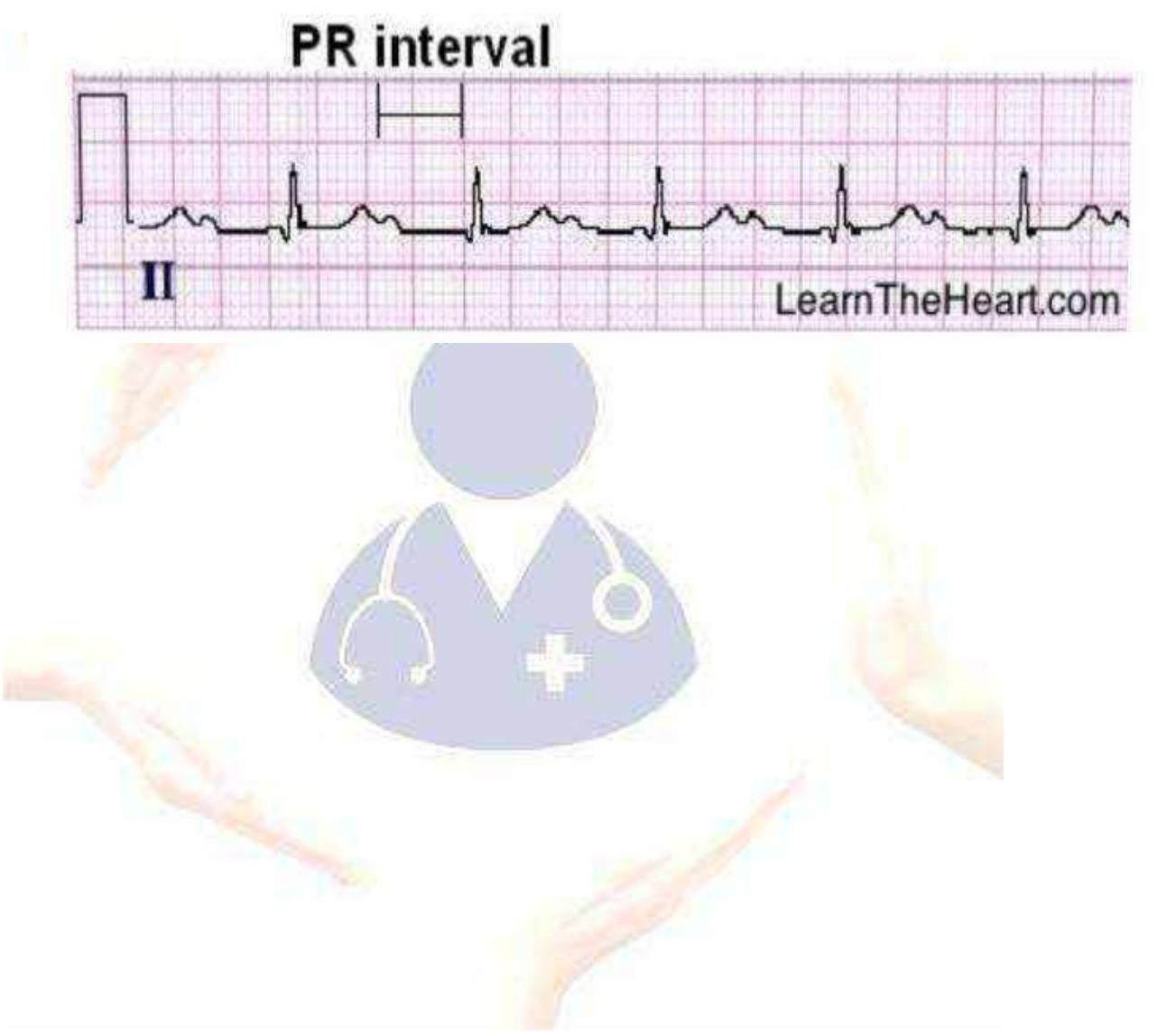
ECG Findings :

1. The rhythm strip in ECG shows lack of relation Between P wave and QRS complexes.
2. Notice P wave followed by another P wave (Red).
3. P-P interval is about 100/min (Red).

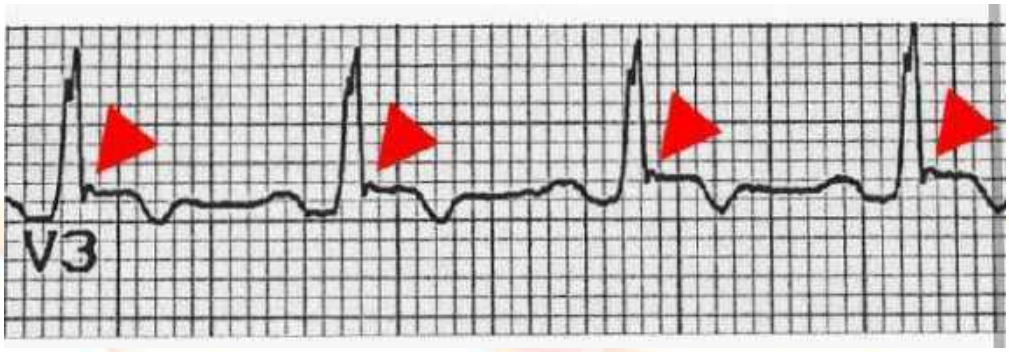
4. R-R interval is 40/min (Orange).
5. PR interval is changing with every beat (These changes are specific for complete heart block)

The picture of the lady's nose suggests Lupus Pernio. The patient is suffering from cardiac complications of sarcoidosis.

Option B: Ecg findings should have prolonged PR interval.



42. Comment on the ECG shown below:



A. Delta wave
B. Epsilon wave
C. Prominent U wave
D. Deep Q wave

Answer : B

ECG shows epsilon wave at the end of S wave and is seen in case of Arrhythmogenic RV dysplasia.

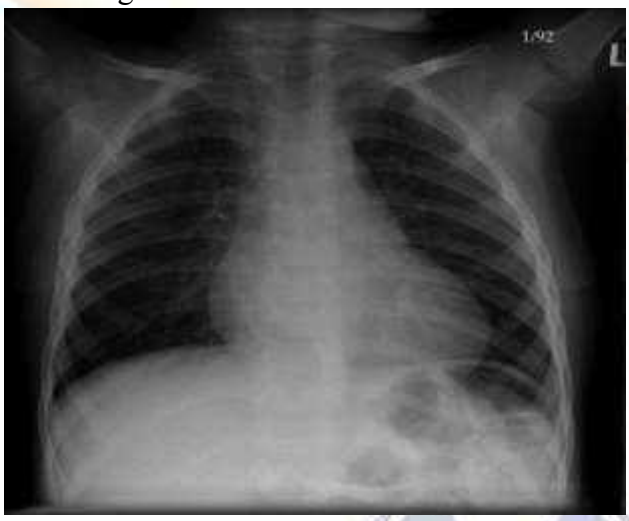
Option A: is seen in the uprising of R Wave.

Option B: is seen after T wave.

Option C: is a negative deflection after p wave.

HYPERTENSION

43**.** A 51 year old female patient, known hypertensive present to your clinic and she is taking Ramipril 20 mg for the last 1 month. When examining you find her systolic BP is 155 and diastolic BP is 95 mmhg in upper limb, systolic BP is 70 and diastolic 55mmhg in lower limb.In order to confirm the diagnosis you order X Ray, it is given below. What is the diagnosis?



A. Age related HTN
B. HTN due to Atherosclerosis
C. HTN due to Coarctation of aorta
D. HTN due to Fibromuscular dysplasia

Answer: C

Coarctation of Aorta: Aortic constriction just distal to the origin of the left subclavian artery is a surgically correctable form of hypertension. Usually asymptomatic, but may cause headache, fatigue, or claudication of lower extremities.Examination shows diminished, delayed femoral pulsations, increased BP in Upper limb and decreased BP in Lower limb,late systolic murmur loudest over the mid back. CXR shows indentation of the aorta at the level of the coarctation and rib notching, Figure of 3.Treatment is Surgical correction, high BP should be corrected before Surgery.

Coarctation of Aorta is a congenital condition, but it is asymptomatic. It is presented with HTN later in life.

Option A: In Age related HTN there is no difference in BP of upper and lower limbs.

And the same applies for B and D options.

Keywords: BP in upper limbs increases and BP in lower limbs decreases.

Figure of 3 on X ray.

44. A 58 year old man with chronic HTN presents to office,for follow up and refill of medications Lisinopril and amlodipine,He has been using them for the last 6 months. He is asymptomatic and has a blood pressure of 225/125 mm Hg. Which of the following is best management?

A. Admit and start IV Nitroprusside.
B. Give clonidine 0.1mg Three times a day and recheck BP in 24 to 48 hrs.
C. Continue Lisinopril and amlodipine.
D. Admit and start IV clonidine.

Answer: B

Diagnosis is Hypertensive Urgency- BP more than 220/125 mm Hg with no end organ damage.Treatment is to initiate clonidine and recheck BP in 24 to 48hrs, maintained by ACE Inhibitors and CCB's.The goal of therapy is to lower the mean arterial pressure by no more than 25% within minutes to 1 hour and then stabilize BP at 160/100-110 mm Hg within the next 2 to 6 hours.

Option A: IV Nitroprusside is used in Adrenergic Crisis and Hypertensive Emergency.

Option C : Lisinopril and Amlodipine is used in Maintenance ofHypertensive Urgency

Option D: IV clonidine is used in balanced anesthesia to achieve controlled hypotension.

Keywords: BP is 225/125 mm Hg and asymptomatic which states no end organ damage.

Extra mile:

Differential Diagnosis-1.Hypertensive Emergency, 2.Malignant Hypertension.

Hypertensive emergency is defined as elevated blood pressure more than 220/125 mmHg consistent with hypertensive urgency, plus evidence of impending irreversible hypertension-mediated organ damage.

Malignant hypertension is Old term, not used in recent guidelines. It is blood pressure more than 180/120 mmHg with retinal hemorrhage or papilledema, or encephalopathy or acute nephropathy.

45. A 35 year old male visited your clinic for yearly check up. His BMI is 22.9, blood pressure is 155/92 mmHg. He says that his IT job is not giving enough time to spend with his family and his wife is upset with this,most of the time he is spending in the office and eating when time permits in the office canteen. Blood workup shows serum creatinine is 0.9mg/dl, BUN is 9mg/dl, serum K+ is 3.65 mEq/L.what is the management?

A. Reassurance
B. As age is under 55 years start with Accupril.
C. Ask him to change his lifestyle habits and encourage him to do exercise, follow up in 3 months.
D. suggest him to try lifestyle modifications for 6 months.

Answer: D

Diagnosis is Primary Hypertension.

Most major guidelines recommend that hypertension be diagnosed when a person's systolic blood pressure (SBP) in the office or clinic is ≥140 mm Hg and/or their diastolic blood pressure (DBP) is ≥90 mm Hg following repeated examination. This definition applies to all adults (>18 year old). These BP categories are designed to align therapeutic approaches with BP levels.

Screening tests for secondary hypertension: Should be carried out on all pts with documented hypertension: if all these tests are normal then confirm primary hypertension.

(1) serum creatinine, BUN, and urinalysis (renal parenchymal disease);

(2) serum K+ measured off diuretics (hypokalemia prompts workup for hyperaldosteronism or renal artery stenosis);

(3) CXR (rib notching or indentation of distal aortic arch in coarctation of the aorta);

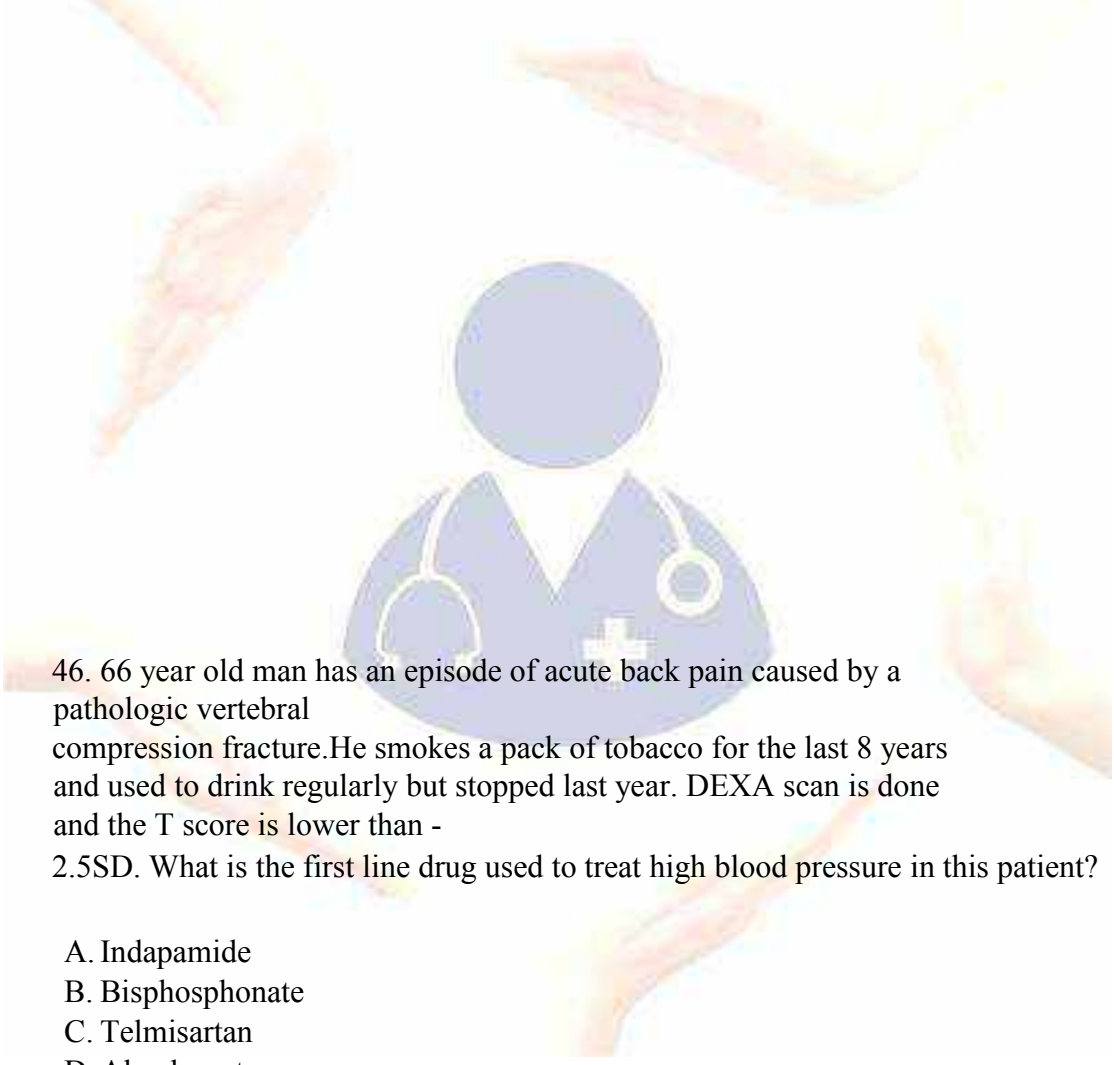
(4) ECG (LV hypertrophy suggests chronicity of hypertension);

(5) other useful screening blood tests including CBC, glucose, lipid levels, calcium, uric acid;

(6) thyroid-stimulating hormone if thyroid disease is suspected.

Management of HTN is started with lifestyle modifications for 6months, if it is not controlled,depending on age start drugs i.e. age< 55years start with ACEI/ARBs; age>55years start with CCBs. Then combine ACEI/ARB and CCB.

Keywords: BP 155/92 mm Hg and lab findings are in normal range - primary hypertension



46. 66 year old man has an episode of acute back pain caused by a pathologic vertebral
compression fracture.He smokes a pack of tobacco for the last 8 years and used to drink regularly but stopped last year. DEXA scan is done and the T score is lower than -
2.5SD. What is the first line drug used to treat high blood pressure in this patient?

A. Indapamide
B. Bisphosphonate
C. Telmisartan
D. Alendronate

Answer: A

First line drug to treat HTN in Osteoporosis patients is Thiazides like Chlorothiazide (Diuril),Chlorthalidone.,Hydrochlorothiazide

(Microzide),Indapamide,Metolazone. Option B: Bisphosphonate

is DOC for osteoporosis,

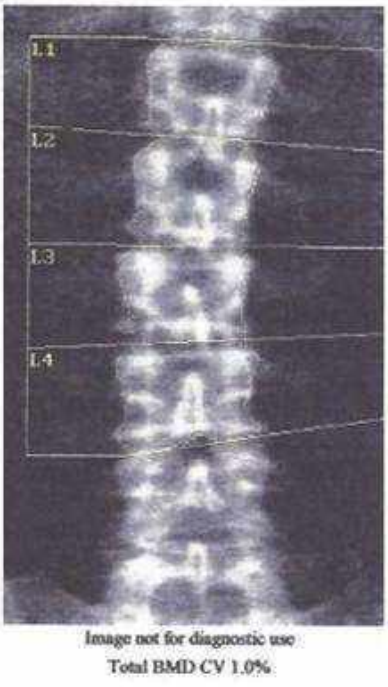
Option D:Alendronate is Bisphosphonate,

Option C:Telmisartan ARB is used as the first line in treatment of HTN with Comorbidity.

Extra mile:

To diagnose osteoporosis and assess your risk of fracture and determine treatment,the doctor will most likely order a bone density scan.

This exam is used to measure bone mineral density (BMD). It is most commonly performed using dual-energy x-ray absorptiometry (DXA or DEXA) or bone densitometry. The amount of x-rays absorbed by tissues and bone is measured by the DXA machine and correlates with bone mineral density.



DXA Scan Information:

Example of a DXA scan showing a T score lower than -2.5 indicating osteoporosis

Results Summary:

Total BMD:	0.766 g/cm²		
Peak reference:	73%	T score:	-2.6
Age matched:	86%	Z score:	-1.1

Region	Area [cm²]	BMC [g]	BMD [g/cm²]	T score	%PR	Z score	%AM
L1	12.06	7.45	0.617	-2.8	67%	-1.5	79%
L2	13.15	10.12	0.770	-2.3	75%	-0.9	88%
L3	12.71	10.65	0.838	-2.2	77%	-0.7	91%
L4	14.66	12.08	0.824	-2.7	74%	-1.1	87%
Total:	52.59	40.30	0.766	-2.6	73%	-1.1	86%

The DXA machine converts bone density information to your T score and Z score. The T score measures the amount of bone you have in comparison to a normal population of younger people and is used to estimate your risk of developing a fracture and need for drug therapy. Your Z score measures the amount of bone you have in comparison to those in your age group. This number can help indicate whether there is a need for further medical tests.

T-Score	**Condition**
+1 to -1	Healthy Bone Density
-1 to -2.5	Osteopenia
-2.5 to -3.0	Osteoporosis

47. A 74 year old patient presents with blood pressure of 162/96mmHg and he is known for diabetes proteinuria without renal failure.Lab investigations shows Fasting Blood Sugar is 121mg/dl, Random Blood Sugar is 206mg/dl, Serum creatinine is 1mg/dl.Antihypertensives of choice is:

A. Furosemide
B. Methyldopa
C. Enalapril
D. Propranolol

Answer: C

Best drug to start treating HTN with comorbidity like Diabetes and Chronic kidney disease is ACE Inhibitor/ARB.

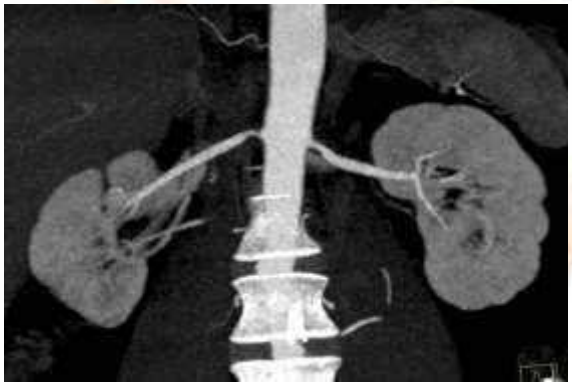
Option A: Loop diuretic like furosemide is DOC for pulmonary edema.

Option B: Methyldopa is in the alpha-2 adrenergic receptor agonist and used in hypertention urgency.

Option D: Propranolol is a non selective Beta blocker, used for angina due to atherosclerosis, performance anxiety, essential tremor and pheochromocytoma.

Keywords: BP 162/96 mmHg is hypertension, FBS 121 mg/dl (normal is <100mg/dl), RBS 206 mg/dl (normal is <200mg/dl) this confirms DM with HTN.

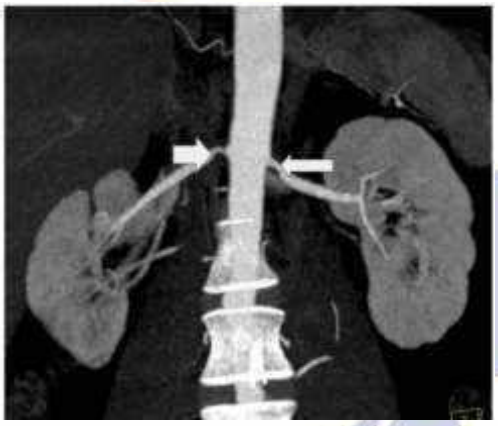
48. A 36 year old present to you for his routine check up and his blood pressure is high.so you ordered different investigations,blood reports show increase in RFTs and magnetic resonance image is shown. So what is the most common cause of this condition?



A. atherosclerosis
B. nonspecific aorto-arteritis
C. Fibromuscular dysplasia
D. none of the above

Answer: B

Diagnosis is Hypertension secondary to Renal artery stenosis,
Renal artery stenosis (RAS) is the narrowing of one or both of the renal arteries, most often caused by atherosclerosis or fibromuscular dysplasia but Most common cause of Renal Artery Stenosis in young patients is Aorto-arteritis. This narrowing of the renal artery can impede blood flow to the target kidney, resulting in renovascular hypertension – a secondary type of high blood pressure.



In this MRI image, it is easy to identify the bilateral narrowing renal artery at the marked point.

Extra mile:

Angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) cause efferent arteriolar dilatation, thereby decreasing intraglomerular pressure and filtration.
Therefore, ACE inhibitors and ARBs are contraindicated in bilateral renal artery stenosis.

Keywords: high BP + abnormal RFT and X ray is clearly secondary hypertension.

ISCHEMIC HEART DISEASE, ANGINA AND MYOCARDIAL INFARCTION

49. A 59 year old man with coronary artery disease started to complain of discomfort in breathing while sleeping and some pedal edema.He is admitted with a blood pressure of 195/100 mmHg. Cardiac enzymes and EKG are normal. You started to treat the patient with intravenous Furosemide.Which is the next best step?

A. Start on Esmolol.
B. Observe without any further intervention.
C. Start on Lisinopril.
D. Start IV dopamine.

Answer: C

Diagnosis- Heart Failure

Heart failure, sometimes known as congestive heart failure, occurs when your heart muscle doesn't pump blood as well as it should. Certain conditions, such as narrowed arteries in your heart (coronary artery disease) or high blood pressure, gradually leave your heart too weak or stiff to fill and pump efficiently.

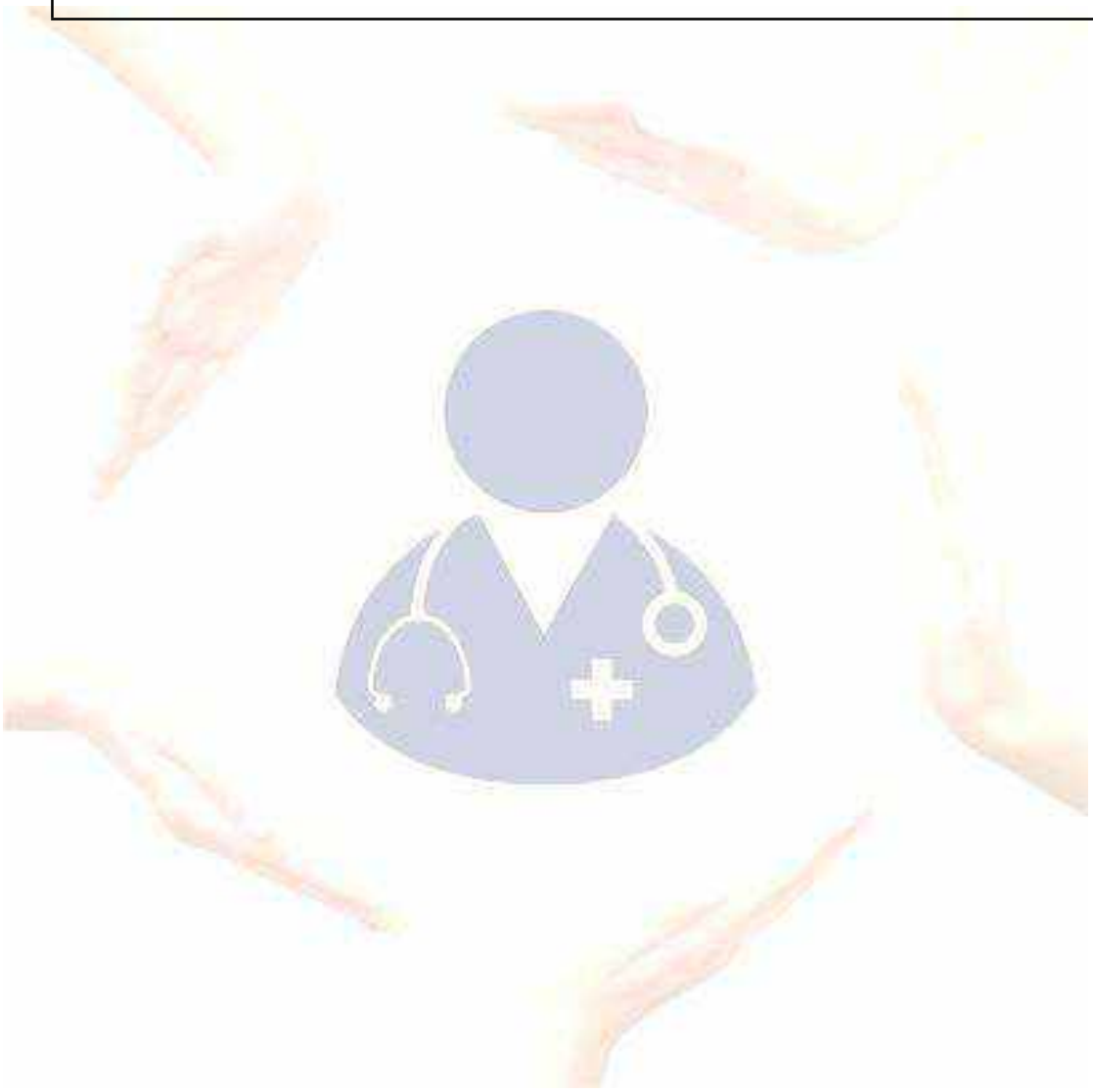
High blood pressure in this patient must be treated, If not it exacerbates congestive heart failure. Furosemide is Loop diuretic initiated to reduce blood volume eventually edema will reduce. ACEI like Lisinopril is started to control blood pressure as they reduce the afterload and Oral nitrates or IV nitroglycerine reduce preload and are used to treat acute heart failure. Option A: Beta blockers like esmolol are avoided as they decrease myocardial contractility.

Option B: after Furosemide, as blood pressure is high in a given case that should be treated.

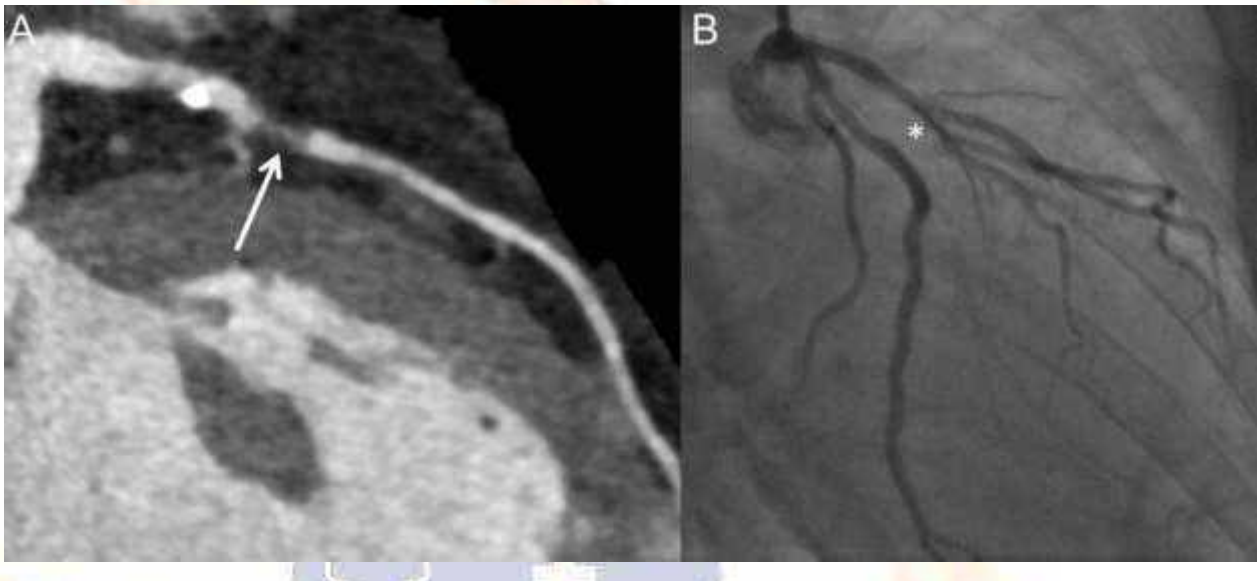
Option D: Dopamine is indicated for the correction of hemodynamic imbalances present in the shock syndrome due to myocardial infarction,

trauma, endotoxic septicemia, open-heart surgery, renal failure, and chronic cardiac decompensation as in congestive failure.

Keywords: coronary artery disease patient, now with chest discomfort, pedal edema and high BP.



50. A 55 year old woman is admitted to hospital because of 2days history of chest pain on exertion.This occured while doing housework,which consisted of vacuuming and waxing house floors. She has a history of Hypertension,angina and diabetes.Cardiac examination shows S1 and S2 heart sounds but are somewhat faint. There are no murmurs or gallops.ECG and cardiac enzymes show no abnormalities. Cardiac catheterization shows areas of coronary artery narrowing between 50 to 70%.Coronary angiogram is shown below. CT angiography shows an 80% stenosis of Right renal artery. Which of the following is most likely to increase in patients?



A. Glomerular filtration rate
B. Glomerular perfusion pressure
C. Interlobar arterial pressure.
D. secretion of renin.

Answer : D

Diagnosis of the case is Chronic Stable Angina.

Angina is typically associated with exertion or emotional upset; relieved quickly by rest or nitroglycerin. Most commonly atherosclerosis causes ischemia which leads to imbalance in
Oxygen demand and blood supply.To compensate Renin is secreted by the kidney. Which leads to activation of Renin Angiotensin Aldosterone System.The RAAS functions to elevate blood volume and arterial tone in a

prolonged manner. It does this by increasing sodium reabsorption, water reabsorption, and vascular tone.
Option A: GFR is reduced as blood flow to the kidney reduces

in Chronic stable angina.

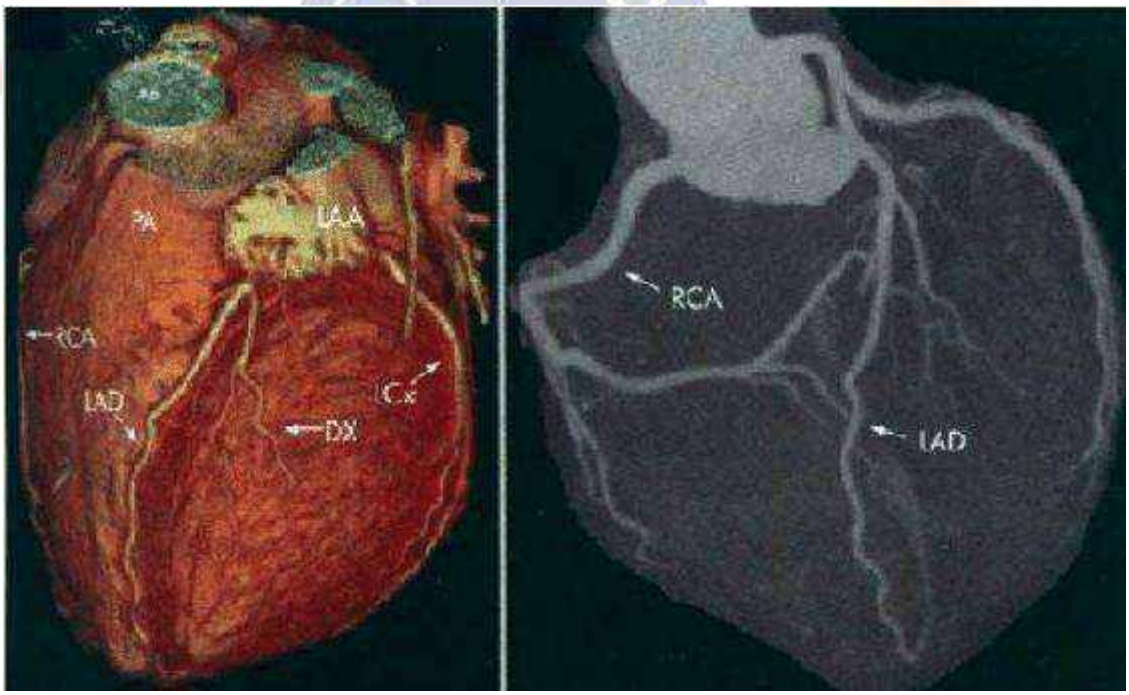
Option B: Glomerular perfusion pressure also reduces as

blood flow is reduced.

Option C: Interlobar arterial pressure also reduces. As blood flow to the kidney decreases.

Extra mile:

CT coronary angiography is Gold standard investigation to Atherosclerosis and related diseases. Anatomy of coronary artery angiography is stated in image. It is an invasive procedure,The arterial puncture is typically given in the femoral artery, and the cardiologist uses a guidewire and catheter to perform a contrast injection and Xray series on the coronary arteries. If the block or narrowing in artery is more than 70% then plan for surgical procedure like stent or Bypass is planned according to the case.



51. A 60 year old man is brought to the emergency department by his wife after losing sensation in his fingers and toes. He says that he jumped into a lake 1 hour ago.The temperature of lake was 4.4degree Celsius. His core body temperature is 35 degree Celsius. Physical examination shows pale extremities that are non receptive to sharp touch,dull touch,and two point discrimination. Pick the best answer.

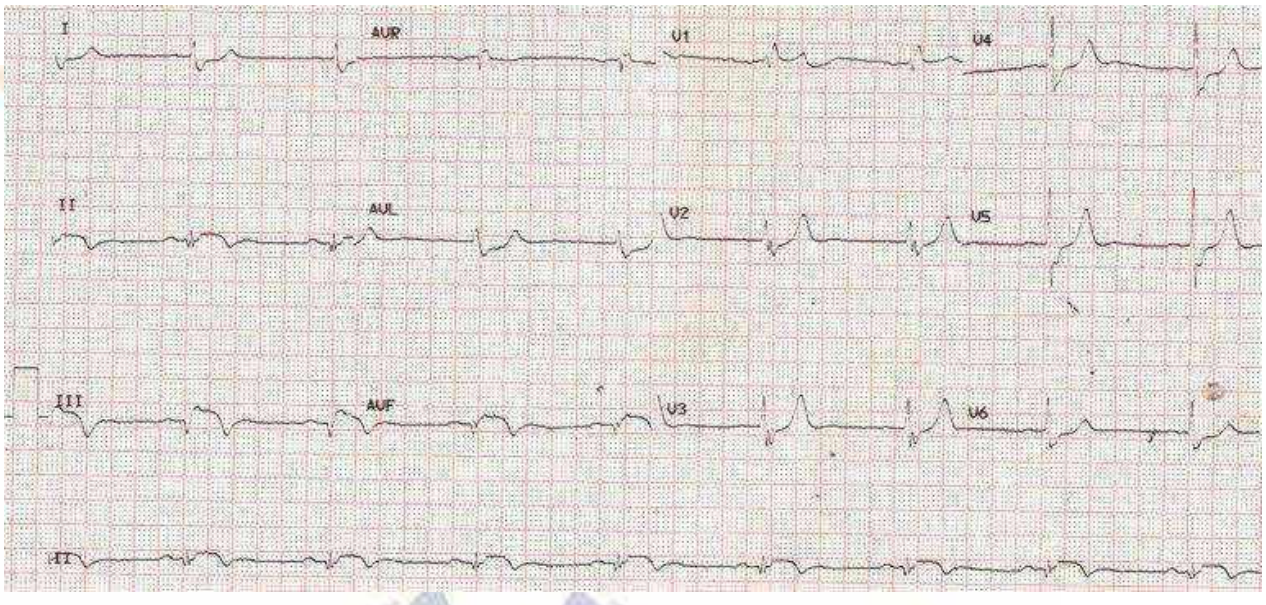
Central blood volume	Baroreceptor firing	Atrial natriuretic peptide
A) Increase	Increase	Decrease
B) Increase	Increase	Increase
C) Increase	Decrease	Decrease
D) Decrease	Increase	Decrease

Answer : B

On exposure to cold there is a marked increase in the affinity of the postjunctional α-adrenoceptors for norepinephrine. This results in a powerful constriction of the blood vessels and a cessation of blood flow to the distal tissue.

This person has peripheral vasoconstriction, so blood flow towards the heart increases. Central venous blood Increases, As more blood is coming to the heart Baroreceptor firing increases, more blood to heart, more stretch in cardiac muscle that releases Atrial Natriuretic peptide.

52. A 43 year old man is admitted to the hospital due to chest pain for the last 3 hours.He has a history of smoking a pack of cigarettes daily for the last 7 years, no drinking habit, but his family history has cardiac events. On cardiac examination heart rate is 51 bpm, ECG shows sinus bradycardia and ST elevation in lead II.What is the diagnosis?



A. Increased in vagal tone and the person is healthy.
B. Left ventricular aneurysm.
C. Bradycardia due to reflex of increased stroke volume.
D. Ischemic Myocardial Infarction in inferior wall.

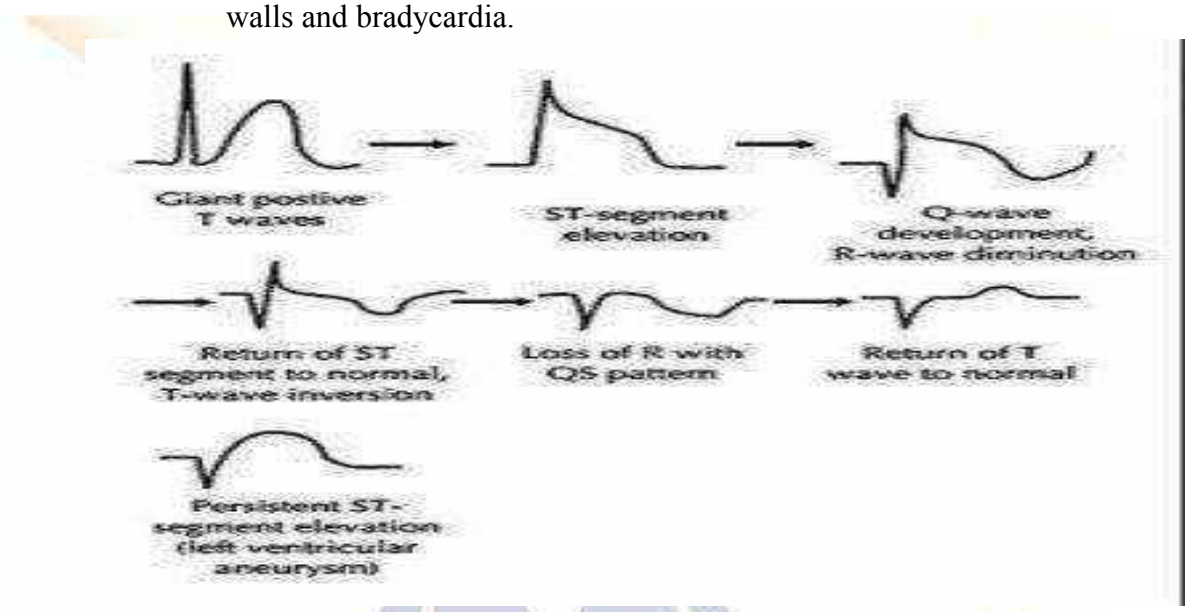
Answer- D

Diagnosis is Myocardial Infarction in inferior wall, Chest pain is an important feature of MI,even though it is not present all the time. History of chronic smoking suggests atherosclerosis which leads to MI.

An inferior wall myocardial infarction — also known as IWMI, or inferior MI, or inferior ST segment elevation MI, or inferior STEMI — occurs when inferior myocardial tissue supplied by the right coronary artery, or RCA, is injured due to thrombosis of that vessel. When an inferior MI extends to posterior regions as well, an associated posterior wall MI may occur.

The ECG findings of an acute inferior myocardial infarction include the following:

1. ST segment elevation in the inferior leads (II, III and aVF)
2. Reciprocal ST segment depression in the lateral and/or high lateral leads (I, aVL, V5 and V6)
3. Sinus Bradycardia is often seen with Inferior wall MI, because RCA supplies inferior wall of left ventricle and Sinoatrial node. So, the people with plaque in RCA have injury to inferior walls and bradycardia.



Extra mile:

Series of ECG change in MI

On ECG, earliest hyperacute T waves, ST elevation in injury of heart,T wave inversion over hours or in a day,Finally Q waves occur(which is loss of R wave).

Keywords: sinus bradycardia and ST elevation.

53. A 28 year old person visited a clinic after a few weeks of his aunt's death due to Heart failure. He stated that he smokes every day 6 cigarettes at his work and in weekend he party with friends consume 2 drinks sometimes even 3 drinks.He is on antihypertensive medications for last 1year and HTN is in control, No other medical conditions are associated.He is very curious to know whether he gets Heart Disease in future. What is the best test to predict the Risk of getting heart disease?

A. Hs CRP
B. LDL:HDL Ratio
C. Total cholesterol:HDL >3.5
D. only LDL value.

Answer : A

The high-sensitivity C-reactive protein (hs-CRP) test is a blood test that finds lower levels of
C-reactive protein (CRP). This protein measures general levels of inflammation in your body.
The hs-CRP can be used to find the risk for heart disease and stroke in people who don't already have heart disease. It can also be used to help predict how well a person who has heart disease might recover or to predict how the person might respond to treatment.

The hs-CRP test is different from the standard CRP test. The standard test measures high levels of the protein to find different diseases that cause inflammation. The hsCRP test measures low levels and focuses on the risk of heart disease and stroke.

Markers for atherosclerosis are Hs CRP, Total Cholesterol:HDL>3.5,
Lipoprotein A:apolipoprotein B ratio, LDL increase,HDL decrease.

Hs CRP is the best predictor for future adverse coronary events.

54. A 56 year old woman was admitted in hospital due to chest pain after a fight with her husband. She is treated for acute MI 6 days before and discharged. Her ECG shows no ischemic changes, serum cardiac troponin I is done and mildly elevated now. For confirming the diagnosis what you should do next?

A. perform serial ECG.
B. Do angiography.
C. perform Serial ECG and Cardiac biomarkers.
D. perform Serial ECG and Echocardiography.

Answer : C

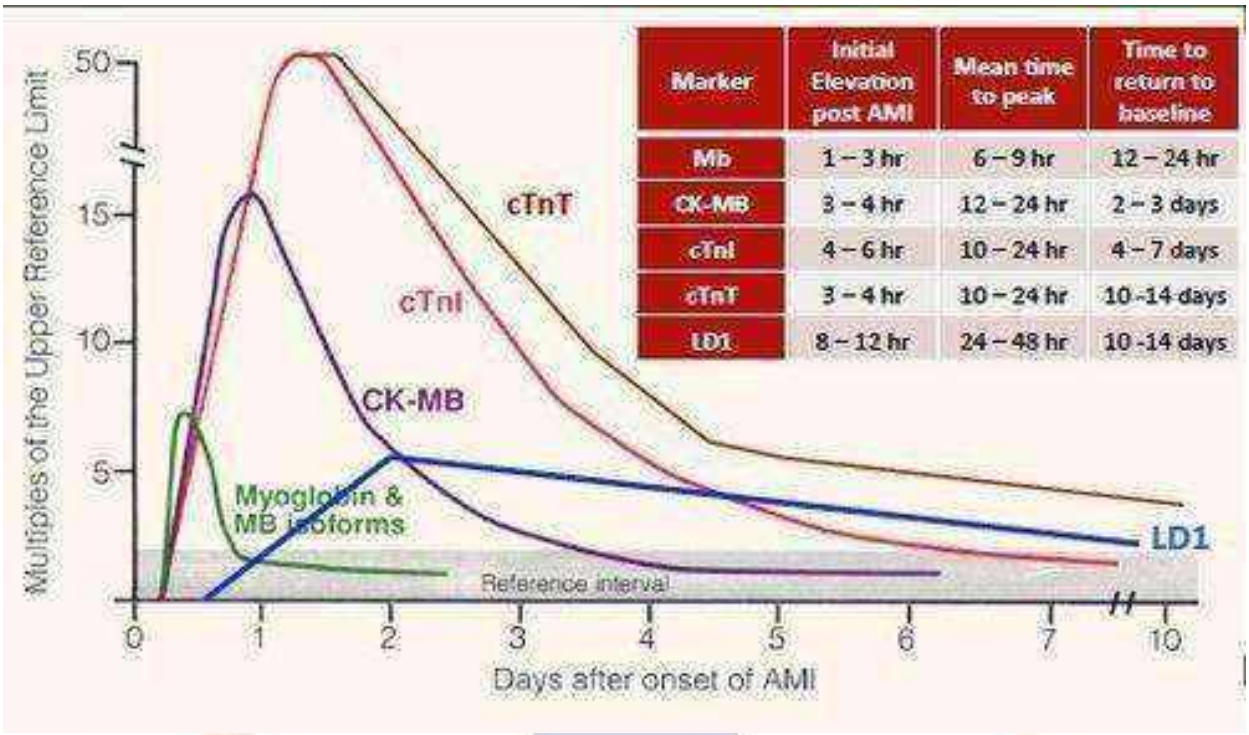
Diagnosis is suspected 2nd attack of

Myocardial infarction.

To diagnose MI, two out of this three should be abnormal chest pain, abnormal ECG, and

Abnormal cardiac enzymes.

Cardiac enzymes are Myoglobin(Mb) is first enzyme to raise in MI, CK-MB raises in 4-8 hrs and return normal by 48 to 72hrs,Troponin I most specific which raises in 3 to 5 hours and drop to normal by 7 to 10 days. Serum cardiac markers should be measured at presentation, 6–9 h later, and then at 12–24 h.



Marker	Initial Elevation post AMI	Mean time to peak	Time to return to baseline
Mb	1 – 3 hr	6 – 9 hr	12 – 24 hr
CK-MB	3 – 4 hr	12 – 24 hr	2 – 3 days
cTnI	4 – 6 hr	10 – 24 hr	4 – 7 days
cTnT	3 – 4 hr	10 – 24 hr	10 -14 days
LD1	8 – 12 hr	24 – 48 hr	10 -14 days

In the given question the ECG is normal initially, and Troponin I is raised due to previous MI which stays high for 7-10days , so we need to do a series of ECG and Cardiac biomarkers to diagnose.

Option A: series of ECG can be done but there is a better option,

Option B: angiography is an invasive procedure done to know exact arteries have plaque and percentage of block

Option D: echocardiography is not used to diagnose MI

Keywords: Chest pain after 6 days of acute MI.

55. A 66-year-old male patient was brought to hospital with complaints of breathlessness and chest pain. He had these problems for one month and had been in and out of the hospital for the same during the past month. On his arrival at the hospital, he showed signs and symptoms of
cardiac failure. Upon the initial investigation, it was found that he had Pulmonary Edema and
rising serum creatinine of 2.5. He was medically optimized and investigated upon further.Upon workup, it was found that he had a low EF of 15 percent. CAG revealed that he had a severe triple vessel disease. He underwent further workup with PET scan for myocardial viability.He underwent CABG surgery and follow up is made. Which of the following vessels is used for this surgery?

A. Greater Saphenous vein
B. Internal mammary artery
C. Femoral vein
D. Popliteal artery

Answer : B

CABG is also called Heart bypass surgery done in the case of arteries supply heart blocked or narrowed, there are many other procedures like shunting etc but CABG is Gold standard.
Internal mammary artery is mostly used for CABG as it is least common to involve atherosclerosis.

Most common artery involved in Atherosclerosis is the Abdominal artery,

The most common peripheral artery involved in atherosclerosis is popliteal artery. Least common or rare artery to involve is the Circle of willis.
Extra mile:

Right Internal mammary(thoracic) artery is more preferred than left.

56. A 58 year male patient presented in the Emergency department at 1.45am in midnight with the complaint of severe substernal chest pain. Medical officer in Primary Health Center gave him sublingual nitroglycerin and oxygen referred him to a nearby community hospital which is 15 min away.His BP is 100/70 mmHg, HR is 80 bpm, he is oriented to place. Initial ECG is Normal. cardiac biomarkers are normal. What do you prefer to do next?

A. Cardiac stress test for ECG
B. Start him on Aspirin
C. Do angiography as soon as possible.
D. Plan for immediate Bypass Surgery.

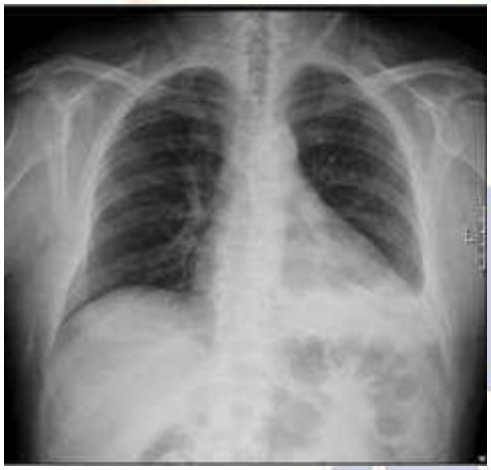
Answer : B

Diagnosis is Acute MI, sometimes acute MI present with normal ECG and Cardiac enzymes. Management is started immediately with antiplatelet drugs like Aspirin and anticoagulation with Heparin to treat thrombosis. Beta blockers used to limit infarct size, oxygen demand. Nitrates are given to cause vasodilation of coronary arteries. All this initiated to reduce risk of death due to MI.

Options A,C are used in Diagnosis of MI but in acute MI we should initiate with the above drugs to reduce mortality.

Option D: Bypass surgery is planned after doing all investigations if needed.

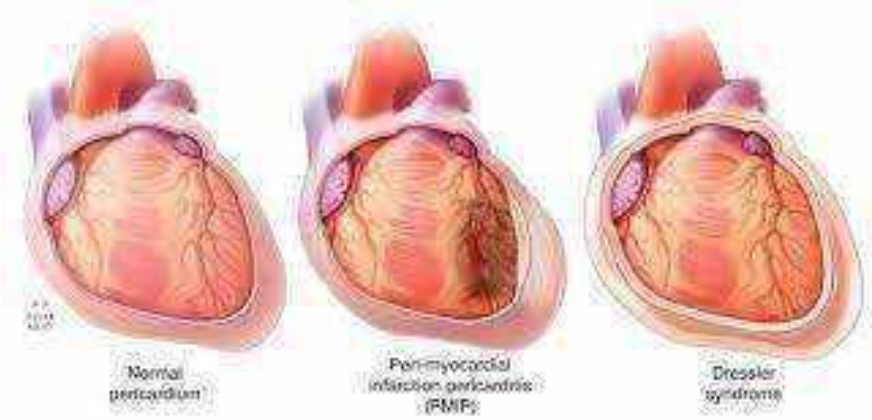
57. Sekhar, a 53 year old man, died at hospital due to severe chest pain. His BMI indicates overweight and past medical history states he underwent Heart Bypass Surgery for MI 45 days back, After discharge his medical condition is getting better and sometimes he suffered with chills, and Shortness of Breath. He is admitted back to hospital after recurrent episodes,on cardiac examination Heart Rate is 60 bpm, BP is 102/56 mmHg. Chest X-ray of the patient is given below. ECG shows persistent elevated ST segment. What is the cause of death in this patient?

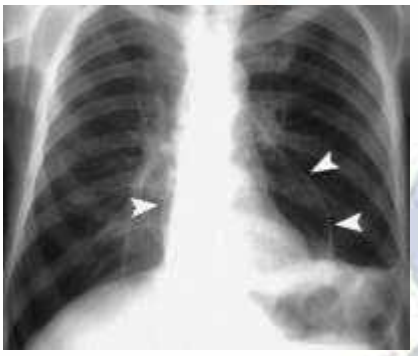


A. Pulmonary embolism
B. Cardiac tamponade
C. Dressler's syndrome
D. Pericarditis

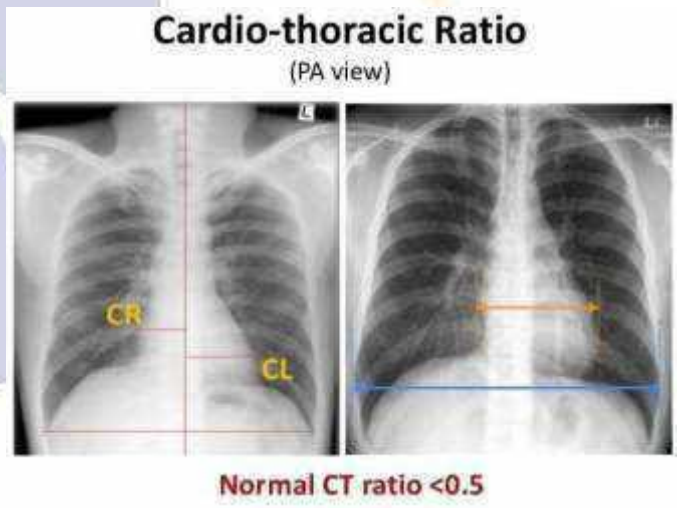
Answer : C

Dressler's syndrome is one of the post MI complications(it is also called postmyocardial infarction syndrome). It is recurrent pericarditis with fever,chest pain and pericardial effusion. This is due to an autoimmune inflammatory reaction. On ECG we find ST elevation, chest X ray shows enlarged heart due to pericardial effusion and bilateral pleural effusion is also seen sometimes.Treatment of dressler's syndrome is NSAIDs like Aspirin and resistant cases corticosteroids are used.





X-Ray says increased cardiothoracic ratio with a globular or 'flask-shaped' outline if there is co-existing pericardial effusion.



Option A: Pulmonary Embolism is blockage of lung artery, patients have Shortness of breath but to differentiate from Dressler's Syndrome have history of Surgery or MI.

Option B: A pericardial effusion with enough pressure to adversely affect heart function is called cardiac tamponade, Most common cause is Rupture of aortic aneurysm.

Option D: Pericarditis is inflammation of pericardium,presents with chest pain and ECG shows Saddle shaped ST elevation. It is most commonly caused by viral infection, one of the post MI complications.

Dressler's syndrome is recurrent pericarditis with fever,chest pain and pleural effusion.

FMGE CLINICAL VIGNETTES

RESPIRATORY SYSTEM

By

Dr. Sneha Edar,Bengaluru.

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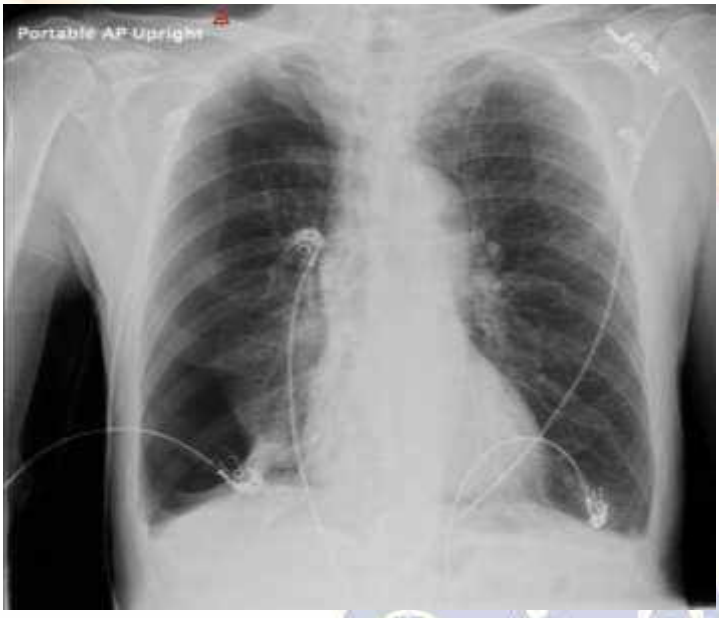
"Winners never quit, and quitters never win."
- Vince Lombardi

1. A 25 years old male presented with sudden onset of right-sided chest pain and dyspnea. On physical examination, he had marfanoid habitus with hyper-resonant nodes on percussion and decreased breath sounds on the right side of the chest. Chest x-ray is given below. What is most likely the cause of this patient's condition?



A. Obstructive hyperinflation
B. Compensatory hyperinflation
C. Rupture of apical blebs
D. Panacinar emphysema

Answer : C

Pneumothorax is suspected when a patient presents with sudden-onset unilateral chest pain with hyper-resonant node and absent breath sounds upon physical examination. This is a case of primary spontaneous pneumothorax (which occurs without underlying lung disorder). It is thought to result from rupture of apical blebs.

In Marfan syndrome, there is altered collagen fibre synthesis, which causes reduced elasticity and tensile strength of the terminal bronchioles and leads to appearance of apical blebs, lung cysts and ampullae. It is assumed that these individuals have more negative intrapleural pressures in the apical lung.

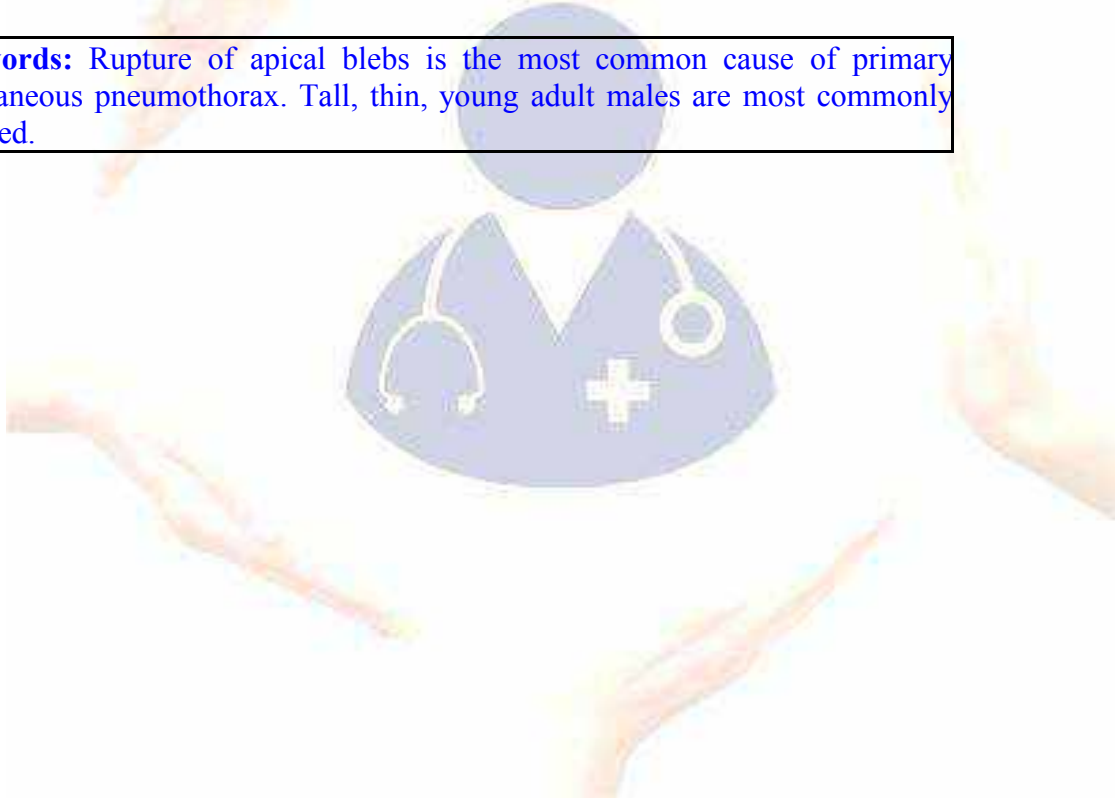
The associated risk factors of primary spontaneous pneumothorax are male sex, smoking, family history and Marfan syndrome.

Chest x-ray given suggests right-sided pneumothorax with no tracheal deviation. Visceral pleura sign is noted with the right lung laterally devoid of vascular markings.

Option A and Option B: Compensatory hyperinflation may occur in normal lung parenchyma when adjacent lung segments collapse or surgically removed. Obstructive hyperinflation of normal lung parenchyma occurs when lung segment expands due to subtotal obstruction of the bronchiole or bronchus supplying it. Both are unlikely to cause pneumothorax.

Option D: Panacinar emphysema is associated with alpha-1 antitrypsin deficiency. Pneumothorax in these cases is usually preceded by symptoms of emphysema (e.g. dyspnea).

Keywords: Rupture of apical blebs is the most common cause of primary spontaneous pneumothorax. Tall, thin, young adult males are most commonly affected.



2. A 60 years-old nonsmoker female presented to OPD with gradually worsening productive cough, shortness of breath and unintentional weight loss. Upon physical examination, she had decreased breath sounds and dullness to percussion of the right lung base. Imaging studies revealed irregular mass in the lower lobe of right lung and right-sided pleural effusion. If malignancy is suspected, it is most likely to be which of the types?

A. Squamous cell carcinoma
B. Adenocarcinoma
C. Small cell carcinoma
D. Mesothelioma

Answer : B

Adenocarcinoma is the most common subtype overall, occurring most frequently in women, non-smokers or former light smokers (<10 pack-year history) and younger adults (<60 years). The lesions in adenocarcinoma are usually more peripherally located.

Option A: Squamous cell carcinoma is most commonly found in men and is strongly associated with smoking. It usually affects larger bronchi, hence the lesions are more centrally located with necrosis and cavitations.

Option C: Small cell carcinoma is distinguished from other types by its aggressive behaviour. It is characterized by rapid growth, early local and distant spread. It has poor prognosis. The lesions are mostly centrally located. It has a strong relationship with cigarette smoking. Prophylactic CNS radiation is given for small cell lung cancer.

Option D: Mesothelioma most commonly arises from the mesothelium lining the pleural cavity. It commonly presents as unilateral pleural thickening or mass along with a large pleural effusion. Asbestos exposure is the most important risk factor.

Keywords: A young adult female, non-smoker, irregular mass in the lower lobe of the right lung are the clues for adenocarcinoma in this clinical vignette.

3. A 60 years-old male presented in OPD due to several weeks of non-productive cough, anorexia and unintentional weight loss. His medical history included a 40pack-year smoking history. An imaging study shows a 2.5 cm left lung mass not involving the pleura. What is the T stage of this suspected lung cancer?

A. T1a B. T2
C. T1b
D. T4

Answer : C

A 2.5 cm left lung mass not involving pleura is categorized as T1b stage. TNM staging of lung tumors is given below:

TNM STAGING OF LUNG TUMORS**:**

Tis	Carcinoma in situ
T1	Tumor </= 3 cms **without pleural or mainstem bronchus** involvement (T1a, <2 cm; **T1b, 2-3 cm**)
T2	Tumor 3-7 cm or involvement of mainstem bronchus 2 cm from carina, visceral pleural involvement, or lobar atelectasis (T2a, 3-5 cm; T2b, 5-7 cm)
T3	Tumor >7 cm or one with involvement of parietal pleura, chest wall (including superior sulcus tumors), diaphragm, phrenic nerve, mediastinal pleura, parietal pericardium, mainstem bronchus <2 cm from carina but without involvement of carina, or entire lung atelectasis, or separate tumor nodules in the same lobe
T4	Any tumor with invasion of
	mediastinum, heart, great vessels, trachea, recurrent laryngeal nerve, esophagus, vertebral body or carina or separate tumor nodules in a

	different ipsilateral lobe
N0	No metastasis to regional lymph nodes
N1	Ipsilateral hilar or peribronchial nodal involvement
N2	Metastasis to ipsilateral mediastinal or subcarinal lymph nodes
N3	Metastasis to contralateral mediastinal or hilar lymph nodes, ipsilateral or contralateral scalene, or supraclavicular lymph nodes
M0	No distant metastasis
M1	Distant metastasis (M1a, a separate tumor nodule in contralateral lobe or pleural nodules or malignant pleural effusion; M1b, distant metastasis)

Option A: This tumor is not of size <2 cm but has no pleural or mainstem bronchus involvement. Hence, it cannot be categorized as T1a stage.

Option B: This tumor is not of size 3-7 cm or has no involvement of mainstem bronchus 2 cm from carina, visceral pleural involvement, or lobar atelectasis. Hence, cannot be categorised as T2 stage.

Option D: This tumor has no invasion of mediastinum, heart, great vessels, trachea, recurrent laryngeal nerve, esophagus, vertebral body or carina or separate tumor nodules in a different ipsilateral lobe. Hence, cannot be categorized as T4 stage.

Keywords: When a clinical case of staging of lung tumor is given, always look for size of the tumor, structures involved for T staging, then go for lymph node involvement for N staging and then clues for distant metastasis for M staging.

4. A 55 year-old male underwent routine chest X-ray on post operative day 2. His past medical history revealed 50 pack-year smoking history. He had no complaints of any respiratory distress and was comfortable. Physical examination is unremarkable. Chest X-ray revealed that <25% of lung is collapsed. What is the next step in management of this patient?

A. Observe and give supplemental oxygen
B. Perform needle aspiration immediately
C. Perform thoracostomy with under water seal
D. Emergency department thoracotomy

Answer : A

This is a case of spontaneous pneumothorax after some surgical procedure. In spontaneous pneumothorax, when <25% of the lung is collapsed, we need to observe and give supplemental oxygen only.

Option B: When there is 25-50% of lung collapse in cases of spontaneous pneumothorax, needle aspiration is done.

Option C: When there is central cyanosis or >50% of lung collapse in cases of spontaneous pneumothorax, intercostal drain is placed at the 5th intercostal space midaxillary line with underwater seal.

Option D: Emergency department thoracotomy should be reserved for those patients suffering penetrating injury in whom signs of life are still present.

Keywords: Treatment of spontaneous pneumothorax in most cases depends on the percentage of the lung collapsed.

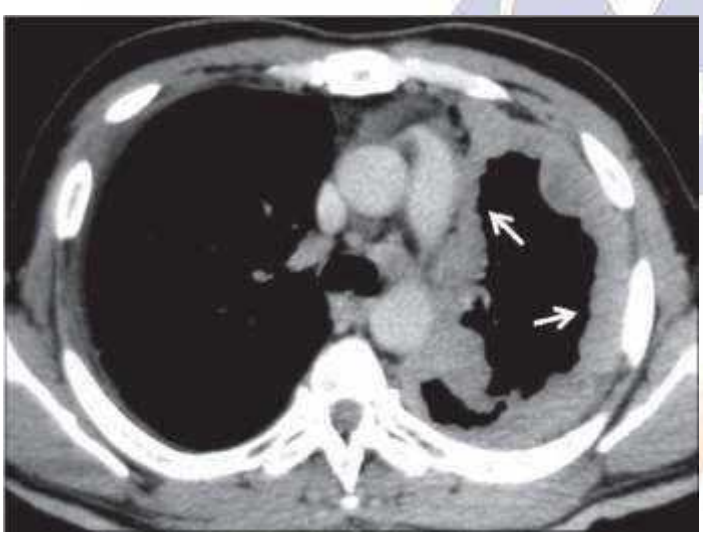
5. A 70 year-old male came into OPD due to 6 weeks of progressive dyspnea. He had a nonproductive cough for 4 months. He worked in an asbestos mining industry for 40 years. Upon physical examination, there are decreased breath sounds and dullness on percussion at the base of the left lung. Chest CT scan reveals left-sided pleural effusion and diffuse nodular thickening of the pleura. Lung parenchyma is intact. What is the probable diagnosis?

A. Small cell carcinoma
B. Squamous cell carcinoma
C. Carcinoid lung tumor
D. Malignant Mesothelioma

Answer : D

Thoracic mesothelioma arises from mesothelial cells lining the visceral or parietal pleura. It's a rare malignant neoplasm.
Heavy asbestos exposure is the only environmental risk factor.
On imaging, nodular pleural thickening is the main finding and lung parenchyma is typically intact.
The presenting complaints are chest pain, dyspnea and recurrent pleural effusions.

Chest CT showing nodular thickening of pleura is given below:



Option A: Small cell carcinoma arises in major bronchi or periphery of the lung. On chest imaging, it is seen as a hilar mass. It has a strong relationship to cigarette smoking.

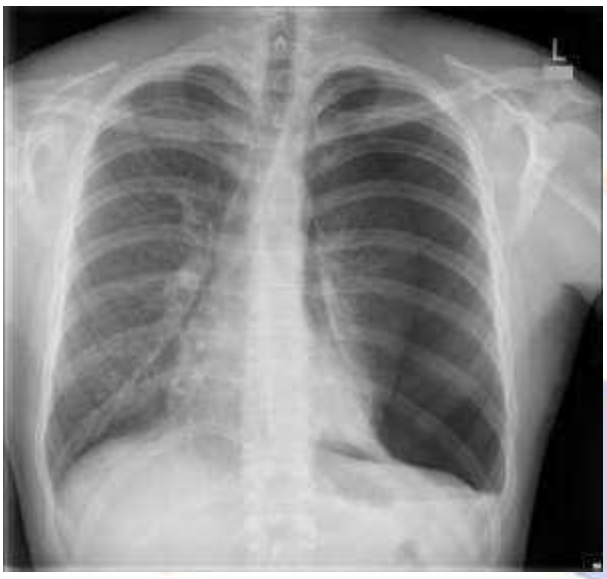
Chest x-ray showing left hilar mass is given below:

Option B: Squamous cell carcinoma is most commonly found in men and is strongly associated with smoking. It usually affects larger bronchi, hence the lesions are more centrally located with necrosis and cavitations.

Option C: Individuals with carcinoid lung tumors are younger than 40 years of age, and the incidence is equal in both sexes. They may arise centrally or peripherally. Most are confined to mainstem bronchi.

Keywords: Heavy asbestos exposure with smooth or nodular pleural thickening on imaging raises a high suspicion on diagnosis of malignant mesothelioma.

6. A 18 year-old male was involved in a riot and was brought into the emergency department after being stabbed on the left side just above the clavicle. Upon physical examination, his blood pressure was 80/50 mm Hg, heart rate is 120/min and decreased breath sounds on left lung fields. Chest x-ray is given below. Which of the following structures are most likely injured?



A. Carotid body
B. Lung pleura
C. Ansa cervicalis
D. Inferior thyroid artery

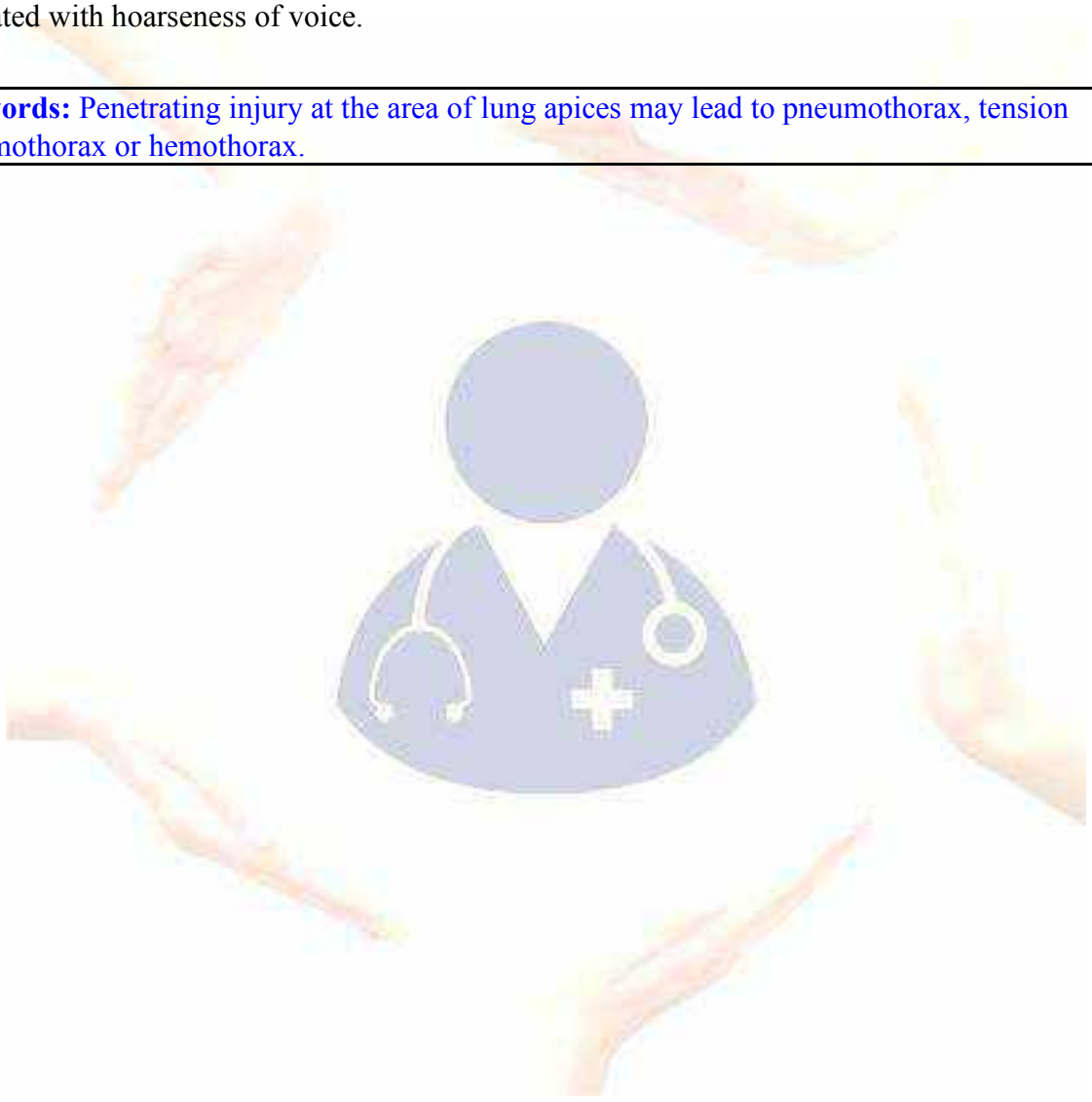
Answer : B

In patients with neck injuries, note that lung apices and cervical pleura extend above the clavicle and the first rib. Stab wounds above the clavicle can most likely puncture the lung pleura and cause tension pneumothorax.
In tension pneumothorax, the defect acts as a flap valve and permits the entrance of air during inspiration but fails to permit its escape during expiration, thus progressively increasing pressures which may be sufficient to compress vital mediastinal structures and the contralateral lung.
Signs and symptoms of tension pneumothorax include tachycardia, hypotension, tachypnea, hypoxemia, absent breath sounds on auscultation and hyperresonant nodes on percussion on the affected side.
Chest x-ray given reveals tracheal deviation, mediastinal shift to the right and flattening of left hemidiaphragm which gives an impression of left tension pneumothorax.
Option A: The carotid body contains chemoreceptors of O2, CO2 and H+. Penetrating trauma at the bifurcation of the common carotid artery just inferior to the hyoid bone can injure this structure.

Option C: The ansa cervicalis (Root value: C1, C2, C3) innervates the sternothyroid, sternohyoid, and omohyoid muscles of the anterior neck. Penetrating trauma to the neck above the cricoid cartilage can injure this nerve.

Option D: The inferior thyroid artery courses posterior to the carotid artery and jugular vein to supply the inferior pole of the thyroid gland. Injury to this is commonly associated with hoarseness of voice.

Keywords: Penetrating injury at the area of lung apices may lead to pneumothorax, tension pneumothorax or hemothorax.



7. A 60 year-old man comes in to OPD for a health check up. He was a shipbuilding industry worker for 20 years and was told by his employer that he had significant exposure to asbestos. He had 30 pack-years smoking history. The patient is at the risk of developing which cancer?

A. Malignant mesothelioma
B. Gastric carcinoma
C. Acute leukemias
D. Bronchogenic carcinoma

Answer : D

Asbestos has insulating property so it is used in the shipbuilding, construction, and textile industries. Bronchogenic carcinoma is the most common malignancy associated with asbestos exposure. Smoking and asbestos exposure have synergistic effects on developing lung cancer.

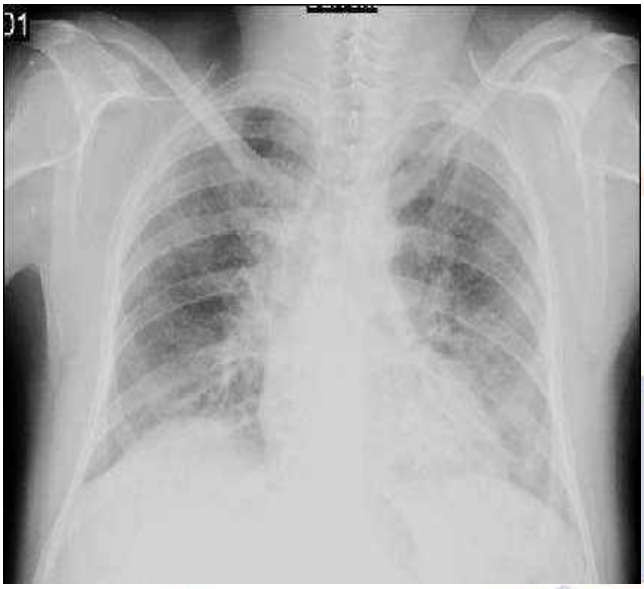
Option A: Malignant mesothelioma is the rare malignancy of pleura. It is more specific for heavy asbestos exposure.

Option B: Gastric carcinoma is associated with H.pylori infection, consumption of canned foods, and smoking.

Option C: Acute leukemias is associated with direct alkylating agents and benzene exposure.

Keywords: Bronchogenic carcinoma is the most common malignancy associated with asbestos exposure followed by mesothelioma.

8. A 35 year-old male presents to OPD with fever for 2 weeks, non-productive cough and significant weight loss. His past medical history revealed he has HIV. He is a non-smoker and a non-alcoholic. Chest x-ray is given below. What is the probable diagnosis?



A. Mycoplasma pneumonia
B. Pneumococcal pneumonia
C. Pneumocystis jirovecii pneumonia
D. Klebsiella pneumonia

Answer : C

Pneumocystis jirovecii pneumonia is an opportunistic fungal infection in immunocompromised hosts particularly those with HIV infection (when CD4 count is <200/ml), organ transplants, COPD patients etc,. The clinical manifestations include fever, profound weight loss, non-productive cough with progressive shortness of breath, ultimately resulting in respiratory failure and death.
Chest X-ray given reveals bilateral reticulonodular infiltrates and linear opacities which is suggestive of P.jirovecii pneumonia.

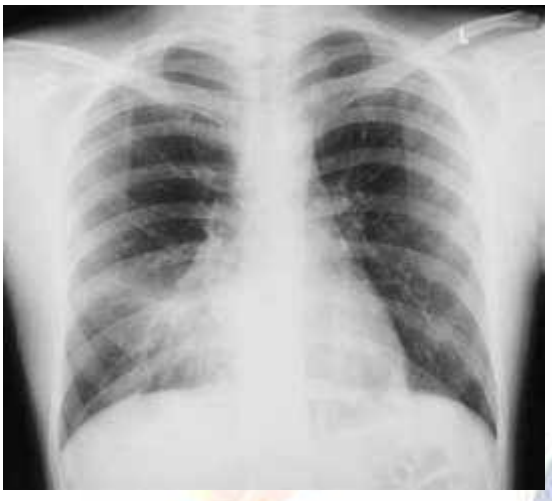
Option A: Mycoplasma pneumoniae causes flu-like symptoms (headache, myalgia, arthralgia, dry cough etc.). Chest X-ray shows patchy consolidation.
Option B: Pneumococcal pneumonia is caused by Streptococcus pneumoniae. It is the most common organism causing pneumonia. It commonly causes pneumonia in old age individuals, immunocompromised, alcoholics etc,. Rusty sputum is the characteristic

feature in Pneumococcal pneumonia. Also it reactivates Herpes simplex virus leading to Herpes labialis.

Option D: Klebsiella pneumonia is most commonly seen in alcoholics, diabetics and old age individuals. Red currant-jelly sputum and hemoptysis are characteristic features.

Keywords: HIV patient presenting with fever, profound weight loss and non-productive cough raises high suspicion of Pneumocystis jirovecii pneumonia.

9. A 35 year-old man presented to OPD with complaints of intermittent fever for 5 days, productive cough with shortness of breath. On physical examination,"E" is heard as "A"and tubular bronchial breathing is heard over the right mammary area. Chest x-ray is given below. What is the probable diagnosis?



A. Right lower lobe consolidation
B. Right middle lobe consolidation
C. Right sided pleural effusion
D. Lingular consolidation

Answer : B

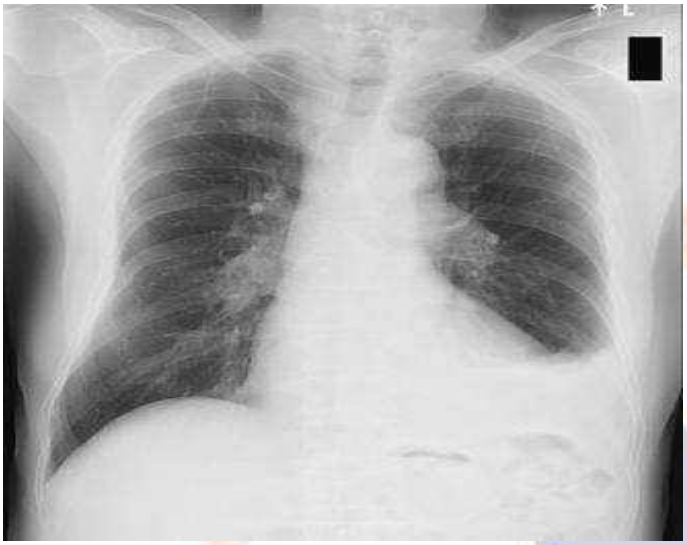
This is a case of typical/lobar pneumonia. This has acute onset with symptoms of fever, cough with sputum, tachypnea, tachycardia and pleuritic chest pain. On physical examination, it has tubular bronchial breathing, egophony ("A" is heard as "E"), increased vocal fremitus and vocal resonance.
The most commonly used biomarkers for severe inflammation are C-reactive protein and Procalcitonin (best) and they increase in the presence of bacterial pathogens.
In the given chest x-ray, the right middle lobe silhouettes the right heart border on the frontal view which is suggestive of right middle lobe consolidation.
Option A: On frontal chest x-ray of right lower lobe consolidation, right lower lobe silhouettes the right hemidiaphragm.

Option C: On frontal chest x-ray of right sided pleural effusion, blunting of costophrenic angles will be seen.

Option D: On the frontal chest x-ray of lingual consolidation, as lingula is a part of the left upper lobe it will silhouettes the left heart border.

Keywords: A patient presenting with fever, productive cough, egophony and tubular bronchial breathing over right mammary areas raises suspicion of right middle lobe pneumonia. Chest X ray shows fluffy opacities,no destruction of lung parenchyma, air bronchogram abd silhouette sign which are indicative of lobar pneumonia.

10. A 70 year-old male presented with progressive dyspnea at rest. Chest x-ray is given below and is most likely left-sided pleural effusion. The pleural fluid analysis revealed an exudative pleural effusion. All the following statements are true about exudate except?



A. Pleural fluid/ serum protein >0.5
B. Pleural fluid/ serum LDH >0.6
C. Pleural fluid LDH >2/3 upper normal serum limit
D. Congestive heart failure, cirrhosis, nephrotic syndrome are causes of exudative pleural effusion

Answer : D

An exudative pleural effusion occurs when the local factors that influence the formation and absorption of pleural fluid are altered.
Some of the causes are neoplastic diseases like mesothelioma, infectious diseases like tuberculosis, fungal infections, viral infections, parasitic infections, pulmonary embolism, asbestos exposure, sarcoidosis, gastrointestinal diseases like pancreatic disease, esophageal perforation, diaphragmatic hernia, etc.

A transudative pleural effusion occurs when systemic factors that influence the formation and absorption of pleural fluid are altered.

Some of the causes are congestive heart failure, cirrhosis, nephrotic syndrome, peritoneal dialysis, superior vena cava obstruction, myxedema and urinothorax.

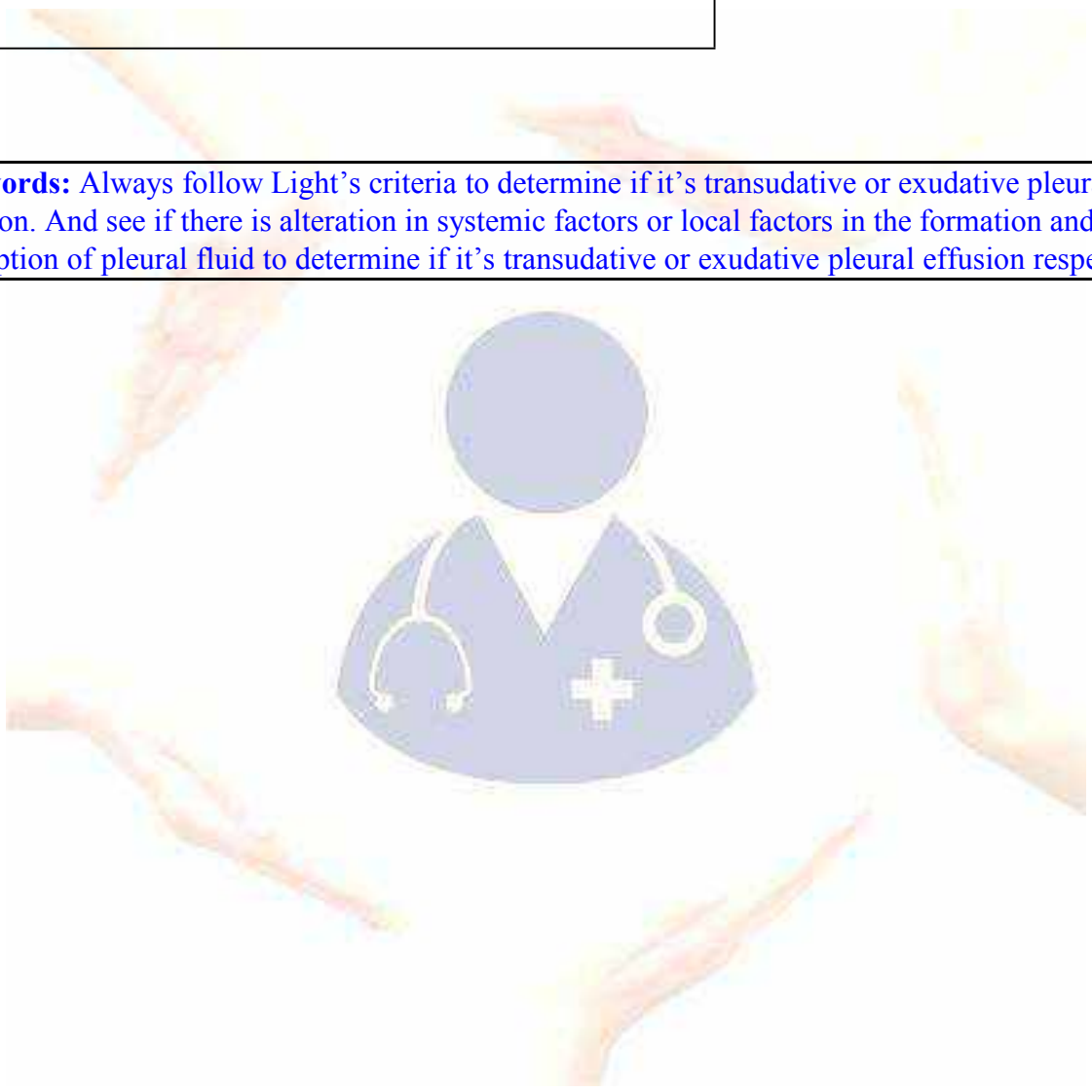
Option A, B, C: Exudative pleural effusions meet at least one of the following criteria, whereas transudative pleural effusions meet none.

Pleural fluid/ serum protein >0.5

Pleural fluid/ serum LDH >0.6

Pleural fluid LDH >2/3 upper normal serum limit

Keywords: Always follow Light's criteria to determine if it's transudative or exudative pleural effusion. And see if there is alteration in systemic factors or local factors in the formation and absorption of pleural fluid to determine if it's transudative or exudative pleural effusion respectively.



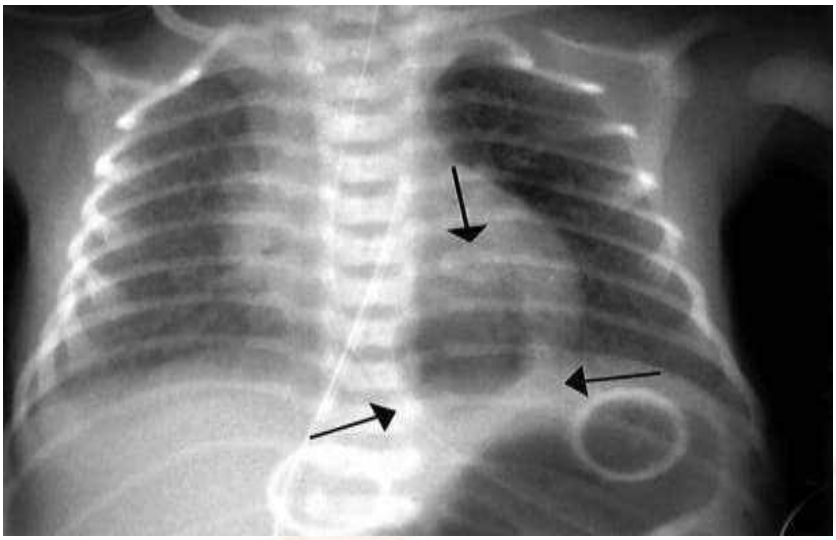
11. A 40 year-old male returned from a holiday stay in Goa two weeks ago and developed progressive malaise, intermittent high-grade fever, dry cough, shortness of breath, confusion and watery diarrhea. Which pathogenic organism is suspected?

A. Staphylococcus aureus
B. Methicillin-resistant S.aureus
C. Klebsiella pneumonia
D. Legionella pneumonia

Answer : D

Legionella pneumonia: The clinical scenario mentioned is highly suggestive of atypical pneumonia caused by Legionella.
Clinical clues of Legionnaires disease are diarrhea, high-grade fever and confusion. Risk factors include cigarette smoking, chronic lung disease like COPD, advanced age, diabetes, immunocompromised states, a recent hotel stay or on ship cruise in the previous 2 weeks etc,. Gastrointestinal difficulties are often pronounced with diarrhea as a predominant symptom. The most common neurological abnormalities are confusion or change in mental status.
Legionella can be transmitted through cooling towers. Home and air-conditioning units are not at risk for Legionella growth. Legionella urinary antigen test is the preferred test.
The macrolides (especially azithromycin) and the quinolones (especially levofloxacin or ciprofloxacin) are the antibiotics of choice and are effective as monotherapy.

Option A: Staphylococcus aureus causes typical pneumonia. It is well known to complicate influenza infection and is associated with structural lung disease (e.g., bronchiectasis). It is most commonly associated with IV drug abusers and pediatric age groups. It can cause pneumothorax and cavitation of the lung. Chest x-ray most commonly shows pneumatoceles shown below:

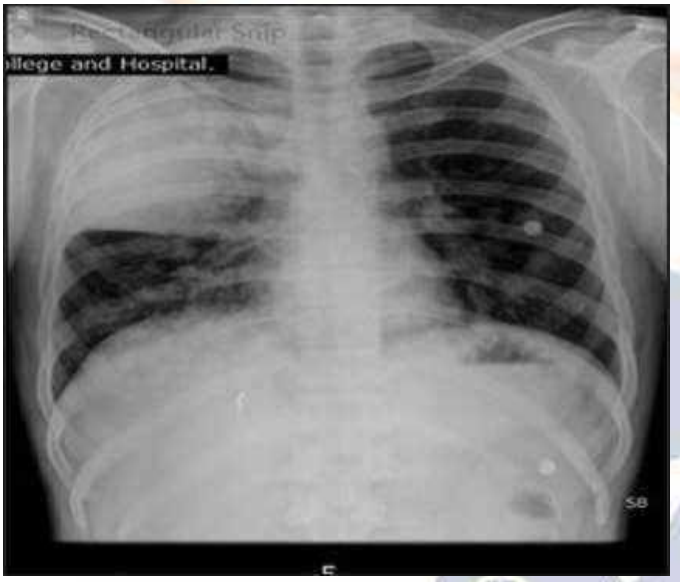


Option B: Most infections of MRSA have been acquired directly or indirectly with the health care environment. It is one of the non-multidrug resistant pathogens of ventilator-associated pneumonia. Gross hemoptysis is suggestive of CA-MRSA pneumonia.

Option C: Klebsiella pneumoniae causes atypical pneumonia and is associated most commonly with alcoholics. It causes cavities and patient presents with red currant-jelly sputum.

Keywords: A patient presenting with atypical pneumonia after a stay in a hotel or a ship cruise raises high suspicion of Legionella.
Mild form of Legionella pneumonia can cause Pontiac fever.
Severe form of Legionella pneumonia can cause Legionnaires disease leading to pneumonia.

12. A 59 year-old man presented with low-grade fever, cough with blood-streaked sputum, pleuritic chest pain and shortness of breath. His personal history revealed he is a chronic alcoholic for the past 20 years and had a 40 pack-year smoking history. On physical examination, his respiratory rate was 32/ min, heart rate was 106/ min, on the right side there was tubular bronchial breathing, increased vocal fremitus, increased vocal resonance and dull note on percussion. Chest x-ray is given below. What is the most likely pathogen?



A. Enterobacteriaceae
B. Klebsiella pneumonia
C. Pseudomonas pneumonia
D. Anaerobes

Answer : B

The given scenario is highly suggestive of lobar/typical pneumonia caused by Klebsiella pneumonia.

It is most commonly associated with alcoholics.

Patient characteristically presents with a blood-streaked sputum called red-currant jelly sputum. It usually involves one of the upper lobes.

The affected lobe typically appears swollen, producing the bulging fissure sign on chest x-ray as given in this case.

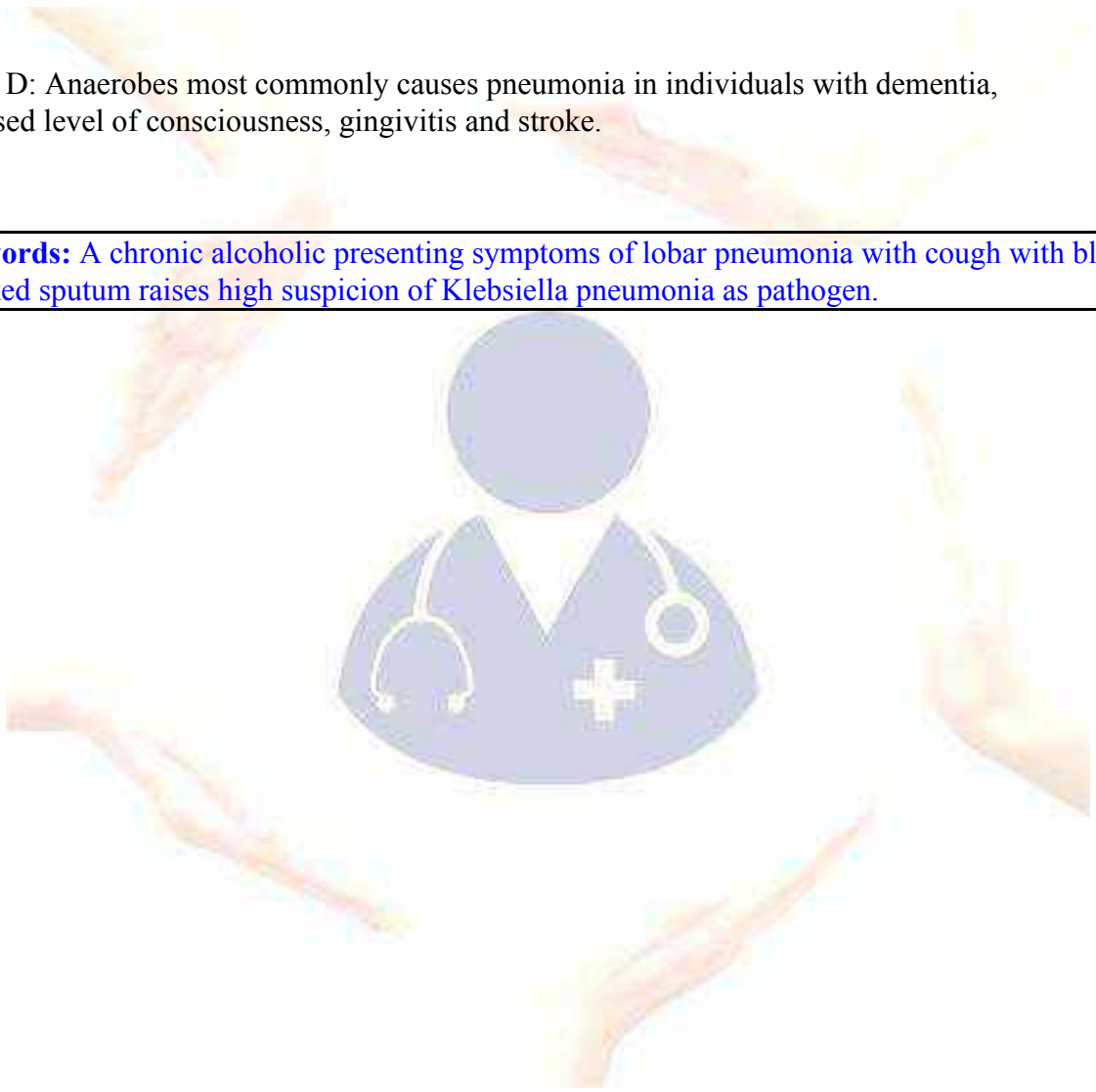
Cavitation, especially in the presence of a unilateral necrotizing pneumonia, strongly suggests a possibility of a Klebsiella organism as pathogen.

Option A: Enterobacteriaceae tend to infect patients who have recently been hospitalized and/ or received antibiotic therapy or who have comorbidities such as alcoholism, heart failure, or renal failure.

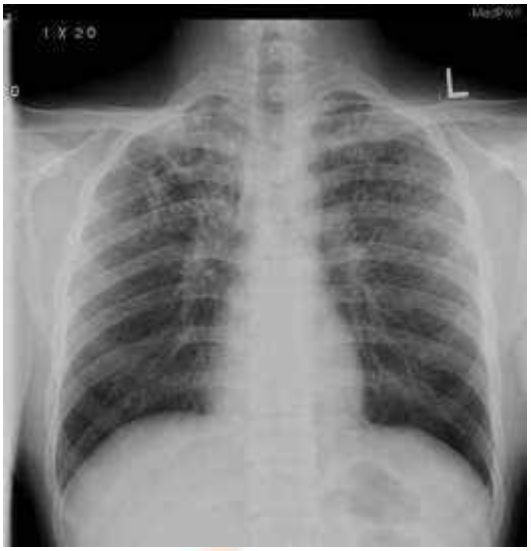
Option C: Pseudomonas pneumonia most commonly causes pneumonia in individuals with structural lung disease/ COPD/ bronchiectasis.

Option D: Anaerobes most commonly causes pneumonia in individuals with dementia, decreased level of consciousness, gingivitis and stroke.

Keywords: A chronic alcoholic presenting symptoms of lobar pneumonia with cough with blood streaked sputum raises high suspicion of Klebsiella pneumonia as pathogen.



13. A 65 year-old male presented to OPD with cough, weight loss, anorexia and occasional hemoptysis. His past medical history revealed poorly controlled diabetes mellitus and 30 pack-year smoking history. Chest x-ray is given below. Sputum microscopy shows acid fast bacilli. Which stage of pathogenesis is this?



A. Primary infection
B. Latent infection
C. Secondary tuberculosis
D. Miliary tuberculosis

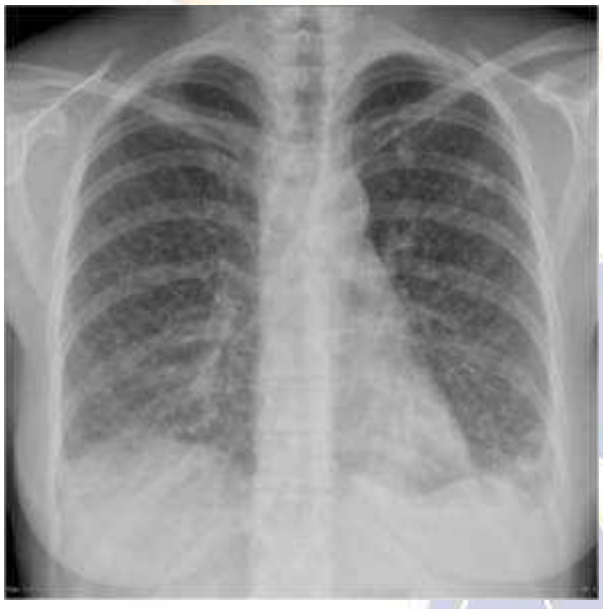
Answer : C

The patient's symptoms, acid-fast bacilli on culture, upper lobe cavitary lesion and reticulonodular infiltrates on chest x-ray are suggestive of secondary or reactivation tuberculosis. His advanced age and comorbidities have put him at risk for reactivation disease.
The predilection for upper lung regions may be related to decreased lymphatic flow or increased oxygen tension. The organisms multiply in the apices, causing caseous and liquefactive necrosis and extensive cavitary disease.
Erosion into the pulmonary vessels can result in severe hemoptysis.

Option A: Primary tuberculous infection occurs following inhalation of aerosolized Mycobacterium tuberculosis. It may be asymptomatic or may present with fever and occasionally pleuritic chest pain. Because most inspired air is distributed to the middle and lower lung zones, these areas are commonly involved in primary TB. It then spreads lymphatically to the hilar lymph nodes, forming a Ghon complex in the lower lungs.

Option B: The organisms can remain in a walled-off Ghon complex for many years before reactivating called as Latent phase. Alternatively, the lesion may heal, forming a benign, calcified Ranke complex.

Option C: Hematogenous dissemination of bacteria to multiple organs causes miliary tuberculosis. Chest x-ray of miliary tuberculosis is given below:



A chest x-ray of miliary tuberculosis showing widespread small (2-4mm) nodular opacities distributed throughout the lungs.

Keywords: Reactivation or secondary tuberculosis occurs most often in immunocompromised patients and is characterized by apical cavitary lesions and hemoptysis.

14. A 30 year-old male presented with the chief complaint of cough for 4 weeks. The cough is now productive with non- foul smelling blood-streaked purulent sputum. He has lost 15 kilograms but claims to have poor appetite. On physical examination, coarse rales are heard in the apex of the left lung. An acid-fast stain of the sputum reveals acid-fast rods. What is the most likely causative agent?

A. Mycobacterium leprae
B. Mycobacterium marinum
C. Mycobacterium tuberculosis
D. Mycobacterium abscessus

Answer : C

This is a case of tuberculosis caused by Mycobacterium tuberculosis. Signs and symptoms include diurnal fever, night sweats due to defervescence, weight loss, anorexia, general malaise, and weakness. In up to 90% of cases, cough eventually develops-often initially nonproductive and limited to the morning and subsequently accompanied by the production of purulent sputum, sometimes with blood streaking. Upon physical examination, many patients have no abnormalities, whereas others have detectable rales in the involved areas during inspiration, especially after coughing. A presumptive diagnosis is commonly based on the finding of acid-fast bacilli on microscopic examination of a diagnostic sputum.

Option A: Mycobacterium leprae causes Leprosy, a nonfatal, chronic infectious disease, the clinical manifestations of which are largely confined to the skin, peripheral nervous system, upper respiratory tract, eyes and the testes. M. leprae is an obligate intracellular bacillus confined to humans, armadillos, and sphagnum moss. It is acid-fast, indistinguishable microscopically from other mycobacteria, and ideally detected in tissue by a modified Fite strain.

Option B: Mycobacterium marinum is a common cause of cutaneous and tendon infections in coastal regions and among individuals exposed to fish tanks or swimming pools.

Option D: Mycobacterium abscessus is a rapidly growing nontuberculous mycobacterial infection and is associated with esophageal motility disorder like achalasia.

Keywords: A patient presenting with cough for 4 weeks that progresses from non-productive to productive purulent cough, sometimes with blood, anorexia, weight loss, coarse rales on auscultation and acid fast bacilli stains.

15. A 75 year-old woman presents with low-grade fever, productive cough, confusion and respiratory distress. On physical examination, the respiratory rate was 34/ min, heart rate was 110/ min, blood pressure was 80/50 mm Hg, and bronchial breath sounds on the left side of chest. The patient is best managed by?

A. Combination of Ceftriaxone + Moxifloxacin + Linezolid + Clindamycin
B. Combination of Azithromycin and Ceftriaxone
C. Macrolides or Doxycycline
D. Combination of Piperacillin/Tazobactam and Levofloxacin

Answer : B
CURB-65 score in this case of lobar pneumonia is calculated as follows:
RR 34/ min, BP 80/50 mm Hg, age 75 years, confusion.
Hence, the total score is 4.
The patient can be best managed by a combination of Azithromycin and Ceftriaxone in an ICU setting.

Extra mile:
The CURB-65 criteria is validated for predicting mortality in CAP and includes five variables:
Confusion
Urea >7 mmol/L
Respiratory rate >/= 30/ min
Blood pressure </= 90/60 mm Hg
Age >/= **65** years
Patients with a score of 0 can be treated outside the hospital
Patients with a score of 1 or 2, the patient should be hospitalized.
Patients with the score of >/= 3, they require ICU admission.

Empirical antibiotic treatment of CAP for patients admitted in ICU are:
A Beta-lactam (Ceftriaxone, Ampicillin-Sulbactam, or Cefotaxime *plus* either Azithromycin or a Fluoroquinolone

Option A: The empiric treatment of choice for ICU patients with suspected CA-MRSA is: Beta-lactam + Fluoroquinolone/Azithromycin PLUS Linezolid/Vancomycin with or without Clindamycin to cover CA-MRSA.

Option C: For the patients with CURB-65 score of 0, the drug of choice is Macrolides. (Azithromycin or Clarithromycin or Doxycycline).

Option D: Combination of Piperacillin/Tazobactam and Levofloxacin is preferred in Pseudomonas is considered.

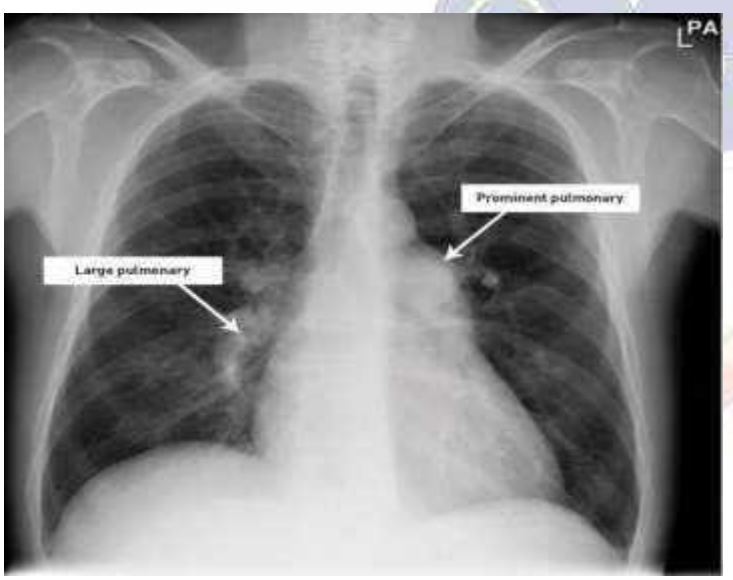
16. A 58 year-old man presented with daytime sleepiness and lack of energy. The symptoms began 6 months ago and progressively worsened. His wife complains that he snores loudly. His BMI is 34 kg/m^2. He was diagnosed with obstructive sleep apnea. The patient is at increased risk of developing which of the following?

A. Bronchiectasis
B. Hypertrophic cardiomyopathy
C. Pulmonary hypertension
D. Laryngeal carcinoma

Answer : C

Prolonged untreated obstructive sleep apnea can cause pulmonary hypertension and right heart failure.
Most patients with obstructive sleep apnea will develop systemic hypertension due to chronic sympathetic stimulation and elevated plasma norepinephrine levels.
Patients also lose the normal diurnal variation in blood pressure.
Pulmonary hypertension is defined as an elevation in pulmonary arterial pressures (mean pulmonary artery pressure (PAP) >22 mm Hg or an estimated systolic PAP >36 mm Hg).
Right heart catheterization is the gold standard in diagnosing PAH.

Chest X-ray of Pulmonary hypertension is given below:



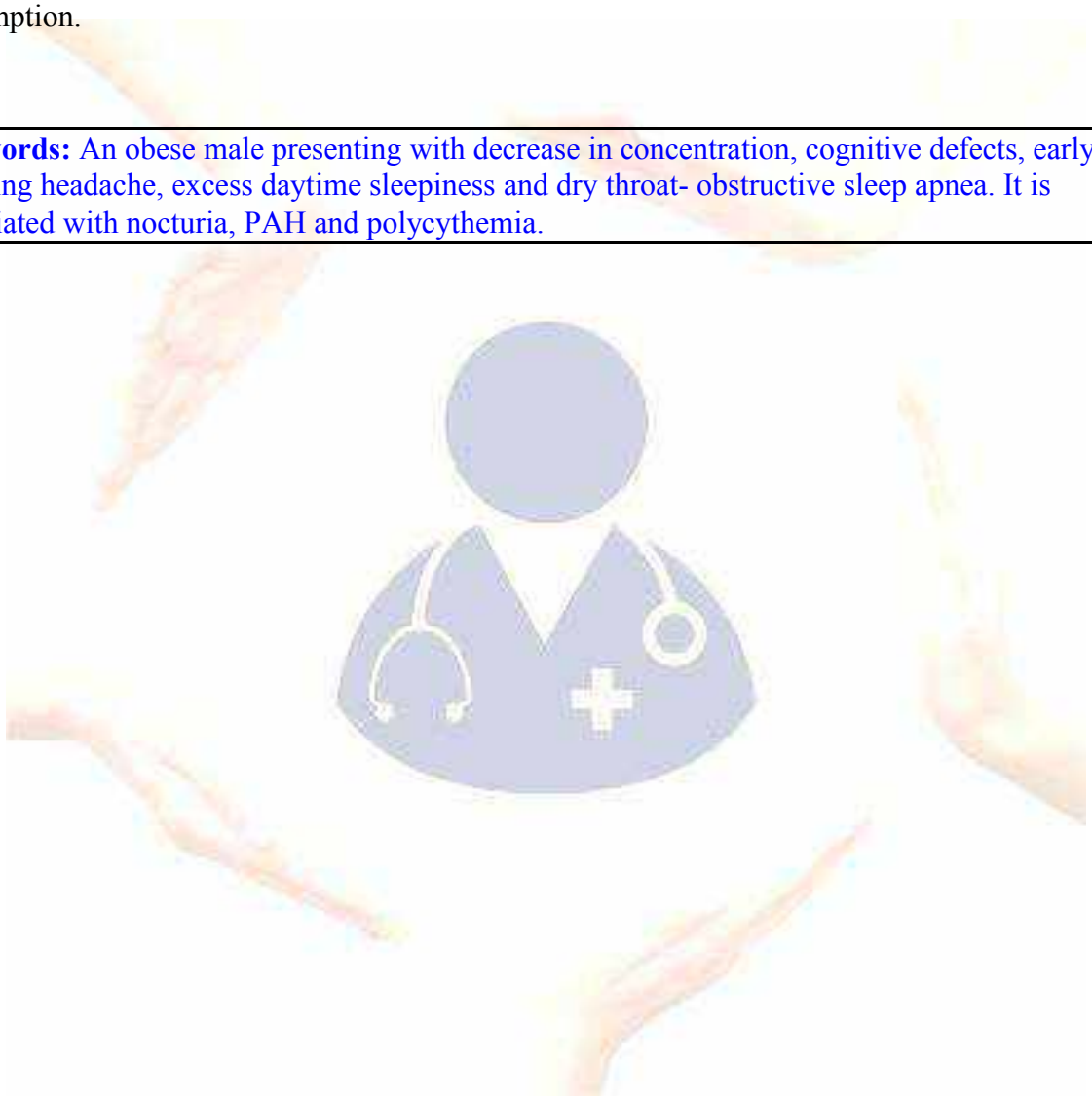
Option A: Acquired bronchiectasis may be seen in patients with airway obstruction (e.g., right middle lobe obstruction due to lymph node secondary to tuberculosis),

immunodeficiency, recurrent infections and impaired mucociliary clearance (e.g,. cystic fibrosis).

Option B: Hypertrophic cardiomyopathy is an autosomal dominant disease with sarcomere gene mutation. It is not associated with hypertension or OSA.

Option D: Laryngeal carcinoma is associated with cigarette smoking and heavy alcohol consumption.

Keywords: An obese male presenting with decrease in concentration, cognitive defects, early morning headache, excess daytime sleepiness and dry throat- obstructive sleep apnea. It is associated with nocturia, PAH and polycythemia.



17. A 50 year-old woman is evaluated for progressive exertional dyspnea and fatigue. Cardiac examination reveals an accentuated second heart sound over the upper left sternal border. Based on suspicion, which of the following therapies is this patient most likely to benefit from?

A. Albuterol
B. Nitrates with Sildenafil
C. Immunosuppressants
D. Phosphodiesterase 5 inhibitors

Answer : D

An accentuated second heart sound indicates elevated pulmonary artery pressure (pulmonary artery hypertension). One of the therapies used for PAH is phosphodiesterase inhibitors which increase cGMP and cause vasodilation. Other drug classes used for PAH are prostanoids, endothelin receptor antagonists, guanylyl cyclase stimulators and calcium channel blockers.

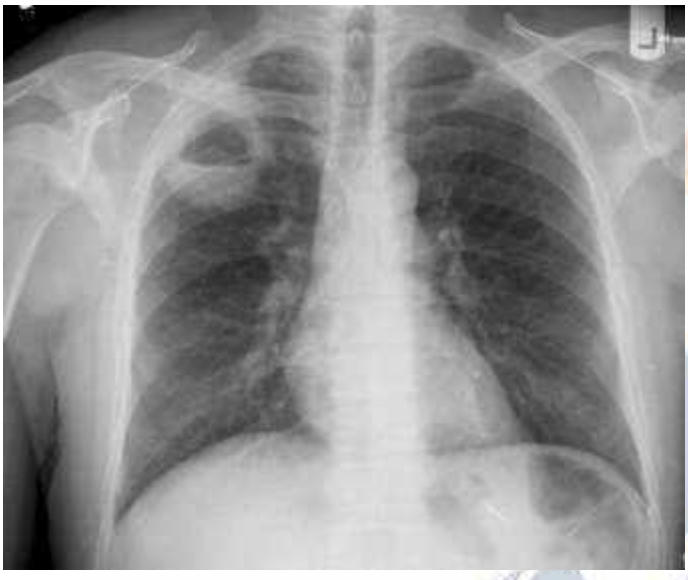
Option A: Albuterol is an example of bronchodilator. Since PAH is a vascular disorder bronchodilation is not beneficial.

Option B: Nitrates with Sildenafil is contraindicated in PAH due to risk of hypotension.

Option C: Immunosuppressants play no role in PAH.

Keywords: An accentuated second heart sound over the upper left sternal border is the clue in the case of PAH. Since PAH is a vascular disorder, vasodilators are beneficial.

18. A 56 year-old male is hospitalized with spiking fevers and productive cough. He was diagnosed with typical pneumonia a week ago and received a short course of antibiotics, but his condition has failed to improve since then. His past medical history revealed he is diabetic and had a 30 pack-year smoking history. Chest X-ray is given below. What is the probable diagnosis?



A. Pulmonary embolism
B. Pulmonary abscess
C. Pulmonary fibrosis
D. COPD

Answer : B

Pulmonary abscesses represent necrosis and cavitation of the lung following microbial infection. If the abscess cavity communicates with an air passage, the semiliquid exudate within will partially drain, creating an air-containing cavity that can be identified on a chest radiograph.

Option A: Patients with Pulmonary embolism are asymptomatic if emboli are small. If emboli is big, patients present with sudden breathlessness, syncope, hemoptysis and sudden death.

Option C: Pulmonary fibrosis manifests with gradual-onset dyspnea, first with exertion and then progressing to symptoms at rest.

Option D: COPD encompasses a spectrum of disease between chronic bronchitis and emphysema. Chest x-ray of COPD shows hyperinflated lungs, flattening of diaphragm and tubular shaped heart.

Keywords: A chest x-ray showing a thick walled cavity with an air-fluid level is a hint in case of lung abscess.

19. A 30 year-old female was admitted to casualty with hysteria and anxiety. The physician extracted blood for arterial blood gas (ABG) interpretation. The ABG report revealed pH of 7.55; HCO_3^- of 24 mEq/ L and PCO_2 of 27 mm Hg.What is the interpretation of this report?

A. Metabolic acidosis
B. Metabolic alkalosis
C. Respiratory alkalosis
D. Respiratory acidosis

Answer : C

The ABG analysis suggests a diagnosis of Respiratory alkalosis.

Normal values:

pH 7.35-7.45,
pCO_2 40 mm Hg (35-55 mm Hg)
HCO_3^- 24 meq/ L (22-30 meq/ L)

A pH of >7.45 suggests alkalosis. In this case given, pH is 7.55 which is diagnostic of alkalosis.
Since the change in pCO_2 is in keeping with change in the pH, the primary disorder is respiratory.

Metabolic component HCO_3^- is normal.

The patient therefore has respiratory alkalosis.

Option A:The lab findings of metabolic acidosis are a low pH, low HCO_3^-, and a low pCO_2.

Option B: The lab findings of metabolic alkalosis are a high pH, a high HCO_3^-, and with a high pCO_2.

Option D: The lab findings of acute respiratory acidosis (<8 hours duration) are a low pH, a high pCO_2 and mildly increased HCO_3^-. The lab findings of chronic respiratory acidosis (>24 hours duration) are a low normal pH, a high pCO2 and a high HCO_3^-.

Keywords: The lab findings of acute respiratory alkalosis are a high pH, mildly low HCO_3^-, and a low pCO_2. The lab findings of chronic respiratory alkalosis are a high pH, a low HCO_3^- and a low pCO_2.

20. A 30 year-old man is brought to the emergency department due to heroin overdose. A physician extracted blood for ABG interpretation. The report showed pH of 7.25, pCO_2 of 70 mm Hg and HCO_3^- of 25 mEq/L. What is the interpretation of this report?

A. Metabolic acidosis
B. Metabolic alkalosis
C. Respiratory alkalosis
D. Respiratory acidosis

Answer : D

Heroin overdose shows acute respiratory acidosis as it suppresses respiratory centers and causes hypoventilation with retention of CO_2.

The pH of lower than 7.35 signifies acidosis. The pH value in this clinical vignette has an arterial blood pH of 7.25, which is diagnostic of acidosis.

Respiratory acidosis occurs due to retention of CO_2 in the lungs and presents with a low pH and a high pCO_2.

In acute respiratory acidosis (<8 hours of duration), the low pH and elevated pCO2 are accompanied by a normal or only slightly elevated HCO_3^- (<30).

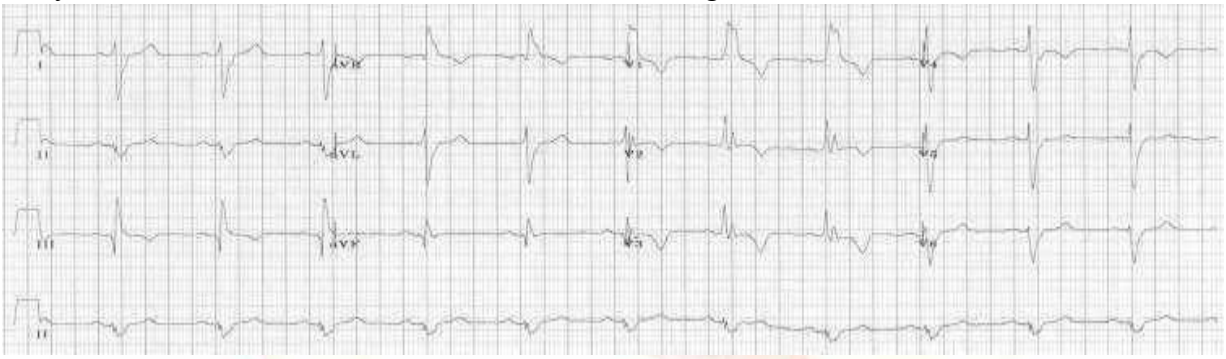
In chronic respiratory acidosis (>24 hours duration), the level of HCO_3^- (>30) becomes slightly elevated due to renal compensation.

Option A,B and C:

Acid-base disturbance	pH	pCO_2	HCO_3^-	Compensatory response
Metabolic acidosis	↓	↓	↓	*Immediate*: respiratory compensation with hyperventilation and decreased pCO_2
Respiratory acidosis	↓	↑	↑ or ↔	*Delayed*: kidneys compensate by retaining HCO_3^- (concentrations generally > 30)
Metabolic alkalosis	↑	↑	↑	*Immediate*: respiratory compensation with hypoventilation and increased pCO_2
Respiratory alkalosis	↑	↓	↓ or ↔	*Delayed*: kidneys compensate through HCO_3^- loss (concentrations generally < 18)

Keywords: Heroin overdose causes hypoventilation which in turn causes an increase in arterial pCO_2. There is a normal to mildly increased HCO_3^- because renal compensation requires at least 24 hours of persistent respiratory acidosis.

21.A 62 year old woman complains of calf pain and swelling in the leg from the last 2 days after a total knee implant surgery. Later she also complains of breathlessness and dies suddenly in the ward. What is false about the woman's diagnosis?



A. Sudden onset of pleuritic pain and hemoptysis and hypotension may be present.
B. ECG shows evidence of acute left ventricular stress.
C. The ECG shows right axis deviation.
D. CTPA is the imaging modality of choice.

Answer : B

ECG shows evidence of acute left ventricular stress.
The patient is a case of Pulmonary Embolism predisposed due to DVT. The classic findings in PE are right heart strain and acute cor pulmonale.

Option A: PE causes sudden onset pleuritic chest pain and hemoptysis. The decreased cardiac output would result in decreased SBP (Hypotension).

Option C: The ECG would show right axis deviation as the congestion of the right ventricle will cause interventricular septal deviation and elevated JVP.

Option D: D-dimer assay is the screening test and Pulmonary Angiography is the Gold Standard technique whereas CT Pulmonary Angiography is an imaging modality of choice.

Keywords: Calf pain and swelling suggestive of DVT. Total hip or knee replacement surgeries predispose to PE leading to respiratory distress after 24- 48 hours. ECG points towards the diagnosis with deep S in 1stlead and deep Q and inverted T waves in 3rdlead. (S1Q3T3). Treatment for massive PE is Thrombolysis (rtPA, Streptokinase) and for submassive PE it is IV Unfractionated Heparin.

22. A 50 year old traveller with nephrotic syndrome presents with sudden onset of breathlessness and chest pain after a long flight from Canada to Delhi. He is brought to the casualty in shock. All of the following findings can be present except?

A. Sinus tachycardia, areas of relative oligemia on CXR
B. Tall, peaked p waves in lead II of ECG and D-dimers are elevated.
C. Sinus Bradycardia, S1Q3T3 pattern on ECG.
D. Enlarged right descending pulmonary artery on CXR.

Answer : C

Sinus Bradycardia, S1Q3T3 pattern on ECG.The given patient has a long history of travel and presents with typical findings of Pulmonary Embolism like sudden breathlessness, chest pain, hypotension. The clinical vignette says the patient is also suffering from nephrotic syndrome which is a hypercoagulable state and is a predisposing factor. ECG Findings of PE- Sinus tachycardia and not bradycardia, S1Q3T3 pattern on chest leads of ECG.

Option B: Tall and peaked T waves (p pulmonale) in lead II, right axis deviation, right bundle branch block and D-dimers are elevated.

Chest X Ray findings (CXR)- Hampton Hump Sign (A shallow wedge shaped opacity in the periphery of the lung with its base against the pleural surface)

Option A: Westermark Sign (Less sensitive but highly specific). It is a focus of oligemia seen distal to pulmonary embolism).

Option D: Pallas Sign (Enlarged right descending pulmonary artery)

Keywords: History of long travel, a predisposing hyper-coagulable state- nephrotic syndrome and features of PE.

23.A 30 year old male met with a road traffic accident and sustained a femur fracture and 2 days later presents to the ER with complaints of sudden respiratory distress.All are the major criteria in diagnosis except?

A. Fat globules in urine
B. Axillary or sub-conjunctival petechiae
C. PaO2 <60mmHg
D. CNS involvement

Answer : A

The above scenario is diagnostic of Fat Embolism Syndrome. The history of long bone fracture which leads to release of fat globules in circulation and cytokine mediated damage to microvasculature of lungs and brain mainly.

GURD Criteria is useful in the diagnosis- MAJOR:

1. Respiratory insufficiency or Hypoxemia (PaO2<60 mmHg) with or without positive radiographic changes
2. Axillary or Sub-conjunctival petechiae
3. CNS depression (Stupor or Coma) MINOR:

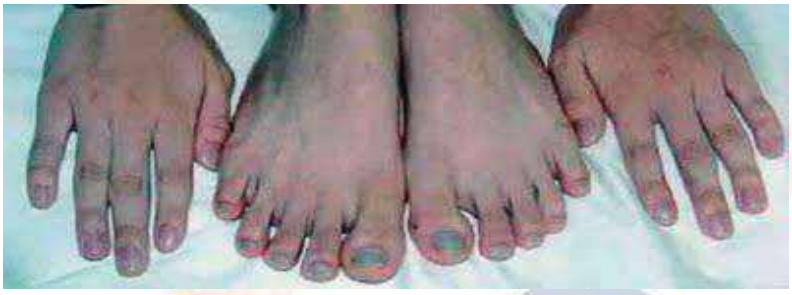
1. Tachycardia
2. Pyrexia
3. Retinal changes
4. Thrombocytopenia
5. Anemia
6. High ESR
7. Jaundice
8. Fat globules in urine or sputum
9. Macroglobulinemia

1 major and 4 minor are diagnostic. High flow O2, Dexamethasone and Heparin S/C are used for treatment purposes.

Keywords: Fracture of long bone (mc-femur) after 24-48 hours presents with respiratory distress highly suggestive of Fat Embolism Syndrome.

24.A 56 year old woman is evaluated and known to have a pulmonary hypertension due to a congenital cardiac condition and also has a developmental delay. There is no history of cardiac surgery. She is on low- dose aspirin and thyroid replacement therapy.

On physical examination, BP 110/70 mm Hg, PR 68/min, RR 18/min. The CVP is elevated with a prominent A wave, apical impulse is normal and a prominent parasternal impulse at left sternal border. S1 normal, S2 loud, and a grade 1/6 holosystolic murmur at left lower sternal border. Hands appear normal but toes demonstrate cyanosis and clubbing. Which of the following is the most likely cause of this patient's PAH?



A. Atrial Septal Defect
B. Patent Ductus Arteriosus
C. Tetralogy Of Fallot
D. Ventricular Septal Defect

Answer : B

The patient has PDA with secondary PAH (Eisenmenger Syndrome). The clinical features like clubbing and differential cyanosis of lower body due to desaturated blood are suggestive.

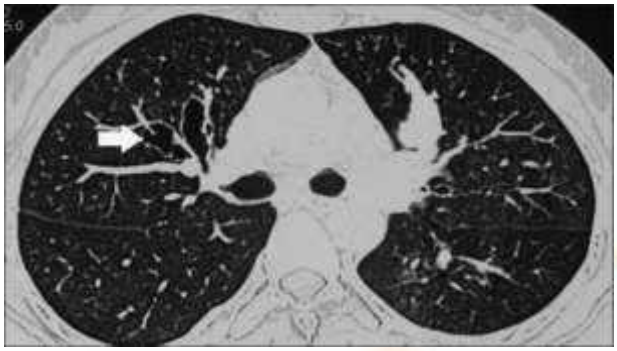
Answer A: In patients of unrepaired ASD occurrence is rare due to small shunt size and there is equal cyanosis in hands and feet in ASD.

Answer C: Unrepaired TOF has cyanosis equally and loud early systolic murmur at left sternal border (Right outflow tract obstruction). Right ventricular hypertension is present and pulmonary vasculature is protected due to pulmonary infundibular stenosis component.

Answer D: Unrepaired VSD will not show differential cyanosis and will have a pan systolic murmur.

Keywords: Differential cyanosis in hands and feet, 1/6 holosystolic murmur, elevated CVP and prominent A wave, left parasternal impulse and loud S2.

25.An asthmatic patient presents with C/O black sputum plugs. The auscultatory findings are persistent coarse crepitations and Ig E levels in this patient is elevated and CT Chest is suggestive of central bronchiectasis. What is the most likely diagnosis?



A.Cystic Fibrosis
B.Mounier Kuhn Syndrome
C.William Campbellsyndrome
D.Allergic Bronchopulmonary Aspergillosis

Answer : D

The patient is suffering from ABPA, most commonly caused by Aspergillus fumigatus. The history of asthma, presence of black sputum plugs, and characteristic association with central bronchiectasis is peculiar to ABPA. HRCT Chest stays the imaging modality of choice.

Option A: Cystic fibrosis patients also develop central bronchiectasis but apart from resp symptoms like persistent cough, wheeze, repeated lung infections and sinusitis there are associated symptoms like foul-smelling greasy stools, poor weight gain, and constipation.

Option B and C: Both the syndromes can develop central bronchiectasis but black sputum plugs and raised Ig E levels are not seen.

Keywords: Black sputum plugs, raised IgE levels suggesting allergic condition with central bronchiectasis - ABPA.

26.A 5 year old male presents with a history of recurrent episodes of acute bronchitis, characterized by fever and productive cough. He has no known significant past medical history. His pulmonary examination reveals crackles in the bilateral lower lobes. The remainder of his physical examination is normal. Chest X-ray demonstrates platelike atelectasis and dilated, thickened airways in the middle and lower lungs. Which of the following is the most likely diagnosis?

A. Acute Bronchitis
B. Bronchiectasis
C. Pneumonia
D. Tuberculosis

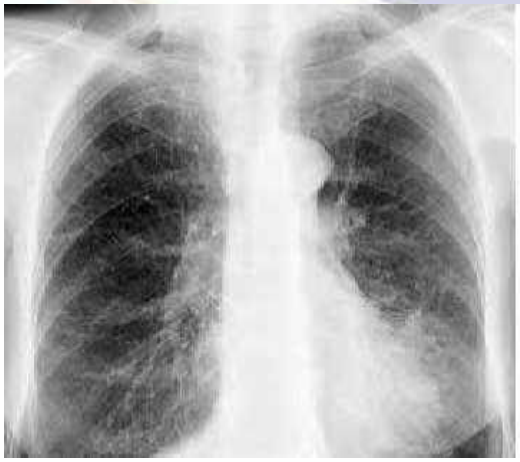
Answer : B

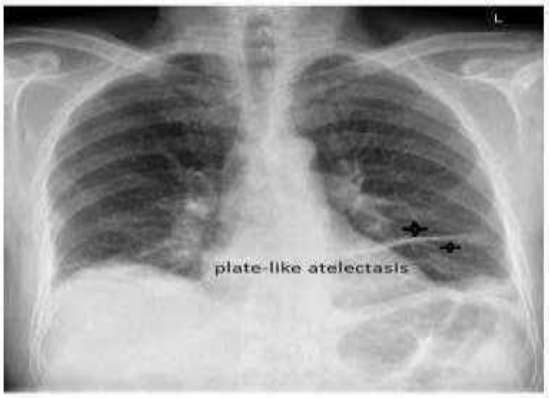
Bronchiectasis typically presents as recurrent episodes of acute bronchitis. Platelike atelectasis and dilated and thickened airways, sometimes described as tram lines, are common radiographic findings.

Option A: Barring underlying pulmonary pathology, the chest x-ray in acute bronchitis should be normal.

Option C: While the history may suggest pneumonia, the radiographic findings do not support this diagnosis.

Option D: Tuberculosis would present with cavitating granuloma formation more commonly at the apices.





Keywords: Recurrent bouts of acute bronchitis, productive cough, crackles in lower lobes, plate-like atelectasis and dilated,thickened airways- bronchiectasis.

27.An asthmatic patient presents to you with breathlessness at rest which interferes with normal conversation and is agitated. The RR is 35/min,patient sits upright, uses accessory muscles for respiration and is cyanosed. On auscultation loud wheeze throughout inhalation and exhalation. Pulsus paradoxus with PR 130/min, FEV1 <40%, PaO2 <60 mm Hg and PCO2 44 mm Hg. You can classify the patients symptoms into?

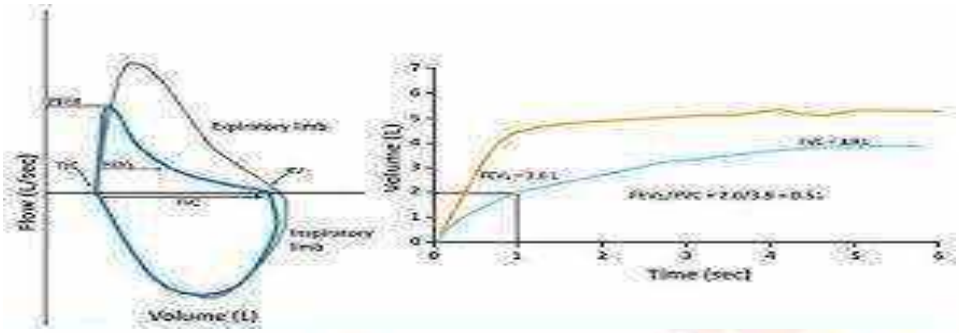
A. Respiratory arrest
B. Mild Asthma
C. Moderate Asthma
D. Severe Asthma

Answer : D

	Mild	Moderate	Severe	Subset: Respiratory Arrest Imminent
Symptoms				
Breathlessness	While walking Can lie down	While at rest (infant—softer, shorter cry, difficulty feeding) Prefers sitting	While at rest (infant—stops feeding) Sits upright	
Talks in	Sentences	Phrases	Words	
Alertness	May be agitated	Usually agitated	Usually agitated	Drowsy or confused
Signs				
Respiratory rate	Increased	Increased Guide to rates of breathing in awake children: *Age* <2 months 2–12 months 1–5 years 6–8 years	Often >30/minute *Normal rate* <60/minute <50/minute <40/minute <30/minute	
Use of accessory muscles; suprasternal retractions	Usually not	Commonly	Usually	Paradoxical thoracoabdominal movement
Wheeze	Moderate, often only end expiratory	Loud; throughout exhalation	Usually loud; throughout inhalation and exhalation	Absence of wheeze
Pulse/minute	<100	100–120 Guide to normal pulse rates in children:: *Age* 2–12 months 1–2 years 2–8 years	>120 *Normal rate* <160/minute <120/minute <110/minute	Bradycardia
Pulsus paradoxus	Absent <10 mmHg	May be present 10–25 mmHg	Often present >25 mmHg (adult) 20–40 mmHg (child)	Absence suggests respiratory muscle fatigue
Functional Assessment				
PEF percent predicted or percent personal best	≥70 percent	Approx. 40–69 percent or response lasts <2 hours	<40 percent	<25 percent Note: PEF testing may not be needed in very severe attacks
PaO_2 (on air)	Normal (test not usually necessary)	≥60 mmHg (test not usually necessary)	<60 mmHg: possible cyanosis	
and/or PCO_2	<42 mmHg (test not usually necessary)	<42 mmHg (test not usually necessary)	≥42 mmHg: possible respiratory failure (See pages 393–394, 399.)	
SaO_2 percent (on air) at sea level	>95 percent (test not usually necessary)	90–95 percent (test not usually necessary)	<90 percent	
Hypercapnia (hypoventilation) develops more readily in young children than in adults and adolescents.				

Key: PaO_2, arterial oxygen pressure; PCO_2, partial pressure of carbon dioxide; PEF, peak expiratory flow; SaO_2, oxygen saturation

28.A 13 year old known asthmatic presents with severe wheezing and a respiratory rate of 40. Her pulse rate is 120. The flow volume curve of the patient is given below.
What is the next best step in management of this patient?



A. Oxygen and Metered Dose Inhaler of Salmeterol
B. Oxygen and Intravenous Aminophylline
C. Oxygen and nebulized Salbutamol
D. Oxygen and Intravenous MgSO4

Answer : C

For severe acute asthma- O2 and nebulized Salbutamol is recommended.

Option A: For prevention of asthma- O2 and MDI of Salmeterol

Option B: O2 and Intravenous aminophylline- cause toxicity

Option D: O2 and IV MgSO4 is not widely used for acute exacerbations.

Keywords: Asthmatic,tachypnea, tachycardia suggestive of acute exacerbation of asthma and SABA in O2 is preferred over air.

29.A 63 year old man is admitted to the ICU for an exacerbation of COPD. He has a 10-year history of COPD with hypercapnia. He recently suffered a viral URT infection and condition worsened. Otherwise medical history is unremarkable, on physical examination he is responsive but confused and disoriented. Temp 36.9C, BP 117/83 mm Hg, PR 99/min, RR 32/min. Use of accessory muscles, O2 saturation 86% on 60% O2 with Venturi, pooling of secretions in posterior pharynx, diminished gag reflex, no clubbing or pedal edema. Decreased breath sounds with polyphonic end-expiratory wheeze in both lung fields. Glucocorticoids, antibiotics, and inhaled albuterol by nebulizer are started. Which of the following is the most appropriate next step in management?

A. Increase O2 to 100% by non rebreather mask
B. Intubate and start mechanical ventilation.
C. Start non-invasive ventilation (NIV) with CPAP.
D. Start non-invasive ventilation with inspiratory pressure support and PEEP.

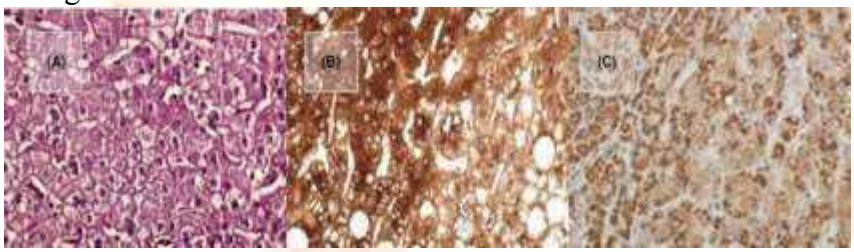
Answer : B

This patient is experiencing an exacerbation of his COPD with hypercapnic respiratory failure with hypoxia and mental status changes. Majority of patients should undergo a trial of NIV and reevaluation prior to intubation and mechanical ventilation, encephalopathy that impairs the ability to cooperate with NIV or manage secretions is a C/I to NIV (Option C & D)**.**

Other C/I includes Bulbar dysfunction, ineffective gag or cough reflexes, hemodynamic instability, severe acidosis or arrhythmias, bleeding or trauma and airway obstruction (Option A). Non rebreather masks and nasal cannulas deliver uncontrolled O2 flow unlike Venturi mask which delivers in a controlled manner.

Keywords: History of COPD, hypercapnia,tachypnea, decreased SaO2, use of accessory muscles of respiration points towards exacerbation and disoriented state with pooling of secretions and diminished gag reflex narrows down treatment option to intubation and mechanical ventilation.

30.A 37 year old woman with a history of dyspnea, chronic cough, sputum production, and wheezing dies of respiratory failure following a bout of lobar pneumonia. She was a nonsmoker, and did not drink alcohol. The lung at autopsy is shown in the image. Which of the following underlying conditions was most likely associated with the pathologic changes shown here?



A. Alpha-1 antitrypsin deficiency
B. Cystic Fibrosis
C. Good pasture syndrome D. Hypersensitivity Pneumonitis.

Answer : A

Hereditary deficiency of alpha-1 antitrypsin accounts for 1% of patients with a clinical diagnosis of COPD and is relatively more common in young people with severe emphysema.

Alpha-1 AT inhibits neutrophil elastase, an enzyme that digests elastin thus maintaining the compliance of tissues.

Emphysema in these patients is diffuse and involves all the acini and is ka Panacinar, whereas the more common one is the Centriacinar which is exclusively associated with smoking and affects the upper lobes.

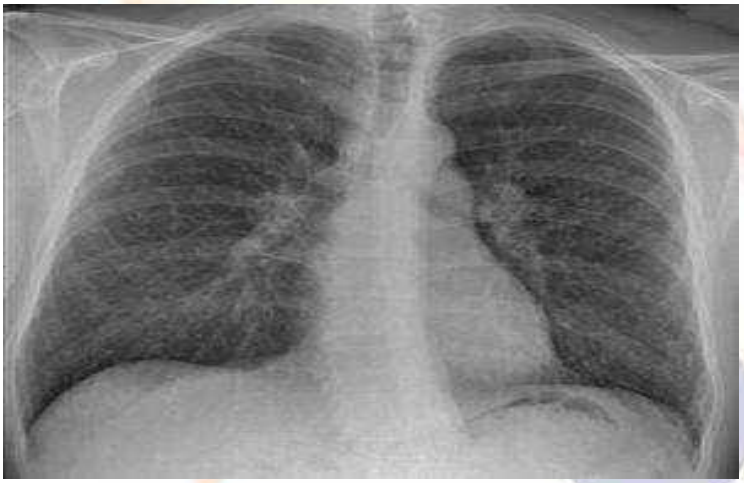
Option B: Cystic fibrosis is more commonly associated with bronchiectasis and presents with symptoms peculiar to it and with other associated gastrointestinal symptoms.

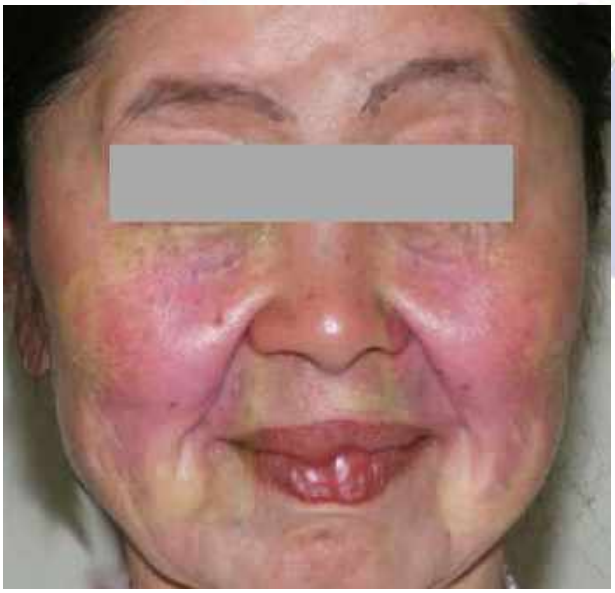
Option C: Good pasture syndrome will have associated renal manifestations and peculiar pulmonary symptoms like hemoptysis are missing in the question.

Option D: Hypersensitivity pneumonitis is an interstitial lung disease and is predisposed by some precipitating factor.

Keywords: chronic cough, wheezing, non-smoker, histopath suggesting dilatation and strong association with alpha 1 anti-trypsin deficiency is suggestive of pan acinar emphysema.

31. A 49 year old woman is evaluated for a 6 month history of exertional dyspnea and nonproductive cough that had an insidious onset. She has not noticed any triggers for cough, doesn't smoke, no family history of atopy. On physical examination, temp 37.6C, BP 122/76 mm Hg, PR 84/min, RR 16/min. Auscultation of lungs and heart is normal. There are no palpable nodes but indurated lesions on the face including the nasolabial folds. Lung volumes and spirometry are normal, DLCO is mildly reduced at 75%. The chest radiographs of the patient are shown below. Which of the following is the most likely diagnosis?





A. Asbestosis
B. Cryptogenic organizing pneumonia
C. Idiopathic pulmonary fibrosis
D. Sarcoidosis

Answer : D

Sarcoidosis is an idiopathic disorder characterized by non- caseating granulomatous inflammation and bilateral infiltrates predominant in the upper lobes and hilar lymph nodes. Patients may have normal or minimally abnormal PFT.

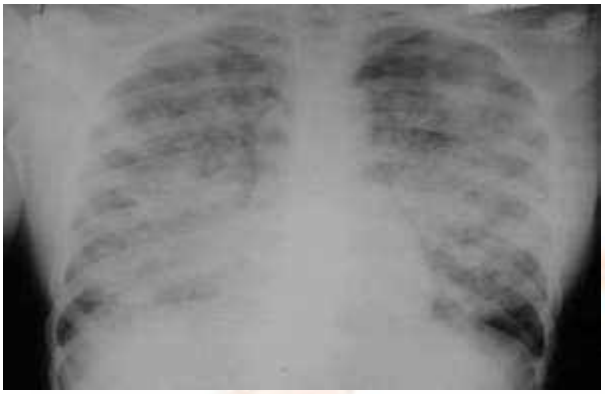
Option A, B & C **:** Asbestosis, cryptogenic organizing pneumonia, idiopathic pulmonary fibrosis are unlikely because these typically have lower lung zone predominance.

There is no occupational history consistent with asbestosis, Velcro inspiratory crackles consistent with Idiopathic pulmonary fibrosis.

Patients with Cryptogenic organizing pneumonia most typically presents with cough, fatigue and a low grade fever.

Keywords: female,dyspnea, non productive cough, characteristic face lesion-lupus pernio, CXR showing pculiar B/L lymphadenopathy and involvement of upper lobes.

32.A 65-year old alcoholic is admitted to the ICU with diagnosis of acute pancreatitis. After 48 hours he is unconscious and has the following findings: SpO2 60%, pO2 60 mm Hg, pCO2 50 mm Hg and HR 120 bpm. Chest X ray was performed and is given below. What is the diagnosis of the following condition?



A. Mendelson syndrome
B. Shock lung
C. Nosocomial pneumonia
D. Sympathetic pleural effusion

Answer : B

Shock lung (Bilateral extensive infiltrates, Type 2failure, Acute pancreatitis) O2 is decreasing and pCO2 is increasing signifies Type 2 Respiratory failure.

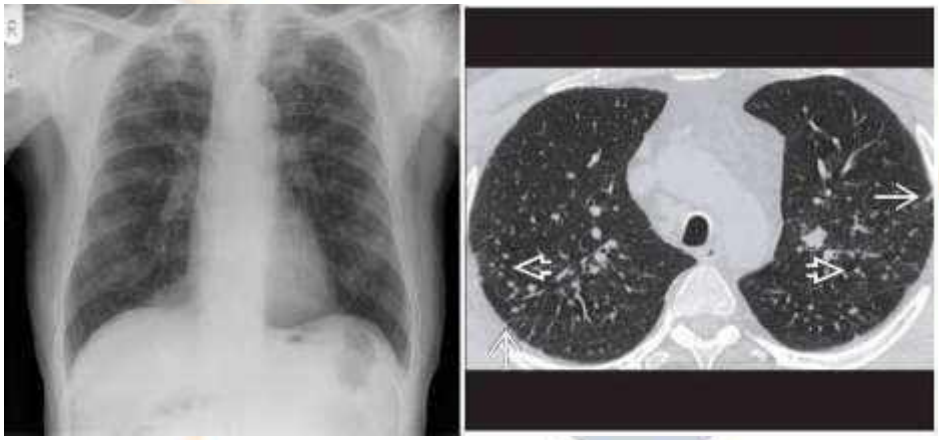
Option A:There is no history of aspiration.

Option C: Though there is a history of hospital admission but symptoms like cough, fever, chills, etc are not present.

Option D: Needs blunting of CP angle which is normal in this case.

Keywords: Acute pancreatitis, SpO2 60% and pO2 60 mm Hg, PCO2 50 mm Hg and tachycardia and CXR suggestive of shock lung.

33.A 57 year old retired non smoker man referred with the c/c of dry cough for 1 year. In addition he has had mild ED but no other complaint. Past history and system review negative. His general physical examination and chest exam were normal. Chest X ray showed diffuse reticulo-nodular pattern mainly affecting upper lobes. HRCT scan of the lung revealed small rounded opacities and thickening of alveolar septa, no ground glass pattern, hilar adenopathy and pleural effusion. He had >30 years history of stone grinding. Which is the most likely diagnosis?



A. Silicosis
B. Asbestosis
C. Anthracosis
D. Hypersensitivity pneumonitis

Answer : A

Silicosis (Grinders disease) is a fibrotic lung disease attributable to inhalation of crystalline silica. It predominantly affects the upper lobes unlike asbestosis and can present with snowstorm appearance or eggshell calcification on a Chest x ray. Silicosis is most commonly associated with TB.

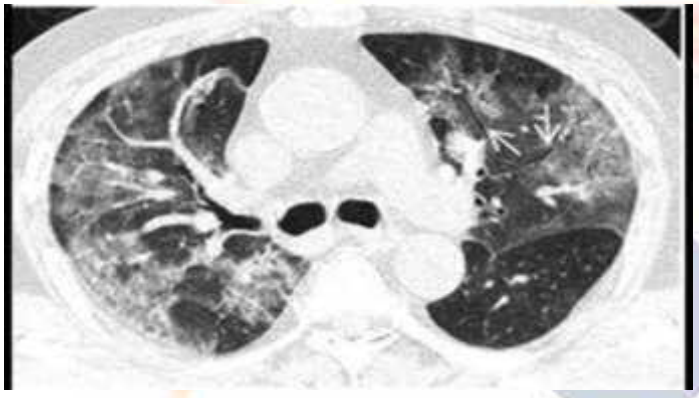
Option B: Asbestosis shall have an occupational history of construction work and mainly affects the lower lobes and is associated most commonly with Lung Adenocarcinoma and more specifically with Malignant Mesothelioma.

Option C: Anthracosis is due to occupational exposure to coal dust in miners and can develop progressive massive fibrosis predominantly affecting the upper lobes.

Option D: Hypersensitivity pneumonitis needs an exposure to birds or pets.

Keywords: History of stone grinding, dry cough in non-smoker, reticulo-nodular pattern. Thickened alveolar septa and malignant pleural effusion and CXR showing upper lobe involvement and hilar lymphadenppathy.

34.A person with a recent history of travel to Mumbai presents to ER with breathlessness and a low grade fever. The patient has been experiencing episodes of diarrhea after 5 days of returning from travel. His reports for RT- PCR are awaited and a CT chest done shows bilateral ground glass opacities with posterior predominance. The paO2 55 mm Hg and SpO2 86% is recorded at the time of admission. Identify and mark the correct statement about the type of respiratory failure that can be experienced by the patient with the above diagnosis.



A. paO2 will be decreased and pCO2 will rise
B. The patient of status asthmaticus will develop the type of respiratory failure as experienced in the above diagnosis
C. The patient will be managed with low volume ventilation and nursing prone position.
D. Hypoventilation will be observed in respiratory failure in the above case.

Answer : C

The above case typically mentions a case of COVID-19 with a patient suffering from ARDS.

The symptoms, travel history and examination findings are suggestive of COVID. The CT findings of bilateral ground glass opacities are in alignment with ARDS which the patient of COVID suffers from.

Option A: ARDS patients suffer from type 1 respiratory failure, wherein there is hyperventilation leading to decreased pO2 and normal or decreasedpCO2.

Option B: The patient of acute asthma develops type 1 but that of status asthmaticus suffers from type 2 respiratory failure.

Option D: Hyperventilation is observed in type 1 as discussed.

Keywords: Travel history, breathlessness, fever , diarrhea, CT showing ground glass appearance- COVID -19

35.A boy aged 12 years presented to your clinic with a several year history of chronically productive cough with associated shortness of breath and wheeze. He had been screened for TB with a negative mantoux test. This patient has a history of cough which developed soon after birth and has suffered from Meconium Ileus. Which among the following is consistent with the history?

A. Infant of diabetic mother
B. Hypothyroidism
C. Cystic fibrosis
D. None of the above

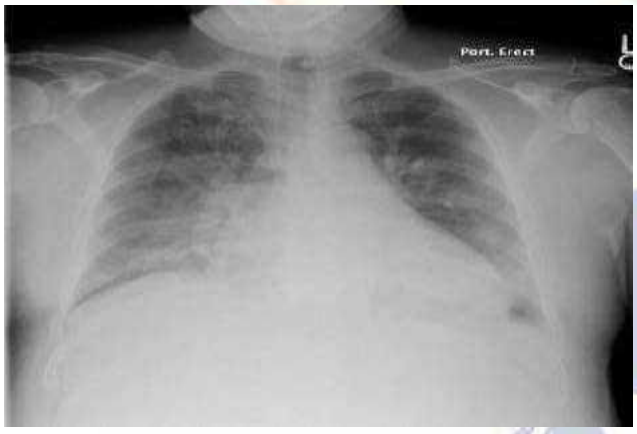
Answer : C

Infants with Cystic fibrosis have characteristic pancreatic enzyme deficiencies and abnormal chloride secretion in the intestine that result in production of viscous, water poor meconium. Meconium ileus occurs when this thick, highly viscous meconium becomes impacted in the ileum and leads to high-grade intestinal obstruction.

Option A, B, D: Infants of diabetic mothers more commonly have cardiac defects most specific being TGA and respiratory association is with PPHN (persistent pulmonary hypertension of newborn).
Hypothyroidism will have features like fatigue, exercise intolerance, weight gain, constipation, sparse hair and cold intolerance.

Keywords: history of cough, shortness of breath, wheeze and most important -meconium ileus associated with CF

36. A 59 year old female with a past history of bronchiectasis now presents to your clinic with shortness of breath. She was a non smoker and worked as a school teacher. She had dogs, doves and parakeets at home for the last 3 years and lived in a semi-rural area. On examination she had bilateral velcro crackles. CXR showed the right upper and lower lobe infiltrates. Pulmonary function tests were consistent with severe restrictive lung disease. She underwent a bronchoscopy and the bronchoalveolar lavage showed lymphocytosis with CD4/CD8=0.48. Methenamine and PAS were negative with no growth in culture. The transbronchial biopsy showed chronic inflammatory findings. All statements are true regarding treatment of above diagnosis except?



A. The best treatment is to avoid provoking allergen
B. Corticosteroids are mainstay to control symptoms
C. If long term treatment is required, cyclophosphamide can be considered
D. Every patient has to undergo a lung transplant

Answer : D

The above case is a diagnosis of Hypersensitivity pneumonitis. It is non asthmatic extrinsic allergic pneumonitis and is delayed (type 4) hypersensitivity. The female has exposure to her pets and the allergens induce an inflammatory response which leads to the pulmonary symptoms and the damage can progress and cause extensive scarring. Only in cases of extensive fibrosis patients need lung transplant.

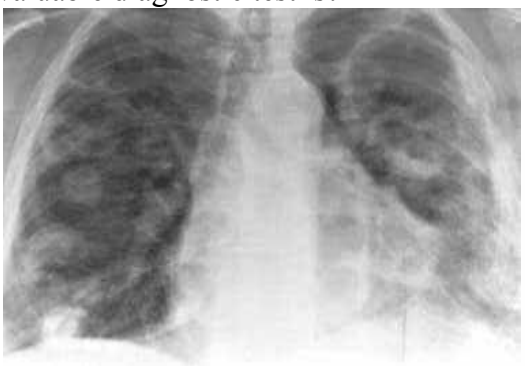
Option A: Avoiding allergen proves to be the most effective method to prevent the condition.

Option B: Corticosteroids like prednisone are used and drugs like mycophenolate or cyclophosphamide

Option C: Cyclophosphamide can be used instead in cases requiring long term treatment.

Keywords: Exposure to pets, B/L Velcro crackles, PFT suggestive of RLD, inflammatory changes and CXR findings.

37. A 70 year old male patient had a smoking history of 20pack a year and history of cerebral infarction twice. He presents with weight loss, fatigue, mild hemoptysis and infiltrates on chest x-rays and red cell casts in the urine, a valuable diagnostic test is?

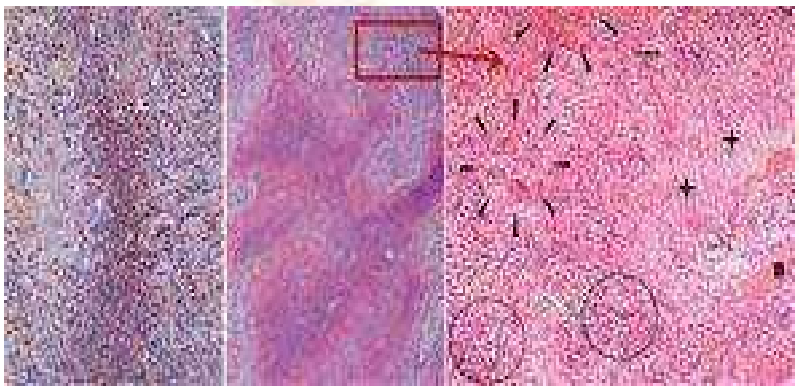


A. Lung function tests
B. Quantification of albumin in the urine
C. ANCA levels in the blood
D. CT Chest

Answer : C

Granulomatosis with polyangiitis (Wegener's Granulomatosis) is one of the systemic vasculitis involved in various organs such as the upper respiratory tract, the lungs and the kidneys characterized pathologically by necrotizing granulomatous inflammation.

The above case points towards the diagnosis of WG with pulmonary and renal involvement and ANCA levels will be highly specific for the disease.



Left panel: Microabscess with demarcation by epithelioid cells.

Middle (H&E): Geographic necrosis surrounded by ill-defined granulomas.
Right Panel (H&E): Characteristic ill-defined Wegener's granuloma with epithelioid cells and several giant cells, at the right inflammatory destruction of adjacent bone by pannus-like tissue. Typical dense lymphoplasmacytic inflammatory background with beginning formation of follicular structures.

Keywords: Smoking history, history of cerebral infarction, hemoptysis, CXR showing infiltrates and red cell casts in urine- disease involving pulmonary and renal system. i.e.WG

38. A 58 year old female who did not smoke worked in mining industry with exposure to coal dust presents with cough, shortness of breath, along with symptoms of prolonged morning stiffness and painful and tender joints with subcutaneous nodules around the elbow and knuckles. The auscultatory findings reveal diffuse crackles. Chest x-ray shows multiple, round and well defined homogenous nodules and PFT showing reduced DLCO. Which statement is not true regarding the patient's diagnosis?

A. The symptoms of the patient are consistent with Caplan syndrome. B. Steroids and smoking cessation are considered for the treatment
C. DMARDS can be used early in the course.
D. The features are diagnostic of Felty syndrome

Answer : D

Felty syndrome is defined by presence of rheumatoid arthritis (RA), splenomegaly and neutropenia.

Option A: The above symptoms are consistent with the diagnosis of Caplan syndrome which is characterized by presence of sero-positive rheumatoid arthritis associated with a specific form of pneumoconiosis in this case Anthracosis (Coal workers pneumoconiosis), consisting of multiple, well- defined homogenous rounded opacities on chest x-ray.

Symptoms of RA like morning stiffness, tender and painful joints and subcutaneous rheumatoid nodules along with pulmonary manifestations discussed above points towards the diagnosis.

Option B: Steroids to relieve the inflammatory and fibrotic changes of pneumoconiosis

Option C: DMARDS are used earlier in the treatment course for RA whereas

Keywords: Non-smoker, exposure to coal dust, CXR with homogenous nodular opacities, and features of RA-morning stiffness, subcutaneous nodules together with Caplan syndrome.

39. All of the following statements are true regarding idiopathic pulmonary fibrosis,excep?

A. Pleural surfaces developed cobble stoned appearance
B. Areas of fibrosis, occur preferentially in the lower lobes and sub- pleural regions
C. Fibroblastic foci are the earliest lesion
D. Masson bodies are characteristic

Answer : D

Masson bodies are seen in cryptogenic organizing pneumonia.

Option A: Idiopathic Pulmonary Fibrosis (also known as cryptogenic fibrosing alveolitis) grossly, the pleural surfaces of the lung are cobble stoned as a result of the retraction of scars along the interlobular septa.

Option B: The cut surface shows firm, rubbery white areas of fibrosis, which occurs preferentially in the lower lobes and the subpleural regions and along the interlobular septa.

Option C: Histologically, the hallmark is patchy interstitial fibrosis. The earliest lesions contain exuberant fibroblastic proliferation (fibroblastic foci). With time these areas become more collagenous and less cellular.

This condition carries a poor prognosis.

Treatment includes immunosuppressive drugs and lung transplant is the only definitive therapy.

Keywords: Diagnosis already in question. Cobble stones appearance, fibrosis in the name itself.

ENDOCRINOLOGY

By

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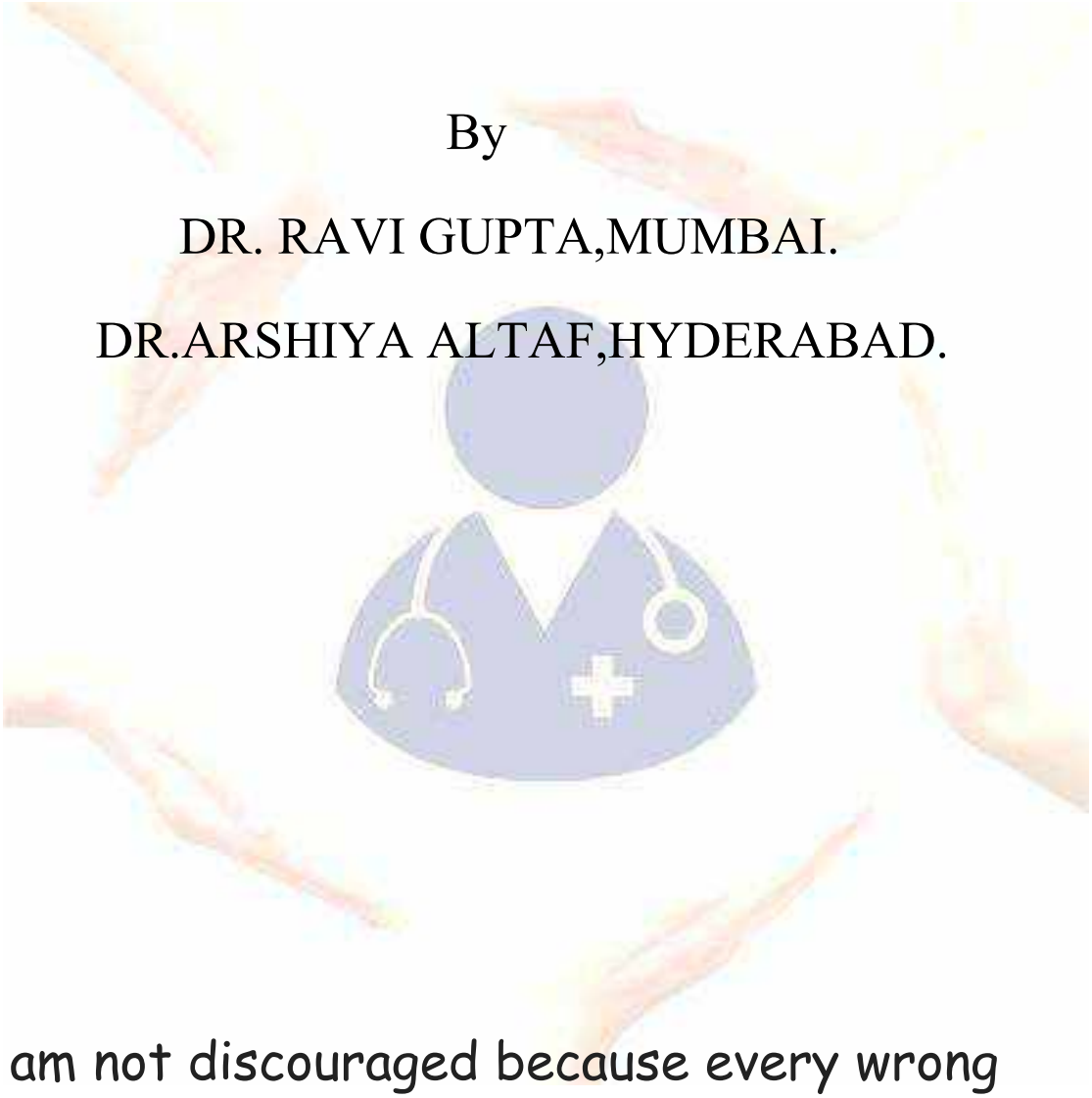
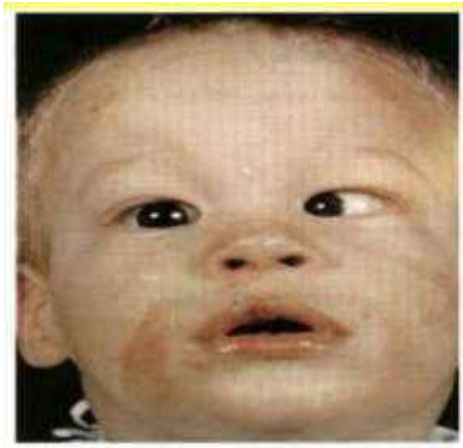


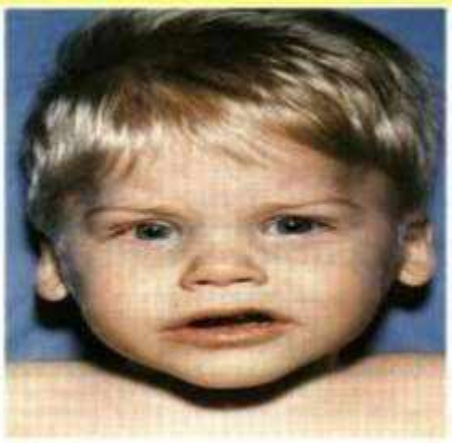
"I am not discouraged because every wrong attempt discarded is a step forward."

- Thomas Edison

FMGE CLINICAL VIGNETTES

1. A three year old boy is brought to the OPD with a complaint of poor development as well as vomiting, irritability and a skin rash. The boy's mother also notes that his urine has a strange "mousy odour". Physical examination reveals the child has an eczema like rash , child is hyper reflexive & has increased muscle tone, his skin complexion is fairer than rest of the family. What is the most likely diagnosis ?





A. Tay - sachs disease
B. Mc Ardle disease
C. Phenylketonuria
D. Pyruvate dehydrogenase deficiency

Answer : C

Phenylketonuria (PKU) is an inherited condition caused by a defect in PAH gene. The gene helps create phenylalanine hydroxylase, the enzyme responsible for breaking down phenylalanine. Affected children are normal at birth but fail to reach developmental milestones. Mousy odour in urine is the characteristic feature, also presents with fairer complexion due to deficiency in melanin.

Option A: Tay – sachs disease occurs when the body lacks hexosaminidase A, this is a protein that helps break down a group of chemicals found in nerve tissue called gangliosides.

It is an autosomal recessive disorder in which an infant usually begins showing symptoms like loss of motor skills, seizures ,vision and hearing loss, cherry red spots in eyes .

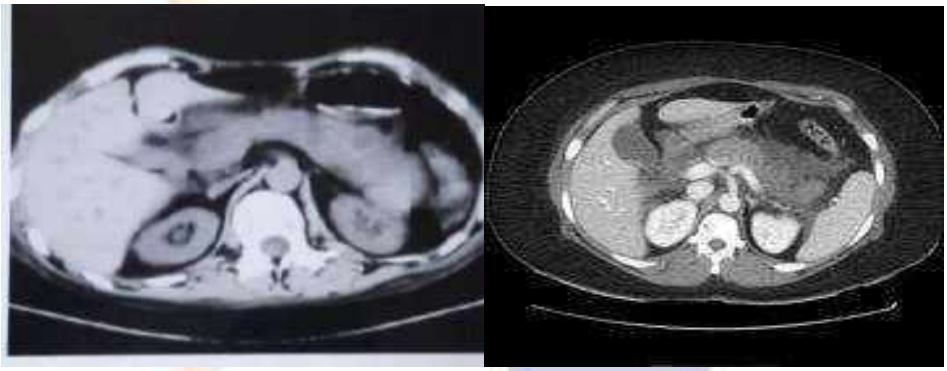
Option B: McArdle disease is a glycogen storage disease caused by a deficiency in muscle glycogen phosphorylase associated with symptoms like myoglobinuria, fatigue and rhabdomyolysis.

Option D: Pyruvate dehydrogenase complex (PDCD) is a rare disorder of carbohydrate metabolism. Males are affected more than females. It is associated with hypotonia, poor feeding, lethargy and structural abnormalities in brain patients may develop seizures.

These presentations of the disease usually progress to mental retardation, microcephaly, blindness and spasticity.

Key words: mousy odour in urine, eczema like rash, hyperreflexia, increased muscle tone & fairer skin complexion than other family members.

2. A 52 year old Man presents to the emergency department complaining of sudden abrupt onset of epigastric pain radiating to his back. he describes pain as constant and associated with nausea and vomiting, the pain improves mildly on leaning forward .he has a 20 pack year smoking history and has consumed 5 packs of beer daily for more than 6 years, his BP is 150/80mmhg, HR is 98BPM, Temp is 100*F and RR is 18 breaths per minute .He is tender to palpitation in the epigastric area. A chest x ray reveals a small left sided pleural effusion. His WBC is 12000u/l, haematocrit is 38%, plasma glucose 226mg/dl, AST &ALT were within normal limits ALP 98U/L and lipase 520u/l. his CT scan is seen below what is most likely diagnosis?



A. Abdominal aortic aneurysm
B. Mesenteric ischemia
C. Acute pancreatitis
D. Bowel perforation

Answer : C

Most common cause being gallstones & alcohol account for >80% cases of pancreatitis ,it should be suspected in all patients with epigastric pain , elevated liver enzyme marks the diagnosis of pancreatitis.

Option A: Abdominal aortic aneurysm may cause epigastric pain with radiation to back but no elevated liver enzymes.

Option B: Mesenteric ischemia cause pancreatitis by diminished blood flow to the pancreas , patient is usually ill looking and complains of abdominal pain

Option D: Bowel perforation shows generalised abdominal pain.

Keywords: Sudden onset of epigastric pain in a chronic alcoholic, improves on leaning forward, increased liver enzyme (lipase) three times more than the normal, tender on palpation. Correlate with the CT scan finding.

3. A 15 year old female was diagnosed earlier with precocious pseudopuberty secondary to ovarian tumour. On physical examination, there was hyperpigmented lips and hands, she complains of crampy abdominal pain and she gives history of appearance of blood in the stool sometimes. With the given findings which of the following is most likely to be the diagnosis of the patient's condition?

A. Gardner's syndrome
B. Turcot syndrome
C. Familial adenomatous polyposis
D. Peutz – jegher's syndrome

Answer : D

PJS is an autosomal dominant disorder characterised by intestinal hamartomatous polyps in association with distinct patterns of skin and mucosal macular melanin deposition. There is a characteristic distribution of pigment around lips, nose , eyes , hands, tumour of the ovary breast, pancreas and endometrial tumors are associated with this condition.

Option A: Gardner syndrome is a form of familial adenomatous polyposis (FAP) characterised by multiple colorectal polyps it is a premalignant condition associated with high risk of colorectal cancer at an early stage .

Option B: Turcot syndrome characterised by multiple adenomatous colon polyps it is also associated with increased risk of brain and colorectal cancer .it may also be associated with FAP or lynch syndrome (hereditary non polyposis colorectal cancer)

Option C: Familial adenomatous polyposis is always associated with colon cancer and not ovarian tumour.

Keywords: Hyperpigmented lips and hands, cramping pain in belly area and she gave history of the appearance of blood in the stool rarely.

4. Ms Naina , a 20 year old women with a history of DM is brought to the emergency department with confusion, breathing is noisy , of kussmaul's type , acetone breath ,the skin is dry , turgor is lowered , associated with vomiting and abdominal pain .on investigation insulin was not found , blood glucose was 520mg/dl and urine tests positive for ketone bodies . .which of the following is the drug of choice for the management of hyperglycaemia in the patient?

A. Regular insulin
B. Lente insulin
C. Glyburide
D. 70/30 insulin

Answer : A

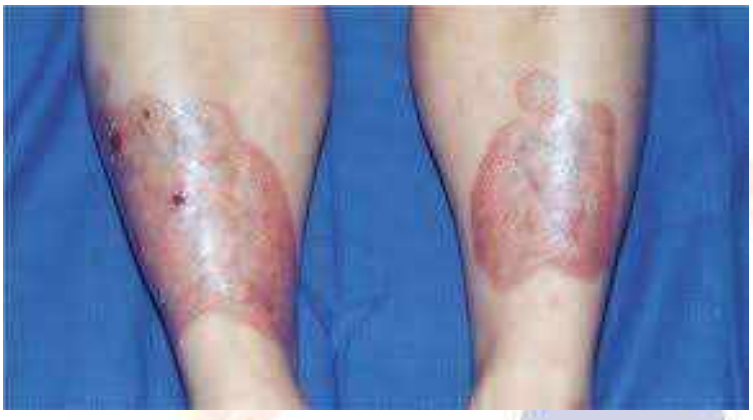
With the following clinical features and investigation the underlying condition is diabetic ketoacidosis which is more common with type 1 diabetes (insulin dependent) the drug of choice for controlling hyperglycemia in a patient with DKA is short acting insulin preferably regular insulin.

Management of DKA :
I.V fluid -0.9% saline
IV short acting insulin (regular insulin) bolus
IV short acting insulin infusion
Treatment of precipitating events –infections by antibiotics
K+ replacement – in the later stages, since insulin therapy causes hypokalemia

Option B & D: Lente insulin and NPH insulin are intermediate acting insulin and therefore not used.
Option C: Oral hypoglycemic agents are never used in the initial management of DKA.

Keywords: history of type 1 DM , breathing is noisy , of kussmaul's type , acetone breath (fruity odour) the skin is dry , turgor is lowered , vomiting and abdominal pain
Blood glucose was 520mg/dl (250-600 is considered to be hyperglycaemic) and urine tests positive for ketone bodies.

5. A 23 year old Female with type 1 DM came to the opd with a lesion on her lower legs which are irregular in margin, the centre of patch is shiny, pale, thin with prominent telangiectasia ,she says mild injury to the patchy area causes ulceration of the area which is painful at times with poor healing. She has been having this complaint since 6 months .She also gives a family history of DM , with the image given below and following clinical features ,the most likely clinical diagnosis of her condition is ?



A. Scleroderma
B. Necrobiosis lipoidica diabeticorum
C. Diabetic dermopathy
D Granuloma annulare

Answer : B

NLD seen mostly in young women usually begins in the pretibial region erythematous plaque or papules that gradually enlarges and darkens characterised by atrophic central and central ulcerations.

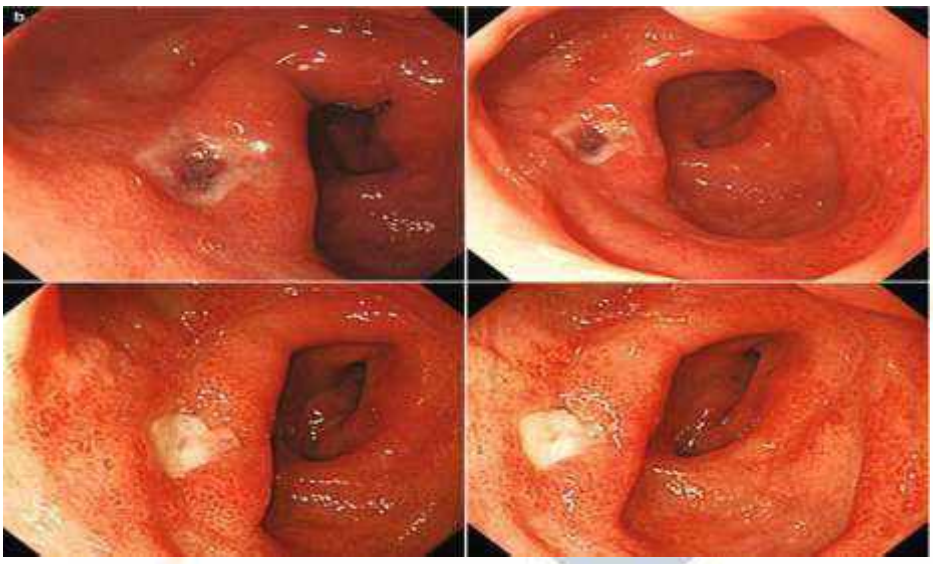
Option C: Diabetic dermopathy termed as pigmented pretibial papules or diabetic skin spots seen in elderly men.

Option A: Scleroderma is a group of rare diseases that involve the hardening and tightening of the skin and connective tissues, it affects women more often than men and most commonly occurs between the ages of 30 and 50.

Option D: Granuloma annulare is a skin condition that causes raised reddish or skin colored bumps in a ring pattern, usually appears on hands and feet, minor skin injuries and some drugs might trigger the condition.

Keywords: 23 year old Female with type 1 DM , lesion on her lower legs , irregular in margin, centre of patch is shiny, pale, thinned with prominent telangiectasia ,ulceration and family history of DM.

6. A 35 year old male patient presents to the OPD with complaints of epigastric pain which is on and off for the past 2 years. He describes it as a burning sensation that usually occurs 2-3 hours after a meal and is relieved by taking food. He also specifies that sometimes the pain is severe enough to wake him up at night UGI endoscopy was performed and following findings were noted most probable diagnosis is ?



A.Gastric ulcer
B.Duodenal ulcer
C.Pancreatitis
D.Cholecystitis

Answer : B

Epigastric pain described as a burning or gnawing discomfort can be present in both DU and GU. But burning sensation which usually occurs2.3 hours after a meal and is relieved by taking food suggestive of DU.

The typical pain pattern in DU occurs 90 minutes to 3 hours after a meal and is frequently relieved by antacids or food. Pain that awakens the patient from sleep (between midnight and 3A.M) is the most discriminating symptom. With 2/3rd of DU patients describing this complaint.

Option A: The pain pattern in gastric ulcer patients may be different from that in DU patients , where discomfort may actually be precipitated by food .nausea and weight loss occur more commonly in GU patients

Keywords: epigastric pain, burning sensation that usually occurs 2-3 hours after a meal and is relieved by taking food, endoscopic findings.

7. A 20 year old complains of primary amenorrhea .Her height is 152cm, weight is 53kgs. She has well developed breasts . She has no pubic or axillary hair and no hirsutism which of the following is the most likely clinical diagnosis for the women?

A. Turner's syndrome
B. Stein leventhal syndrome
C. Premature ovarian failure
D. Complete androgen insensitivity syndrome

Answer : D

The patient with AIS has a female phenotype ,normal breast development , a short vagina but no uterus , scanty pubic and axillary hair ,primary amenorrhea in late adolescence.

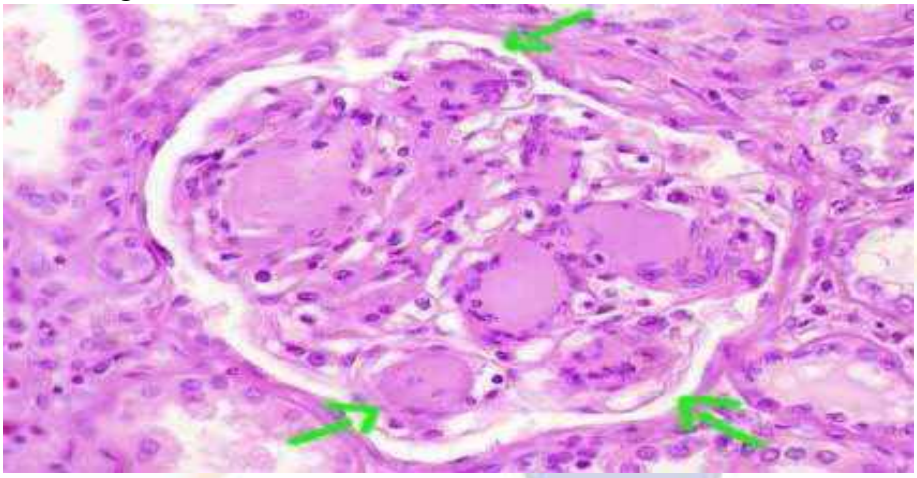
Option A: Turner's syndrome patients have gonadal dysgenesis and breasts are infantile

Option B: Stein leventhal syndrome also known as PCOD. Patients have features like hypomenorrhea, hirsutism and infertility.

Option C: Premature ovarian failure has secondary amenorrhea.

Keywords: primary amenorrhea, has well developed breasts . no pubic or axillary hair and no hirsutism.

8. A 52 year old male presented to the medicine OPD with long standing uncontrolled diabetes mellitus and hypertension , he is a smoker and smokes 2 packs of cigarette every day. On examination he has severe oedema of feet ,hands and eyes ,he says he has increased frequency of micturition , loss of appetite ,nausea and vomiting. He also gives on and off history of shortness of breath, fatigue. The diagnosis is made, what is the characteristic finding of the following condition?



A. Diffuse glomerulosclerosis
B. Nodular glomerulosclerosis
C. Armani –ebstein reaction
D. Fibrin caps

Answer : B

The following condition is diabetic nephropathy and the most distinct characteristic lesion in diabetic nephropathy is nodular glomerulosclerosis. It is pathognomonic of diabetes mellitus. It is also called Kimmelstein –Wilson lesion or intercapillary glomerulosclerosis.

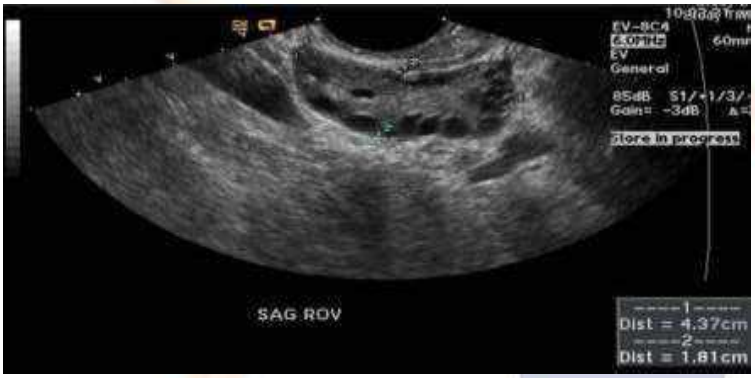
Option A: Diffuse glomerulosclerosis is the most common pattern involved and most common pathological change is thickening of the glomerular basement membrane.

Option C: Armanni – Ebstein reaction –collection of glycogen clumps within the renal tubules observed in diabetic nephropathy.

Option D: Fibrin cap – accumulation of hyaline material within the capillary loop.

Keywords: long standing uncontrolled diabetes mellitus, smoker ,increased frequency of micturition , fatigue , shortness of breath and nausea and vomiting all the following features support the diagnosis of diabetic nephropathy.

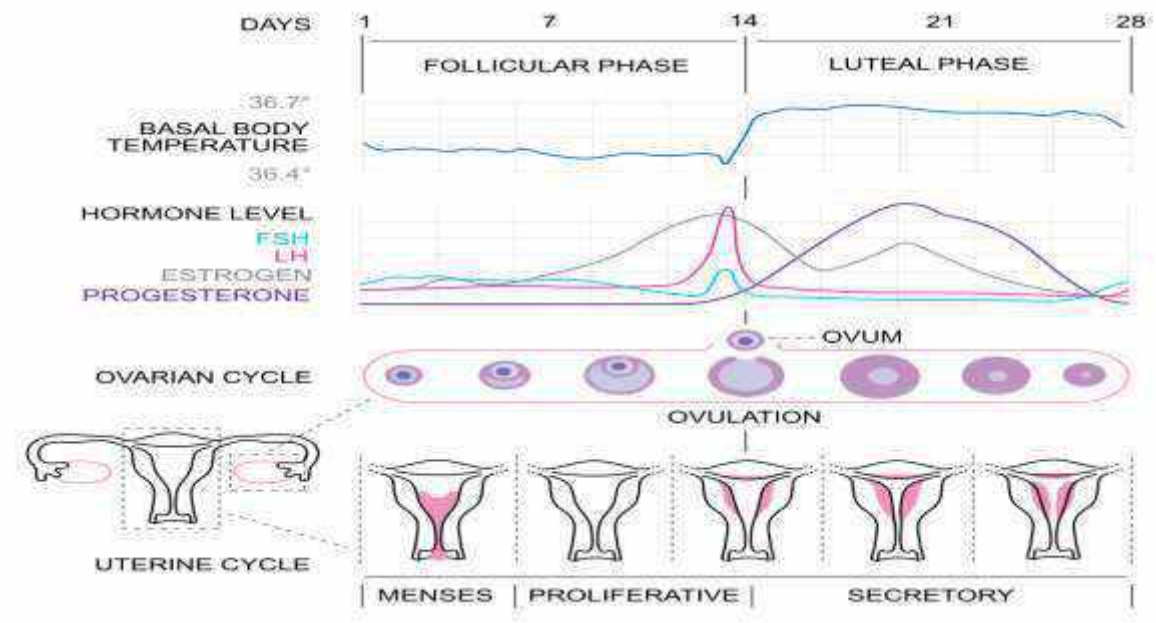
9. A 26-year-old woman was referred to the endocrine clinic for further evaluation of her symptoms of menstrual irregularity, unable to conceive, acne, and excessive facial hair growth. On examination, she had a BMI of 30 kg/m2 with no features of Cushing's syndrome. Her biochemical investigations and ultrasound pelvis results are mentioned below with the following diagnosis .Which one of the following investigations can be used to assess her ovulatory function?



A. Follicular 17-hydroxyprogesterone
B. Follicular 21-hydroxyprogesterone
C. Mid-luteal 17-hydroxyprogesterone
D. Mid-luteal 21-hydroxyprogesterone

Answer : D

The luteal phase of menstrual cycle is characterized by LH and FSH from the pituitary gland causing the transformation of the remaining part of the dominant follicle to corpus luteum, which secretes progesterone.



Keywords: menstrual irregularity, infertility, acne, and excessive facial hair growth , BMI of 30 kg/m2, ultrasound findings give a clear idea of polycystic ovarian syndrome .

10. A 62 year old elderly patient with type 2 diabetes mellitus having a history of polyuria for over several weeks and decreased oral intake presents to the OP with altered sensorium. He denies having any abdominal pain or nausea. Blood sugar levels are 800mg%. All of the following statements are true with reference to the patient's condition except?

A.Serum osmolality>350mOsm/L
B. ketoacidosis is absent
C. Kussmaul breathing is commonly observed
D. Pre renal azotaemia is seen

Answer : C

The clinical condition of the elderly patient suggests that he is experiencing a hyperglycaemic hyperosmolar state (HHS) which is a complication of type 2 DM and kussmaul breathing is not a feature of it.
It has features like acute complication of type 2 DM, seen in elderly patients with history of polyuria for several weeks and decreased oral intake, patients have signs like tachycardia, altered sensorium and coma.
Investigations- Blood sugar level 600-1200mg%, serum osmolality >350mOsm/L, prerenal azotaemia due to dehydration, pseudohyponatremia, no ketoacidosis
Management- fluid replacement, iv regular insulin, SC heparin to prevent venous thrombosis.

Keywords: case of type 2 diabetes mellitus with polyuria for over several weeks and decreased oral intake with altered sensorium. No abdominal pain or nausea. Blood sugar levels are 800mg%. the following features and investigations suggests that diagnosis is hyperglycaemic hyperosmolar state and not diabetic ketoacidosis .

11. An agitated confused female client arrives in the emergency department , her history include type 1 diabetes mellitus , hypertension and angina pectoris .assessment reveals , pallor , diaphoresis, headache & intense hunger .A stat blood glucose sample measures 42mg/dl & the client is treated for an acute hypoglycemic reaction . After recovery the staff nurse teaches the patient to treat hypoglycemia by ingesting?

A. 2 to 5g of simple carbohydrates
B. 10 to 15g of simple carbohydrates
C. 18 to 20g of simple carbohydrates
D. 25 to 30 g of simple carbohydrates

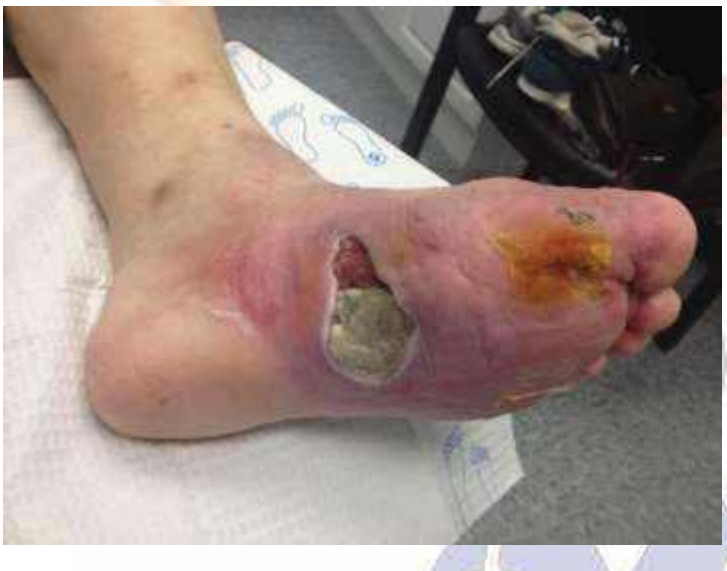
Answer : B

To remove hypoglycaemia American diabetes association recommended ingesting of 10 to 15g of simple carbohydrates such as 3-5 pieces of hard candy (4 to 6tsp of sugar) if necessary repeat in 15 min or 40oz of juices.

Less than the given value will not raise the glucose sufficiently and more than 15g may end the patient in hyperglycaemia.

Keywords: agitated, confused, history of type 1 DM, pallor, diaphoresis, headache & intense hunger. Blood investigation measures 42mg/dl of glucose all of the following features suggest acute hypoglycemic state .

12. A 54 year old male presented to medicine OPD, he is obese with long standing history of type 2 diabetes mellitus on irregular medication, unhealthy food habits and sedentary life style. He complains of new onset of ulcer in his left foot, the ulcer seems to be deep exposing tendons and joints, with oozing of pus and painless in nature, the skin over the ulcer site looks dry. All of the following factors can be implicated in the causation of the underlying condition except?



A. Venous stasis
B. Neuropathy
C. Immunosuppression
D. Ischemia

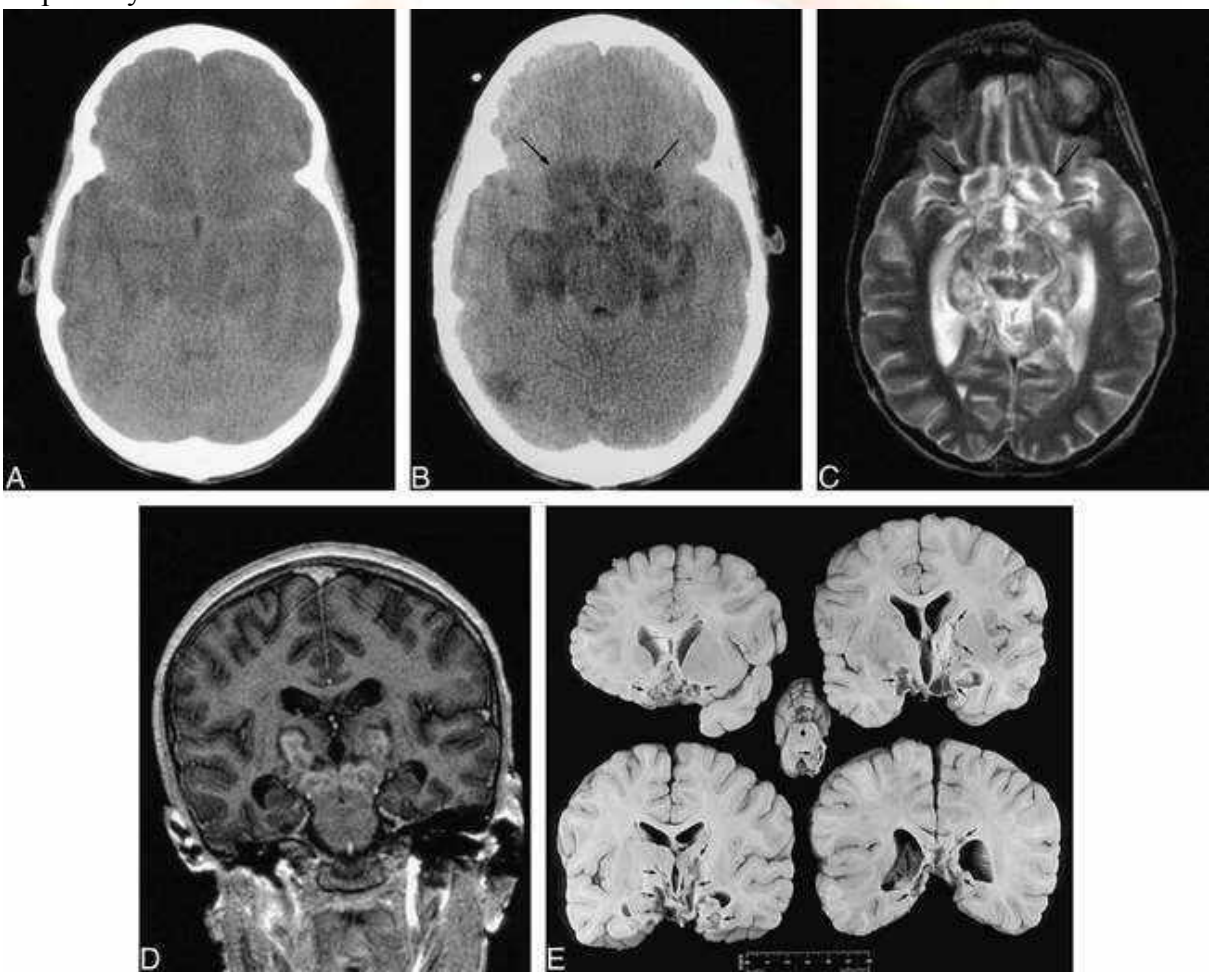
Answer : A

The condition is diabetic gangrene /foot ulcer is usually caused by a combination of three factors:
1. Ischemia secondary to atheroma
2. Peripheral neuropathy which leads to trophic skin changes
3. Immunosuppression caused by an excess of sugar in the tissue which predisposes diabetic patients to infection

Common areas affected by foot ulcers are great toe and metatarsophalangeal areas.

Keywords: Type 2 diabetes mellitus, on irregular medication, unhealthy food habits and sedentary lifestyle. Ulcer in his left foot, deep exposing tendons and joints, with oozing of pus and painless, ulcer site looks dry - suggests diabetic foot ulcer.

13. A previously healthy, 9-year-old boy presented to an outpatient department complaining of respiratory distress, abdominal pain, and malaise. Laboratory analysis was significant for serum glucose of 1,056, and the patient was diagnosed with DKA. The patient was treated with subcutaneous and intravenous insulin and oral and intravenous fluid resuscitation. Subsequently, the patient became acutely unresponsive and required transfer to the paediatric intensive care unit. On admission, the patient had fixed and dilated pupils and GCS of 5. CT scans of the head taken when the patient was admitted to the hospital shows the following finding. The most severe form of complication associated with diabetic ketoacidosis seen especially in children is?



A .Acute respiratory distress syndrome
B. Venous thrombosis
C. Cerebral oedema
D. Acute gastric dilation

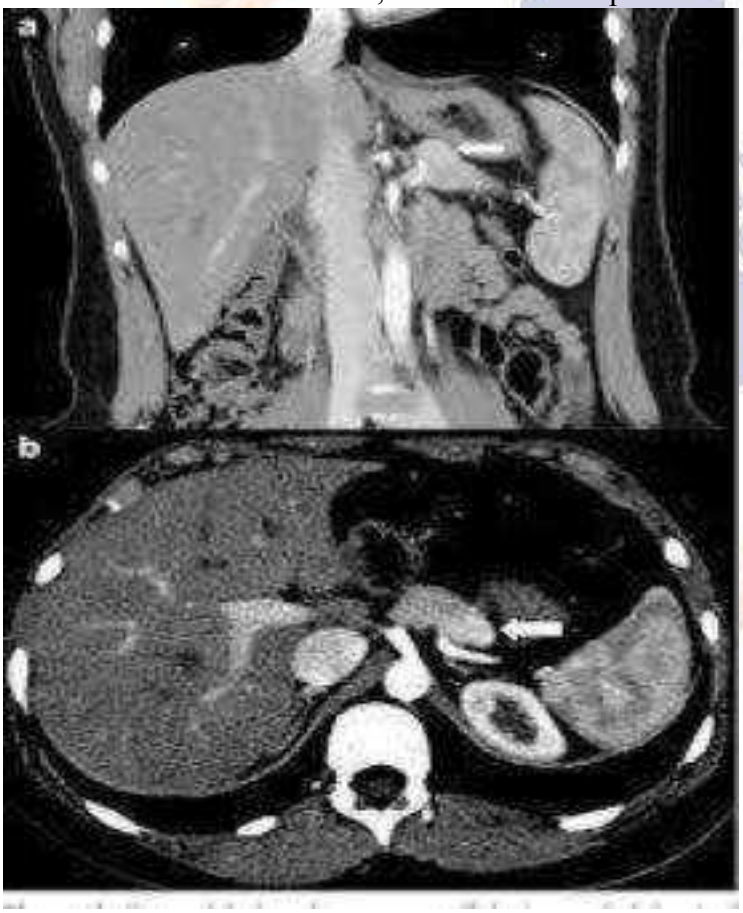
Answer : C

The most dangerous complication of diabetic ketoacidosis seen especially in children is cerebral oedema.
The osmolar gradient generated due to the high glucose levels results in water shift from intracellular fluid to the extracellular fluid space and leads to the contraction of the cell volume. Correction with insulin and intravenous fluids can result in a rapid reduction in effective osmolality, reversal of the fluid shift, and result in cerebral oedema.

Option A, B and D: Venous thrombosis, acute gastric dilation, ARDS are also the complications of DKA but cerebral oedema is the most severe form of complication especially in children.

Keywords: serum glucose of 1,056, was treated with subcutaneous and intravenous insulin and oral and intravenous fluid resuscitation, child gets unresponsive with GCS 5 And CT findings gives a clear diagnosis of cerebral oedema.

14. A 11-year-old boy presented with a 1-month history of tremors, diaphoresis, increased hunger, confusion and fainting. These symptoms were episodic in nature, worsened by fasting and exercise, and relieved markedly by food and juice intake. Patient denied any history of visual field defects. Past medical history and past surgical history were unremarkable. Systemic review was remarkable for weight gain (4 kg), events of anxiety, nausea, vomiting and light-headedness at the time of episodes .At presentation, the patient was vitally and hemodynamically stable. Initial laboratory investigations showed low blood glucose (64 mg/dL) and high blood insulin levels (6 µU/mL). . In view of frequent hypoglycemia symptoms, the patient was admitted for further workup. Patient underwent a 48-hour mentored fasting test. However, it ceased within roughly 3 hours due to occurrence of hypoglycemic symptoms. Repeated laboratory results showed low blood glucose level (41 mg/dL), and high blood insulin (21 µU/mL), blood screening for sulfonylurea/ meglitinide toxicity and anti-insulin antibodies were negative. The hypoglycemic symptoms were relieved markedly by glucose administration. A CECT abdomen was done, what is the most probable diagnosis?



A. Primary islet cell hyperplasia

B. Insulinoma
C. Pheochromocytoma
D. Insulin autoimmune hypoglycemia

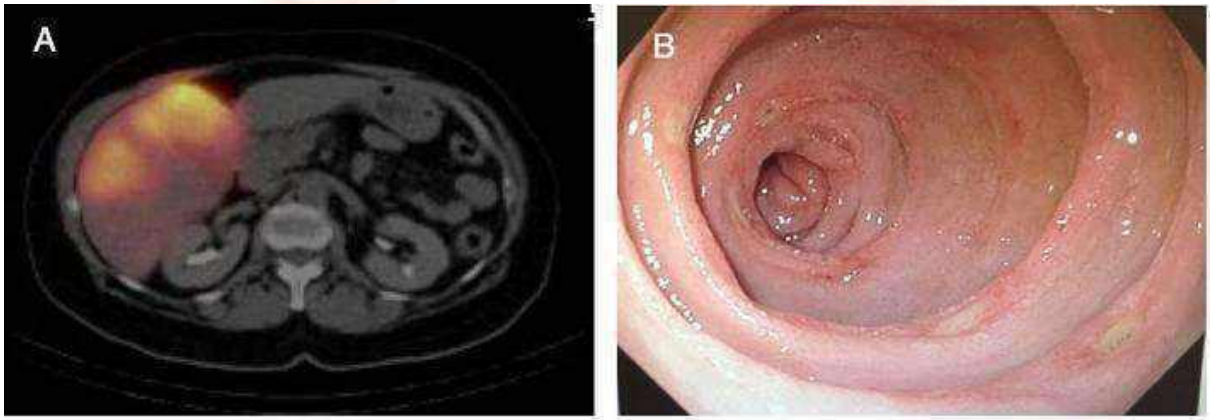
Answer : A

An insulinoma is a tumour of the pancreas that is derived from beta cells and secretes insulin. It is a rare form of a neuroendocrine tumour. Most insulinomas are benign. They grow exclusively at their origin within the pancreas, but a minority metastasize.

The common clinical manifestation of an insulinoma is fasting hypoglycemia

Keywords: hypoglycemia symptoms, worsened by fasting, showed low blood glucose (64 mg/dL) and high blood insulin levels (6 µU/mL). Patient underwent a 48-hour mentored fasting test. However, it ceased within roughly 3 hours due to occurrence of hypoglycemic symptoms.The CECT abdomen findings suggest the condition to be insulinoma.

15. A 56-year-old female presented with watery diarrhoea for 10 months. She lost 70 pounds in this time period. On physical examination, she appeared cachectic. Abdomen was mildly distended with mild generalized tenderness. Laboratory analysis showed haemoglobin 11.5 g/dL, total protein 5.2 g/dL and albumin 2.5 g/dL. Stool culture was negative. Faecal fat analysis was normal. CT abdomen and PET scan showed multiple liver masses Liver biopsy suggested metastatic well-differentiated neuroendocrine tumour. Serum gastrin level was significantly elevated 9,100 pg/mL (normal < 100 pg/mL). Serum vasoactive intestinal polypeptide and colonoscopy were normal. Esophagogastroduodenoscopy showed prominent gastric folds and multiple duodenal ulcers. What is the most probable diagnosis?



A. Gastro oesophageal reflux disease
B. Peptic ulcer disease
C. Zollinger-Ellison syndrome
D. Atrophic gastritis

Answer : C

ZES is a clinical syndrome caused by hypersecretion of gastrin by a gastrinoma. Gastrinomas are located in the duodenum or pancreas. Most gastrinomas are sporadic but sometimes occur in association with MEN1. Although gastrinomas are one of the most common pancreatic neuroendocrine tumours (NETs), only 30% arise in pancreas.
Abdominal pain and diarrhoea are the most common clinical features of ZES. Diarrhoea is caused by gastric acid hypersecretion and decreased absorption of sodium and water due to hypergastrinemia. Patients can also have heartburn and weight loss. GI bleeding can be an initial presentation in 25% of the patients.

ZES should be considered in patients with diarrhoea and peptic ulcer disease. Patients diagnosed with ZES should also be evaluated for MEN1. Fasting serum gastrin levels more than 10 times the upper limit of normal (> 1,000 pg/mL) in the presence of low gastric pH (< 2) is diagnostic of ZES.

Secondary hypergastrinemia can be seen in atrophic gastritis, renal failure and proton-pump inhibitor (PPI) use.

Management- Medical therapy with high-dose PPIs is the standard of care for ZES patients with MEN1 syndrome.

Patients with ZES should be started on high-dose PPIs (omeprazole 60 mg or pantoprazole 120 mg daily). PPIs effectively control the symptoms in most of the patients with ZES. If symptoms persist despite PPI use, somatostatin analogues should be used. Patients with a sporadic gastrinoma and without evidence of metastases can be treated with surgery.

Keywords: watery diarrhoea for 10 months. CT abdomen and PET scan showed multiple liver masses Liver biopsy suggested metastatic well-differentiated neuroendocrine tumour. Serum gastrin level elevated 9,100 pg/mL.
Esophagogastroduodenoscopy showed prominent gastric folds and multiple duodenal ulcers.

16. Mr.Mahesh a 52 year old man presents to his physician for routine health evaluation. He reports that he frequently feels thirsty and wakes up at night to urinate. He takes no medication but has a family history of DM .The physician suspects DM in him. To confirm diagnosis, all of the following tests can be employed except ?

A. Random blood glucose test
B. D-Xylose absorption test
C. Oral glucose tolerance test
D. Fasting blood glucose test

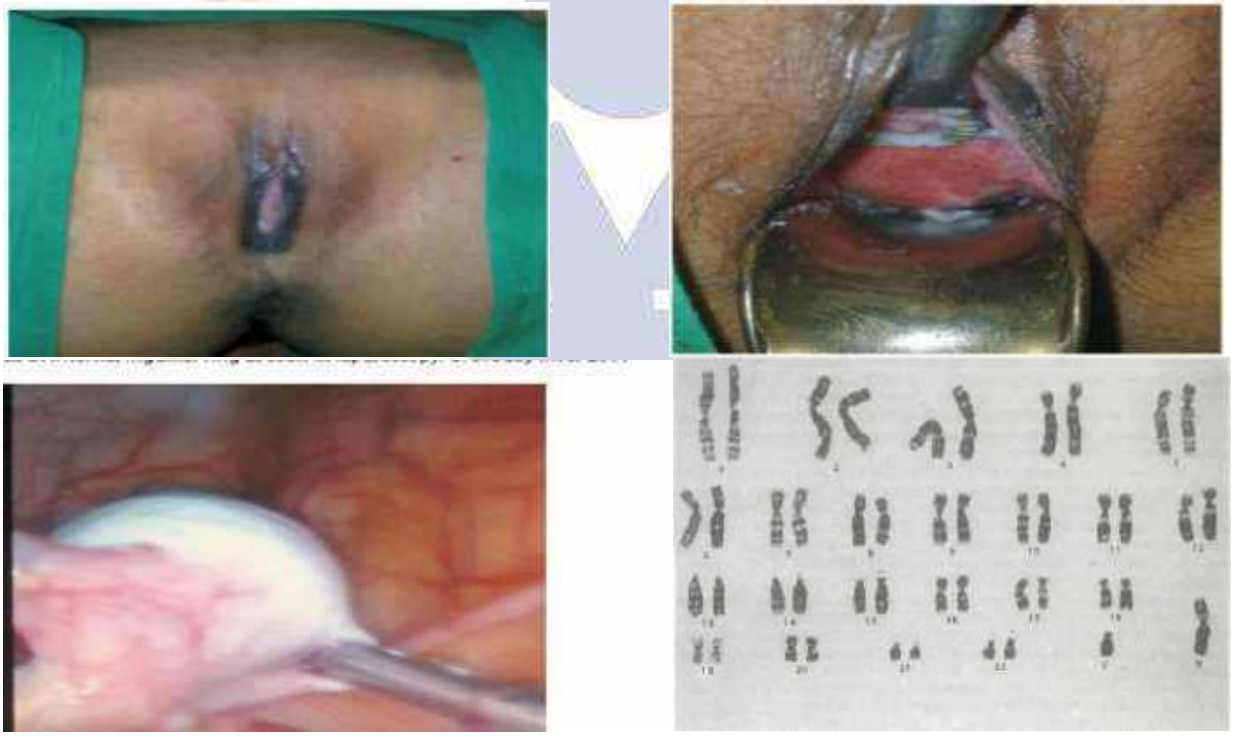
Answer : B

D-Xylose absorption test is not a confirmatory test for diabetes mellitus. According to ADA criteria for the clinical diagnosis of diabetes, the following tests are performed :
Random blood glucose test
Fasting plasma glucose level
Oral glucose tolerance test
HbA1c level

The most clinically appropriate test for diabetes screening in asymptomatic individuals is – HbA1c and fasting plasma glucose level

Keywords: Typical symptoms of DM like polydipsia, polyuria, polyphagia and patients have significant family history of DM. following features supports the diagnosis of DM.

17. A 24-year-old phenotypic female presented to the OBS/GYN department with complaints of amenorrhea. She was married and complained of an inability to conceive for the last 4 years. Her marital life was normal and she reported no difficulty in having sex until about the last month, when she began to experience dyspareunia. The patient's build was normal and she had welldeveloped breasts. Pubic and axillary hair was sparse. The labia were poorly developed. The vagina was 3 inches in length and appeared otherwise normal. However, the cervix could not be visualized on speculum examination; an ultrasound of the abdomen and pelvis revealed an absent uterus and ovaries. Karyotyping was done. Follicle stimulating hormone (FSH) was elevated with a value of 90 mIU/mL. Luteinizing hormone (LH) was also elevated with a value of 20 mIU/mL. However, serum testosterone level was normal with a value of 300 ng/Dl. Diagnostic laparoscopy revealed bilateral testes approximately 2 cm x 1.5 cm x 1 cm in size, located at the level of the internal inguinal ring. Histopath of testis revealed Sertoli cell hyperplasia with absent lumen in the seminiferous tubules and an absence of spermatogonia. Histopathology did not reveal any evidence of malignancy; what is the most probable diagnosis?



A. Klinefelter syndrome
B. Androgen insensitivity syndrome
C. Asherman syndrome
D. Kallmann syndrome

Answer : B

Androgen insensitivity syndrome is typically characterized by evidence of feminization of the external genitalia at birth, abnormal secondary sexual development in puberty, and infertility in individuals with a 46, XY karyotype.

It represents a spectrum of defects in androgen action and can be subdivided into 3 broad phenotypes:
(1) Complete androgen insensitivity syndrome (CAIS) with typical female genitalia
(2) Partial androgen insensitivity syndrome (PAIS) with predominantly female, predominantly male, or ambiguous genitalia
(3) Mild androgen insensitivity syndrome (MAIS) with typical male genitalia.
The present case is a complete androgen insensitivity syndrome because the phenotype is female with genetic male and minimal Wolffian structures.

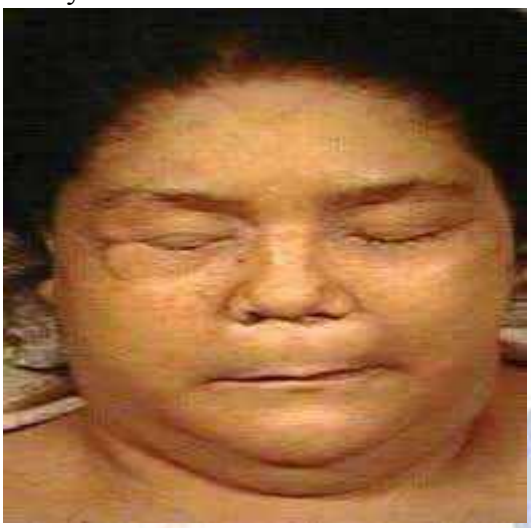
Option A: Klinefelter syndrome , also known as 47, XXY is the set of symptoms that result from two or more X chromosomes in males.

Option C: Asherman syndrome is the formation of scar tissue in the uterine cavity. The problem most often develops after uterine surgery.

Option D: Kallmann syndrome is a condition characterized by delayed or absent puberty and an impaired sense of smell.

Keywords: infertility , recent dyspareunia, pubic and axillary hair was sparse, poorly developed labia , cervix could not be visualized on speculum examination , ultrasound revealed an absent uterus and ovaries , karyotyping shows 46XY, FSH & LH elevated and normal testosterone .
Laparoscopy revealed B/L testis in inguinal ring ,absence spermatogonia, no malignancy was noted.

18. A 55 year-old patient presents to the emergency ward with symptoms suggestive of myxoedema coma. Which of the following conditions is least likely in this patient?



A. Hypoglycaemia
B. Hypernatremia
C. Hypercapnia
D. Hyperthermia

Answer : D

Hyperthermia is least likely in this patient. Clinical manifestations of myxoedema coma include decreased consciousness, seizures and hypothermia. The temperature may be as low as 23 degree celsius.
Hypoventilation leading to hypoxia and hypercapnia plays a major role in myxoedema pathogenesis.
Hypoglycaemia and dilutional hyponatremia are also attributed to the development of symptoms.

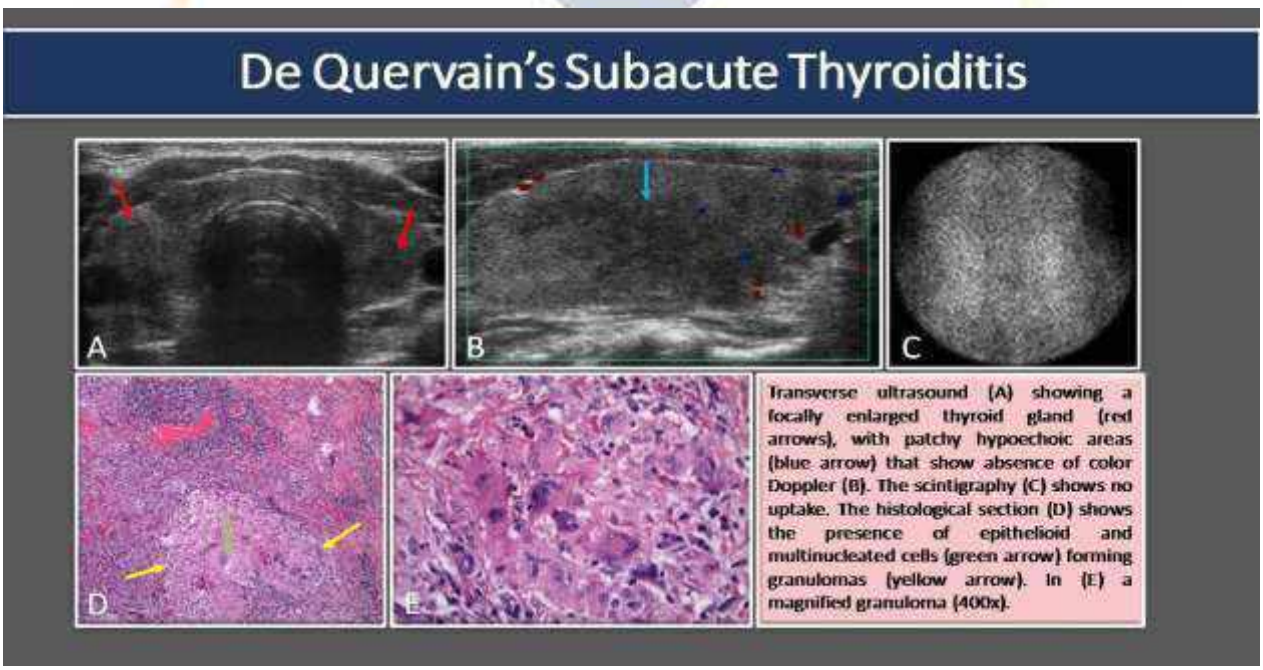
Myxoedema coma is a serious condition with a mortality rate of 20-40%. Interestingly, the clinical outcomes are independent of the detected t4 and TSH levels.

19. All of the following statements are true about de quervain's thyroiditis except ?

A. (a)Treatment of choice is supportive and nsaids
B. (b)Characterized by painful and enlarged thyroid
C. (c)Both thyrotoxic and hypothyroid phases can be observed
D. (d)It's an autoimmune in origin

Answer : D

De quervian's thyroiditis is not autoimmune in origin. It is subacute granulomatous thyroiditis that occurs secondary to viral infections.
Many viruses such as mumps, adenoviruses and echovirus have been clinically implicated in this condition. Peak incidence is observed at 30-50 years and women are generally affected 3 times more often than men.



Clinically, it presents as a painfully enlarged thyroid and is sometimes accompanied by fever.

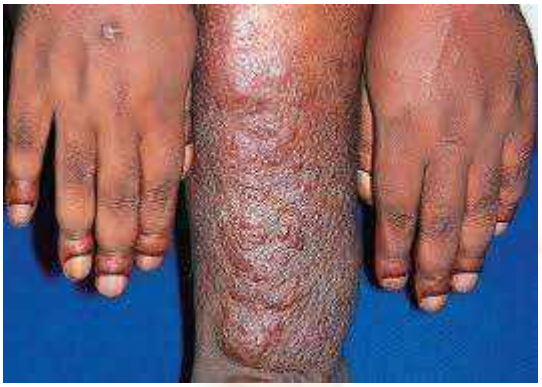
It has three distinct phases:

1. Thyrotoxic phase
2. Hypothyroid phase

3. Recovery phase

It is treated with large doses of aspirin, nsaids, steroids and/or beta blockers to relieve the observable clinical symptoms. Antithyroid drugs do not have any role. In case the hypothyroid phase is prolonged-levothyroxine can be used.

20. Which of the following statements is not true about thyroid dermopathy?



A. Most frequently observed over the anterior and lateral aspect of lower leg.
B. Occurs in more than 50% of patients with Graves diseases.
C. Occurs almost always in the presence of moderate or severe form of ophthalmopathy. D. Has an orange skin appearance

.

Answer : B

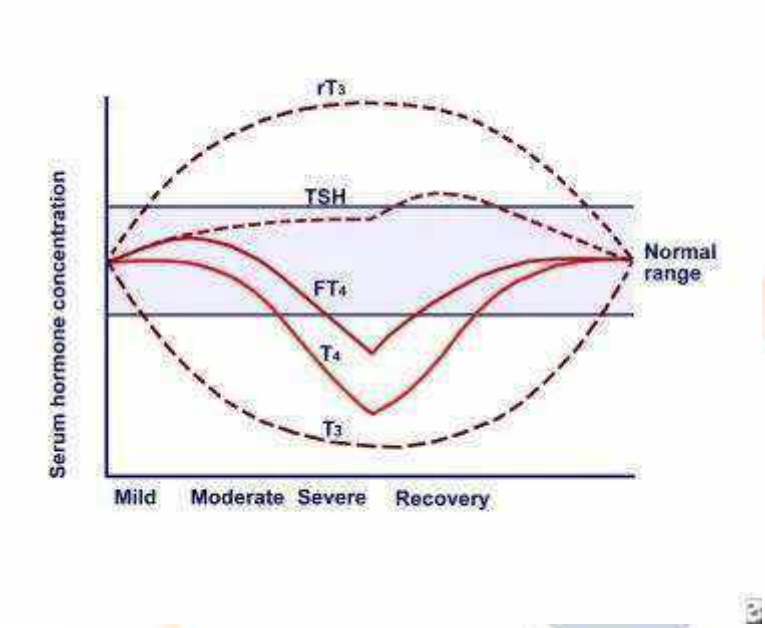
Thyroid dermopathy occurs in ≤5% of patients with Graves diseases. It almost always is associated with ophthalmopathy.

Although most frequently observed over the anterior and lateral aspects of the lower leg (hence the term pretibial myxoedema), changes associated with the skin can occur at other sites, particularly after trauma.

The typical lesion is a noninflamed, indurated plaque with a deep pink or purple colour and an orange skin appearance.

Thyroid acropachy refers to a form of clubbing observed in ≤1% of patients with Graves diseases. This symptom is strongly associated with thyroid dermopathy.

21. TFT was performed in an acutely sick patient. What hormone pattern is to be expected as part of sick euthyroid syndrome?



A. Decreased t3, normal t4, normal TSH
B. Decreased t3, decreased t4, normal TSH
C. Increased t3, increased t4, increased TSH
D. Normal t3, increased t4, normal TSH

Answer : A

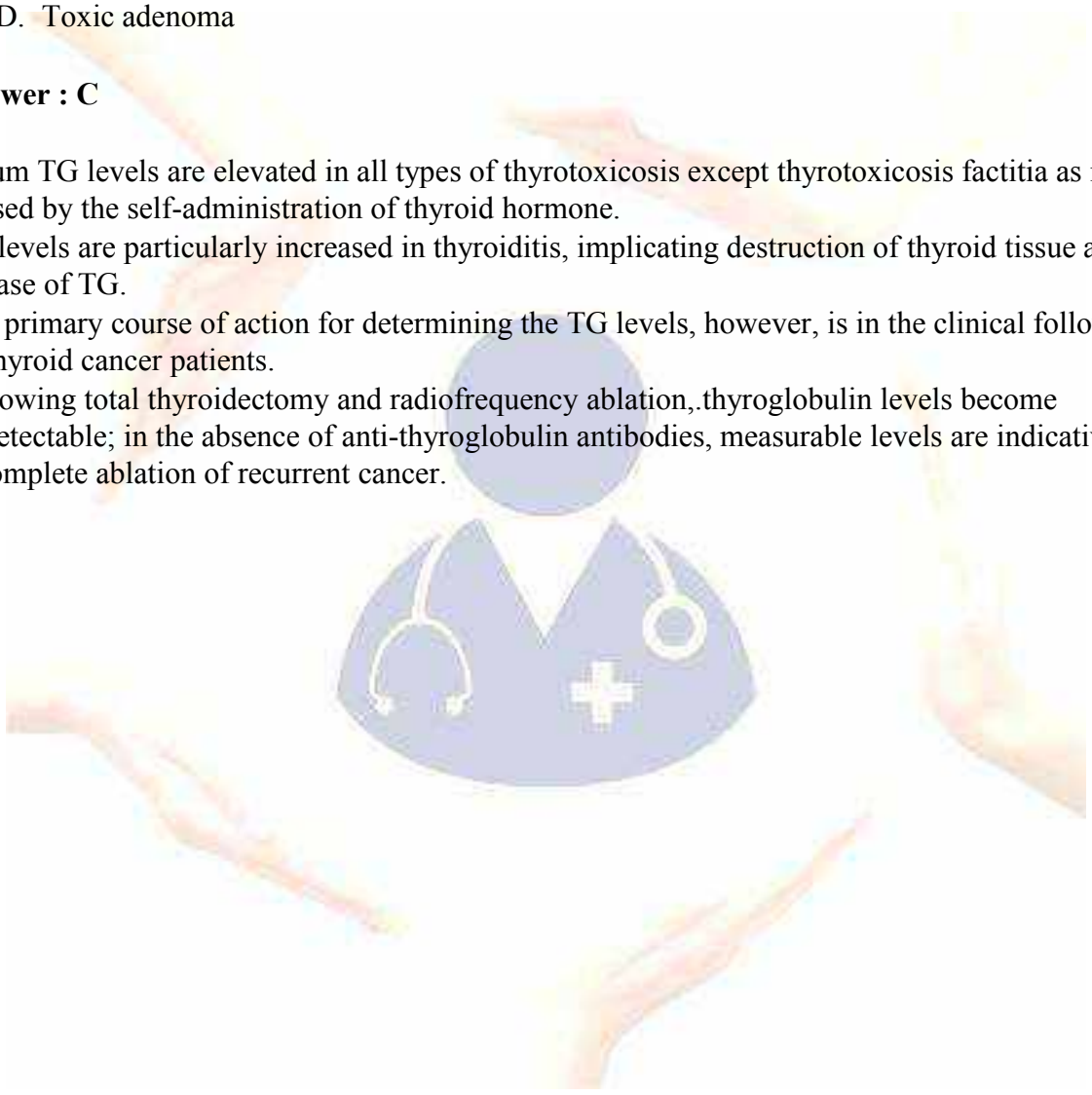
The most common hormone pattern observed in sick euthyroid syndrome (SES) is a decrease in total and unbound t3 levels with normal levels of t4 and tsh. This pattern is called low t3 syndrome.
SES is caused by an acute severe illness in the absence of underlying thyroid disease.t4 to t3 conversion via peripheral deiodination is impaired leading to a fall in t3 corresponding to the severity of illness. There is an adaptive increase in the level of reverse t3.
In very sick patients, there can be a dramatic fall in both total t4 and t3 levels. This pattern is called low t4 syndrome and is associated with a poor prognosis.

22. Serum thyroglobulin levels are not elevated in which of the following medical conditions?

A. Graves diseases
B. Toxic multinodular goitre
C. Thyrotoxicosis factitia
D. Toxic adenoma

Answer : C

Serum TG levels are elevated in all types of thyrotoxicosis except thyrotoxicosis factitia as it is caused by the self-administration of thyroid hormone.
TG levels are particularly increased in thyroiditis, implicating destruction of thyroid tissue and release of TG.
The primary course of action for determining the TG levels, however, is in the clinical follow-up of thyroid cancer patients.
Following total thyroidectomy and radiofrequency ablation,.thyroglobulin levels become undetectable; in the absence of anti-thyroglobulin antibodies, measurable levels are indicative of incomplete ablation of recurrent cancer.

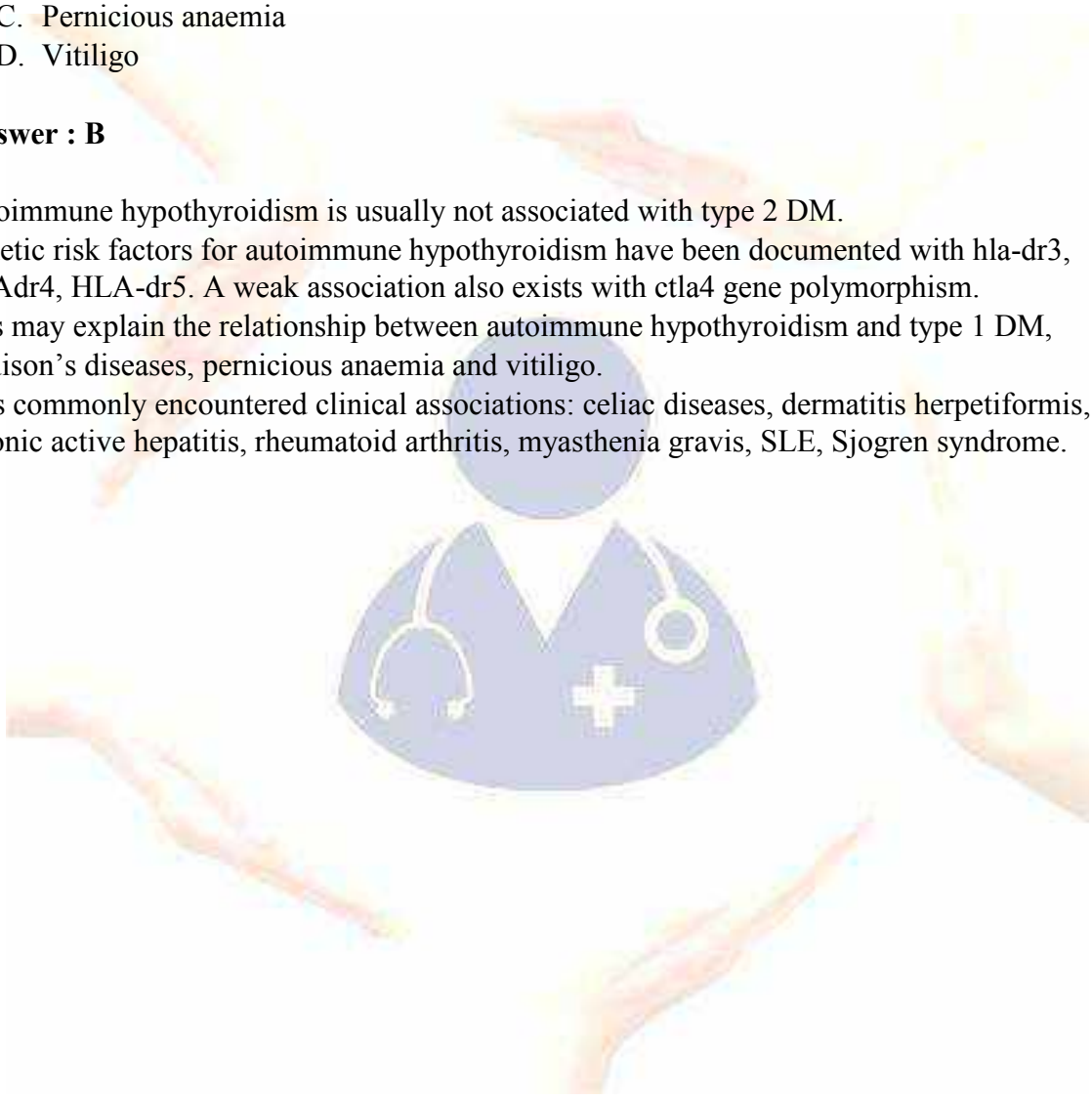


23. A patient suffers from autoimmune hypothyroidism. Which of the following conditions is least likely in this patient?

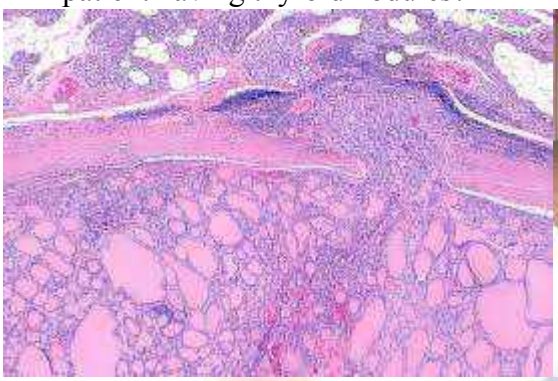
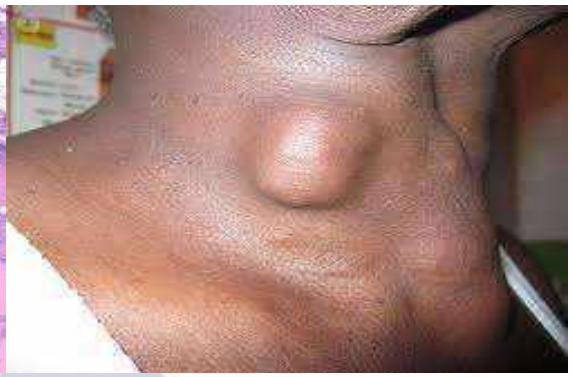
    A. Type 1 DM
    B. Type 2 DM
    C. Pernicious anaemia
    D. Vitiligo

Answer : B

Autoimmune hypothyroidism is usually not associated with type 2 DM.
Genetic risk factors for autoimmune hypothyroidism have been documented with hla-dr3, HLAdr4, HLA-dr5. A weak association also exists with ctla4 gene polymorphism.
This may explain the relationship between autoimmune hypothyroidism and type 1 DM, Addison's diseases, pernicious anaemia and vitiligo.
Less commonly encountered clinical associations: celiac diseases, dermatitis herpetiformis, chronic active hepatitis, rheumatoid arthritis, myasthenia gravis, SLE, Sjogren syndrome.



24. Which of the following is not a risk factor in the clinical incidence of thyroid carcinoma in a patient having thyroid nodules?

A. Age between 20-65years
B. Vocal cord paralysis and hoarse voice
C. Male gender
D. Increased nodule size ≥4cm

Answer : A

Age ≤20 or ≥65 years are a risk factor in the clinical incidence of thyroid carcinoma in a patient having thyroid nodules.

Other risk factors include:

1. Exposure to radiation in childhood or adolescence.
2. Increased nodule size ≥4cm
3. Male gender
4. Vocal cord paralysis and hoarse voice
5. New or enlarged neck mass
6. Family history of thyroid cancer, men2, or other syndrome associated with thyroid malignancy (e.g., Cowden's syndrome, familial polyposis, carney complex).
7. Nodule fixed to adjacent structures
8. Extra thyroidal extension
9. Lateral cervical lymphadenopathy

25. A 48 -year old woman presents with fatigue, depression and weight gain. TFT was done and she was found to have hypothyroidism. Which of the following statements does not hold true about the treatment of hypothyroidism?

    A. If there is no residual function, the replacement dose of thyroid is 1.6µg/kg body weight
    B. In patients with hypothyroidism after treatment of graves diseases, higher doses are needed for replacement
    C. TSH responses are gradual and should be determined 2 months following the initiation of treatment or change in dose
    D. Once full replacement is achieved and TSH levels are stable, tsh measurement is recommended at annual intervals.

Answer : B

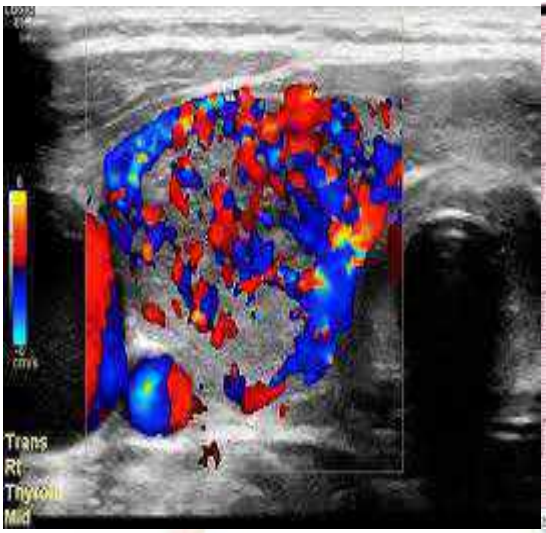
In patients with hypothyroidism after treatment of Graves diseases, lower doses are needed for replacement. This is because there is often underlying autonomous function, necessitating lower replacement doses (typically 75-125µg/d)
In fact, in most patients, lower doses suffice until residual thyroid tissue is destroyed.

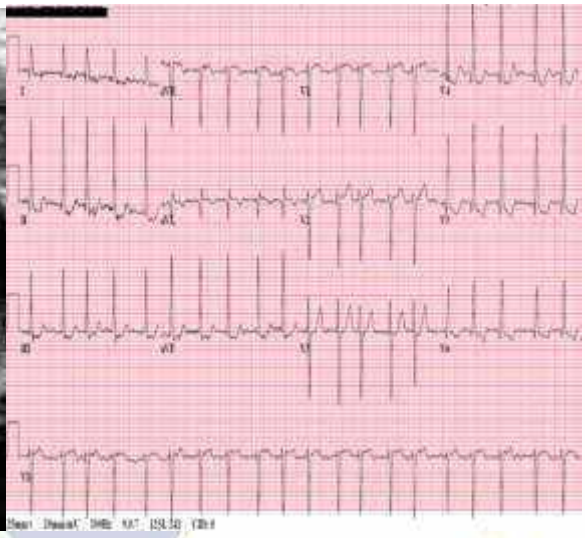
Adult patients under 60- years old without evidence of heart diseases may be treated initially with a dose of 50-100µg levothyroxine (t4) daily. Once there is no residual function, the daily replacement dose of levothyroxine is usually 1.6µg/kg body weight (typically 100-150µg), ideally taken at least 30 minutes before breakfast.

TSH responses are gradual and should be determined 2 months following the initiation of treatment or change in dose.

Also, clinical effects are slow to appear and patients may not experience full relief from symptoms until 3-6 months after normal TSH levels are restored. Once the full replacement is achieved and TSH levels are stable, TSH measurement is recommended at annual intervals.

26. Following radioactive iodine therapy, a patient developed a thyroid storm. What is the antithyroid drug of choice in this patient?





A. Propranolol
B. Iodine
C. PTU
D. Methimazole

Answer : C

PTU in large doses (500-1000 mg loading dose and 250mg every 4h) administered orally or by using a nasogastric tube or per rectum is considered the drug of choice in thyroid storm due to its inhibitory action on peripheral t4→t3 conversion.

27. A patient came to the hospital with complaints of lethargy, increased sleep, and weight gain. Investigations revealed low plasma TSH concentration. However, on the administration of TRH, the TSH levels increased. Which of the following conditions is likely to be present in this patient?

A. Hyperthyroidism due to disease in the pituitary
B. Hypothyroidism due to disease in the pituitary
C. Hypothyroidism due to disease in the hypothalamus
D. Hyperthyroidism due to disease in the hypothalamus

Answer : C

The given clinical features are suggestive of hypothyroidism and the TSH levels are low due to low levels of TRH. Hence, the patient has hypothyroidism due to disease in the hypothalamus. Normally, the TRH is released by the hypothalamus. It stimulates the pituitary gland to release the TSH, which in turn stimulates the thyroid gland to produce t3 and t4 hormones.

Low TSH levels may be seen in the following cases:
Hyperthyroidism causing feedback inhibition of TSH release. These patients present with symptoms of hyperthyroidism.
Primary disease of the pituitary is associated with decreased release of TSH, thereby causing a decreased release of thyroid hormones.The patients present with symptoms of hypothyroidism. Administration of TRH does not elevate the TSH levels in this case since the pituitary gland is abnormal.
Primary disease of the hypothalamus associated with decreased release of TRH leading to decreased TSH and hypothyroidism. Administration of TRH causes elevation of TSH levels since the pituitary gland is normal.

28. Which of the following is not true about congenital hypothyroidism?

A. Most common cause of neonatal hypothyroidism is inborn defects in the synthesis of thyroid hormone.
B. The development abnormalities are more common in girls
C. Clinical features include prolonged jaundice, umbilical hernia and enlarged tongue. D. High circulating t4 level is needed to normalize TSH

Answer : A

The most common cause of neonatal hypothyroidism is thyroid gland dysgenesis. It is seen in about 80-85% of neonatal hypothyroidism. In the rest, it is due to inborn defects in thyroid hormone synthesis and rarely due to TSH receptor antibodies. These developmental abnormalities are twice as common in girls.
Clinical features include prolonged jaundice, umbilical hernia, enlarged tongue, hypotonic and delayed bone maturation.
Permanent neurological damage results if treatment is delayed.
T4 requirements are relatively high during the first year of life, and a high circulating t4 level is needed to normalize TSH.
Early treatment with t4 results in normal iq levels by preventing neurodevelopmental abnormalities.

29. Which of the following is not true of amiodarone-induced thyrotoxicosis (AIT)?

A. Type 2 ait is associated with intrinsic abnormalities of the thyroid gland
B. Type 2 ait is due to lysosomal destruction of thyroid gland
C. Type 1 ait is due to jod-basedow phenomenon
D. Colour flow Doppler shows increased vascularity in type 1

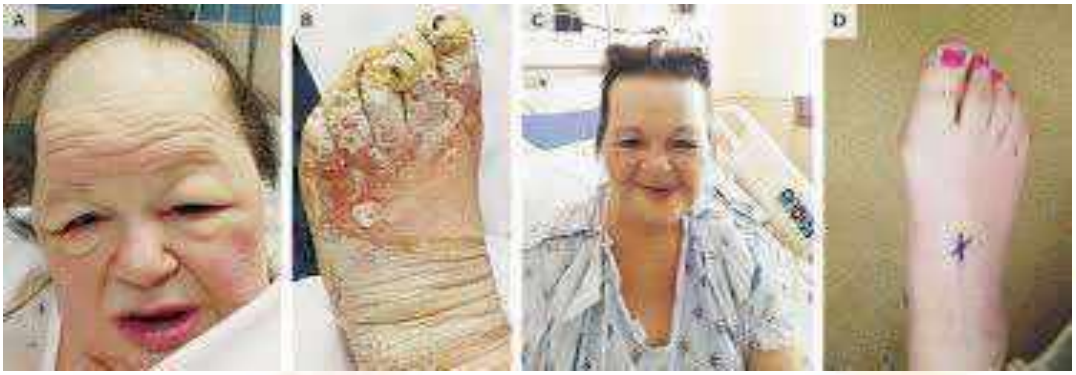
Answer : A

Type 1 AIT is associated with intrinsic abnormalities of the thyroid gland.
Amiodarone is structurally similar to thyroid hormones and contains 39% iodine by weight. Although it can cause transient hypothyroidism in some individuals (Wolff chaikoff effect), ait is more common.

Type 1 AIT	Type 2 AIT
Underlying disease-graves' disease, multinodular goitre etc. Due to the jod-basedow phenomenon Increased vascularity on colour Doppler.	No underlying disease Due to drug-induced lysosomal destruction of thyroid tissue. Decreased vascularity on colour Doppler

Administration of amiodarone should be stopped if possible. Near-total thyroidectomy rapidly decreases thyroid hormone levels and maybe the most effective long-term clinical solution.

30. Which of the following is avoided in the course of treatment of myxoedema coma?



A. IV levothyroxine
B. Liothyronine
C. Parenteral steroids
D. Hypotonic iv fluids

Answer : D

Hypotonic IV fluids are avoided in the course of treatment of myxoedema coma.
Hypotonic fluids are exacerbating water retention and dilutional hyponatremia secondary to impaired renal perfusion and inappropriate vasopressin.

Treatment of myxoedema coma:
Levothyroxine (t4) can be administered as a single IV bolus of 500µg. Although further doses are strictly not required, it is continued at 50-100µg/day.
An alternative mode of treatment is the IV administration of liothyronine (t3) or via NG tubes with doses ranging from 10-25µg every 8-12 hours in case t4 to t3 conversion in myxoedema is impaired.
Parenteral hydrocortisone should be administered to treat a condition of impaired adrenal reserve in profound hypothyroidism.
Hypertonic saline or IV glucose may be recommended for treatment.
External warming is indicated only if the temperature is less than 30◦c.

31. The statement from the given options that stands true about silent thyroiditis is?

A. Painful thyroiditis
B. Glucocorticoids is not indicated for treatment
C. It is not associated with thyrotoxicosis
D. It is not associated with hypothyroidism

Answer : B

Glucocorticoids treatment is not indicated in silent thyroiditis.
It is called silent thyroiditis, as it is painless. When it occurs 3-6months after pregnancy, it is termed postpartum thyroiditis. The condition is observed in up to 5% of women and it is 3 times more common in women with type 1 dm.

Typically, patients experience a brief phase of thyrotoxicosis lasting 2-4 weeks, followed by hypothyroidism for 4-12 weeks, and then clinical resolution. Often, only one phase is apparent. In addition to painless goitre, silent thyroiditis can be distinguished from subacute thyroiditis by a normal ESR value and the presence of TPO antibodies.

Severe thyrotoxic symptoms can be managed with a brief course of propranolol, a 20-40 mg dose administered three or four times daily. Thyroxine replacement may be needed for treating the hypothyroid phase but should be withdrawn after 6-9 months, to enable patient recovery.

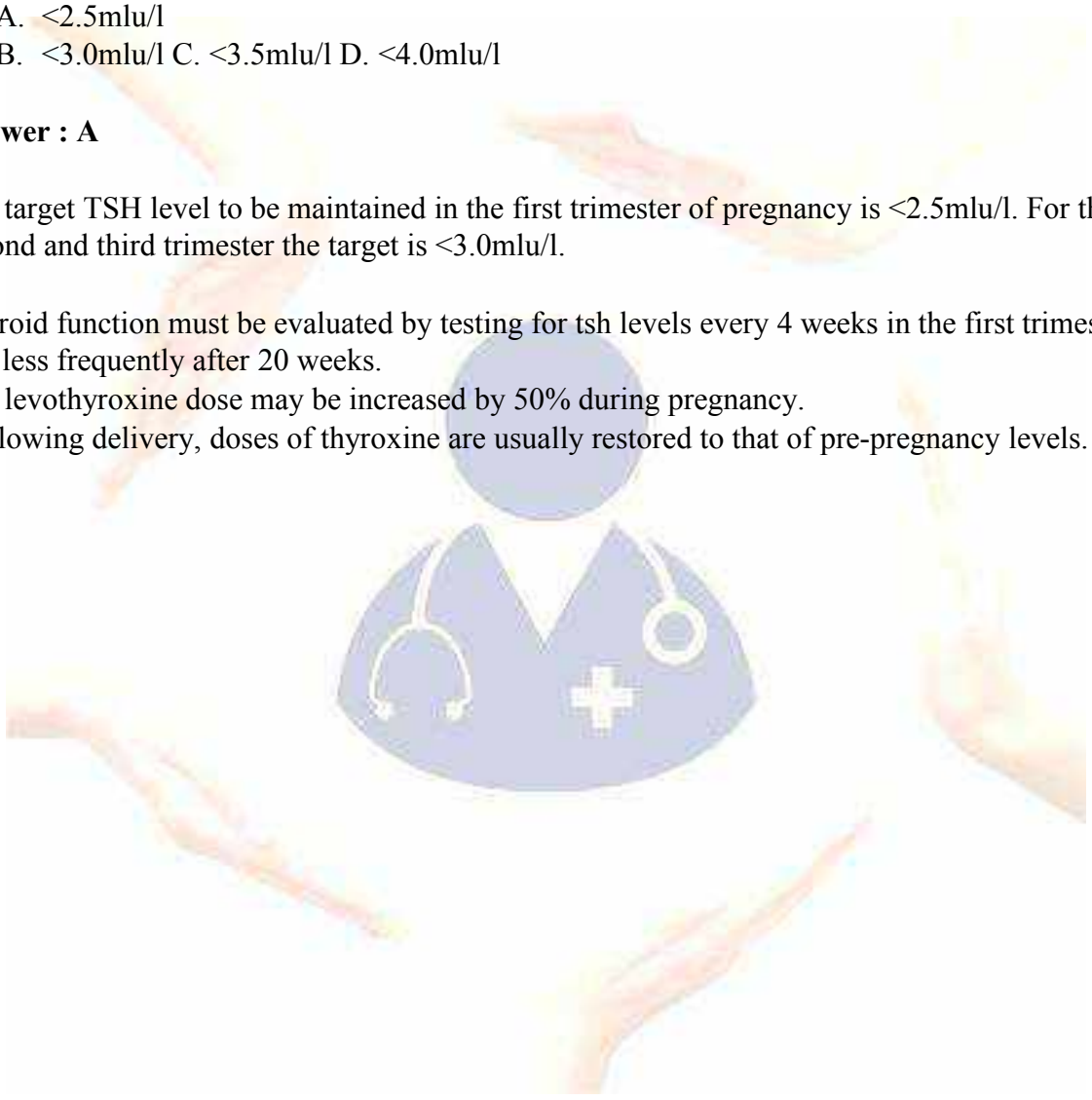
32. A 24- year old married woman with hypothyroidism on oral levothyroxine supplementation wishes to conceive. The physician advises her to increase the dose of levothyroxine. What is the target TSH level to be maintained during the first trimester of pregnancy in the course of treatment of hypothyroidism?

    A. <2.5mlu/l
    B. <3.0mlu/l C. <3.5mlu/l D. <4.0mlu/l

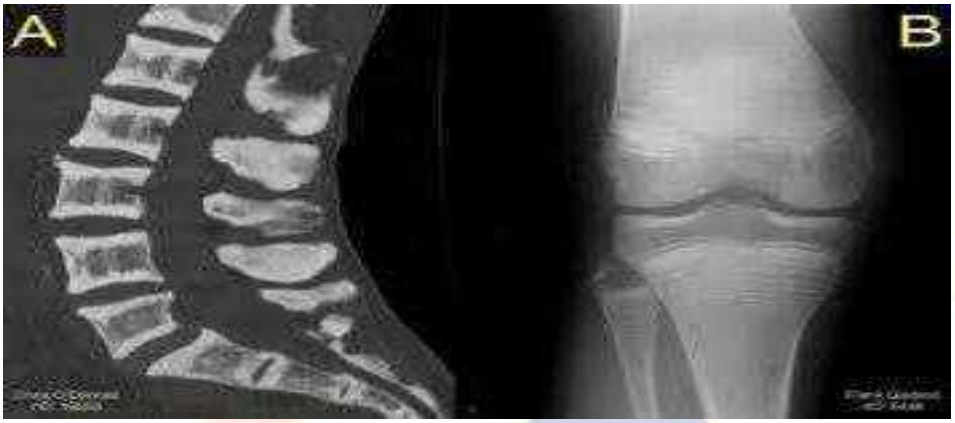
Answer : A

The target TSH level to be maintained in the first trimester of pregnancy is <2.5mlu/l. For the second and third trimester the target is <3.0mlu/l.

Thyroid function must be evaluated by testing for tsh levels every 4 weeks in the first trimester and less frequently after 20 weeks.
The levothyroxine dose may be increased by 50% during pregnancy.
Following delivery, doses of thyroxine are usually restored to that of pre-pregnancy levels.



33. A 47- year- old man with a known cause of chronic renal failure develops rugger jersey spine. The probable cause of this condition is?

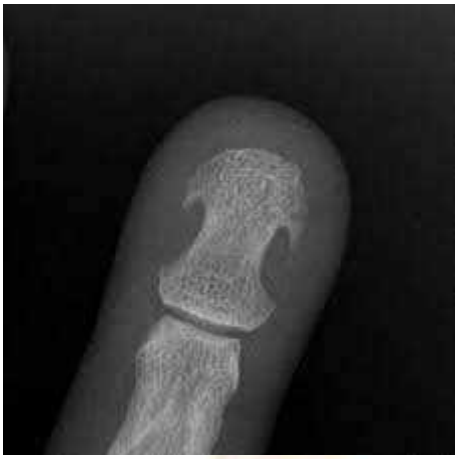


A. Aluminium intoxication
B. Osteoporosis
C. Secondary hyperparathyroidism
D. Osteomalacia

Answer : C

The rugger jersey spine is primarily seen in patients affected by hyperparathyroidism. Renal failure leads to osteodystrophy leading to secondary hyperparathyroidism. Thus, the rugger jersey spine is observed in patients with similar conditions.

34. The arrow-headed finger represented on the x-ray is suggestive of ?



A. Hyperparathyroidism
B. Down syndrome
C. Acromegaly
D. Sarcoidosis

Answer : C

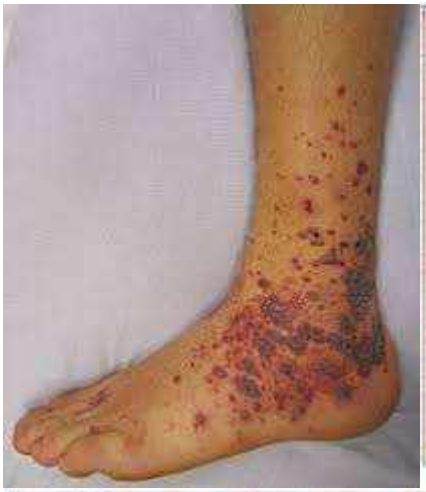
The arrow -headed finger called the spade pharynx sign represented in the x-ray image is pathognomonic of acromegaly.
Acromegaly is the result of excessive growth hormone production, most commonly from a macro adenoma of the pituitary.

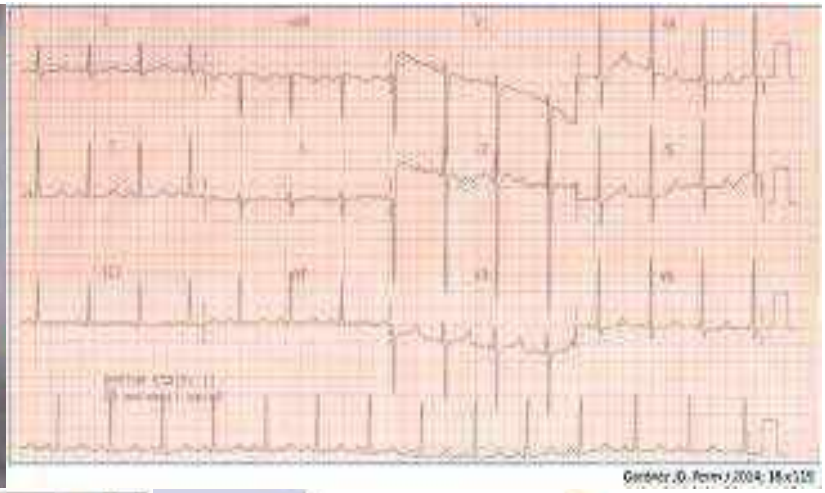
Radiographs may reveal osseous enlargement, presenting with ‘shade-like’ hands and widening of the terminal phalangeal tufts, giving an ‘arrow-head’ appearance.

Other features in the hand:
Widened joint spaces (due to cartilage hypertrophy)
Generalized osteoporosis and cystic changes in the carpal bones.

Other options:
Hyperparathyroidism: hand radiographs often show osteopenia and bone demineralization. The most pathognomonic finding, however, is subperiosteal bone resorption. This is the most marked along the radial aspect of the middle phalanges of the index and middle fingers.
Sarcoidosis: radiograph of the little finger of the right hand shows ‘lace-like’ metaphysical trabecular patterns and well-defined cyst like lesions, phalangeal endosteal sclerosis and periosteal new bone formation and destruction of the terminal phalanx.

35. All of the following agents may be used in the clinical management of chronic hypocalcaemia except?





A. Etidronate
B. Thiazide
C. Elemental calcium
D. Vitamin d analogues

Answer : A

Etidronate is not used in the management of hypocalcaemia. Etidronate is a bisphosphonate which was used earlier for treating hyperkalemia.
Management of hypoparathyroidism, goal is to restore the calcium-phosphate balance;
Vitamin d or calcitriol supplements should be prescribed
Oral intake of calcium must be increased
To enhance urinary calcium reabsorption, thiazide diuretics should be administered on a low sodium diet.

36. A patient presents to the ER in a state of confusion. His attendees explain that he was diagnosed with bipolar disorder several years ago for which he was on medication. However, he was reportedly in a state of confusion for the past few hours and had multiple bouts of vomiting during this period. Evaluation reveals that the serum calcium was recorded as 16mg%. What should be the next step in the clinical management of this patient's condition?

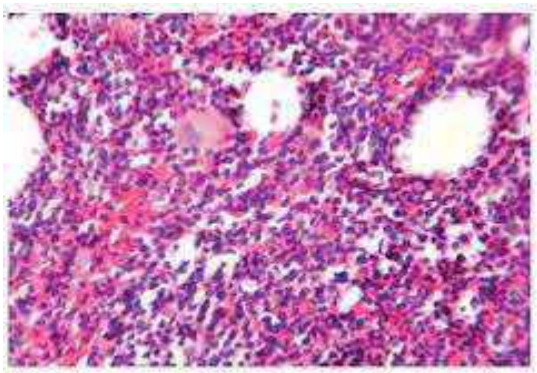


Figure 2 Bone marrow studded with malignant lymphocytes (magnification 10X)

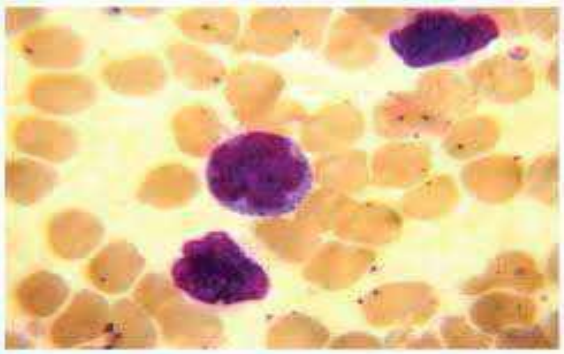


Figure 1 Peripheral smear showing 'flower cells' (magnification 100X)

A. Saline hydration
B. IV phosphate
C. IV bisphosphonate
D. Subcutaneous calcitonin

Answer : A

With respect to the above clinical situation, the patient is possibly suffering from a hypercalcemic crisis and the next line of management is saline hydration.

The stepwise approach to the clinical management of this condition would be as follow:

Step 1: confirming the diagnosis- the patient was suffering from a hypercalcemic crisis as inferred from the elevated levels of serum calcium (normal 9-11mg %). The crises may have precipitated by an overdose of lithium which he might have been taking for his bipolar disorder.

Step 2: restoring normal hydration- many hypercalcemic patients are dehydrated because of vomiting and/or hypercalcemia induced defects in urine-concentrating ability. Therefore, hydration through the application of IV fluids, typically 200-500ml/hr. of normal saline should be administered to maintain a urine output >100ml/hr.

Step 3: currently, the use of loop diuretics is controversial and the recent updates suggest the use of loop diuretics to be limited to hypercalcemic crises associated with heart failure or renal

failure. Calcitonin or bisphosphonates have emerged as the proffered drugs for hypercalcemic management after restoring normal hydration with iv fluids.

37. A middle-aged female has a pathological fracture in the clavicle and ribs. X-ray shows periosteal resorption of 2nd and 3rd metacarpals and phalanges. The most probable cause of this condition is?

A. Renal osteodystrophy
B. Osteomalacia
C. Hyperparathyroidism
D. Hypoparathyroidism

Answer : C

The discussed clinical condition should possibly be diagnosed as primary hyperparathyroidism. Periosteal resorption of 2nd and 3rd phalanges is highly specific for primary hyperparathyroidism.

38. A 9year old boy is brought to OPD for evaluation of oral lesions. He had been in an orphanage until he was adopted 3 months ago. He believes the tongue nodules have been present and they do not hurt or itch and have no taste disturbance. He is tall for his age with long arms and fingers. Tongue image is shown below. On palpation, the tongue nodules feel discrete, firm, and rubbery and are not tender. This patient is at greatest risk from which of the following conditions?

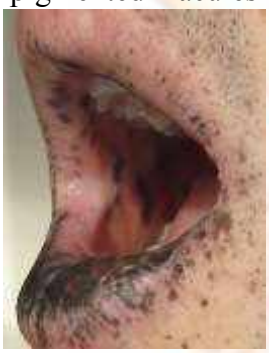
A. Arteriovenous malformation
B. Colon polyps
C. Pituitary tumour
D. Thyroid cancer

Answer : D

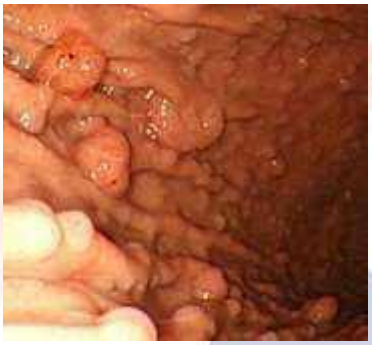
This patient with an unknown family history, marfanoid habitus (e.g. long arms & fingers) and mucosal neuromas (e.g. painless, rubbery tongue nodules) likely has type 2B multiple endocrine neoplasia (MEN 2B). MEN 2B is caused by a germline RET mutation and is often identified via family history. The greatest threat to this patient's life is from medullary thyroid cancer (MTC). MTC associated with MEN 2B tends to occur at a very young age. Due to this risk, in patients with known MEN2B prophylactic thyroidectomy is often performed in infancy (e.g. age<1 year).

Option A: HHT (Osler-weber-rendu syndrome) leads to diffuse arteriovenous malformations and presents with mucosal telangiectasia. However, these typically appear as ruby-colored papules that blanch with pressure rather than firm, rubbery.

Option B: Peutz-Jeghers syndrome is characterized by gastrointestinal tract hamartomatous polyposis. Although patients develop oral lesions, these are typically perioral mucocutaneous pigmented macules rather than mucosal neuromas.



Mucocutaneous macules

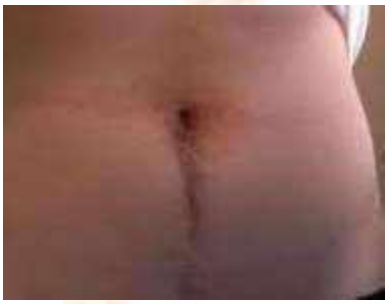


gastric hamartomas

Option C: MEN type 1 is characterized by primary hyperparathyroidism, pituitary tumours (e.g. gastrinomas). It is not associated with marfanoid habitus or mucosal neuromas.

Keywords: MEN type 2B is characterized by medullary thyroid cancer, pheochromocytoma, marfanoid habitus, and mucosal neuromas. MTC associated with MEN2B is often very aggressive and thyroidectomy is often recommended in infancy.

39. A 31years old female presents with c/o weight gain (7kg) over the last few months. She has been unable to lose weight despite rigorous dieting and regular exercise. She also has experienced weakness and cannot lift weights that she was able to lift before the onset of symptoms. Her menstrual periods have been irregular for the last few months, and she has had increasing anxiety and insomnia for which she has started seeing a clinical psychologist. Medical history is unremarkable. O/E blood pressure is 160/100mmHg and pulse is 88/min and regular. Neurological examination shows proximal muscle weakness. Dark terminal hair is present on the lower abdomen. Fasting blood glucose levels are 130mg/dL.
Which of the following is the most appropriate next step in evaluating this patient's condition?



A. Early-morning cortisol level
B. Overnight low-dose dexamethasone suppression test
C. Serum ACTH level
D. Serum aldosterone to plasma renin activity ratio
E. Serum testosterone level

Answer : B

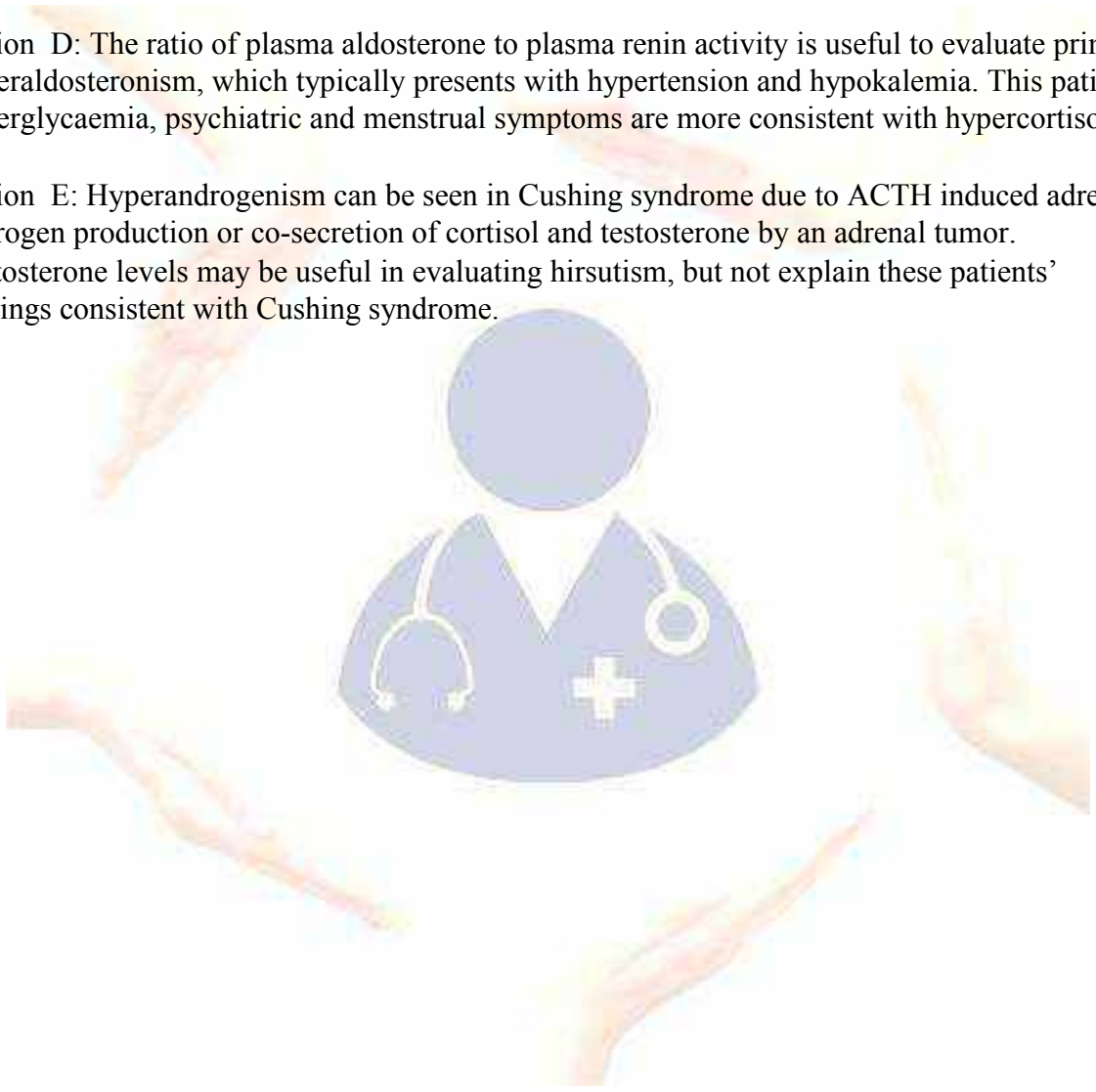
This patient has weight gain, psychiatric symptoms, hirsutism, hypertension and hyperglycemia. This constellation of findings is consistent with hypercortisolism (Cushing syndrome). This condition is most commonly due to exogenous administration of glucocorticoids, but can also be due to an ACTH-producing pituitary tumor (Cushing disease), ectopic ACTH production (e.g. small cell lung cancer) or primary adrenal disease.
The initial step in the evaluation is to confirm hypercortisolism with late night salivary cortisol assay,24hour urine free cortisol levels, and/or overnight low dose dexamethasone suppression test. Two of these tests should be abnormal for diagnosis.

If hypercortisolism is confirmed, ACTH levels are measured to differentiate ACTH dependent (i.e. Cushing disease, ectopic ACTH) from ACTH independent (e.g. adrenal adenoma) causes (Option C)

Option A: Early morning cortisol levels will be low or low normal in patients with primary adrenal insufficiency. However, there is considerable overlap in cortisol levels in normal and those with Cushing syndrome, and this test has low utility in the evaluation of hypercortisolism.

Option D: The ratio of plasma aldosterone to plasma renin activity is useful to evaluate primary hyperaldosteronism, which typically presents with hypertension and hypokalemia. This patient's hyperglycaemia, psychiatric and menstrual symptoms are more consistent with hypercortisolism.

Option E: Hyperandrogenism can be seen in Cushing syndrome due to ACTH induced adrenal androgen production or co-secretion of cortisol and testosterone by an adrenal tumor. Testosterone levels may be useful in evaluating hirsutism, but not explain these patients' findings consistent with Cushing syndrome.



40. A 32years old primigravida at 16weeks gestation presents with urinary frequency and increased thirst. Although she limits fluids before bed, she still urinates 6-8times a night. The patient previously had intermittent urinary frequency, but symptoms have worsened since she became pregnant. Family history is significant for type 2 diabetes mellitus in her mother and father. Her s.sodium-140mEq/L, BUN-14mg/dL,s.creatinine-0.8mg/dL, s.calcium-9mg/dL, glucose-100mg/dL. Urinalysis specific gravity-1.001.
A 24hour urine collection shows a urine output of 5.5L after an intake of 2L. What is the most likely cause of this patient's urinary frequency?

A. Diabetes insipidus
B. Gestational diabetes mellitus
C. Normal pregnancy changes
D. Osmotic diuresis due to urea

Answer: A

This female with polydipsia and nocturia has polyuria (e.g. 24 hour urine output>3L), and her urinalysis specific gravity-1.001

41. A 9year old boy has a fracture of femur. Biochemical evaluation revealed Hb 11.5gm/dl and ESR 18mm 1hour, serum calcium 12.8mg/do, serum phosphorus 2.3 mg/do, alkaline phosphatase 28 KA units and blood urea 32mg/dl. Which of the following is the most probable diagnosis in his case?

A. Nutritional rickets
B. Renal rickets
C. Hyperparathyroidism
D. Skeletal dysplasia

Answer : C

The diagnosis of primary hyperparathyroidism depends upon the findings of raised serum calcium and raised PTH.
It is preferable to avoid artifactual increases in serum calcium by collecting blood under Standardized conditions with the patient supine and avoiding the use of a tourniquet while withdrawing the sample. Although changes in serum calcium in response to dietary intake are small, specimens should be collected with the patient fasting. If serum albumin is low, the value of calcium should be adjusted upward by 0.1mmol/I for each 6g/I that the albumin is below the laboratory mean. Serum phosphate is usually low in hyperparathyroidism and chloride elevated. Serum alkaline phosphatase, an index of osteoblastic activity, may be raised depending on the degree of involvement of bone.

42. A 32year old male presented with a history of weakness, fatigue and weight loss since the past 1 year. He also C/O decreased appetite and intermittent diarrhoea. He has no past medical history. Family history has hypothyroidism. O/E he is in distress. BP-100/60mmHg. His Hb 12.3 g/dl, leukocytes 4,700/mm3,sodium 129mEq/L, potassium 5.6mEq/L,8AM cortisol 7.1µg/dL, TSH 2.6mIU/L. which of the following is the most appropriate next step in management of this patient?

A. Intravenous hydrocortisone
B. Low dose overnight dexamethasone suppression test
C. ACTH stimulation test
D. 24 hour urine free cortisol

Answer : C

Patient has a history of chronic weakness, weight loss, hyponatremia, hypokalemia and low normal cortisol. This is a typical presentation of primary adrenal insufficiency (PAI) also known as Addison's disease. PAI can be due to autoimmune adrenalitis, infections (tuberculosis), malignancy, or adrenal haemorrhage. Symptoms usually develop slowly, often over several months (weakness, weight loss). Aldosterone deficiency causes volume depletion, which can present as hypotension or syncope. Hyperpigmentation can be present. Most of the patients have hyponatremia due to salt wasting, volume depletion and increased ADH release. They may also have hyperkalemia due to aldosterone deficiency.

The initial evaluation should include an 8AM serum cortisol and plasma ACTH.
Low cortisol levels (<5µg/dL) , high ACTH -confirms PAI.
Low cortisol levels, low ACTH -suggests central (pituitary or hypothalamic) adrenal insufficiency.
High or high normal cortisol levels (>15µg/dL)- rules out PAI.
ACTH assay can take several days, an ACTH stimulation test (cosyntropin test)is usually performed rapidly to confirm the diagnosis.

Option A: Intravenous hydrocortisone is given for adrenal crisis, but this patient has chronic symptoms

Option B: Dexamethasone suppresses release of ACTH from the pituitary, which subsequently reduces adrenal cortisol production. It is used for cushing but not in PAI.

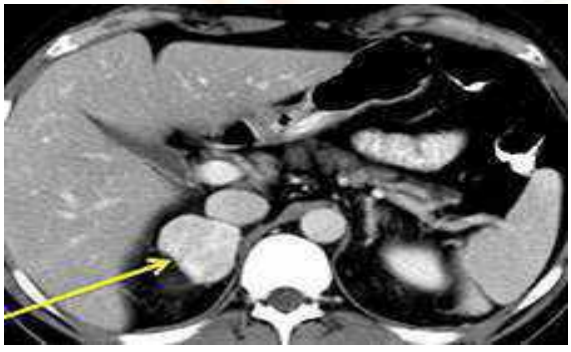
Option D: in severe PAI urinary cortisol levels are decreased but sensitivity is too low for making initial diagnosis.
In adrenal insufficiency 8am serum cortisol and plasma ACTH should be done. In addition ACTH stimulation tests can identify PAI.

43. A 49years old male comes for follow-up after recent emergency visit for abdominal pain which subsided with analgesics. However his BP was 160/100mmHg and abdominal imaging evidenced an incidental right adrenal mass. He has no significant medical history. His serum potassium is 3.1mEq/L and sodium is 148mEq/L. On further evaluation plasma aldosterone/plasma renin activity ratio is of 45. Now on further advice, the patient refuses to undergo surgery for removal of adrenal mass. Which of the following is the best initial therapy for him?

A. Chlorthalidone
B. Clonidine
C. Eplerenone
D. Ramipril

Answer : C

This patient's presentation of hypertension, hypokalaemia, adrenal mass in abdominal imaging evidence with primary hyperaldosteronism. The condition is usually due to adrenal adenoma or bilateral adrenal hyperplasia. Diagnosis is suggested by elevated plasma aldosterone concentration with plasma aldosterone to renin ratio >20. Surgery is preferred for unilateral adrenal adenoma and medical therapy for bilateral adrenal hyperplasia or patients with unilateral adrenal adenoma refusing surgery.



However this patient denies surgery so medical treatment remains the option .
Spironolactone is an aldosterone antagonist and the preferred initial medical therapy but has side effects in both men and women.
Eplerenone is a very selective mineralocorticoid antagonist with a very low affinity for progesterone or androgen receptors and has less endocrine side effects and is an alternate therapy.

Option A and D: Additional antihypertensive drugs like thiazide diuretic (chlorthalidone) or ACEI (ramipril) are recommended for patients with persistent high blood pressure despite aldosterone antagonist.
But they are not the best initial therapy.

Option B: clonidine is not initially preferred for medical therapy. They can be used as the 2nd or 3rd line in patients with persistent hypertension.

Keywords: Primary hyperaldosteronism is usually due to adrenal adenoma or bilateral adrenal hyperplasia. Surgery is preferred for unilateral adrenal adenoma and medical therapy for bilateral adrenal hyperplasia or patients with unilateral adrenal adenoma refusing surgery.

44. A 25years old female presents with c/o milky discharge from both nipples since one month. Her menstrual cycles are irregular for the past 3months and she has poor libido. She also has mild breast tenderness. Patient has a history of paranoia, social isolation and disorganized behaviour for which she was treated and remains on medication. Patient has a family history of breast cancer, Graves' disease and bipolar disorder. Lab studies show prolactin -70ng/mL and TSH3.0mU/L. Which of the following is most likely responsible for these patients' current symptoms?

A. Aripiprazole
B. Hypothyroidism
C. Risperidone
D. Prolactinoma

Answer : C

Her history of paranoia, social isolation and disorganized behaviour suggests psychosis and likely being treated with antipsychotics. Antipsychotics causes' dopamine blockade, as dopamine is prolactin-inhibiting factor, this can lead to hyperprolactinemia and symptoms like poor libido, menstrual dysfunction and galactorrhea.
Risperidone is commonly used 2nd generation antipsychotic is known to have high frequency of prolactin elevation and likely responsible for this patient's symptoms.

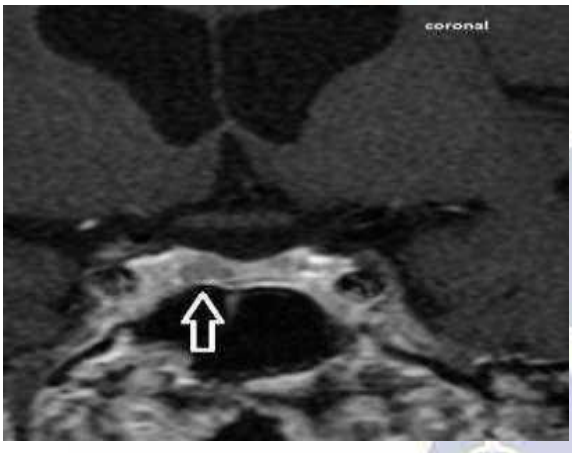
Option A: It is both an antagonist as well as partial agonist of dopamine D2 receptors. As its partial agonist of dopamine it is less likely to cause hyperprolactinemia.

Option B: Hypothyroid can predispose to hyperprolactinemia but typically presents with other sets of complaints like lethargy, dry skin or cold intolerance. However her TSH is within normal range.

Option D: Prolactinomas are benign pituitary tumours that typically cause headaches and visual disturbances which this patient doesn't have. Generally they cause very high levels prolactin levels (>200ng/mL) but in case of drug-related hyperprolactinemia is typically 25-100ng/dL with levels exceeding above 200ng/mL less often.

Keywords: Antipsychotics cause dopamine blockade, as dopamine is prolactin-inhibiting factor, this can lead to hyperprolactinemia.

45. A 35year old female presents with a history of amenorrhea and galactorrhea since the past 8 months. She also c/o vaginal dryness. Patient has an unremarkable medical history. She is married and has 3 children and remarks her family is complete. Patient's husband has undergone a vasectomy. Her visual field testing is normal and pregnancy test is negative. Serum prolactin is 150ng/mL and TSH and serum creatinine are normal. MRI of pituitary gland reveals a 8mm hypointense lesion as shown in the image below, which is consistent with a pituitary adenoma. Which of the following is the most appropriate next step in management of this case?



A. Monitoring by periodic serum prolactin and MRI
B. Radiotherapy
C. Trans-sphenoidal surgery
D. Treatment with cabergoline

Answer : D

This patient has pituitary microadenoma (<10mm) associated with galactorrhea and amenorrhea. Any mass lesion in the pituitary can cause a mild elevation in prolactin due to disruption of the normal inhibitory dopaminergic regulation of prolactin secretion. However significant elevations in prolactin level (>200ng/mL or repeat level >100ng/mL) suggests prolactin secreting tumour (prolactinoma).
High prolactin levels suppress GnRH, LH and estradiol, leading to oligomenorrhea in premenopausal females. Males and postmenopausal females often have minimal early symptoms and more likely to seek evaluation when tumour (>1cm macroadenoma) causes mass effect symptoms like headache and visual field defects.

Option A: Asymptomatic patients with an incidental finding of a microprolactinoma may be observed over time. Patients with macroprolactinomas or symptomatic tumours of any size should be treated with dopaminergic agonists (e.g. cabergoline, bromocriptine) which can normalize prolactin levels and reduce tumor size. Patients who fail to respond or who have very large tumors(>3cm) should be referred for trans-sphenoidal resection (Option:C).

Option B: Patients with residual prolactinoma tissue following resection can be considered for radiotherapy. Generally response to radiotherapy is delayed and radiotherapy may lead to panhypopituitarism.

Keywords: Patients with macroprolactinomas (>1cm) or symptomatic tumours of any size should be treated with dopaminergic agonists (e.g. cabergoline, bromocriptine) which can normalize prolactin levels and reduce tumour size.

46. A 30year old female, gravida 1 Para 1, visits hospital for postpartum follow-up. She had normal vaginal delivery 7weeks ago which was complicated by severe postpartum haemorrhage requiring aggressive resuscitation and blood transfusions. She is very weak and has poor appetite since delivery. She has been formula feeding her baby due to lack of milk production. Patient's prepregnancy weight was 65kg, weight at delivery 83.5kg and current weight 54kg. Her BP90/65mmHg. Which of the following is most likely the cause of her current symptoms?

A. Adjustment disorder with depressed mood
B. Pituitary ischemic necrosis
C. Postpartum depression
D. Primary adrenal insufficiency

Answer : B

Massive postpartum hemorrhage with lactation failure, hypotension and weight loss in her are suggestive of Sheehan syndrome (pituitary ischemic necrosis). During pregnancy the pituitary gland is physiologically enlarged and prone to ischemic from hemorrhagic shock.
Sheehan syndrome typically presents after delivery with failure of postpartum lactation due to prolactin deficiency and lactotroph cell necrosis. Secondary adrenal insufficiency (hypotension, weight loss, lethargy) is also a common complication due to impaired ACTH secretion. Management involves replacing deficient hormones, but there is no effective treatment to restore lactation.

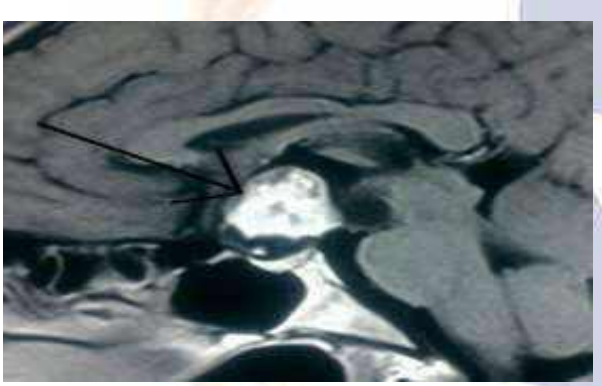
Option A and C: lactation failure is a risk factor for adjustment disorder with depressed mood (postpartum blues) and postpartum depression. Fatigue and poor appetite are common symptoms of mood disorders, but hypotension and significant weight loss suggest an underlying medical illness.

Option D: primary adrenal insufficiency manifests with similar symptoms like fatigue, hypotension and weight loss. However most patients with primary adrenal insufficiency have hyperpigmentation due to increased melanocyte stimulating hormone but not lactation failure.

47. A 57year old bus driver has c/o impaired vision since the past 5-6months. He faces difficulty while looking sideways and has to turn his neck completely to look sideways. He also c/o intermittent headaches which worsen in the morning and decrease libido. O/E -there is bilateral decreased temporal vision fields with no other neurological deficits. Which of the following is the most likely diagnosis?

A. Cerebellopontine angle tumour
B. Craniopharyngioma
C. Glioblastoma multiforme
D. Migraine

Answer : B



These patients' symptoms are similar with sellar mass, causing visual defects (bitemporal hemianopia), headache and pituitary hormonal deficiencies like decreased libido due to hypogonadism. Sellar masses can be malignant or benign (pituitary adenoma, craniopharyngioma, and meningioma).

Craniopharyngiomas are benign tumours arising from rathke pouch and most commonly occur in children. However, nearly 50% of craniopharyngiomas occur in individuals age>20, especially between age 55-65.

48. A 23year old male presents with c/o painless vision loss in right eye and headaches. His BP190/100mmHg and pulse rate 96/min. Further evaluation shows retinal and cerebellar hemangioblastomas. Patient's father had very high blood pressure and significant hearing impairment and died of intracranial hemorrhage at age of 49. Which of the following is most likely the cause of this patient's elevated blood pressure?

A. Aldosterone overproduction
B. Catecholamine overproduction
C. Cortisol overproduction
D. Polycystic kidney disease

Answer : B

Patient has vision loss and headaches due to retinal and CNS hemangioblastomas, which are benign but highly vascular tumors that can lead to hemorrhage or mass effect symptoms in the brain and spinal cord. Most hemangioblastomas are sporadic; however this patient has multiple hemangioblastomas and a family history of intracranial hemorrhage, which suggests an inherited disorder likely von Hippel-Lindau disease (VHL).

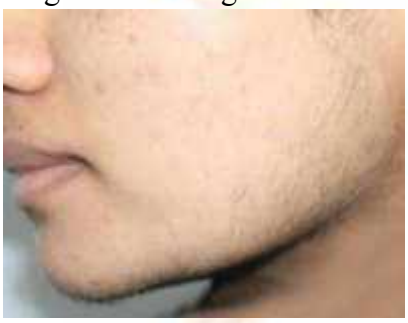
VHL is an autosomal dominant disorder associated with mutations in the VHL gene. Besides hemangioblastomas VHL is associated with clear cell renal carcinoma, pancreatic neuroendocrine tumors, endolymphatic sac tumors of the middle ear (hearing loss) and pheochromocytomas.

Option A: primary aldosteronism (conn syndrome) can be caused by an adrenal adenoma or bilateral adrenal hyperplasia. It typically presents with hypertension but is not associated with hemangioblastomas.

Option C: hypercortisolism (Cushing syndrome) can cause hypertension but typically presents with central obesity,easy bruising, proximal muscle weakness and wide skin striae.

Option D: Autosomal dominant polycystic kidney disease can cause hypertension due to local renal ischemia and increased renin release. It is associated with an increased risk of intracranial hemorrhage due to cerebral aneurysms (not hemangioblastomas). Although VHL may be associated with formation of renal cysts, this is not a major contributor to hypertension.

49. A 17year old girl presents with c/o excessive facial hair and irregular menstrual cycles since menarche at age 12. Her LMP was 6weeks ago. P/E: shows hirsutism, normal female genitalia and rest of the examination is unremarkable. UPT-Negative. Lab results of serum testosterone 80ng/Ml (normal: 20-75), serum DHEAS 390mcg/dL (normal 37-307), 17-hydroxyprogesterone 350 my/mL (normal <15), serum glucose and electrolytes are normal. What is the most likely diagnosis in this girl?



A. Idiopathic hirsutism
B. Adrenal carcinoma
C. Nonclassic congenital adrenal hyperplasia
D. Polycystic ovaries syndrome

Answer : C

This patient has nonclassic (late-onset) congenital adrenal hyperplasia (CAH) based on hyperandrogenism and elevated 17-hydroxyprogesterone (17-OHP) level. Girls with nonclassic CAH typically present in adolescence or early adulthood with irregular menstrual cycles, severe acne and hirsutism, virilization (e.g. clitoromegaly, deepening of voice) is rare. Since enzyme deficiency in nonclassic CAH is relatively mild, sufficient glucocorticoids and mineralocorticoids are produced, hence patients do not have salt wasting (seen in classic CAH) electrolytes and blood pressure remains normal. Diagnosis is confirmed by an exaggerated 17-OHP response on ACTH stimulation test.

Option A: Idiopathic hirsutism is due to excessive conversion of testosterone to dihydrotestosterone in the hair follicles. There is usually positive family history and normal 17OHP and androgen levels.

Option B: Androgen producing adrenal tumors typically present in adulthood with rapidly progressive hirsutism and virilization. Serum DHEAS is markedly elevated with concentrations >700mcg /dL.

Option D: Patients with polycystic ovary syndrome have menstrual irregularities and hyperandrogenism but 17-OHP is not elevated.

50. A 35 year old woman has had recurrent episodes of headache and sweating. Her mother had renal calculi and died of thyroid cancer. Physical observations revealed a thyroid nodule and ipsilateral enlarged cervical lymph nodes. Before performing thyroid surgery the woman's physician should order?

A. Thyroid scan
B. Estimation of hydroxy indole acetic acid in urine
C. Estimation of urinary metanephrines, VMA and catecholamines
D. Estimation of TSH and TRH levels in serum

Answer : C

The combination of thyroid cancer, pheochromocytoma (suggested by episodes of headache and sweating) and hyperparathyroidism (suggested by renal calculi in mother) is seen in MEN type 2 k/a Sipple syndrome.
MEN syndrome has a familial predilection and the patient in the given question may also be suffering from it. She should be investigated for pheochromocytoma, as even minor operations performed on a patient with unrecognised pheochromocytoma can lead to death from hypertensive crisis or cardiac arrhythmia.
Pheochromocytomas are associated with excessive urinary excretion of catecholamines, metanephrines and VMA.

51. A 30 year old male presents with c/o polyuria and polydipsia. There is a history of head injury which he had sustained in a road traffic accident 2months ago. The water deprivation test is performed and is diagnostic of central diabetes insipidus (DI). This condition is characterized by?

A. Low plasma and low urine osmolality
B. High plasma and high urine osmolality
C. Low plasma and high urine osmolality
D. Low urine and high plasma osmolality

Answer : D

Diabetes insipidus of whether central or nephrogenic in origin are characterized by low urine osmolality and high plasma osmolality.

Condition	Plasma osmolality	Urine osmolality	Sodium concentration
Central DI	High	Low	Relative hypernatremia
Nephrogenic DI	High	Low	Relative hypernatremia
Psychogenic polydipsia	Low	Low	Hyponatremia
SIADH	Low	High	Hyponatremia

NEUROLOGY

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"Most of the important things in the world have been accomplished by people who have kept on trying when there seemed to be no hope at all.

-Dale Carnegie

HEADACHE AND MIGRAINE

1. 45-year-old woman presented with a throbbing headache, double vision, and tinnitus. She had a wide based, ataxic gait and a skew deviation. She was tired and confused on the mental status exam. The patient reported having several similar episodes in her 30s. A brain MRI showed several nonspecific hyperintensities in the white matter. Which of the following is the most likely diagnosis?

A. Common migraine
B. Migraine with aura
C. Migraine with brainstem aura
D. Idiopathic intracranial hypertension

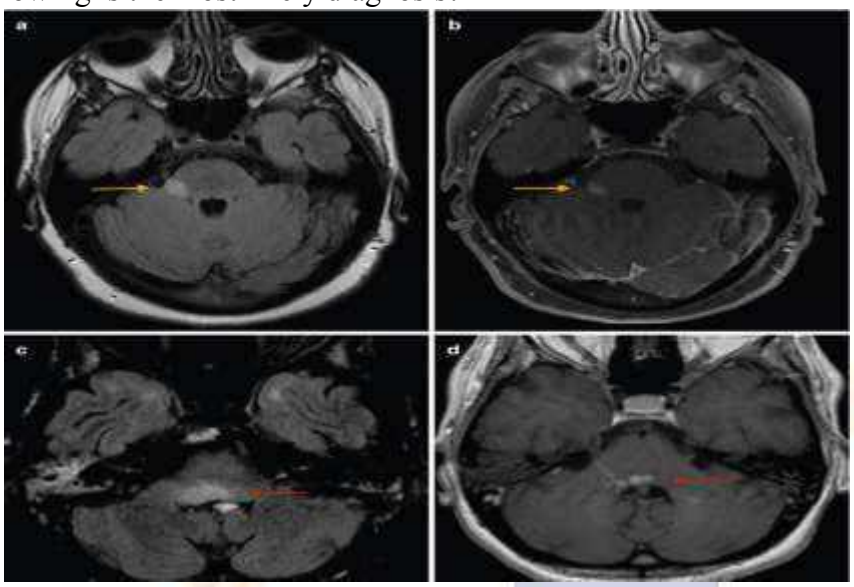
Correct answer- C

Migraines with brainstem aura are accompanied by symptoms referable to the basilar artery, including visual disturbances, vertigo, confusion, and brainstem dysfunction. There is no motor weakness. The International Classification of headache disorders classification is as follows: Aura consists of visual, sensory and/or speech/language symptoms, each fully reversible, but no motor or retinal symptoms. At least two of the following brainstem symptoms: Dysarthria
Vertigo
Tinnitus
Hyperacusis
Diplopia
Ataxia

•Decreased level of consciousness
At least two of the following four characteristics:
• At least one aura symptom spreads gradually over ≥5 min, and/or two or more symptoms occur in succession each individual aura symptom lasts 5 to 60 min. At least one aura symptom is unilateral. The aura is accompanied, or followed within 60 min, by headache.

Key points- throbbing headache, double vision, and tinnitus. Wide based, ataxic gait and a skew deviation. Tired and confused on mental status exam. reported having several similar episodes in her 30s

2. A 30-year-old woman presented with a severe, sharp pain over her left jaw, since almost a week. She described it as an electric shock, often when brushing her teeth. Which of the following is the most likely diagnosis?



A. Trigeminal neuralgia
B. Temporomandibular joint syndrome
C. Temporal arteritis
D. Cluster headache

Correct answer- A
The clinical case is characteristic for trigeminal neuralgia. It presents as a severe, shock-like pain, usually over the second and third divisions of the trigeminal nerve. It can be triggered by mild stimuli, like brushing teeth, or wind blowing on the face. It is often mistaken initially for dental disease. Glossopharyngeal neuralgia is a similar disorder characterized by pain in the posterior tongue and pharynx. The best initial treatment is carbamazepine, which is effective in 75% of patients. Other antiepileptic's (phenytoin, gabapentin), clonazepam, and baclofen are used as second-line agents. The cause may be an artery or vein touching the trigeminal nerve root, and surgical decompression may be required in treatment-refractory cases.

Following features are characteristic findings of trigeminal neuralgia so other conditions can be ruled out.

Key points - severe, sharp pain over her left jaw, She described it as an electric shock, often when brushing her teeth. And correlation with the radiological findings.

3. A 15old girl developed a throbbing left-sided headache. It was associated with nausea, photophobia, and weakness on the right side of her body. She had several such episodes in her life and her mother had a similar condition. Other than the right-sided weakness, the examination is normal. Which of the following is the most likely diagnosis?

A. Common migraine
B. Basilar migraine
C. Idiopathic intracranial hypertension
D. Familial hemiplegic migraine

Correct answer- D

The clinical case is characteristic for familial hemiplegic migraine, which is a migraine variant manifested by hemiparesis during the migraine aura. It can be also accompanied by other symptoms, such as ataxia or changes in the level of consciousness. The aura begins over several minutes and lasts about 1 hour. In severe cases, patients have seizures, severe hemiparesis, or even coma. Some patients may have cognitive impairment, which persists after the migraine.
About 25% of patients develop cerebellar dysfunction manifested by ataxia and nystagmus. Patients usually develop symptoms as children or teenagers. Several different genes have been identified. It is inherited in an autosomal dominant pattern.

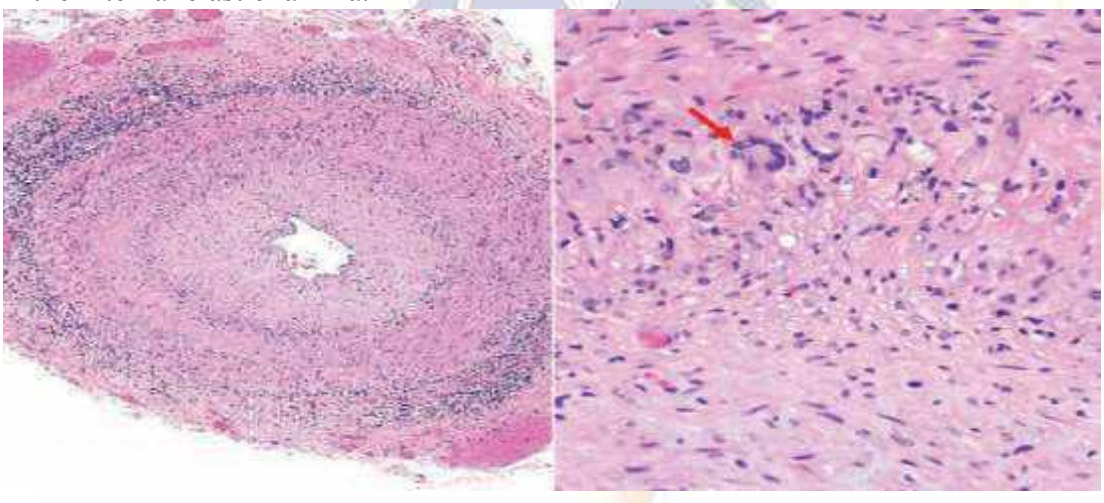
Key points - throbbing left-sided headache, nausea, photophobia, and weakness on the right side of her body, several such episodes in the past and her mother had a similar condition.

4. A 75 old woman presented with pain on her right temple that worsened with chewing. The C-reactive protein was elevated. Which of the following tests is indicated at this time?

A. Catheter angiogram
B. CT angiogram
C. Carotid ultrasound
D. Temporal artery biopsy

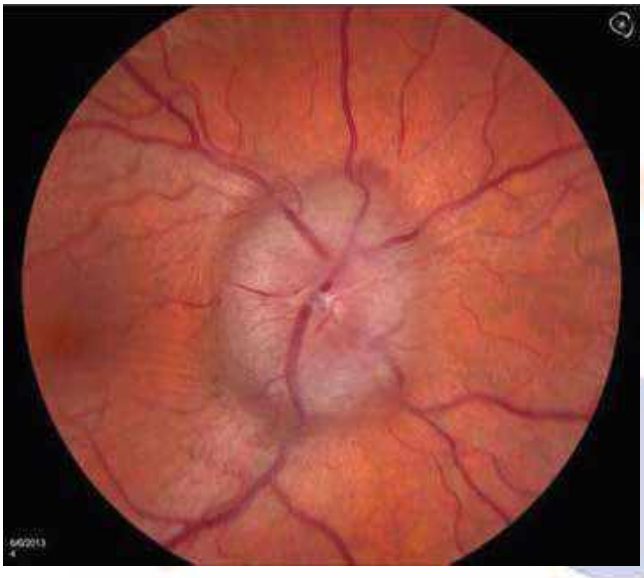
Correct answer- D

The clinical case is characteristic for giant cell arteritis (GCA), which presents in patients over 50 with an indolent headache in the temple and jaw claudication. An elevated erythrocyte sedimentation rate (ESR) and elevated C-reactive protein (CRP) is common in GCA. A biopsy of the temporal artery is the “gold standard” for diagnosing GCA. There is a mononuclear cell infiltrating and multinucleate giant cells within the internal elastic lamina. In severe cases, an inflammatory infiltrate of mononuclear cells may be seen within the entire vessel wall. The lumen is reduced and may even be completely obliterated due to intimal proliferation. However, there may be “skip lesions" in a biopsy of the temporal artery such that several areas of the temporal artery need to be biopsied to detect the pathology. Therefore, a negative biopsy, which may be seen in up to 13% of cases, does not rule out a diagnosis of GCA.
Temporal artery biopsy showing mononuclear cells infiltrate and a multinucleate giant cell (redarrow) within the internal elastic lamina.



Key points- pain on her right temple that worsened with chewing. The C-reactive protein was elevate

5. A 28 old woman presented with episodes of bilateral visual loss. She said that they most often occurred when she coughed, sneezed, or laughed. She also reported a pulsatile headache for the past few months that was only mildly improved with pain medications. A CT of the brain was normal. Which of the following physical examination findings is most likely to be seen in this patient?



A. Papilledema
B. Bitemporal hemianopia
C. Downbeat nystagmus
D. Oculomotor nerve palsies

Correct answer- A

The clinical case is characteristic for idiopathic intracranial hypertension (IIH). It presents with a severe, pulsatile, daily, headache, which is generally over the entire head. Patients may complain of transient episodes of visual loss due to transient increases in intracranial pressure (ICP). Bilateral vision loss is a feared complication. Funduscopic examination is crucial in any patient with a complaint of headache. In patients with IIH, funduscopic examination may reveal papilledema, which is defined as swelling of the head of the optic nerve due to increased ICP. Visual field testing may reveal an enlarged blind spot and enlargement loss of the lower, nasal parts of the visual field. Abducens nerve palsies are also common due to increased ICP.

Key points- episodes of bilateral visual loss. Occurred when she coughed, sneezed, or laughed, pulsatile headache for the past few months that was only mildly improved with pain medications. A CT of the brain was normal.

6.A 58 year old man reported having headaches several times a week. Thety were bilateral and of moderate intensity. Though he could continue working,sometimes he had to take a short break. He reported some mild photophobia, but no phonophobia. A neurological examination was unremarkable. Which of the following is the most likely diagnosis?

A. Classical migraine
B. Paroxysmal hemicrania
C. Sinusitis
D. Tension headache

Correct answer- D

The clinical case is characteristic for a tension headache, which is the most common type of primary headache. The pain is bilateral and squeezing. It has mild-to-moderate intensity, though on occasion, it may be severe. It usually lasts 3 to 4 hours. They can be precipitated by stress, sleep deprivation, alcohol and hunger. The International Headache Society criteria for a tension headache are:

At least two of the following criteria:
1. Pressing/tightening (nonpulsatile) quality
2 Mild or moderate intensity—may inhibit, but does not
prohibit activity 3 Bilateral locations
4 No aggravation by walking, stairs, or similar routine physical activity

Both of the following:
1 No nausea or vomiting (anorexia may occur)
2 Photophobia and phonophobia are absent, or one but not both are present

They are divided into episodic and chronic based on their frequency. A chronic headache occurs at least 15 days per month on average for at least 3 months
Preventive treatment is indicated for patients who experience chronic headaches, as defined by headache that occurs most days of the month for at least 3 months. Tricyclic antidepressants, such as amitriptyline, have the most evidence as treatments, though they have several side effects such as weight gain.

Key points –Headache several times per week, bilateral, photophobia, but no phonophobia. Neurological examination was unremarkable.

7. A 57-year-old woman presented with the acute onset of severe periorbital pain and headache.
She reported that her vision was blurry and she saw halos of light. Her pupil, shown later, was dilated and poorly reactive to light. There was conjunctival injection. Which of the following tests is most likely to reveal the diagnosis?

A. Lumbar puncture to measure opening pressure
B. Measurement of intraocular pressure
C. Temporal artery biopsy
D. CT angiogram of the neck

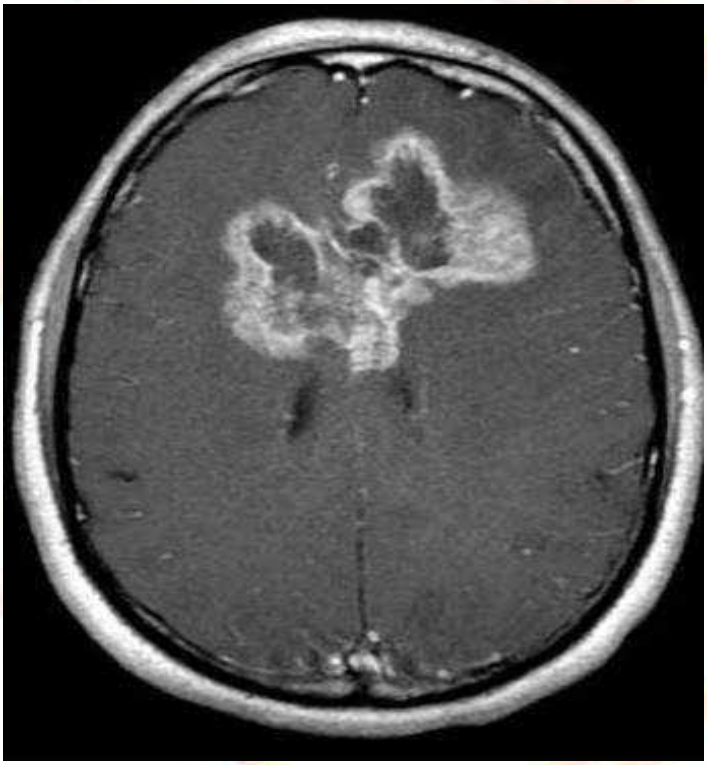
Correct answer- B

The clinical case is characteristic for acute angle closure crisis of glaucoma. Patients present with the sudden onset of ocular pain, seeing halos around lights, nausea/vomiting, and decreased visual acuity. On examination, they will have a red eye and a fixed, mid-dilated pupil. Some patients have an oval shaped pupil. The intraocular pressure will be very elevated (>30 mmHg). Acute angle closure is an emergency needing timolol drops to the eyes.

Key points -acute onset of severe periorbital pain and headache. Blurry vision and she saw halos of light. Pupil, was dilated and poorly reactive to light.

8.A 64 year old male patient presents with Severe early morning headache and vomiting for the past 1 week. He has a history of smoking and alcohol which he left due to myocardial infarction which he had 3 years ago. CECT was done. Doctor noticed tumor growth involving both hemispheres. What will be your diagnosis on seeing this CECT?

A. Meningioma
B. Vestibular Scwhwannoma
C. Oligodendroglioma
D. Glioblastoma



Answer: D glioblastoma.
Because in this CECT There is involvement of both hemispheres. Because the tumor spread to the other side through corpus callosum so that
Glioblastoma is also called “butterfly tumor”.

Option(b)- vestibular schwannoma mainly seen at cerebellopontine angle. There must be features like hearing loss,tinnitus,

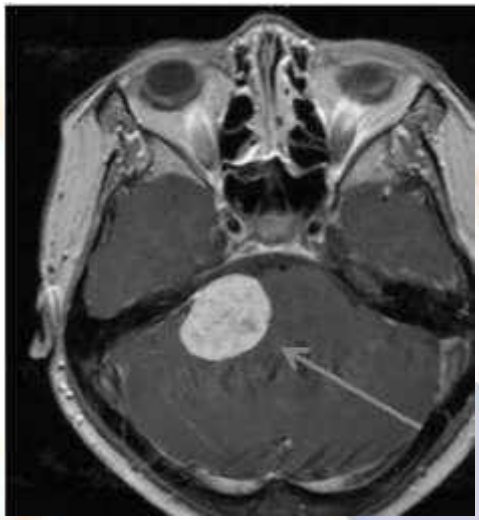
Option(a)-meningioma mostly seen unilaterally and it is mostly seen in female patients.

Option(c)-oligodendroglioma .it appears in the form of calcification. And it is mostly seen in adult population 40 to 50 years of age.

Keywords: It is the most common primary malignant tumor in adult
Most of the adult tumours are supratentorial in origin(involving cerebrum).

1. It is an aggressive tumor
2. Prognosis is bad. An anti cancer drug called " temozolomide" Improves the prognosis.

9.A 68 year old female presents with progressive loss of hearing on her left ear and vertigo on hearing loud sounds. Audiogram was performed in that it shows Sensorineural hearing loss. Patient finds difficulty in swallowing and the problem in opening her eyes is also seen. MRI was done in that lesion is seen on the left cerebellopontine angle. a biopsy vestibular schwannoma was confirmed. Which of the following is associated with development of Vestibular schwannoma?



A. Li fraumeni syndrome
B. Neurofibromatosis 1
C. Neurofibromatosis 2
D. Turcot syndrome

Answer: (b) neurofibromatosis 1.

because NF -1 is associated with Increased incidence of schwannomas of spinal nerves. In NF 1 schwannomas mostly are Abnormality is seen in chromosome 17

Option-(a) li fraumeni syndrome is due to p53 mutation. Which involve multiple tumors of our body. S- sarcoma
L-leukemia,lymphoma
A-adrenal tumor
B-brain and breast cancer

Option(c) -neurofibromatosis 2 . There will be bilateral vestibular schwannoma. With loss of hearing on both sides. Abnormality is seen on chromosome 22

Option (d)- turcot syndrome. Characterized by multiple polyp,medulloblastoma, hypertrophy of retinal pigment epithelium and glioblastoma multiforme.

Keypoints on vestibular schwannoma (acoustic neuroma)

1. It is seen in both nf1(unilateral) and NF2(bilateral)

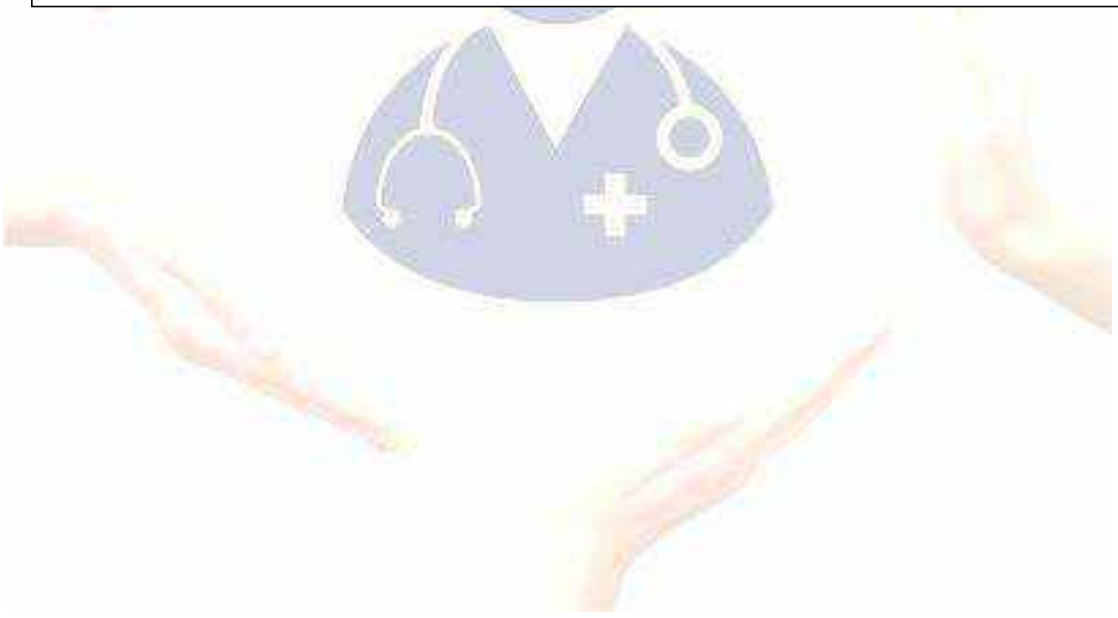
2. most common site of origin is inferior part of vestibular nerve in internal auditory canal.

3. most common benign tumour at cerebellopontine angle.

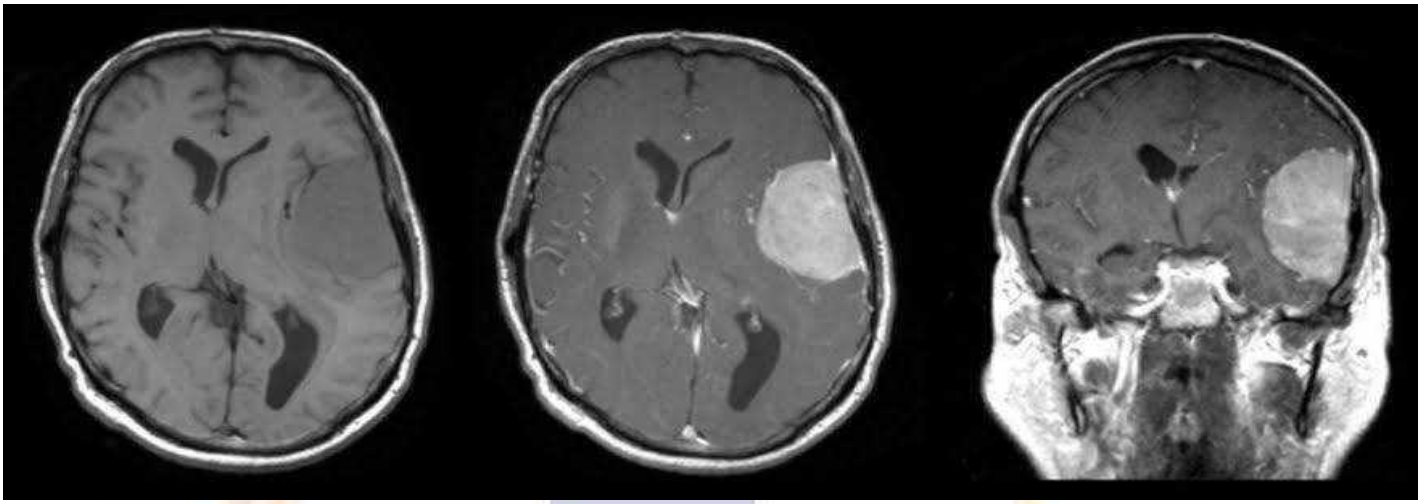
4. earliest nerve involved is 5th cranial nerve (trigeminal nerve) loss of corneal reflex.

5. investigation of choice is gadolinium induced MRI.

6. All cranial nerve except 1st and 2nd cranial nerves are involved.



10.A 29 year old pregnant female presents with Severe headache and visual problems. She also had a history of seizure 2 weeks before and frequent vomiting. MRI was done. Biopsy shows dystrophic calcification with whorl like appearance. What is your diagnosis?



A.medulloblastoma
B.meningioma
C.pituitary adenoma
D.glioblastoma

Answer: (b) meningioma. Because it is most commonly seen in females and meningioma increases in its size during pregnancy, because of increased progesterone receptors. It originates from the periphery of the brain with midline shifting.

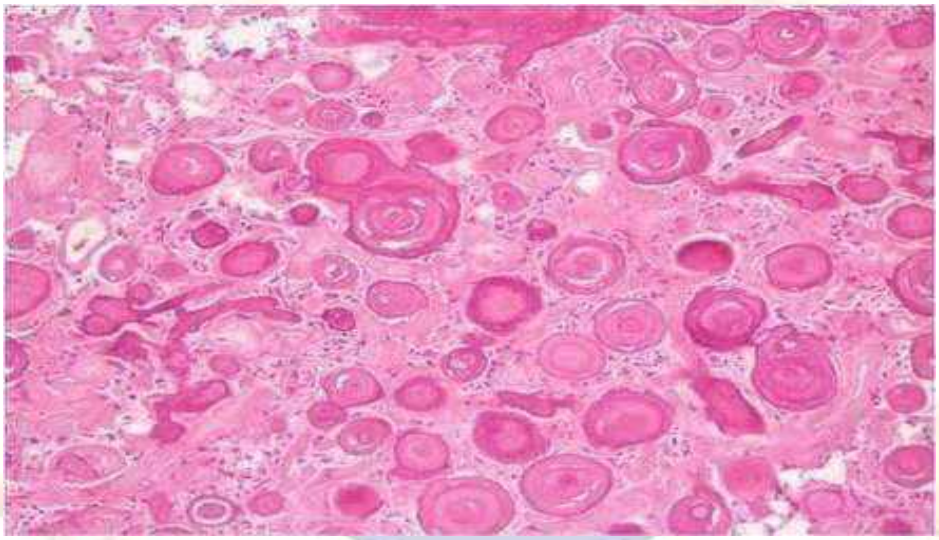
Option-(a) medulloblastoma. Which is most common primary malignant tumor in children population which originates from cerebellum (infratentorial) not from medulla oblongata, which spreads mostly by csf ,so called “drop Metastasis”.medulloblastoma is a radiosensitive tumor.

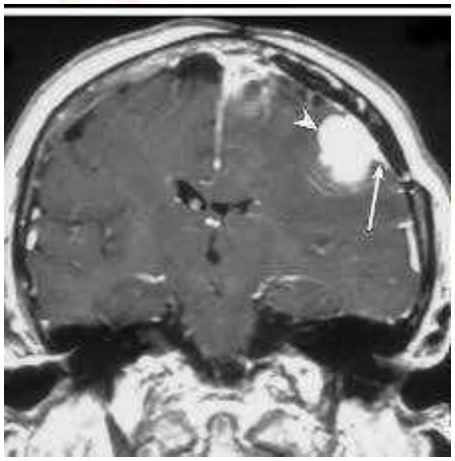
Option-(c) pituitary adenoma. It mainly has hormone related effects like galactorrhea, acromegaly,cushing syndrome and pressure effects like bitemporal hemianopia.

Option-(d) glioblastoma which usually originates from the centre and crosses midline through corpus callosum.mostly affect elderly population.

Key points about meningioma

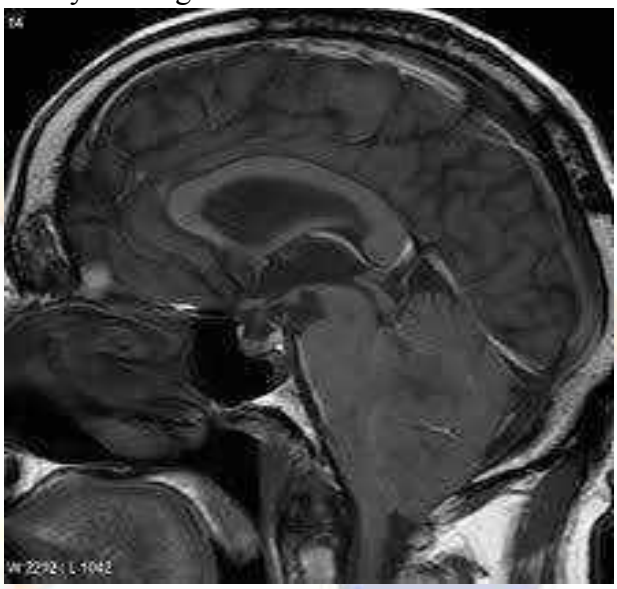
1. Meningioma is most common benign brain tumor in adult showing intracranial calcification
2. Originates from meningothelial cells of arachnoid.
3. More common in female than male because growth is directly proportional to progesterone receptors.
4. Mostly unilateral.but bilateral meningioma is seen in neurofibromatosis 2.
5. Psammoma bodies are seen with dystrophic calcification





- DURAL TAIL ON NCCT

11.A 6 year old child presents with Hydrocephalus, facial weakness, ataxia. Mother also complaints that her children had recurrent episodes of early morning vomiting and severe headache. MRI was done in which there is growth near the 4th ventricle. What is your diagnosis?



A.medulloblastoma
B.pilocytic astrocytoma
C.ependymoma
D.craniopharyngioma

Answer: (c) ependymoma. Because ependymoma presents as growth at the 4th ventricle. So that child is usually present with cerebellar signs like ataxia, facial weakness etc.. Due to the increased icp frequent vomiting, headache and papilledema is seen.

Option (a)- medulloblastoma arises from cerebellum neuro ectodermal cells, not from medulla with characteristic "**drop metastasis".**

Option (b) pilocytic astrocytoma also originates from cerebellum. Which is the most common benign cns tumor in the pediatric population with best prognosis. It mimics ependymoma but hydrocephalus is not present here.

Option (d) craniopharyngioma it arises from rathke's pouch. Also seen mostly in the pediatric age group. Present with bilateral hemianopia, amenorrhea, galactorrhea and other pituitary abnormality.

Key points on ependymoma
1.malignant tumor with poor prognosis.
2.originates from ependymal cells . Of 4^{th} ventricle in children and spinal cord in adult.
3.due to obstruction of 4^{th} ventricle hydrocephalus is seen.
4.spinal cord ependymoma in adult is associated with neurofibromatosis 2

Extra mile:

Some important facts on CNS tumors:

1. Most of the primary pediatric cns tumors are **infra tentorial** in origin
2. Most of the primary adult cns tumors are **supratentorial** in origin
3. Most common overall cns tumor is **secondary (metastatic)**
   In origin mostly due to oat cell cancer (small cell cancer),
   Malignant melanoma, breast cancer
4. Most common 1° pediatric benign tumour is **pilocytic astrocytoma(glioma)**
5. Most common 1° pediatric malignant tumour is **medulloblastoma**
6. Most common 1°adult benign tumour is **meningioma**
7. Most common 1°adult malignant tumour is **glioblastoma**
8. Best investigation for brain tumours is **gadolinium enhanced mri.**
9. Brain tumors which are visible even in x-rays are **meningioma in adult and craniopharyngioma in children.** As both have intracranial calcification.
10. Important syndromes associated with brain tumors are
    1.turcot syndrome- apc gene mutation
    2.cowden syndrome- pten mutation
    3.gorlin syndrome- ptch gene mutation
    4.li fraumeni syndrome- p53 gene mutation
11. Brain tumour arising from infection is **1°cns** lymphoma.which is
    A b-cell tumour(m/c is **immunoblastic large b cell type)** which is seen in immunocompromised patients and is associated with ebstein barr virus.
12. some typical clinical features for specific tumours.
13. Pediatric tumour with best prognosis is **pilocytic Astrocytoma** and worst prognosis is **brain stem glioma.**
14. most common vascular tumors of spinal cord,cerebellum is **hemangioblastoma.**

Signs and Symptoms	Diagnosis
Headache, seizures, hyperpigmented macules	Meningioma, neurofibromatosis 2
Vomiting, facial weakness, ataxia, double vision	Glioblastoma multiforme
Nystagmus, facial weakness, ataxia, dysphagia	Diffuse intrinsic pontine glioma
Recurrent vomiting	Medulloblastoma
Nocturnal enuresis	CNS germinoma
Failure to thrive, visual abnormalities	Suprasellar juvenile pilocytic astrocytoma
Visual loss, hyperpigmented macules	Optic glioma, neurofibromatosis type 1
Facial weakness, ataxia, early morning vomiting	Ependymoma

Transient Ischemic Attack and stroke

11. 81 year old is admitted to the hospital due to acute onset of following symptoms right face drop, he can't speak clearly and right sided hemiparesis.He has a history of HTN and coronary heart disease but was treated 4 years ago and leading his normal life after. After 15mins his condition got resolved.what is the diagnosis?

A) Facial Nerve palsy
B) Transient ischemic attack
C) Tonic clonic seizure
D) Cerebral Hemorrhage

Correct answer - B) transient ischemic attack

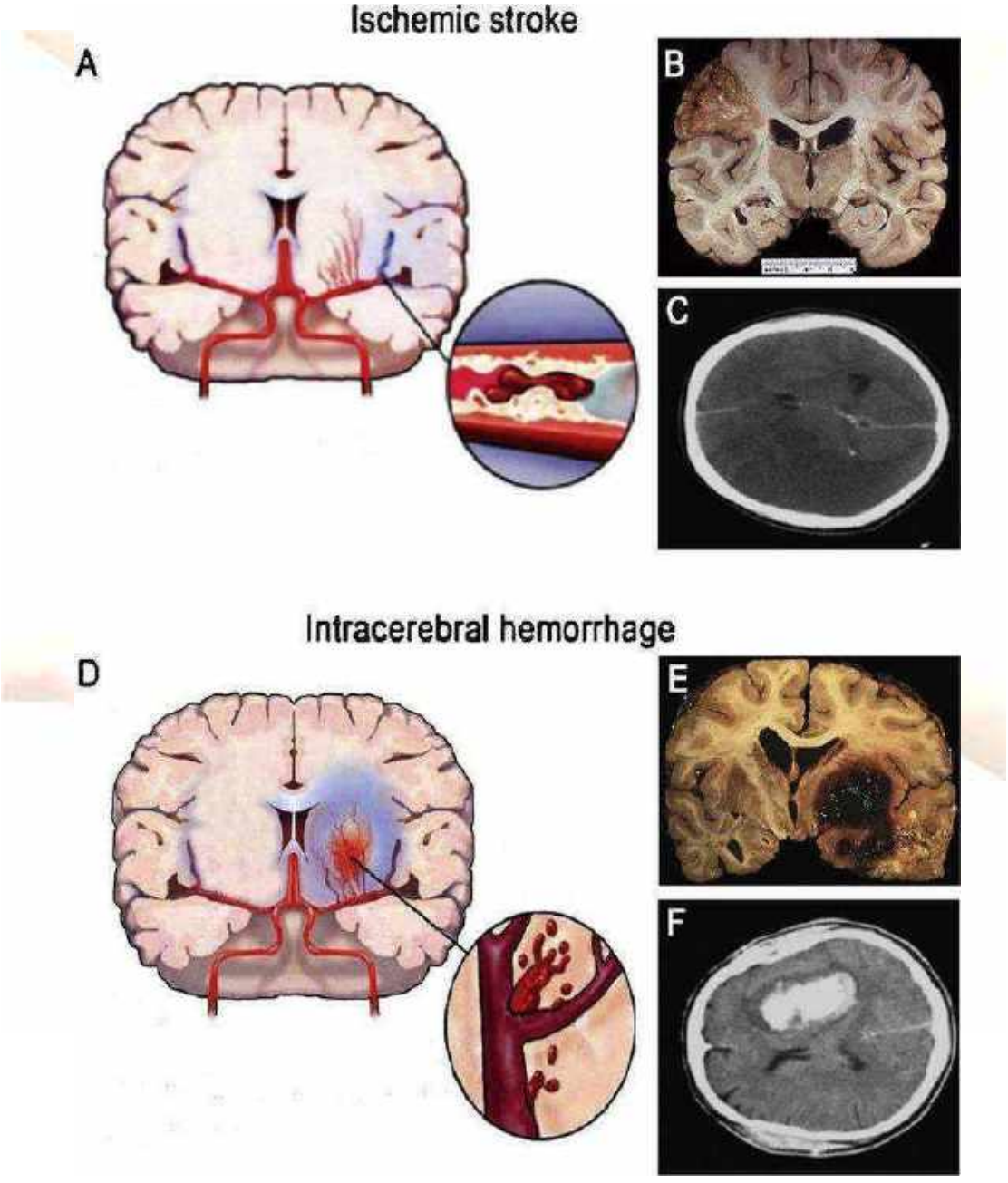
Transient ischemic attacks often called mini strokes. Sudden onset of focal neurologic deficit with spontaneous resolution within 24 hours,although most TIAs last between 5 and 15 min.

A) **Bell's Palsy,**

	Bell's palsy	TIA and Stroke
Age	20s-50s	>60
Time course	Hours to days	Immediately, sec to min.
Upper face	Always affected	+/- affected
Lower face	Always affected	Always affected
Symptoms associated	none(sometimes facial numbness)	Weakness,speech difficulty, Slurred speech,double vision,facial numbness,vertigo,ataxia.

C) **Tonic-clonic seizures (grand mal)** cause sudden loss of consciousness, loss of postural control, and tonic muscular contraction producing teeth-clenching and rigidity in extension (tonic phase), followed by rhythmic muscular jerking (clonic phase)

D) A **hemorrhagic stroke** happens when a weak blood vessel bursts and bleeds into the brain.People who experience this type of stroke, in addition to other stroke symptoms, will likely experience a sudden onset **headache** or head pain — a warning sign that might not occur during ischemic stroke.

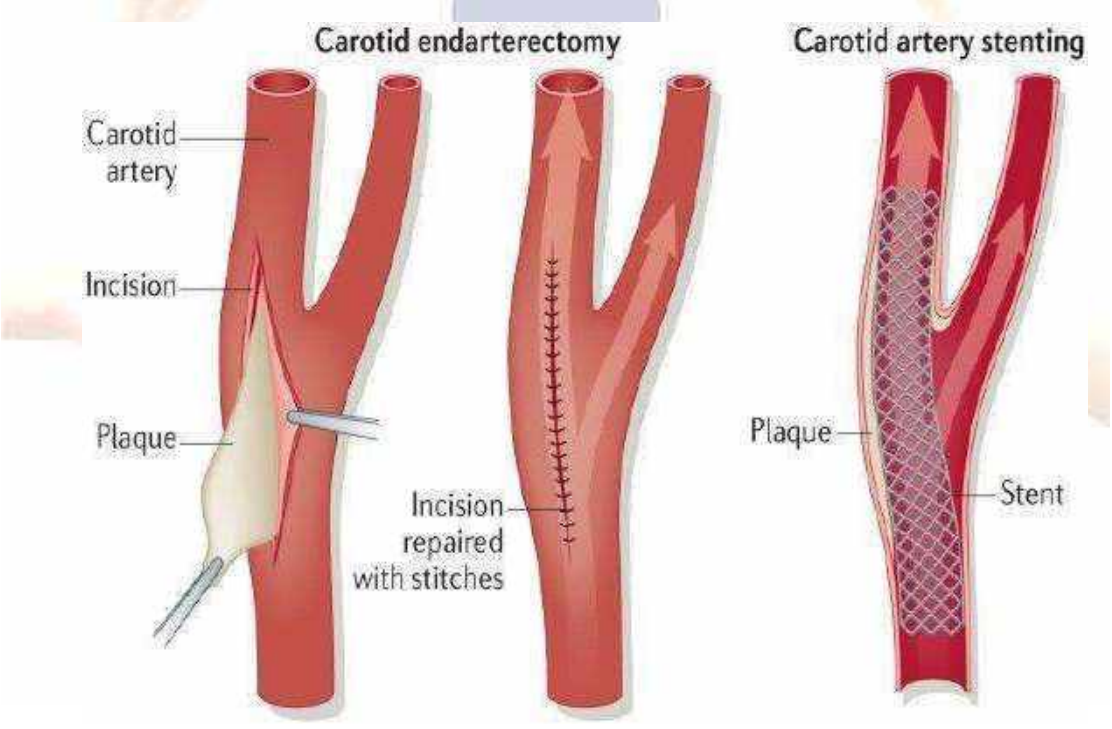


12.A 56 year old female without any history of medical illness,visited your office for regular check up. Her vitals are in normal range,on auscultating he is found to have carotid bruit. On further examination Duplex ultrasound shows 80% stenosis. What will be the treatment for this patient?

A)Only Aspirin
B)Warfarin
C)IV rtPA
D)Endarterectomy

Correct answer- D)Endarterectomy

This patient is Asymptomatic, accidentally finding that his carotid artery is narrowed by 80% . Carotid endarterectomy is surgery that removes plaque buildup from inside a carotid artery in your neck. This surgery is done to restore normal blood flow to the brain to prevent a stroke.



Carotid endarterectomy benefits many pts with symptomatic severe (>70%) carotid stenosis; the relative risk reduction is ~65%. However, if the perioperative stroke
rate is >6% for any surgeon, the benefit is questionable. Endovascular stenting is an emerging option; there remains controversy as to who should receive a stent or undergo endarterectomy. Surgical results in

patients with asymptomatic carotid stenosis are less strong, and medical therapy for reduction of atherosclerosis risk factors plus Antiplatelet medications are generally recommended in this group. But Asymptomatic patients with carotid stenosis(>70%) Surgical procedure is preferred.

A) Aspirin, inhibits thromboxane A2, a platelet aggregating and vasoconstricting prostaglandin.
Aspirin, clopidogrel (blocks the platelet adenosine diphosphate [ADP] receptor), and the combination of aspirin plus extended-release dipyridamole (inhibits platelet uptake of adenosine) are the antiplatelet agents most commonly
Used. but when the stenosis is more than 70% carotid revascularization followed by aspirin is suggestive.

B)Warfarin, data do not support the use of long-term warfarin for preventing atherothrombotic stroke for either intracranial or extracranial cerebrovascular disease.

C)IV rtPA, Ischemic deficits of <3 h duration, with no hemorrhage by CT criteria, may benefit from thrombolytic therapy with IV recombinant tissue plasminogen activator.

13.A 50-year-old man awoke in the morning with vertigo. He was very unsteady on walking, always falling to the left. He had developed hiccups and vomited on a few occasions. He spilt some hot water over his legs trying to make himself a cup of tea, but did not perceive the water as hot on his right leg. The patient had a history of hypertension, he was a smoker, and he had had a stroke with right-sided sensory loss 2 years before. On examination there was a left Horner's syndrome, reduced perception of pinprick and temperature on the left side of the face and the right side of the body, coarse gaze-evoked nystagmus to the left, and a left-sided ataxia.choose the best answer.

A) Brainstem is involved in ischemia.
B) Emboli in the vertebral artery may lead to this condition.
C) Both A and B are correct D) None of the above is correct.

Correct answer-C)Both A and B are correct

Diagnosis is Stroke.

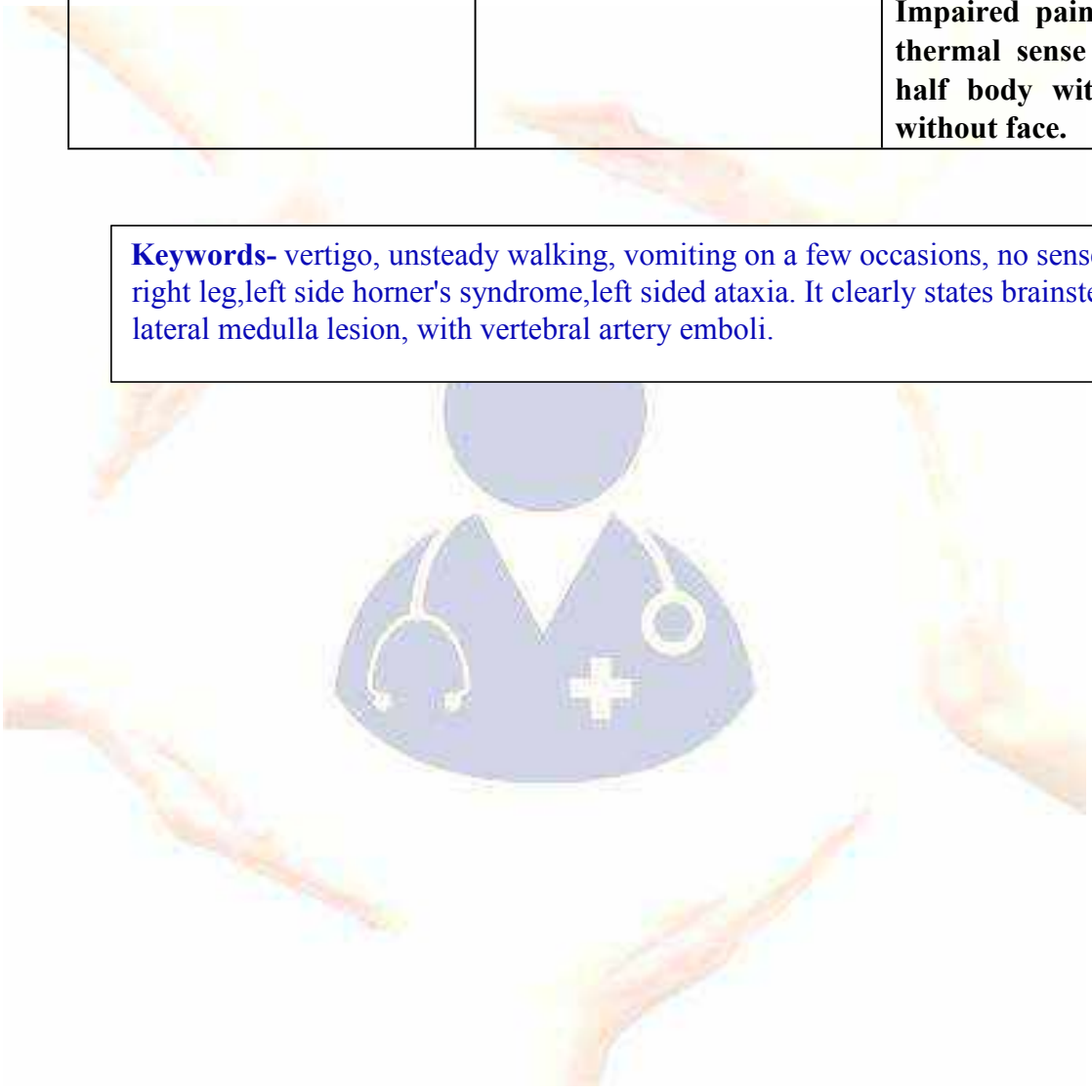
Sudden onset of a neurologic deficit from a vascular mechanism,Ischemic stroke can be due to embolic occlusion of large cerebral vessels; source of emboli may be heart, aortic arch, or other arteries such as the internal carotids. Small, deep ischemic lesions are most often related to intrinsic small-vessel disease (lacunar strokes). Low-flow strokes are occasionally seen with severe proximal stenosis and inadequate collaterals challenged by systemic hypotension episodes. Abrupt and dramatic onset of focal neurologic symptoms is typical. Pts may not seek assistance on their own because they are rarely in pain and may lose appreciation that something is wrong (anosognosia). Symptoms reflect the vascular territory involved. Transient monocular blindness (amaurosis fugax) is a particular form of TIA due to retinal ischemia; pts describe a shade descending over the visual field.

LOCATION	ARTERY INVOLVED	SIGNS AND SYMPTOMS
Cerebral Hemisphere, Lateral Aspect	Middle Cerebral A	Hemiparesis, Hemisensory deficit, Motor aphasia(Broca's) —hesitant speech with word-finding difficulty and preserved comprehension Sensory aphasia (Wernicke's)— anomia, poor comprehension, jargon speech
		Unilateral neglect, apraxias Homonymous hemianopia or quadrantanopia Gaze preference with eyes deviated toward the side of lesion.
Cerebral Hemisphere, Medial Aspect	Anterior Cerebral A.	Paralysis of foot and leg with or without paresis of arm Cortical sensory loss over leg Grasp and sucking reflexes Urinary incontinence Gait apraxia

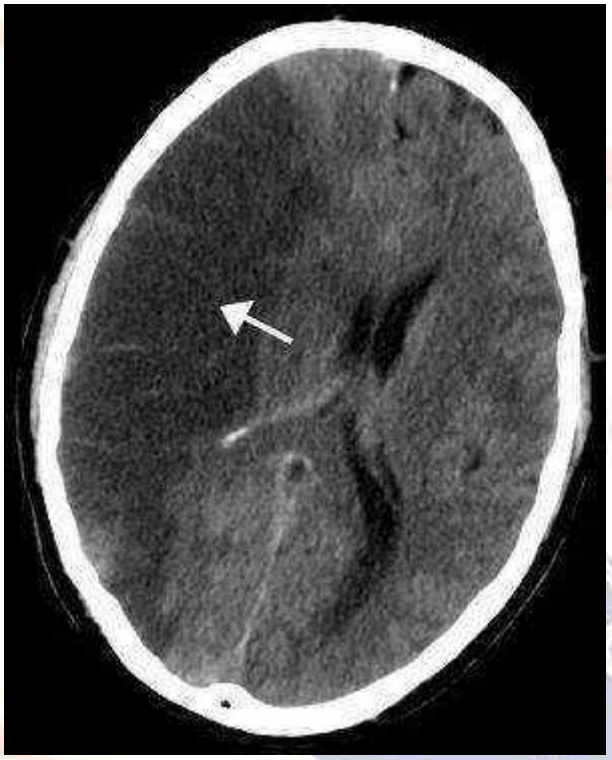
Cerebral Hemisphere, Posterior Aspect	Posterior Cerebral A.	Homonymous hemianopia Cortical blindness Memory deficit Dense sensory loss, spontaneous pain, dysesthesias, choreoathetosis
Brainstem, Midbrain	Posterior Cerebral A.	Third nerve palsy and contralateral hemiplegia Paralysis/paresis of vertical eye movement Convergence nystagmus, disorientation
Brainstem, Pontomedullary Junction	Basilar A.	Facial paralysis, Paresis of abduction of eye, Paresis of conjugate gaze, Hemifacial sensory deficit, Horner's syndrome, Diminished pain and thermal sense over half body (with or without face) Ataxia

Brainstem, Lateral Medulla	**Vertebral A.**	**Vertigo**, **nystagmus** **Horner's syndrome** (miosis, ptosis, decreased sweating) **Ataxia, falling toward side of lesion,** **Impaired pain and thermal sense over half body with or without face.**

Keywords- vertigo, unsteady walking, vomiting on a few occasions, no sense of heat on right leg,left side horner's syndrome,left sided ataxia. It clearly states brainstem and lateral medulla lesion, with vertebral artery emboli.



14. A 78-year-old man developed sudden left arm weakness and dysarthria lasting for an hour and resolving spontaneously. The following day, he developed severe left arm weakness, left leg weakness, dysarthria, and left facial numbness. There was a past medical history of myocardial infarction, hypertension, and type 2 diabetes mellitus. He underwent a head CT scan as shown below. What is the management for this patient?



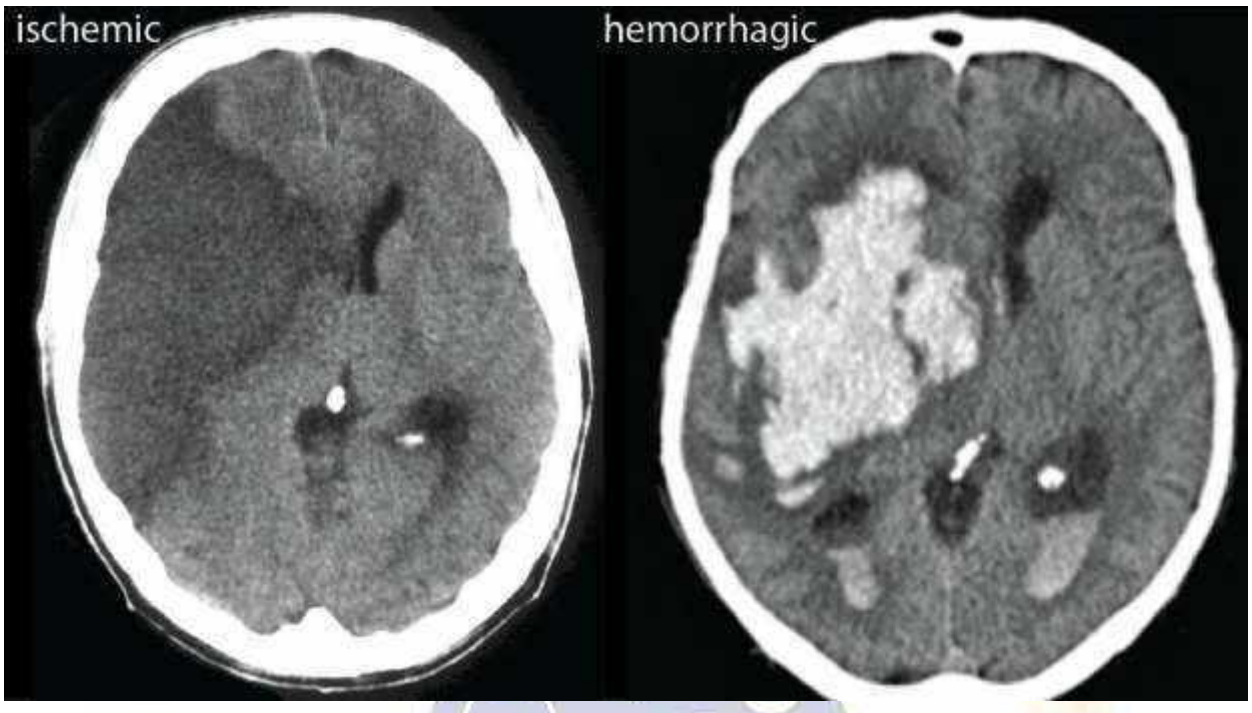
A) Treat HTN with CCB's
B) Treat with an aneurysmal clip.
C) Treat with IV recombinant tissue plasminogen activator.
D) Treat with Osmotic therapy with mannitol

Correct answer-D)Treat with Osmotic therapy with mannitol.

Diagnosis- Ischemic Stroke

A stroke is a medical condition in which poor blood flow to the brain causes cell death. There are two main types of stroke: ischemic, due to lack of blood flow, and hemorrhagic, due to bleeding. Both cause parts of the brain to stop functioning properly. Signs and symptoms of a stroke may include an inability to move or feel on one side of the body, problems understanding or speaking, dizziness, or loss of vision to one side. Signs and symptoms often appear soon

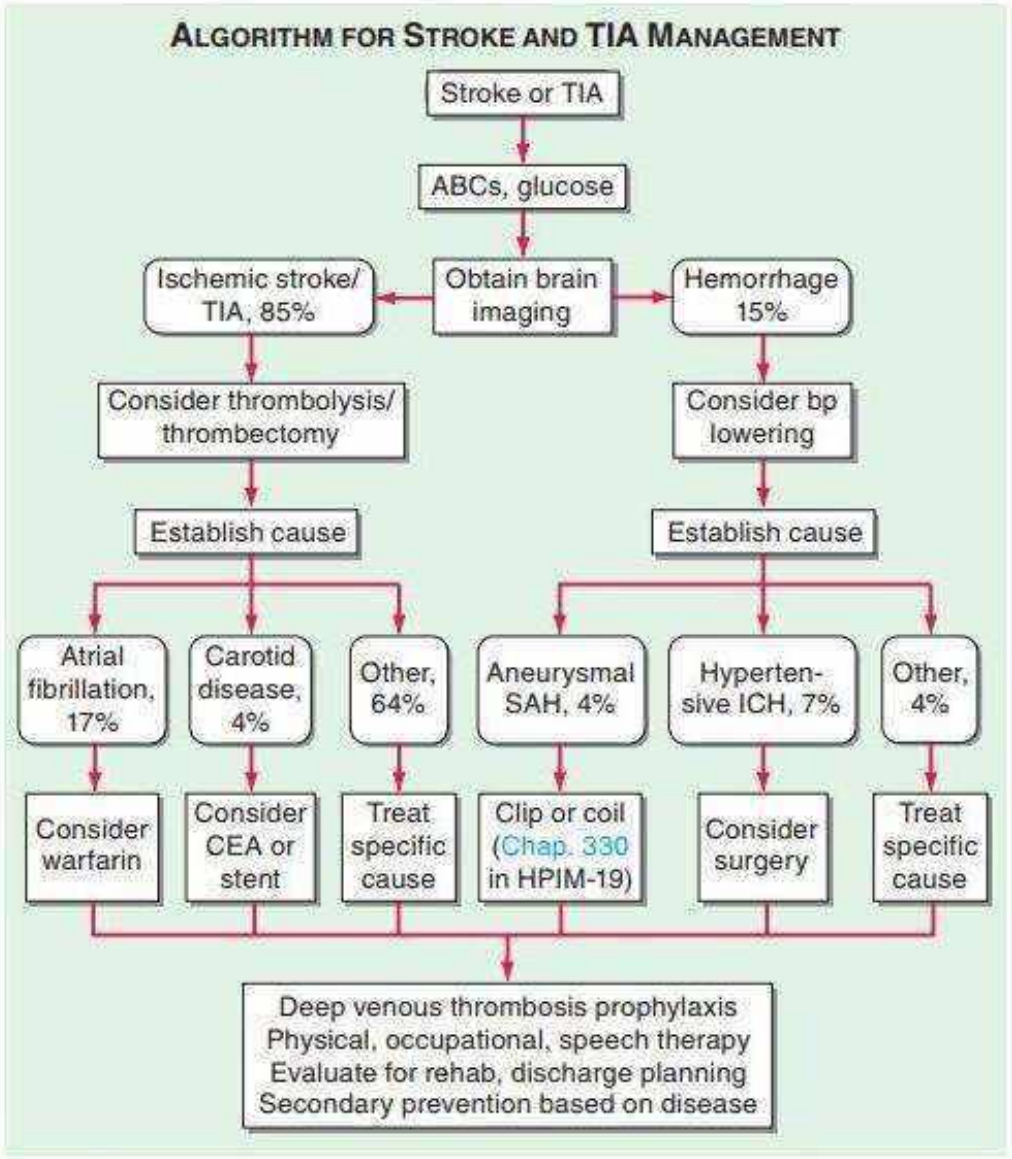
after the stroke has occurred. If symptoms last less than one or two hours, the stroke is a transient ischemic attack (TIA), also called a mini-stroke.A hemorrhagic stroke may also be associated with a severe headache. The symptoms of a stroke can be permanent.Long-term complications may include pneumonia and loss of bladder control.



Most ischemic strokes are less dense (darker) than normal brains, whereas blood in hemorrhage is denser and looks white on CT.

Mangaement:

1) ABC
2) CT scan to differentiate ischemic or hemorrhagic.
3) If ischemic,a patient brought within 3hours of symptoms may benefit from thrombolytic therapy with IV recombinant tissue plasminogen activator. Depending on underlying cause treatment changes.
4) If hemorrhagic, no use of thrombolytics. Treat the underlying cause.

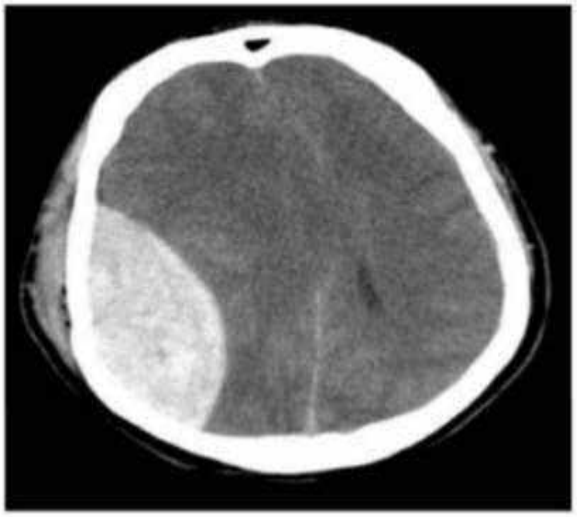


A) Treat HTN with CCB's- HTN causes Hemorrhagic shock.

B) Treat with an aneurysmal clip- Mostly Aneurysm leads to Hemorrhage.
C) Treat with IV recombinant tissue plasminogen activator- it is useful within 3hours.

D) Treat with Osmotic therapy with mannitol-osmotic therapy with mannitol may be necessary to
control edema in large infarcts, but isotonic volume must be
replaced to avoid hypovolemia.

15.A 19 year old girl met with a road accident while she was travelling with her brother. Her brother sustained minor injuries, however, she was found unconscious on the road for a few minutes, after which she regained her consciousness. She was taken in an ambulance to the hospital within the next fifteen minutes. When the duty doctor examined her, she was in a comatose state. After getting a brief history from her brother, the doctor ordered for a CT scan which revealed a biconvex hyperdensity as given below. What would be the first line of treatment for this patient?



A. Nimodipine
B. Burr hole surgery
C. Mannitol
D. Glycerol

Correct answer: B
Burr hole surgery is done to decompress the brain parenchyma so that the pressure exerted by the blood clot would be reduced. It is done in the weakest part of the skull- pterion. This is the first line of treatment for extradural hemorrhage when the patient is in a comatose state. However, the treatment of choice would be decompressive hemicraniectomy.

Option A: Nimodipine is the drug of choice to prevent vasospasm of blood vessels in the brain which is the most important cause of death in patients with subarachnoid hemorrhage. Note that, the drug of choice for controlling hypertensive crisis in brain hemorrhage is Nicardipine. Both Nimodipine and Nicardipine are calcium channel blockers.

Option C and D: Mannitol and Glycerol are given in patients having a subdural hemorrhage to reduce the pressure where craniotomy is not needed.

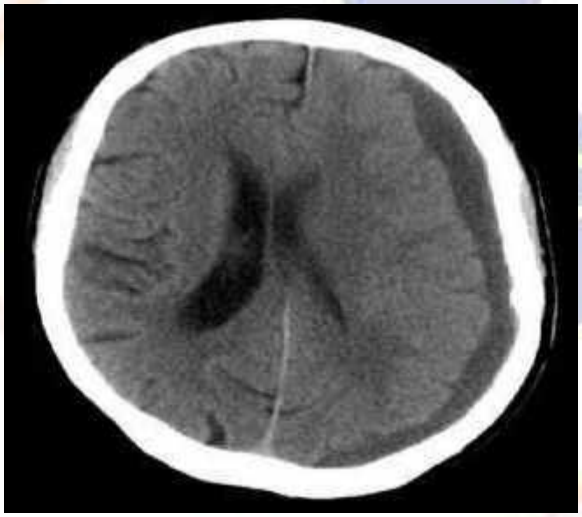
Keywords- There will be a history of road accident, lucid interval, NCCT will reveal a biconvex hyperdensity (lenticular) and the most common vessel to be injured is the middle meningeal artery.

Please note that lucid interval can be seen in both extradural and subdural hemorrhage.

16.A 65 year old diabetic female accidentally slipped in the bathroom. T here was a mild swelling
on her forehead and no loss of consciousness. However, after three weeks, she had a headache, confusion and mild weakness in her body. She was brought to the hospital by her son who gave you the history. On examination, her GCS was E4V5M5 with motor strength 1/5 in her left arm. What would be the CT finding in this patient?

A. Biconvex hypodensity
B. Biconvex hyperdensity
C. Crescentic hypodensity
D. Crescentic hyperdensity

Correct answer: C
In imaging studies, chronic subdural hematomas appear as crescentic hypodense clots over the convexity of one or both hemispheres, most commonly in the frontotemporal region. In NCCT, chronic subdural hemorrhage will reveal a hypodense crescentic (concavo-convex) shape as given in the image below.

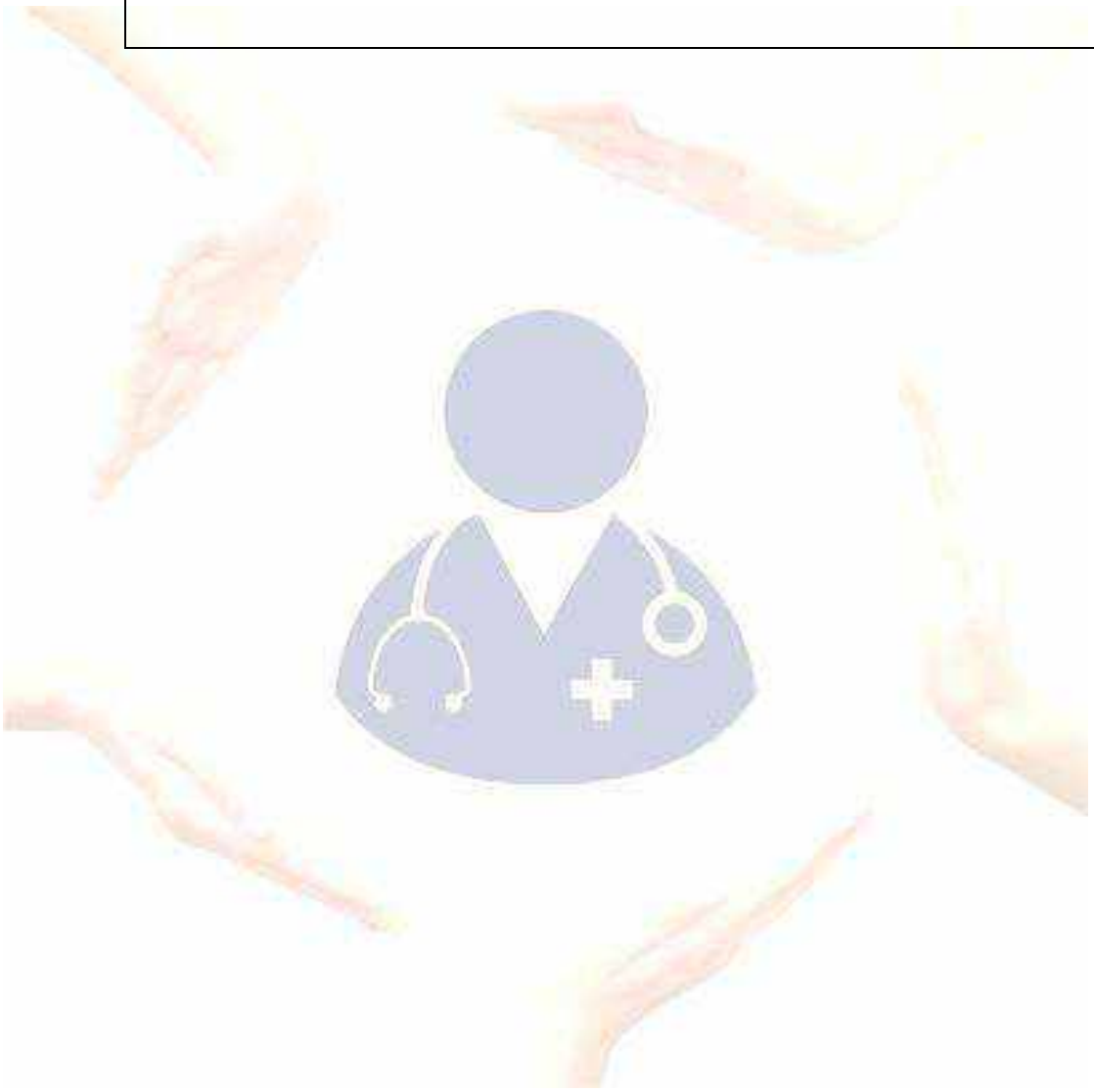


Option A and B- They can be ruled out because biconvexity will be seen in cases of extradural/epidural hemorrhage.

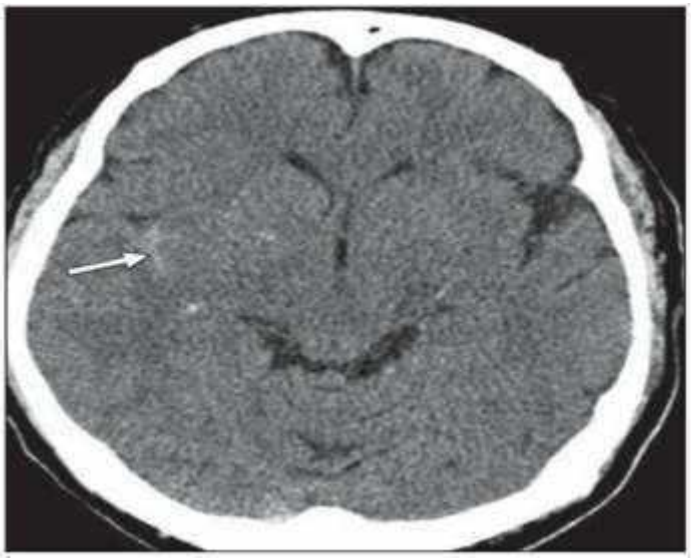
Option D- Crescentic hyperdensity is seen in cases of acute subdural hemorrhage. In our case, the patient has chronic subdural hemorrhage. Therefore this can be ruled out.

Keywords- Cases of subdural hemorrhage will usually present with an elderly person slipping in the bathroom, boxer who sustains head injury.
There will always be a gradual onset of weakness.

The vessels affected will be the cortical bridging veins and treatment will mostly be conservative.



17.A 40 year old woman who frequently presents with migraine reports that she has got the worst headache so far. She says it is worse at the back of her head. She was found to be irritable in the emergency room. She claims that it gets worse when she sees bright light. The doctor ordered for a CT scan which revealed the following. What would be the vessel responsible in this condition?



A. Middle cerebral artery
B. Anterior communicating artery
C. Middle meningeal artery
D. Cortical bridging veins

Correct answer: A

The given CT shows moderate subarachnoid hemorrhage filling the right sylvian fissure. The source of bleeding in sylvian fissure is the middle cerebral artery.

Option B- Anterior communicating artery will be responsible in cases of subarachnoid hemorrhage due to ruptured berry aneurysm.

Option C- Middle meningeal artery is responsible in cases of extradural hemorrhage.

Option D- Cortical bridging veins are affected in subdural hemorrhage.

Keywords- The question often will include the following phrases : “thunderclap headache” , “worst headache of my life” , “severe headache associated with nausea and vomiting.” The patient can also present with seizures due to dyselectrolytemia, headache with nuchal rigidity which can be differentiated from meningitis because of the absence of fever.

18.A 24 year female presents at the Emergency Department following a motor vehicle accident.
She opens her eyes to painful stimulus, asks, " Where am I? What are you doing to me?" and exhibits abnormal flexion on painful noxious stimuli to the arm. Her GCS score would be?

A. 7
B. 8
C. 9
D. 10

Correct answer: C

GCS SCORING:

Eye opening (E)
4-spontaneous
3-to loud voice
2-to pain
1-nil
NT-non-testable

Verbal response (V)
5-oriented
4-confused,disoriented
3-inappropriate words
2-incomprehensible sounds
1-nil
NT-non-testable

Best motor response (M)
6-obeys commands
5- localizes
4- normal flexion
3-abnormal flexion
2-extension
1-nil
NT-non-testable

Keywords- Maximum score- 15
Minimum score- 3
Mild head injury- 13 to 15
Moderate head injury- 9 to 12
Severe head injury- less than 8

MYASTHENIA GRAVIS

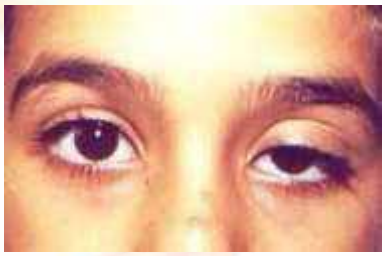
19.True about pathophysiology of myasthenia gravis except.

A.Underlying defect is decrease in amount of acetylcholine
B.Antibodies are produced against muscle-specific kinase (MuSK) receptors
C.decrease in Number of acetylcholine receptors(AchR) plays a vital role in myasthenia gravis.
D.Low density lipoprotein receptor 4(lrp4) at the neuromuscular junction is also involved.

Answer:- A.Underlying defect is decrease in amount of acetylcholine

Explanation:- myasthenia gravis is a neuromuscular disorder characterized by weakness and fatigability of skeletal muscle. Underlying defect is the Number of acetylcholine receptors(AchR). Antibodies are also produced against muscle-specific kinase (MuSK) receptors which are mainly involved in ACHR clustering. Low density lipoprotein receptor 4(lrp4) at the neuromuscular junction is also involved in clustering of ACHR.
Decrease in acetylcholine does not involve directly in pathophysiology of myasthenia gravis.

20.A 28 year Anganwadi worker came into clinic complaining with the condition (given in image) and also after a week the patient was not able to walk even for a short distance where the patient feel weakness in her legs after walking for 10-15 mins,but the patient feels relieved after taking rest /sitting for 5-10 minutes also complained of double vision whenever gets fatigue.So,the doctor performed forward arm abduction test and vital capacity.What is the most possible diagnosis and what is the true statement regarding the investigation



A.Lambert eaton syndrome,Antibodies against ca+ receptors are seen
B.myasthenia gravis,most specific test will be Electromyography (EMG)
C.Lambert eaton syndrome,Anti Ganglioside antibodies are positive
D.Myasthenia gravis,most sensitive test will be AchR antibodies

Answer:- B.myasthenia gravis,most specific test will be Electromyography (EMG)

Explanation:-
1.clinical investigation test:-forwarded arm abduction test,range
Of eye movement is decreased,ptosis, decreased fvc
2.diagnostic test:- iv edrophonium test
3.best initial test :-ach receptor antibodies,anti musk antibodies,anti lpr4 antibodies
4.most sensitive /most specific test:- electromyography (emg)
Other tests:-nerve conduction test,ct thoracic to rule out Thymoma

21.A 63 years old male came into OP Department complaining of dysphagia and ptosis, few weeks later complains of lower limb weakness.During physical examination noted loss of muscle strength and absence of other neurological signs.What will be differential diagnosis for the condition.Whats is the true regarding?

A.guillain barre syndrome-acute inflammatory demyelinating polyneuropathy
B.guillain barre syndrome- associated with campylobacter jejuni infection
C.Lambert eaton myasthenic syndrome-associated with small cell carcinoma of lung
D. Lambert eaton myasthenic syndrome-postsynaptic disorder of the neuromuscular disorder

Differential diagnosis of myasthenia gravis include:
1.Lambort eaton myasthenic syndrome-antibodies are formed against ca+ receptors, associated with small cell carcinoma of lung
2.Drug induced myasthenia
3.Neurestheni a
4.Graves disease
5.botulism

Guillain barre syndrome is an ascending infection . Never will be
The differential diagnosis of myasthenia gravis.

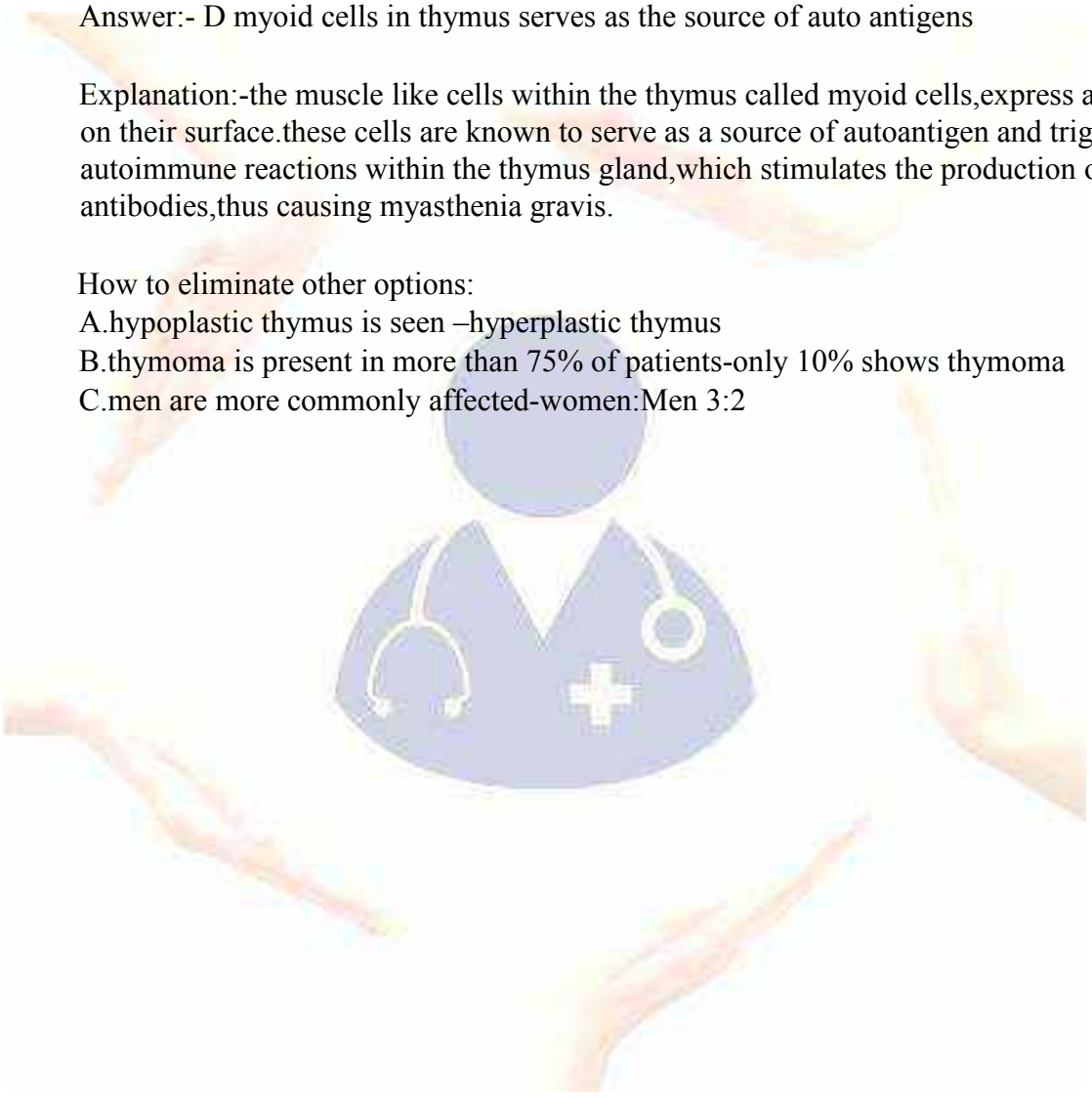
22.which of the following statements is true regarding the Myasthenia gravis?

A.hypoplastic thymus is seen
B.thymoma is present in more than 75% of patients
C.men are more commonly affected
D.myoid cells in thymus serve as the source of auto antigens.

Answer:- D myoid cells in thymus serves as the source of auto antigens

Explanation:-the muscle like cells within the thymus called myoid cells,express achrs on their surface.these cells are known to serve as a source of autoantigen and trigger autoimmune reactions within the thymus gland,which stimulates the production of antibodies,thus causing myasthenia gravis.

How to eliminate other options:
A.hypoplastic thymus is seen –hyperplastic thymus
B.thymoma is present in more than 75% of patients-only 10% shows thymoma
C.men are more commonly affected-women:Men 3:2



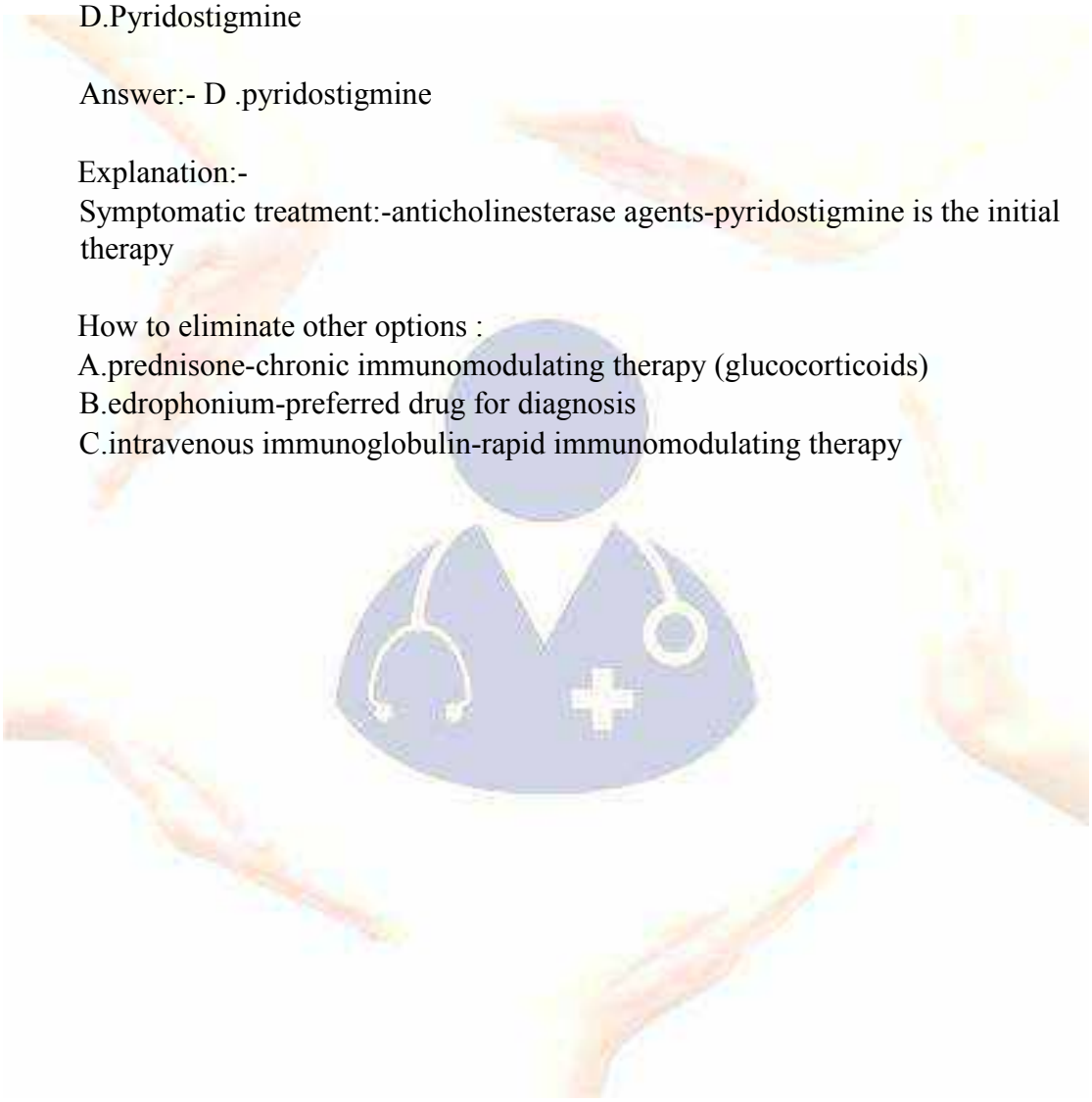
23.A 32 year old male comes with complaints of proggressive weakness worsening in the evening with ptosis.Tensilon test is performed.what is the drug of choice for the condition?

A.Prednisone
B.Edrophonium
C.Intravenous immunoglobulin
D.Pyridostigmine

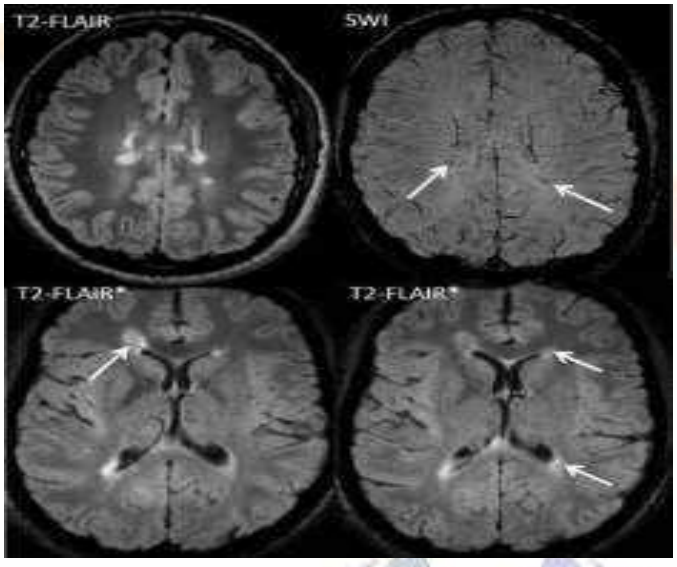
Answer:- D .pyridostigmine

Explanation:-
Symptomatic treatment:-anticholinesterase agents-pyridostigmine is the initial therapy

How to eliminate other options :
A.prednisone-chronic immunomodulating therapy (glucocorticoids)
B.edrophonium-preferred drug for diagnosis
C.intravenous immunoglobulin-rapid immunomodulating therapy



24. 27 year old Lalita comes to emergency with the presentation of Vertigo, dizziness and slurred speech for the past 24 hours on and off. She gives a history of such episodes in the past which lasted for a day or so and returned after sometime with more intensity. There was descending paralysis preceded by tremors, numbness, loss of vision and bladder and bowel dysfunction. There was a MRI done for her which is shown below, that confirmed her disease.What is her diagnosis ?



a. GB Syndrome
b. Multiple sclerosis
c. CNS lymphoma
d. Stroke

Answer : B : Multiple Sclerosis – MS is a disease of young adults with a female predominance. There are characteristic clinical presentations based on the areas of the central nervous system involved, for example optic nerve, brainstem and spinal cord. The main pattern of MS at onset is relapsing–remitting with clinical attacks of neurological dysfunction lasting at least 24 hours.

MRI has been increasingly used to support the diagnosis of MS and to look for any atypical features suggesting an alternative diagnosis. Brain and spinal cord MRI are used to determine dissemination in space (DIS) and for evidence of dissemination in time (DIT) in patients with a typical CIS. DIS can be demonstrated by one or more MRI T2-hyperintense lesions that are characteristic of MS in two or more of four areas of the CNS: periventricular; cortical or juxtacortical; infratentorial; and the spinal cord. DIT can be demonstrated by the simultaneous presence of gadolinium-enhancing and non-enhancing lesions at any time or a new T2 lesion or gadolinium-enhancing lesion on follow-up MRI.

Option A – GB Syndrome – Ascending Paralysis is seen.

25.A Young female presents to the hospital with following presentations : excessive urination at night, Fatigue, Muscle spasms and cramps causing difficulty in walking, Headache, dizziness, Double vision at first which progressed to complete loss of vision in Left eye when examined.
On CNS Examination – She has difficulty speaking, depression, difficulty raising the foot, Problems with coordination, tingling sensations, Numbness of the face. On Eye Examination – there was periorbital pain, Double vision followed by vision loss, Rapid involuntary eye movements.These symptoms have a relapsing nature and she is chronically suffering from this since 2 years now.
What should be the diagnostic test to confirm her condition?

a. MRI
b. CT Scan
c. CSF Examination
d. Xray

Answer : C – CSF Examination - Cerebrospinal fluid (CSF) examination remains a valuable diagnostic test, particularly when clinical and MRI evidence is insufficient to confirm the diagnosis of MS. There has been a major change in the most recent MS diagnostic criteria in that oligoclonal bands in the CSF can be used as a surrogate marker of DIT to confirm the diagnosis of RRMS in people with CIS and MRI evidence of DIS.3 CSF findings are also important when there is a progressive course from onset (PPMS) and when there are any atypical clinical or imaging findings. Evidence of intrathecal antibody synthesis (i.e. oligoclonal bands in the CSF but not in a paired serum sample) supports the diagnosis of MS. An elevated CSF protein >1.0 g/L or significant pleocytosis >50 cells/mm³ or the presence of neutrophils would suggest an alternative diagnosis.

This is a case of Multiple sclerosis.

- The diagnosis of multiple sclerosis is a clinical diagnosis supported by investigation findings.
- There is no single sensitive and specific diagnostic test for multiple sclerosis.
- The principle of dissemination of lesions in time and space underpins the diagnosis.
- Eighty-five percent of people with multiple sclerosis have a relapsing-remitting course at onset.

Multiple sclerosis causes many different symptoms, including vision loss, pain, fatigue and impaired coordination. The symptoms, severity and duration can vary from person to person. Some people may be symptom free for most of their lives, while others can have severe, chronic symptoms that never go away.

Pain areas: in the back or eyes
Pain circumstances: can occur in the back due to head nod or with eye movement
Tremor: can occur during precise movements, in the hands, or limbs
Muscular: cramping, difficulty walking, inability to rapidly change motions, involuntary movements, muscle paralysis, muscle rigidity, muscle weakness, problems with coordination,
stiff muscles, clumsiness, muscle spasms, or overactive reflexes
Whole body: fatigue, dizziness, heat intolerance, poor balance, or vertigo
Urinary: excessive urination at night, leaking of urine, persistent urge to urinate, or urinary retention
Sensory: pins and needles, abnormality of taste, reduced sensation of touch, or uncomfortable tingling and burning
Visual: blurred vision, double vision, or vision loss
Mood: anxiety or mood swings
Speech: difficulty speaking or slurred speech
Sexual: erectile dysfunction or sexual dysfunction
Also common: constipation, depression, difficulty raising the foot, difficulty swallowing, difficulty thinking and understanding, flare, headache, heavy legs, numbness of face, rapid involuntary eye movement, sleep deprivation, tongue numbness, or weakness

Treatment - Physiotherapy and medication that suppress the immune system can help with symptoms, and slow disease progression.

26.An 85 year old woman came to the clinic with her son who observed changes in her behaviour from a few months. He said his mother had mood swings, poor judgment, and changes in appearance (poor hygiene, wearing soiled clothing), and confusion about previously commonly-performed tasks. He further states that she couldn't recall the commonly used words. The symptoms mentioned here are suggestive of which of the following ?

A. Parkinson's
B. Alzheimer's
C. Huntington's
D. Multiple sclerosis

Answer : B. Alzheimer's

In early Alzheimer's, memory loss, especially of short-term memories, becomes noticeable. Forgotten recent conversations and repeated similar questions become more frequent. A change in speech, such as not remembering common words, becomes more noticeable in people with Alzheimer's disease. Although this may happen occasionally with people, such memory problems become more frequent and progressively worse in Alzheimer's disease patients.

Mood swings, poor judgment, and changes in appearance (poor hygiene, wearing soiled clothing), and confusion about previously commonly-performed tasks are some of the behaviour
changes seen in Alzheimer's disease patients, especially as the disease progresses.

Keywords: memory loss, Mood swings, poor judgment,

Other options:

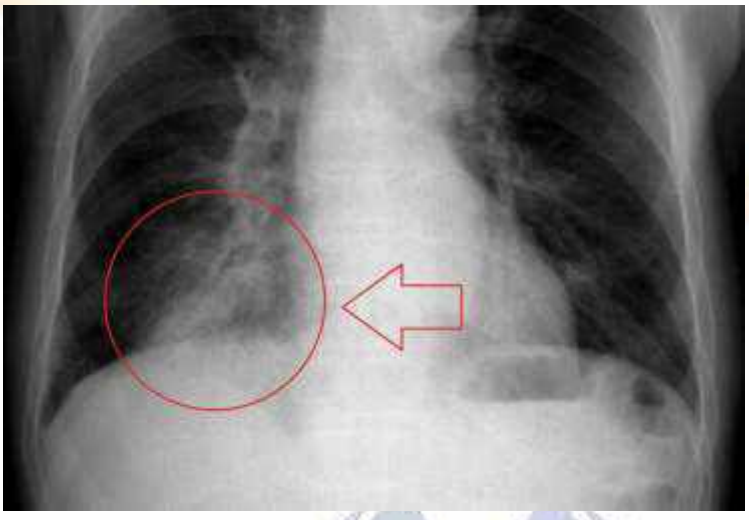
A. Parkinson's : Parkinson's disease is a progressive nervous system disorder that affects movement. Symptoms start gradually. Tremors are common, but the disorder also commonly causes stiffness or slowing of movement. In the early stages of Parkinson's disease, faces may show little or no expression and speech may become soft or slurred. Parkinson's disease symptoms worsen as your condition progresses over time.

C. Huntington's Disease: Huntington's disease usually causes movement, cognitive and psychiatric disorders with a wide spectrum of signs and symptoms. Huntington's disease symptoms can develop at any time, but

they often first appear when people are in their 30’s or 40’s. If the condition develops before age 20, it's called juvenile Huntington's disease

D. Multiple sclerosis: Multiple sclerosis causes many different symptoms, including vision loss, pain, fatigue and impaired coordination.

27.A 75 year old woman, who lives alone was admitted to hospital by her neighbour with shortness of breath, fever, fatigue and coughing up foul smelling, greenish black sputum, that contained blood. A chest x ray was ordered which is given below. The neighbour further stated that he noticed some mental behavioural changes in her like confusion, forgetfulness, disorientation and restlessness. Considering the patient's symptoms, what's the diagnosis of the imaging given below ?



A. Aspiration pneumonia

B. Tuberculosis

C. Coronavirus infection

D. Asthma

Answer: A. Aspiration pneumonia

The given imaging and the symptoms of the patient at the time of admission clearly indicate aspiration pneumonia. Furthermore, the symptoms stated by the neighbour suggests that she may be suffering from Alzheimer's which may have led to this condition.

Alzheimer's disease destroys nerve connections in the brain, making it progressively more difficult to do ordinary things like move around, swallow and feed themselves. Complications of the decline in brain function can lead to Not being able to swallow properly The vast majority of those with Alzheimer's develop aspiration pneumonia – when food or liquid go down the windpipe instead of the oesophagus, causing damage or infection in the lungs that develops into pneumonia.

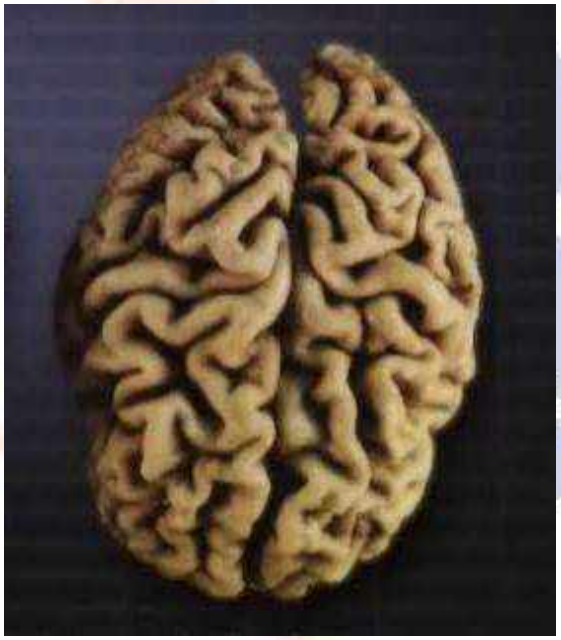
28.A doctor was performing an autopsy on a patient who died due to falling on a sharp object when her relatives mentioned her change in behaviour like confusion, memory loss from past few years. Taking her past symptoms into consideration, the doctor decided to check the patient's brain and the autopsied brain. The gross and pathological images are given below.
Which one of the following could be the underlying diagnosis considering the patient's symptom and the images given below ?

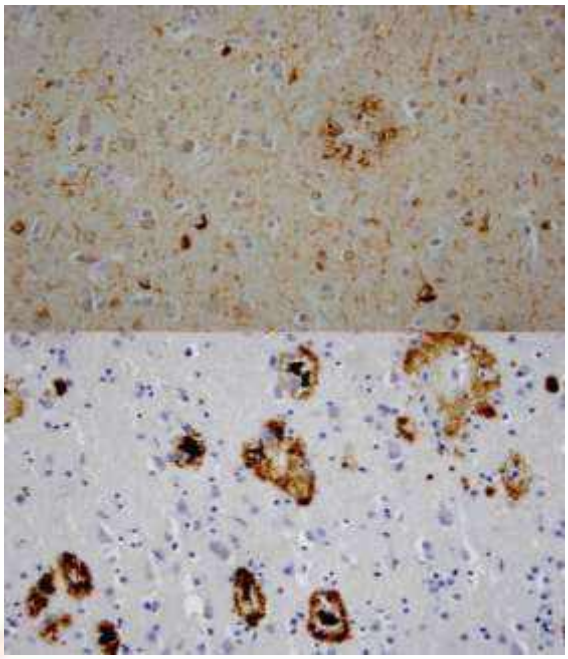
E. Multiple sclerosis

F. Cerebral haemorrhage

G. Alzheimer's disease

H. Meningitis





Answer : C. Alzheimer's disease

Considering the patient's symptoms and the images, the diagnosis is clear that the patient is suffering from Alzheimer's disease.

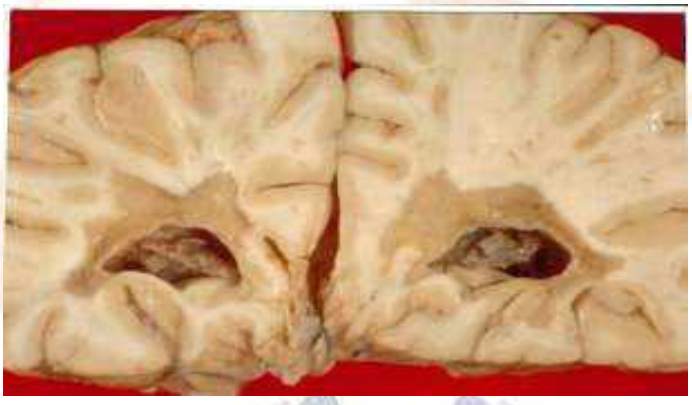
On gross examination, diffuse atrophy and cortical thinning can be seen especially in the parietal, frontal and temporal lobes of the left side. The cortical surface appeared smooth. The cerebral gyri is narrow and the sulci widened.

The two main pathologic abnormalities observed in the brain of patients with Alzheimer's disease are the senile (neurotic) plaques and the neurofibrillary

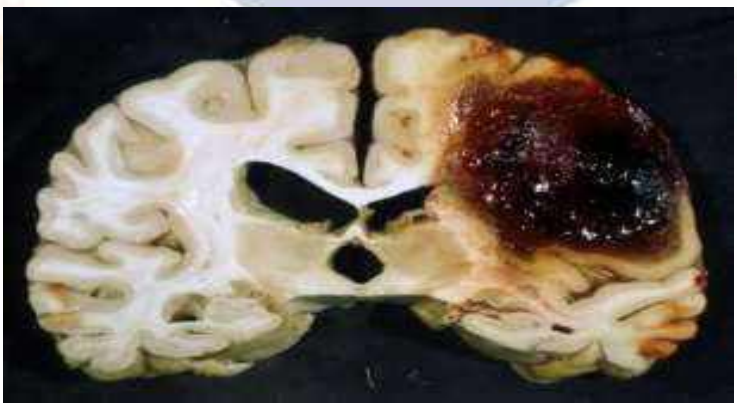
tangles . These abnormalities can only be seen with the aid of a microscope as shown in the second image.

Other options:

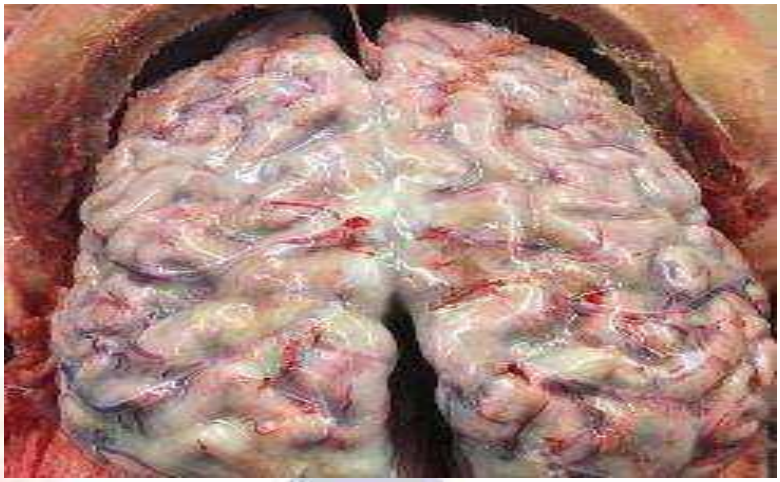
Option A. Multiple Sclerosis gross pathology examination shows multiple areas (plaques) of demyelination in white matter of the brain and spinal cord (not the peripheral nervous system). The plaques are frequently located adjacent to lateral ventricles (periventricular) in the cerebral hemispheres as shown in the image below.



Option B. Cerebral haemorrhage



Option D. Meningitis



29. All of the following statements regarding Alzheimer's are true except
    A. Alzheimer's disease is a type of dementia
    B. Alzheimer's disease is considered a terminal illness
    C. All cases of Alzheimer's disease worsen over time
    D. Alzheimer's disease can be cured if detected early

Answer: D. Alzheimer's disease can be cured if detected early

There is currently no cure for Alzheimer's disease, but there are treatments available that can help maintain mental functions for a longer time, slow the progression of symptoms, and manage the behavioural symptoms.

Other options:

A. Alzheimer's disease is a type of dementia, which is a term used to describe a range of symptoms that affect a person's memory, thinking, and reasoning to the point they interfere with daily tasks. Alzheimer's disease accounts for up to 80% of cases of dementia. In mild dementia, the loss of cognitive skills only slightly affects a person's daily life, while in severe dementia a person is no longer able to function independently and becomes totally reliant on others for care.

B. Alzheimer's disease is a terminal illness because it cannot be cured or treated. Alzheimer's is a progressive brain disease, and while memory and cognitive functions deteriorate first, eventually the patient's body can no longer perform basic life functions such as breathing and swallowing.

C. Alzheimer's disease is a progressive illness, it worsens over time. Symptoms such as memory loss and other cognitive problems become more pronounced. Alzheimer's affects the brain and impairs memory and thinking abilities to the point where patients can no longer carry out daily tasks.

CRANIAL NERVE AND ITS PATHOLOGY

30.A 15- year- old boy had a puncture wound into the side of his face. He did not require sutures and the wound healed well. However, 6 months later, he noted that he would sweat profusely on the skin of his face at the site of the old injury. He was diagnosed to be suffering from Frey's syndrome. It was decided that the best treatment would be to avulse the nerve carrying the parasympathetic nerve fibers to the region. Which nerve was to be assaulted?

A.Trigeminal nerve
B.Great auricular nerve
C.Auriculotemporal nerve
D.Facial nerve

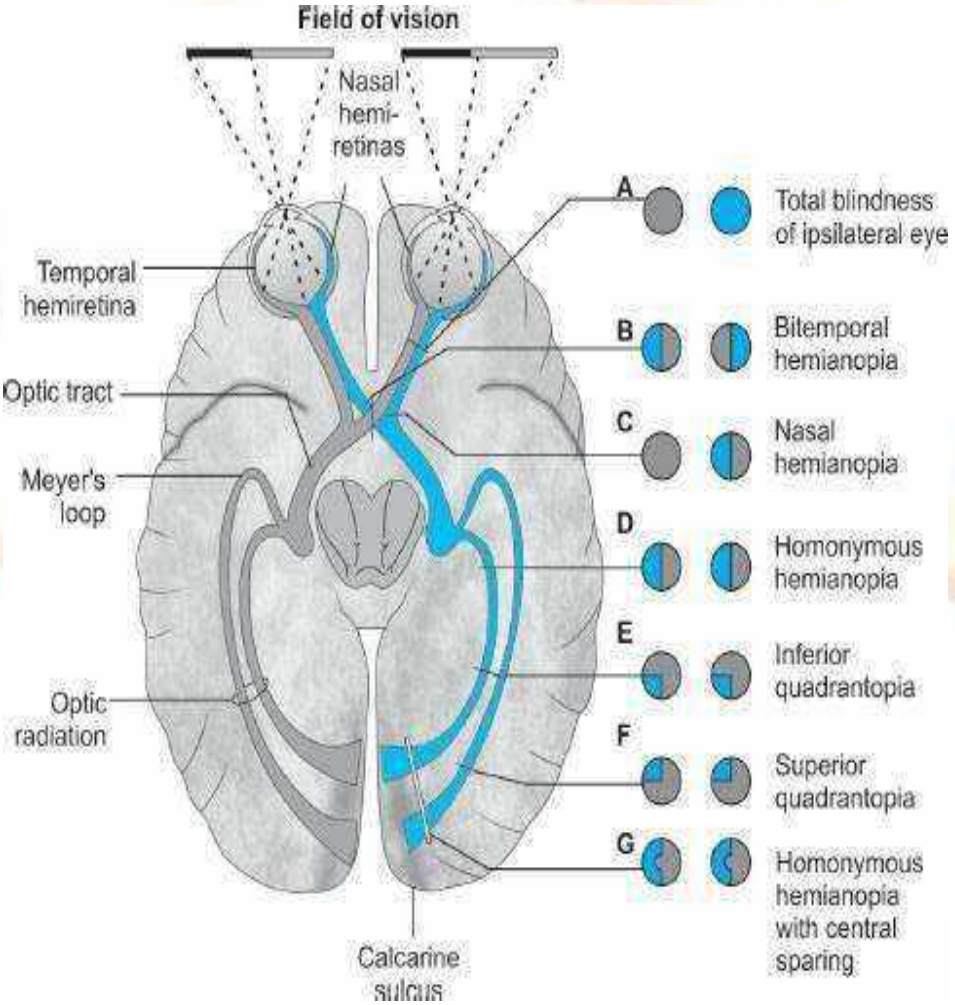
Answer: C

The parasympathetic secretomotor fibres to the parotid gland and also branches of the great auricular nerve which supply the overlying skin. On regeneration some of the parasympathetic fibres had crossed over and joined the distal end of the great auricular nerve. A stimulus normally producing salivation stimulated the sweat glands instead. The best method of treatment is avulsion of the auriculotemporal nerve which carries the parasympathetic fibres.

31.A 30 year woman complaining of visual problems,MRI of brain reveals pituitary tumor.what is the most likely defect?

A .homonymous lower quadrantanopia
B . homonymous upper quadrantanopia
C .homonymous hemianopia
D .bitemporal hemianopia

Ans :D bitemporal hemianopia

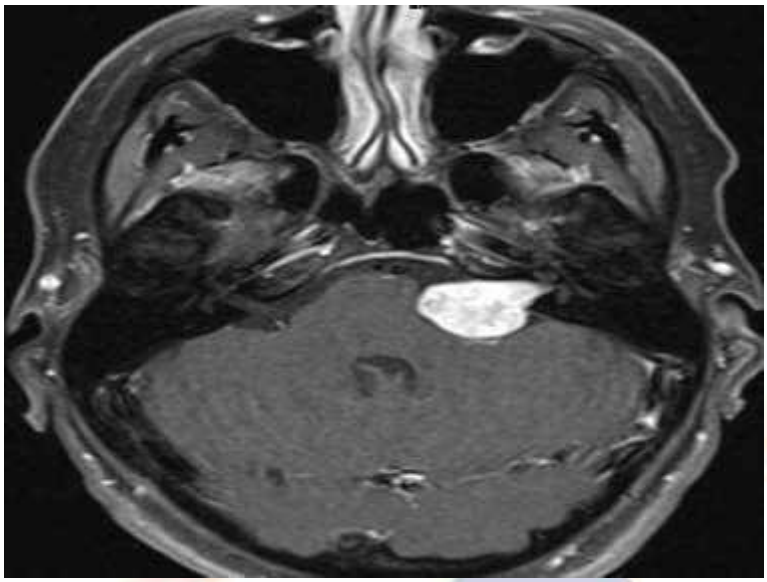


32.A surgeon carries out a block of the inferior alveolar nerve by infiltrating local anaesthetic at the mandibular foramen. Which clinical feature may result from this procedure?

A. Numbness of the lower lip on the injected side
B. Numbness of the side of the tongue
C. Ineffective block for the incisor teeth
D. Inability of the patient to clench his jaws
E. Transient weakness of the facial muscles on the injected side

Answer:A
The inferior alveolar nerve, a branch of the mandibular division of the trigeminal nerve (V), traverses the inferior alveolar, or dental, canal of the mandible to supply all the teeth of that hemimandible; all the teeth on that side are therefore anaesthetised. The mental branch of the nerve emerges through the mental foramen to supply the lower lip, which becomes numb in a successfully performed block. The muscles of the tongue, of mastication and of facial expression are not affected.

33.An MRI examination of the brain of a male 30 year old plasterer shows



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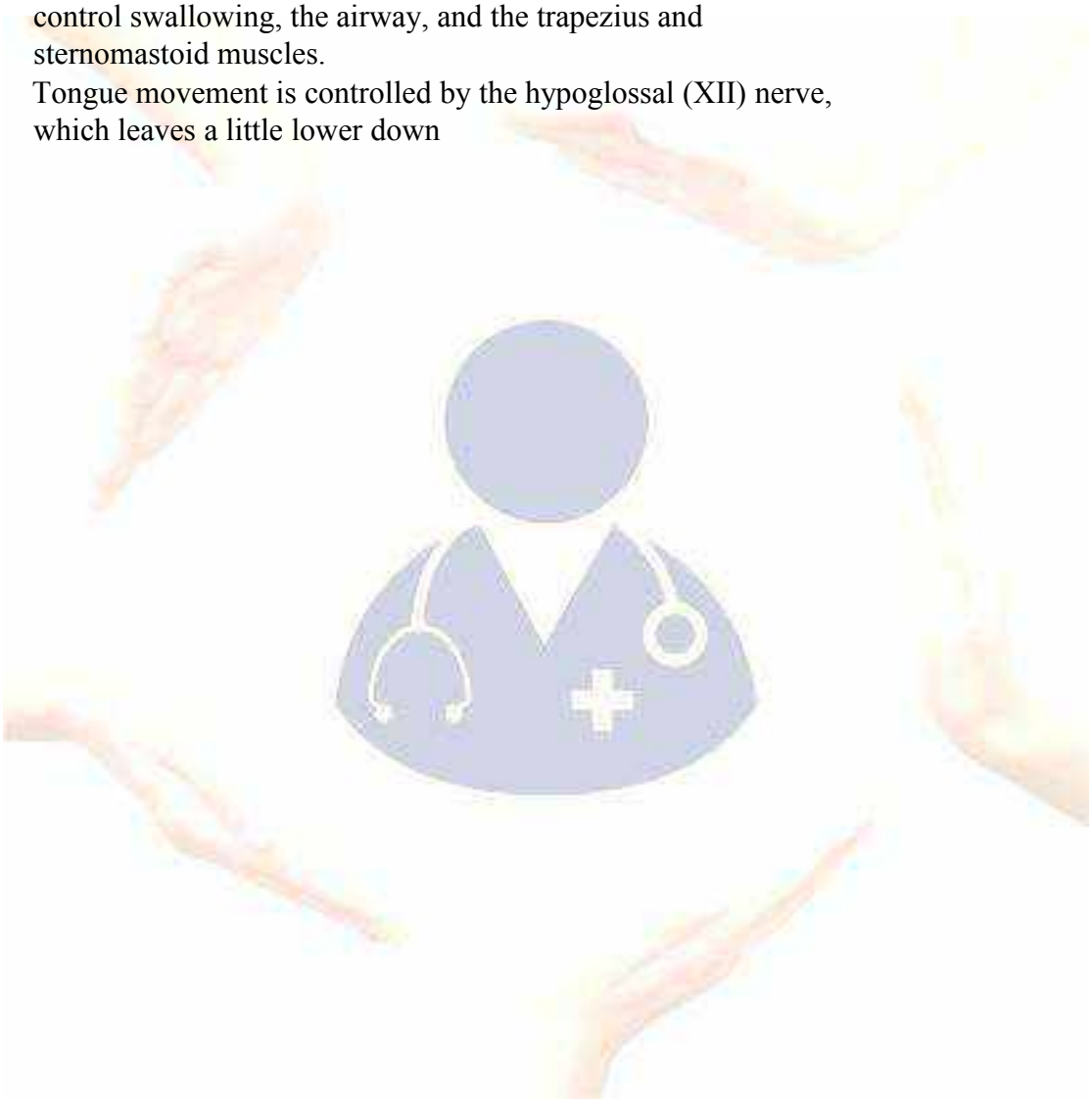
This is likely to be secondary to a tumour of the nerve sheath of the following cranial nerve:

A.Cranial nerve VIII
B.Cranial nerve X
C.Cranial nerve VI
D.Cranial nerve VII

Answer :A

Acoustic neuromas are the most common tumours in the cerebellopontine angle. Not only do they most frequently occur on the superior portion of the vestibular nerve but they are also tumours of the nerve sheath rather than the nerve itself and so should really be called vestibular schwannomas. True acoustic neuromas form part of a familial syndrome called neurofibromatosis 2, which consists of multiple cranial nerve tumours, along with neuromas on the spinal nerve roots which can cause spinal cord compression. Running across the cerebellopontine angle from the brainstem are the facial (VII) and acoustic and vestibular (VIII) nerves on their way to the internal auditory meatus and hence to the muscles of facial expression and the cochlear and vestibular labyrinths respectively

At the apex of the cerebellopontine is the trigeminal (V) nerve carrying sensation from the face and supplying the muscles of mastication. At the base of the cerebellopontine angle are the lower cranial nerves (IX, X, and XI) on their way out of the skull through the jugular foramen to supply a wide range of functions but most importantly, from our point of view, to control swallowing, the airway, and the trapezius and sternomastoid muscles.
Tongue movement is controlled by the hypoglossal (XII) nerve, which leaves a little lower down



EPILEPSY

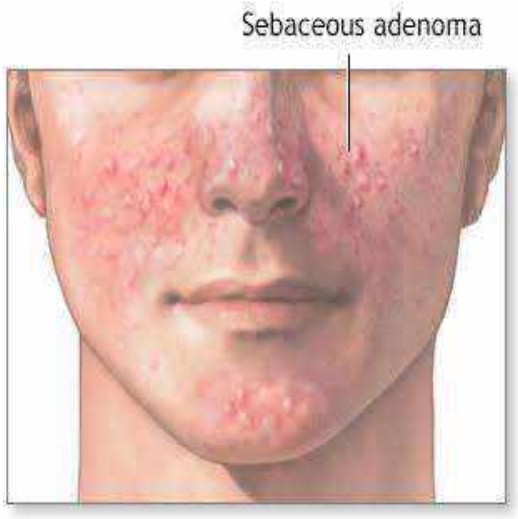
34. A 5 year old boy, presents with a skin rash on his face. He is also mentally retarded. CT scan was done (image given below). What is the most likely diagnosis?

A.Ataxia telangiectasia
B.Sturge weber syndrome
C.Von Hippel Lindau
D.Tuberous sclerosis

Answer: D. Tuberous sclerosis

Face: Adenoma sebaceous on face with butterfly distribution (not butterfly rash).
Ash leaf macules (earliest, on trunk, hypo pigmented), skin: shagreen patch.
CNS: seizures. On CT head: sub ependymal nodule.

Why not,
B: Sturge Weber syndrome: cutaneous lesion of port wine stain is absent
C. VHL: cerebellar hemangioblastoma is seen.



35. Match the following:

A	Eyes closed, relaxed	1	Alpha waves	H	8 to 13 HZ
B	Eyes open, alert	2	Beta waves	I	13 to 30 HZ
C	Sleep, NREM 1	3	Theta waves	J	4 to 7 HZ
D	Sleep, NREM 2	4	Sleep spindles, mu	K	12 to 14 HZ
E	Sleep, NREM 3	5	Delta waves	L	0.5 to 4 HZ
F	Sleep, REM	6	Random fast waves	M	Saw tooth pattern

A. A-1-H, B-2-I, C-3-J, D-4-K, E-5-L, F-6-M
B. B-4-K, A-2-L, C-1-M, D-3-H, E-5-I, F-6-J
C.C-3-L, D-4-J, A-2-K, F-1-M, D-2-L, B-5-H
D. D-2-I, B-3-M, C-4-H, A-3-K, E-5-J, F-1-K

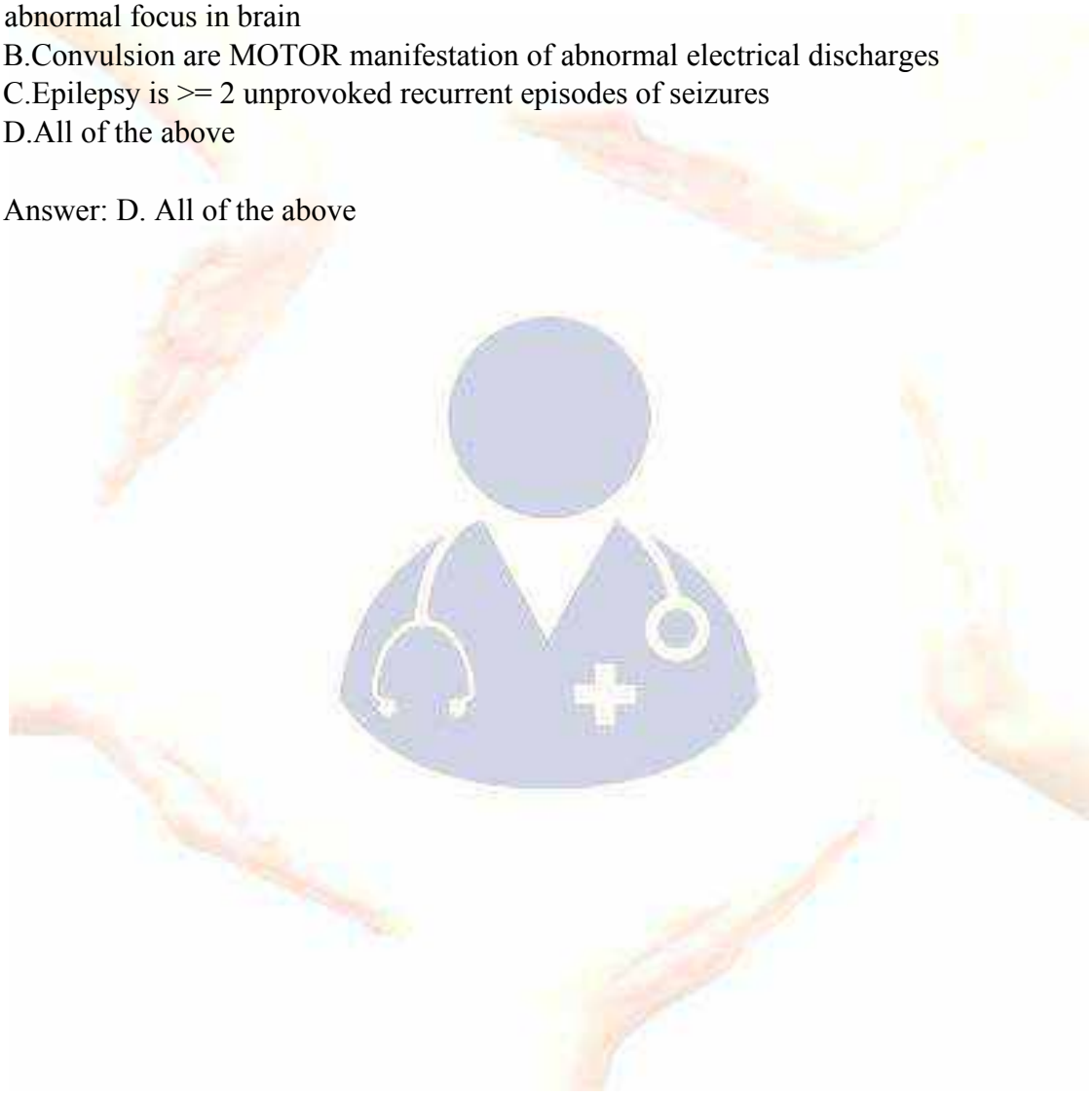
Answer: A. A-1-H, B-2-I, C-3-J, D-4-K, E-5-L, F-6-M

Note:
1.Longest phase of sleep: NREM
2.deepest phase of sleep: NREM
3.Max amplitude slowest pattern NREM
4.Physiological myoclonus jerk: NREM 1 sleep

36.Which of the following statements is true?

A.Seizure is abnormal ELECTRICAL discharges produced by abnormal focus in brain
B.Convulsion are MOTOR manifestation of abnormal electrical discharges
C.Epilepsy is >= 2 unprovoked recurrent episodes of seizures
D.All of the above

Answer: D. All of the above



37. A healthy patient, with no history of seizures before was brought to your hospital by his friends. He was unconscious. His friends describe the patient giving out a cry followed by up rolling of eyes and frothing around his mouth. The patient then had cyanosis followed by violent jerking.

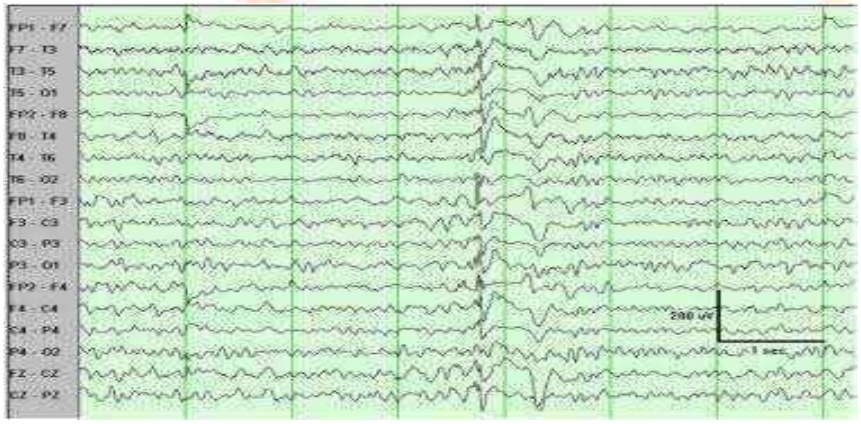
Meanwhile the patient wakes up confused and late becomes well orientated and says that in the morning he was not feeling well. What is the most likely diagnosis?

A.Focal seizure
B.Absent seizure
C.Generalised tonic clonic seizure
D.Epileptic spasm

Answer: C. Generalised tonic clonic seizure (GTCS)

Explanation: no history of seizure. Patient feeling unwell (premonitory symptom).
Tonus phase: ictal cry, pooling of secretion, cyanosis, up rolling of eyes, clench teeth, increase HR BP.
Clonus phase: violent jerking of limbs. Wait for it to get over. Don't try to hold a patient. If in hospital give IV lorazepam, or rectal diazepam.

Post GTCS phase: patient is confused with positive Babinski and loss of corneal reflexes.
Later becomes well oriented.
Investigation of choice: EEG which will show diffused activity in all leads
Treatment of GTCS: sodium valproate.



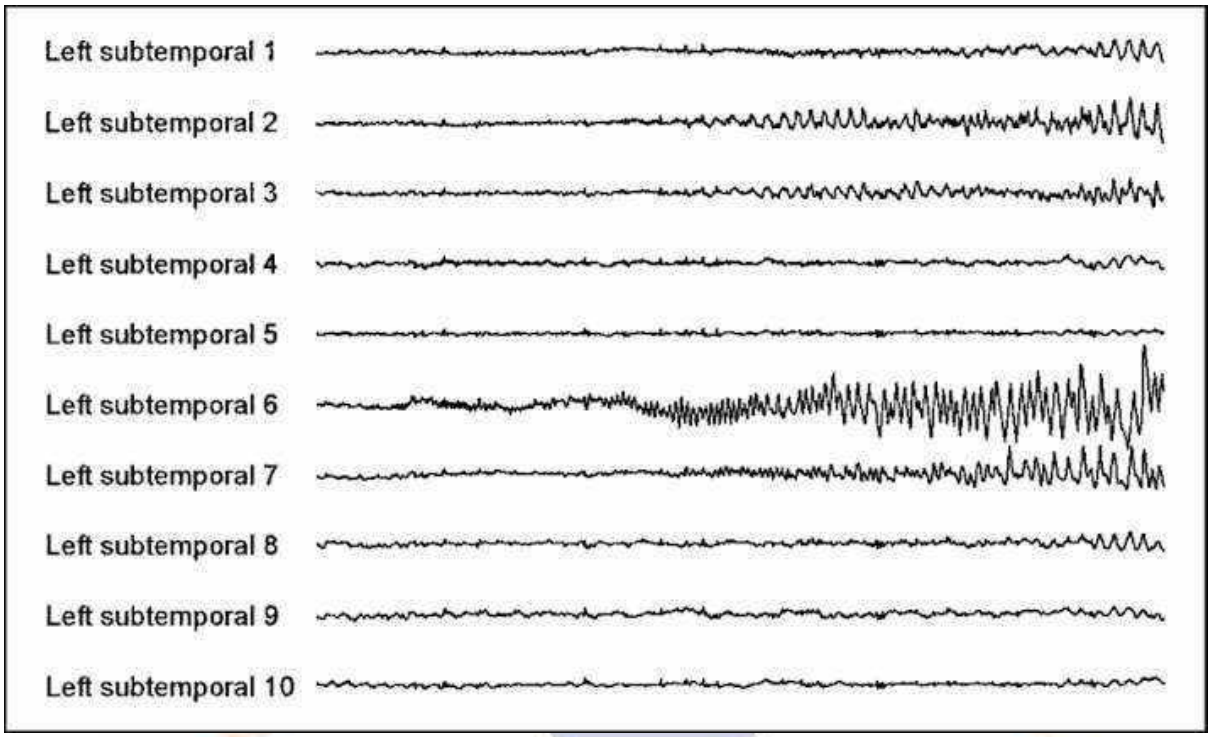
The abnormal activity is seen in all leads therefore Generalised Tonic Clonic seizures

38. A patient comes to your clinic with a history of right hand and right face jerking. He says the involuntary movements started from his thumb and moved up to his shoulder then right side of his face. He still has weakness in his arm, but improving strength is seen. He says he smelt burning rubber before the jerking started. What is the probable diagnosis?

A.GTCS
B.Focal seizures
C.Febrile seizures
D.Myoclonic seizures

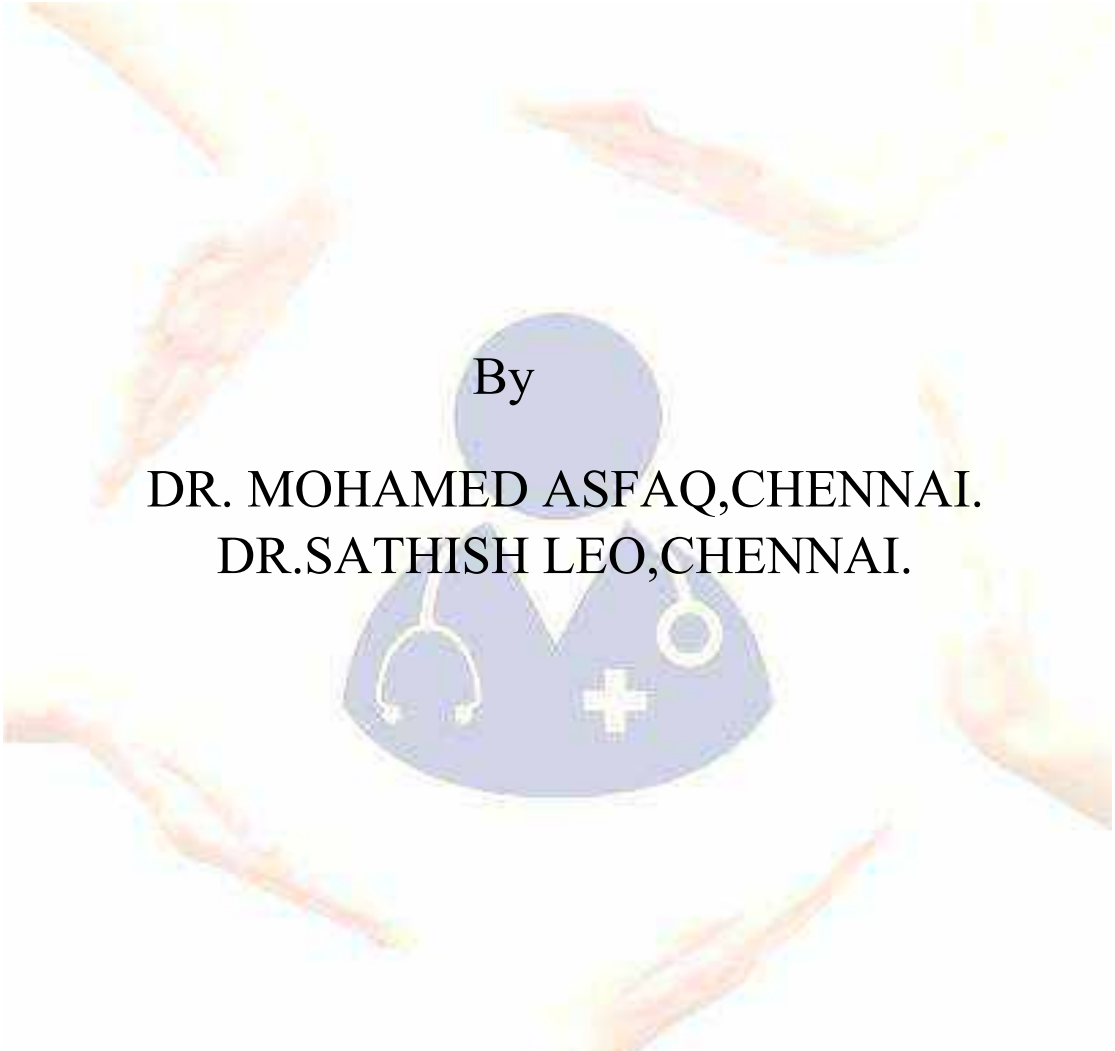
Answer: B. focal seizures

Explanation: abnormal focus in the brain if the motor area produces jerking in the opposite side arm and face. The involuntary movement starts from distal to proximal called as Jacksonian march. Weakness is called as Todd's palsy (strength return back after days) (in stroke: Strength is never regained) The subjective feeling of burning rubber, kerosene, rotten fish/ micropsia/ macropsia/ pin needle sensation/ flashes of light: Are called Aura. Aura is present only in focal seizure (differential between focal and other types of seizure)



Abnormal activity is confined to few leads, here, lead no. 6 and 7.
Hence, Focal seizures.

RHEUMATOLOGY



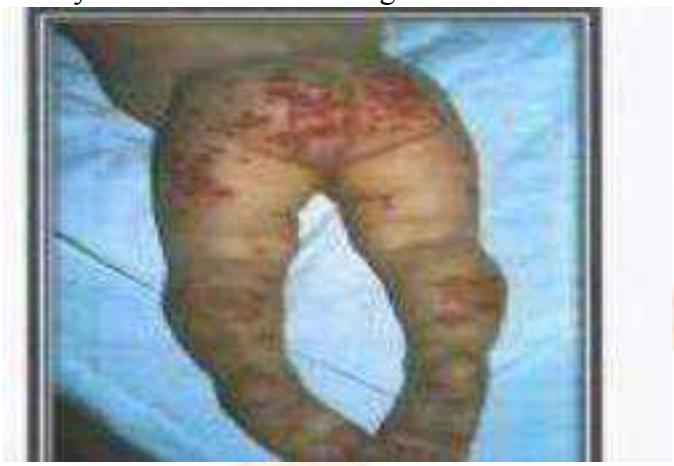
By

DR. MOHAMED ASFAQ,CHENNAI.
DR.SATHISH LEO,CHENNAI.

"All our dreams can come true, if we have the courage to pursue them." – Walt Disney.

FMGE CLINICAL VIGNETTES

1. A 5 year child presents with fever, fatigue,diffuse abdominal pain and characteristicPalpable lesion scattered over the body as shown in this image. A biopsy of this lesion shows leukocytoclastic vasculitis.Diagnosis is?



A. Behcet syndrome
B.Dermatomyositis
C.Henoch schonlein purpura
D.Kawasaki disease

Answer :[C] HSP .
Hallmark of this rash begins as pinkish maculopapular that initially blanch on pressure and progress to petechiae and purpura predominantly involve lower limbs and buttocks.

Option[a] involve mainly ulcer in lips and genitals

Option[b] mostly seen in paraneoplastic syndrome(example: Breast cancer) option[d] mainly have eye and tongue involvement .

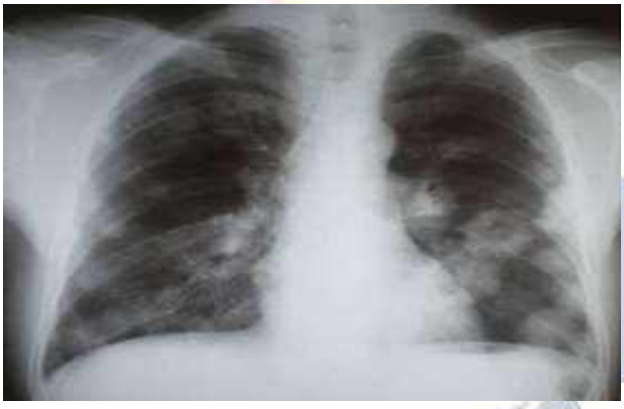
Key points:

1. hsp is the m/c vasculitis in children
2. 2.m/c in boys (4 to 7) yrs
3. Ig A and C3 are involved in HSP

DDx.
1. Ig A nephropathy
2.immune thrombocytopenic purpura

2.A 25 old female develops serous otitis media of left year with cough and occasionally hemoptysis, hematuria and epistaxis for one and half month with hemoglobin level of 8 gm% Blood pressure of 170/100 mm hg and proteinuria a+++. RA factor negative and ANCA positive.What is the diagnosis?

A.wegener's granulomatosis
B.rheumatoid arthritis
C.rapidly progressive glomerulonephritis
D.goodpasture syndrome



Answer:[A] wegener's granulomatosis. Because presence of serous otitis media and Sinusitis,and other upper respiratory tract involvement is classic triad of W.G

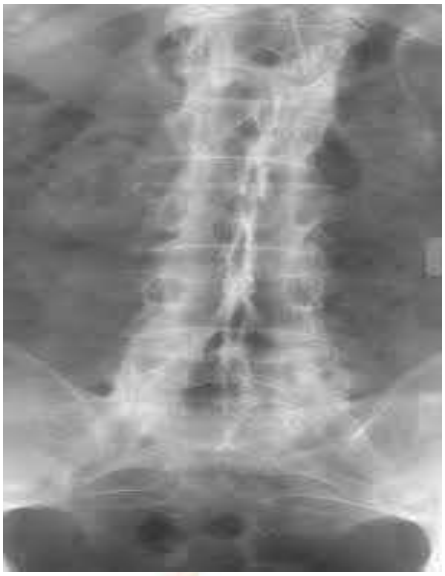
Option[B] R.A factor should be positive

Option[c]. In RPGN no lung involvement and epistaxis

Option[D] in G.P Syndrome sinus involvement is not seen so can be ruled out

Key points
Wegeners granulomatosis Is C-ANCA POSITIVE small vessel vasculitis 2.asthma and eosinophilia are absent in W.G
DDx:
1. churg strauss syndrome (C-ANCA +VE and eosinophilia asthma present)
2. goodpasture syndrome(hematuria and hemoptysis present due to ab against G.B.M)

3.A 28 year old male presents with back pain and stiffness early morning which improves after stretching and movement and pain in unresponsive to NSAID and also feels difficulty in breathing for the past 3 months.x-ray is taken as given in the image. On investigation RA factor is negative. And ANCA is negative. What is your diagnosis?



A.Rheumatoid arthritis
B.Ankylosing spondylitis
C .Reiter syndrome
D. Systemic lupus erythematosus

Answer: B because ankylosing spondylitis classically present with lower back ache and it is much more common in men less that 30 yrs of age and it
also affect the ribcage so the patient will have difficult in breathing. Most of the A.S patients will have eye involvement. On x ray bamboo spine appearance is seen.

Option :A (RA FACTOR) is negative so cannot be answer

Option:C Reiter syndrome mostly results after an infection and present with classic symptoms of arthritis, uveitis and urethritis (cant see, cant pee,cant climb a tree)

Option:D SLE mostly result in female with characteristic multiple organ involvement.

Key points Ankylosing spondylitis is HLA b27

Other HLA b27 associated diseases are:
1.Reiter syndrome
2.Psoriatic spondylitis
3.Acute anterior uveitis

HLA DW4 – rheumatoid arthritis, pemphigus vulgaris
HLA DR3- gluten sensitivity enteropathy, diabetic mellitus type 1, Myasthenia gravis
HLA DR2- good pasteur syndrome, multiple sclerosis

4.A 23 year old man present with fever, weight loss, malaise, abdominal pain and myalgia. Workup reveals that he is suffering from Polyarteritis nodosa. Which of the following diseases is associated with this type of vasculitis?

A.arsenic intoxication
B.chlamydia pneumonia
C.hepatitis b virus
D.human immunodeficiency virus

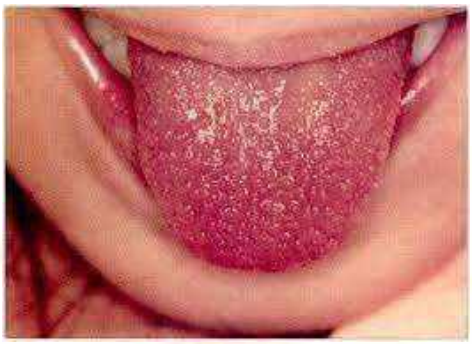
Answer: (C) hepatitis B virus because 30% of polyarteritis nodosa have serum antibodies to hepatitis b virus

Option A – arsenic is associated with angiosarcoma
Option B- Chlamydia pneumonia is associated with development of atherosclerosis
Option D- HHV 8 causes kaposi sarcoma in HIV positive individual.

Key points of polyarteritis nodosa

1. Polyarteritis nodosa is medium vessel vasculitis
2. Spares lung involvement
3. Multiple vessel involvement (fibrinoid necrosis)

5.A 4 year old boy is brought to the emergency department by his parents because of high grade fever for the past few days.On examination the boy had conjunctival and oral erythema. He has palpable cervical lymphadenopathy and erythema of palms and soles.what is the potential life threatening situation of this child?



A. Rupture of berry aneurysm
B. Aneurysm of coronary artery
C. Dissection of thoracic aorta
D. Aneurysm of abdominal aorta

Amswer :[B]
Aneurysm of coronary artery because the patient present with kawasaki disease or mucocutaneous lymph node syndrome. 20% patient present with coronary artery aneurysm. It is often a self limit condition. If a severe drug of choice is IV IMMUNOGLOBULIN and we can add aspirin also.

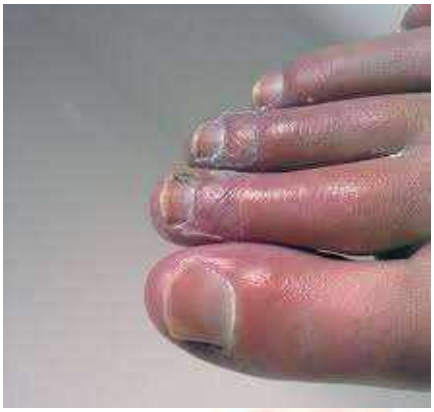
Option A- rupture of berry aneurysm present with S.A.H and is associated with PCKD.

Option C- dissection of thoracic aorta is associated with hypertension.

Option D- aneurysm of abdominal aorta is seen in atherosclerosis.

Key points:
1.Kawasaki disease is the most common cause of myocardial infarction in children
2.Strawberry tongue is seen in kawasaki disease
3.Kawasaki disease is a medium vessel vasculitis
4.Most common vasculitis to cause death in children

6.A 20 year old female presents with discoloration of fingers with pitting scar in the tip of fingers as shown in image.she also complaints that she cannot open her mouth wide open to bite a burger and also complaints of GERD like symptoms. Which of the following is the poorest prognosis of this condition?



A. Cardiac involvement
B. Renal involvement
C. Peripheral vessel involvement
D. Lung involvement

Answer: [B] Renal involvement. The given condition is systemic Sclerosis(scleroderma).
Patient with rapid skin involvement IN systemic sclerosis has higher chance of renal crisis seen in 10 % population which is a bad prognosis.

Option A- cardiac involvement is not severe but present with hear blocks

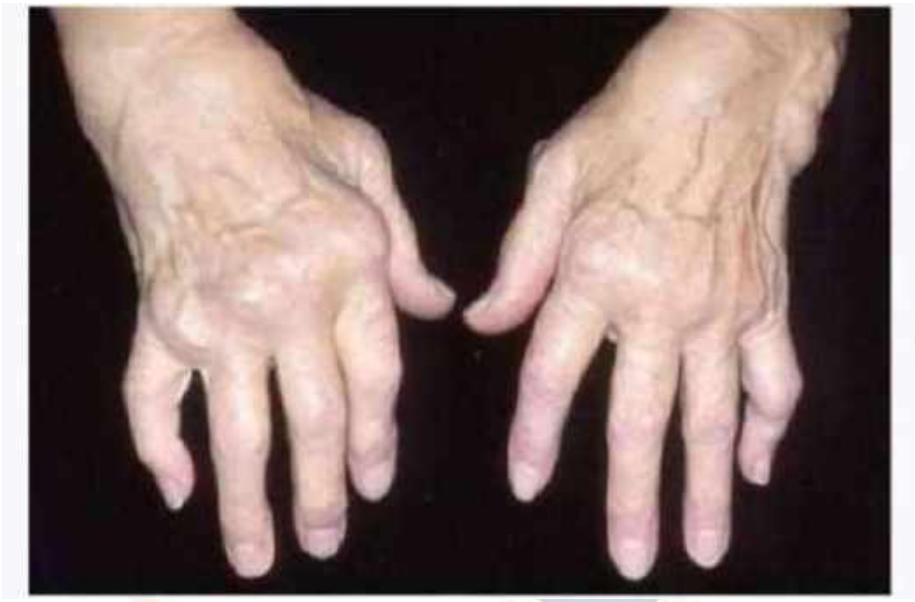
Option C peripheral vessel involvement present as pitting scar and raynauds phenomenon which is not severe treated by calcium channel blocker(nifedipine)

Option D lung involvement is rarely seen .

Key points of scleroderma:

1. Triad of scleroderma (Raynaud's phenomenon,dysphagia,arthralgia)
2. Excessive deposition of collagen
3. Affects most commonly women than men
4. Antinuclear antibody +ve (ana)
5. Anti topoisomerase antibody+ve

7.A 50 year old lady presents with swelling and redness of knee joint and hand and there were associated symptoms of morning stiffness and problem in squatting.The swelling spared the DIP joints..The image of patient hand is shown in image. What is your di agnosis?



A. Rheumatoid arthritis
B. Heberden nodes of pre existing osteoarthritis
C. Crest syndrome
D. Multiple connective tissue disorder

Answer: (A) Rheumatoid Arthritis.
Because it classically involves MCP and PIP joints and spares DIP joints.

Option B- osteoarthritis mainly affect weight bearing joints especially knee joint.and both DIP and PIP joints

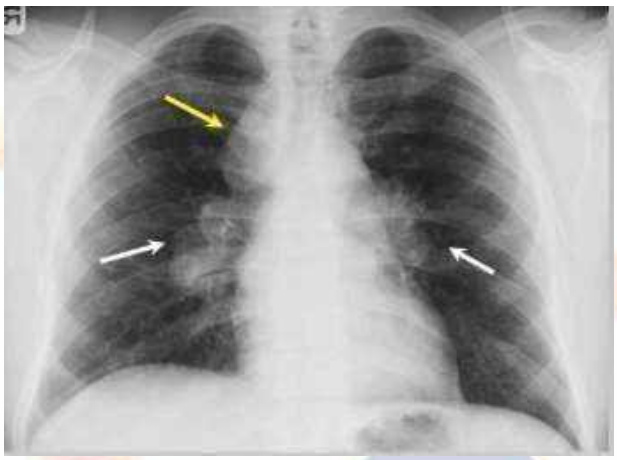
Option C- will have multiple system involvement
(CREST Stands for Calcinosis cutis, Raynaud's phenomenon, Esophageal dysmotility,Sclerodactyly, Telengetasia)

Option D-there is no multiple organ involvement. SLE like features will be present.

Key points of rheumatoid arthritis:

1. Swan neck deformity is seen
2. Boutonniere deformity seen.
3. Hitchhiker'sthumb (z thumb deformity) is seen

8.A 35 year old female presents to a clinic with history of cough and dyspnoea on exertion and stridor is also present.She has lost 5 kg in last 2 months with night sweats.Doctor also noticed painless lesion on her nose.chest xray was performed and is shown below.What is your diagnosis



A. Systemic lupus erythematosus
B. Tuberculosis
C. Wegener's granulomatosis
D. Sarcoidosis

Answer (D) Sarcoidosis.
Because in sarcoidosis most common organ involved is lung and there is no history of smoking as well. Multiple organ involvement with classical non caseous granuloma. CXR reveals hilar lymphadenopathy.

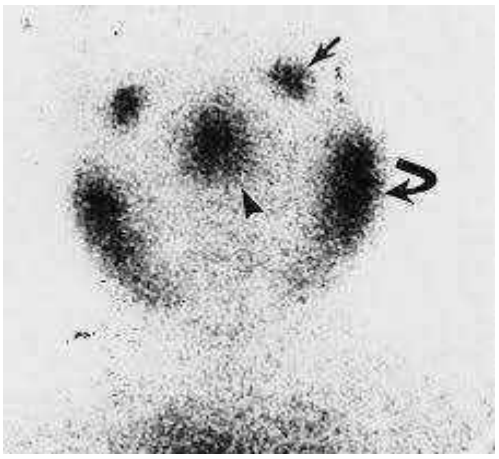
Option -A SLE is characterized by multiple organ involvement with non erosive arthritis and characteristic butterfly rash sparing nasolabial fold.

Option B- Tuberculosis mimics sarcoidosis but there is caseous granuloma present . History of smoking also present.

Option C- Wegener's granulomatosis mainly have cavitation not hilar lymphadenopathy

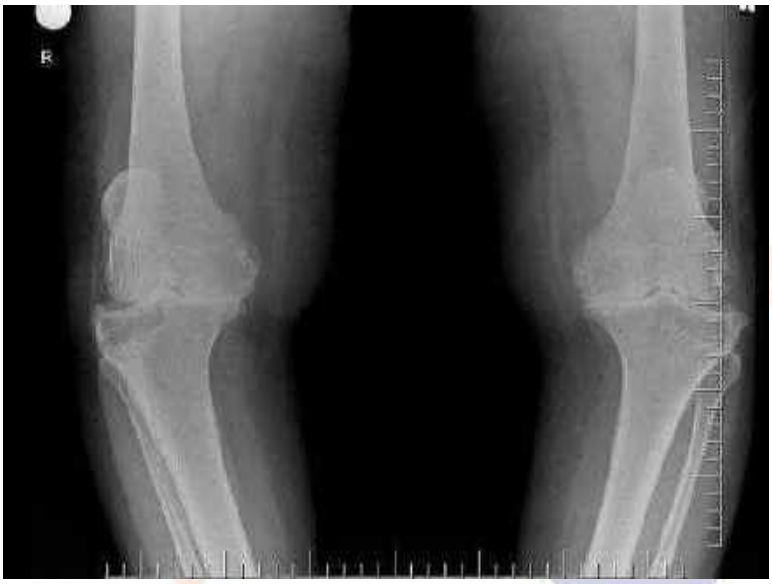
Key points on sarcoidosis:

1.On gallium scan – panda sign is seen



2.Schaumann bodies, asteroid bodies is seen on biopsy
3.hypercalcemia due to VIT D activation through macrophages
4.50% resolve spontaneously
5.MCC of death is respiratory failure
6.IOC endobronchial USG guided biopsy
7.Panda/lambda sign on gallium scan
8.Bilateral facial palsy is seen
9.ACE levels raised
10.Kveim test is highly specific for sarcoidosis

9.A 60 Year old fatty woman presents with severe pain in knee and ankle and worsens on walking and climbing stairs and doing daily activities. Xray of knee is taken. Pain responds to NSAID and Glucosamine.on investigation RA factor is negative. Anti nuclear antibodies are also not seen. What is your diagnosis?



A. SLE
B. Rheumatoid arthritis
C. Osteoarthritis
D. Gout

Answer: (C) Osteoarthritis. Because characteristic joint pain is seen in fatty people in weight bearing joints (knee and ankle). On xray can appreciate narrowing of joint space and osteophyte formation.

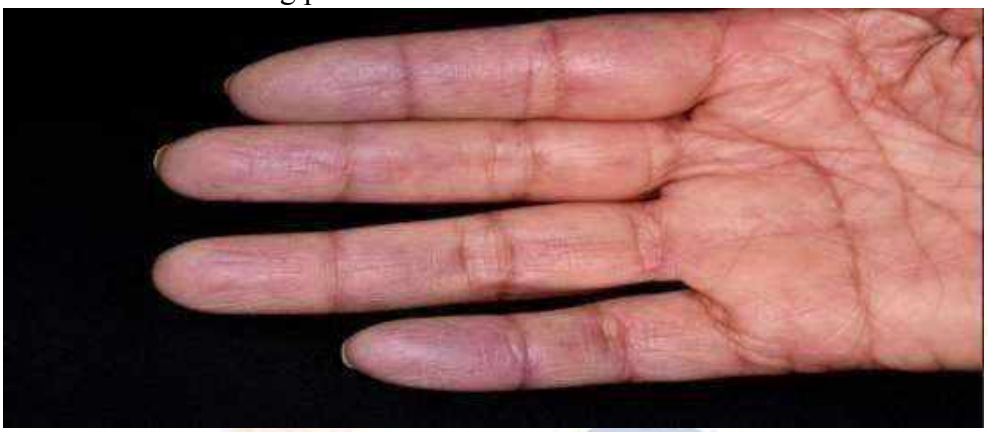
Option A- ANA which is highly sensitive should be present in SLE. And non erosive arthritis is seen in SLE

Option B- RA factor should be positive. And is seen in young ladies mostly

Option D-Accumulation of crystal should be present. So joint aspiration can be ruled out.

Key points of osteoarthritis:
1.subchondral cyst is seen
2.Bouchard nodes involve pip joint
3.Heberden nodes involve dip joint
4.characteristic base of thumb involvement.

10.A 40 year old male presented with a 4 month history of severe headache and pain and blanching of hands upon exposure to cold. He is a non-smoker. Over the past few months she has noticed progressive difficulty in swallowing solid food. Physical examination reveals smooth and tight skin over the face and fingers.The serological test for Anti Scl 70 (anti topoisomerase is positive). Painful hand in these following patients is described as?



A. Intermittent claudication
B. Homan's sign
C. Chilblains
D. Raynaud's phenomenon

ANSWER: (D) Raynaud's phenomenon. Because it is a classical case of scleroderma with anti topoisomerase positive which is specific for scleroderma. And patients are also present with tightening of skin also.

Option A- intermittent claudication is seen in peripheral vascular disease due to smoking or atherosclerosis.

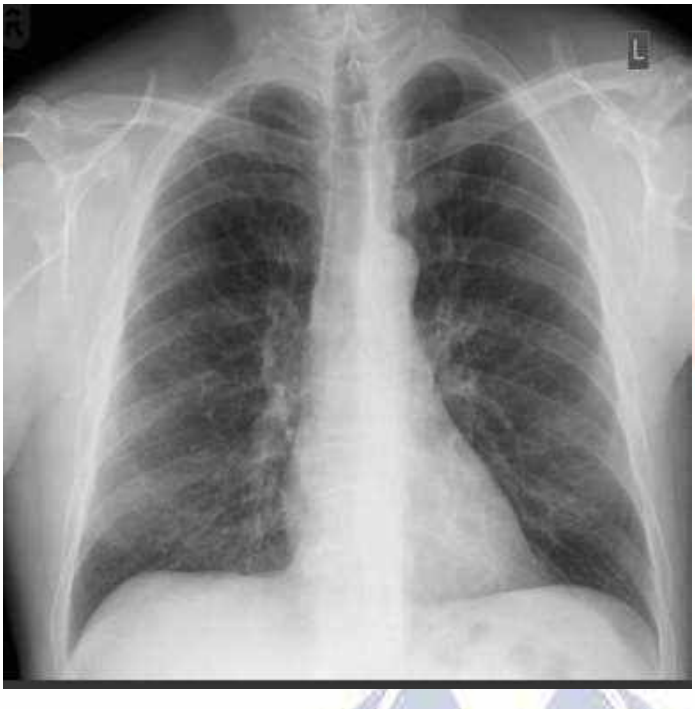
Option B- Homan's sign is seen in deep vein thrombosis. Mainly presents as discomfort in calf muscles

Option C- Chilblains seen when exposed only to cold temperatures.

Key points about Raynaud's phenomenon:

1. Seen in scleroderma,sle, rheumatoid arthritis,sjogren's Syndrome
2. Order of color change – white then blue then red
3. Calcium channel blocker (nifedipine),(nicardipine) is used as drug of choice for Raynaud's disease

11.A 40 year old male who is a crane operator at a construction site with already pre existing seropositive rheumatoid arthritis complaints of difficulty in breathing.Chest ray was performed and it is present below. Rheumatoid nodules are also present.what is the diagnosis?



A. Caplan syndrome
B. Felty syndrome
C. Lung cancer due to asbestos particles
D. Silicosis

Answer: (A)Caplan syndrome. Because rheumatoid arthritis is associated with Caplan syndrome (rheumatoid arthritis+coal workers pneumoconiosis).
Chest xray is diagnostic of pneumoconiosis.

Option B- Felty syndrome characterized by neutropenia + splenomegaly+rheumatoid arthritis

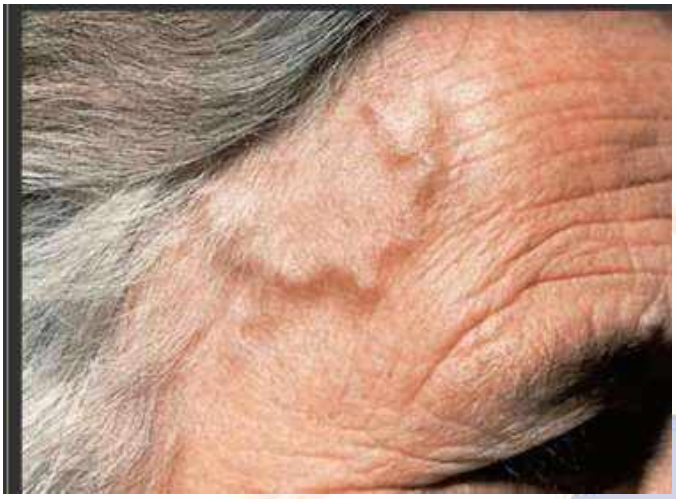
Option-C There is no history of weight loss and chest x ray does not show any cavitation

Option D- Silicosis is characterized by hilar lymphadenopathy. And it resembles tuberculosis.and high chance of Tb is higher.and lung cancer chance is also higher.

Key points about rheumatoid arthritis

1. Mortality rate of rheumatoid arthritis is 2 times more because of ischemic heart disease.
2. Most specific antibody for r.a is anti cyclic citrullinated Peptide antibody
3. Cervical spine is the most common spine affected

12.A 75 year old lady presents with a unilateral throbbing headache and vision problem. She reports loss of weight and jaw pain during eating. She also had recurrent episodes of fever,malaise,myalgia.physical examination reveals nodular enlargement of temporal artery and tenderness while palpation.



A. Hypersensitivity angiitis
B. Kawasaki disease
C. Giant cell arteritis
D. Wegener's granulomatosis

Answer: (C) Giant cell arteritis (temporal arteritis). Because onset of this disease is usually seen in elderly people with chronic local granulomatous inflammation of temporal arteries.

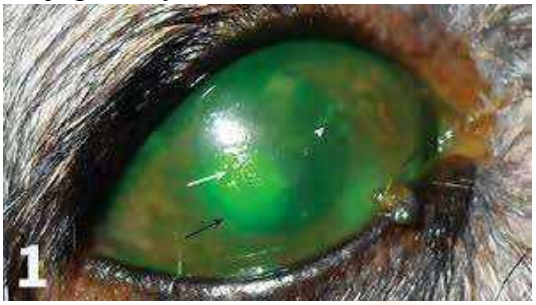
Option (A)-hypersensitivity angiitis presents due to drug reaction or infections which presents as purpura mainly at lower limbs and spares internal organs

Option (B)- Kawasaki disease is mostly seen in children which characteristic strawberry tongue and conjunctival redness, erythema on palms and soles

Option (D)- Wegener's granulomatosis Causes granulomatous inflammation but not in temporal arteries.

Key points on giant cell arteritis:
1. It is the most common vasculitis in elderly population
2. Most common feature is headache
3. Most specific feature is jaw claudication
4 Most severe feature is loss of vision due to granulomatous Obstruction of central retinal artery

13.A 34 year old female presents with dryness of eyes for more than 3 months , recurrent sensation of sand and gravel in her eyes and persistent use of fluid to swallow food with swelling over parotid area.Biopsy confirm that she is suffering from sjogren's syndrome.which antibody is most specific to sjogrens syndrome?



A. anti Topoisomerase antibody
B. anti Smith antibody
C. anti SS-A antibody
D. anti CCP antibody

Answer: (C) Anti SS-A antibody . Which is more specific to sjogren syndrome. Anti SSB/ LA is much more specific for sjogren's syndrome. ANTI SSA/ RO is associated with numerous autoimmune diseases.

Option-A anti topoisomerase is mainly for scleroderma

Option -B Anti smith antibody is specific for systemic lupus erythematosus
Option-D Anti CCP antibody is for rheumatoid arthritis

Key points about sjogren's syndrome:

1. Hallmark features include xerostomia (dry mouth) and xerophthalmia(dry eyes)
2.most common extraglandular manifestation is joint involvement (arthralgia,and non erosive arthritis)
3.schimer's test shows positive result (less than 5mm). On filter paper on lacrimation
4.rose bengal dye test shows the corneal scar due to keratoconjunctivitis sicca

14.A 40 year old male presents with weaker peripheral pulse.Mantoux test was performed and it was positive for that patient.Patient also has repeated history of fever,malaise and myalgia and weight loss. Biopsy was done and he was confirmed with Takayasu disease. Which of the following is false regarding this disease?

A. Renovascular hypertension
B. Spares pulmonary artery
C. Difference in blood pressure on both limbs
D. Aortic regurgitation is present

Answer-(B) Spares pulmonary artery. Because Takayasu disease
(arteritis) is a large vessel vasculitis which involves pulmonary artery.which results in Pulmonary hypertension.

Option -A reno vascular hypertension (systemic hypertension) is present in Takayasu disease

Option- C There is no difference in blood pressure as almost same pressure in both limbs with weak peripheral pulse

Option-D Aortic regurgitation is seen in Aortic stenosis is also present.

Key points about takayasu disease:

1. Mantoux test is strongly positive for takayasu disease
2. Most common in less than 50 yrs population and most common in asian (japan)
3. Also called as aortic arch syndrome or pulse less disease
4. Granulomatous inflammation is seen
5. Poor prognosis because of neurological manifestation
6. Sudden onset of blindness is seen

15.A 29 year old female presents with recuurent miscarriage at 14th week of gestation and on blood examination platelets levels is 50,000/cu.mm.on serological examination anti cardiolipn antibody was detected. And she was diagnosed with Antiphospholipid syndrome(APLA syndrome). Which of the following is incorrect regarding this condition?

A. One or more than one premature birth of less than 34 weeks of Gestation
B. One or more than one unexplained deaths of more than 10 weeks of Gestation
C. Two or more than two consecutive spontaneous abortion in More than 10 weeks of gestation
D. Three or more than three consecutive spontaneous abortion in less than 10 weeks of gestation

Answer: - (C) two or more than two consecutive spontaneous Abortion in more than 10 weeks of gestation

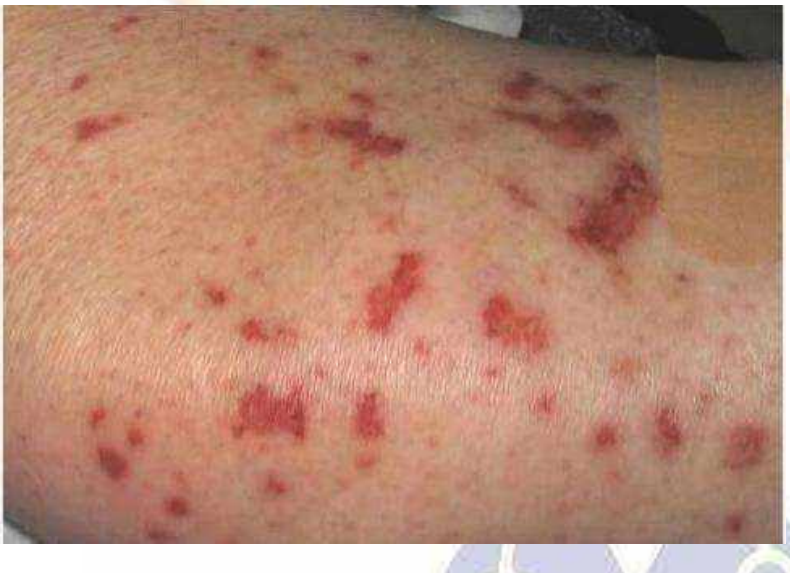
APLA syndrome- Chapel Hill criteria:

1. 3 or more than 3 unexplained consecutive spontaneous abortion in less than 10 weeks of gestation
2. One or more unexplained death of more than 10 weeks of gestation
3. One or more premature birth of less than 34 weeks of gestation due to placental insufficiency,preeclampsia, eclampsia

Key points on APLA syndrome

1. Recurrent thrombosis , cardiac valve vegetation, Thrombocytopenia is seen
2. Antibody mediated fetal loss due to failure of placentation
3. Anti cardiolipin antibody, anti beta2 glycoprotein antibody is present
4. Venous thrombosis (deep vein thrombosis, pulmonary embolism) is seen
5. Arterial thrombosis (coronary artery diseases, transient Ischemic attack, peripheral vascular disease) is seen.

16. A 20 year old male presents with chest pain and recent attack of asthma with intermittent claudication and respiratory distress which is unresponsive to Salbutomol or other physical examination reveals bilateral wheezing,and high blood pressure 155/105mmHg.On lab examination Leukocyte count increased to 14,000/microliter. Eosinophil count is raised.Platelets count is raised to 5 lac/microlitre.Blood urea nitrogen was 30 mg/dl with elevated Serum creatinine.Serum ANCA was positive.On urinalysis proteinuria 3+ and red blood cells is seen.Renal biopsy shows Medium vessel vasculitis with eosinophilia . What is ypur diagnosis?



A. Behcet disease
B. Churg strauss syndrome
C. Henon schonlein purpura
D. Loffler's syndrome

Answer: (B) Churg strauss syndrome because, is as an idiopathic systemic vasculitis with granulomatous inflammation and fluctuating eosinophilia and late onset asthma. Most of the patient have +ve ANCA

Option -(A) Behcet's disease is characterized by recurrent oral and genital ulcers. Purpura-like lesions are not seen.

Option-(C) HSP there will be normal level of platelets,with
IgA deposition in kidney And Hsp is seen mostly in pediatrics population

Option-(D) Loeffler's syndrome is also called simple pulmonary esonophilia. With peripheral eosinophilia,mild peripheral discomfort, Transient pulmonary infiltrates due to hypersensitivity reaction to ascaris lumbricoides and other parasites.

Key points on churg strauss syndrome

1. It is also called allergic angitis and granulomatosis
2. Biopsy of c.s syndrome closely resembles wegener's granulomatosis,and polyarteritis nodosa. But there will be no asthma like features.

17.A 45-year-old female complains of 9 weeks of pain and swelling in both wrists and knees. The patient complained of fatigue and lethargy several weeks before noticing the joint pain. The patient notes that after a period of rest, resistance to movement is more striking. On exam, the metacarpophalangeal joints and wrists are warm and tender. There are no other joint abnormalities. There is no alopecia, photosensitivity, kidney disease, or rash. Which of the following is correct?

A. The clinical picture suggests early rheumatoid arthritis, and a rheumatoid factor should be obtained

B. The prodrome of lethargy suggests chronic fatigue syndrome

C. Lack of systemic symptoms suggests osteoarthritis

D. X-rays of the hand are likely to show joint space narrowing and erosion

Answer : A

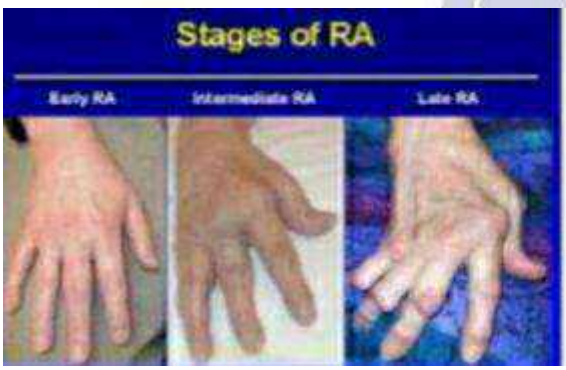
The clinical picture of symmetrical swelling and tenderness of the metacarpophalangeal(MCP) and wrist joints lasting longer than 6 weeks strongly suggests rheumatoid arthritis.

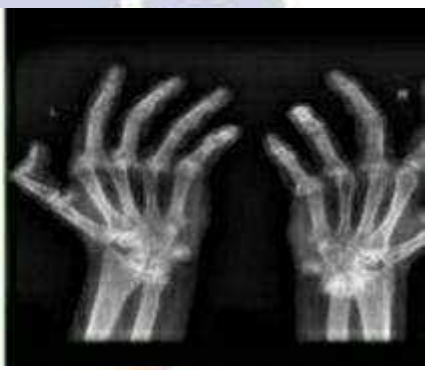
Rheumatoid factor, an immunoglobulin directed against the Fc portion of IgG, is positive in about two -thirds of cases and is present early in the disease.

The history of lethargy or fatigue is a common prodrome of RA.

Not option B:The inflammatory joint changes are not consistent with chronic fatigue syndrome.

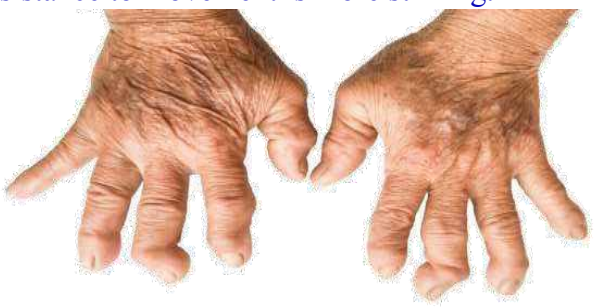
Not option C:The MCP-wrist distribution of joint symptoms makes osteoarthritis very unlikely.





Not option D:The x-ray changes described are characteristic of RA, but would occur later in the course of the disease.

Keywords:
Symmetrical swelling, and tenderness of the metacarpophalangeal(MCP), after a period of rest, resistance to movement is more striking.



18.On follow-up, the patient continues to complain of joint stiffness over several months. In addition to swelling of the wrists and MCPs, tenderness and joint effusion has occurred in both knees. The rheumatoid factor has become positive, and subcutaneous nodules are noted on the extensor surfaces of the forearm. Which of the following statements is correct?

A. Corticosteroids should be started

B. The patient meets the criteria for RA and should be evaluated for disease-modifying antirheumatic therapy

C. A nonsteroidal anti-inflammatory drug should be added to aspirin

D. The patient's prognosis is highly favorable

Answer is B :The patient has more than four of the required signs or symptoms of RA, including morning stiffness, swelling of the wrist or MCP, simultaneous swelling of joints on both sides of the body,subcutaneous nodules, and positive rheumatoid factor.

Not option D: Subcutaneous nodules are a poor prognostic sign for the activity of the disease, and disease-modifying drugs (gold, penicillamine, antimalarials, or methotrexate) should be instituted. Methotrexate has emerged as the agent of choice.

Not option A: Oral corticosteroids are generally withheld unless absolutely necessary and after disease-modifying drugs are instituted. However, low-dose corticosteroids have recently been shown to reduce the progression of bony erosions.

Not option C:There is no value to using both aspirin and nonsteroidals together,as simultaneous usage will increase side effects.

Keywords

Rheumatoid factor positive, and subcutaneous nodules are noted on the extensor surfaces , tenderness and joint effusion has occurred in both knees

19. A 70-year-old female complains of dry mouth and a gritty sensation in her eyes. She states it is sometimes difficult to speak for more than a few minutes. There is no history of diabetes mellitus or neurologic disease. The patient is on no medications. On exam, the buccal mucosa appears dry and the salivary glands are enlarged bilaterally. The next step in evaluation is?

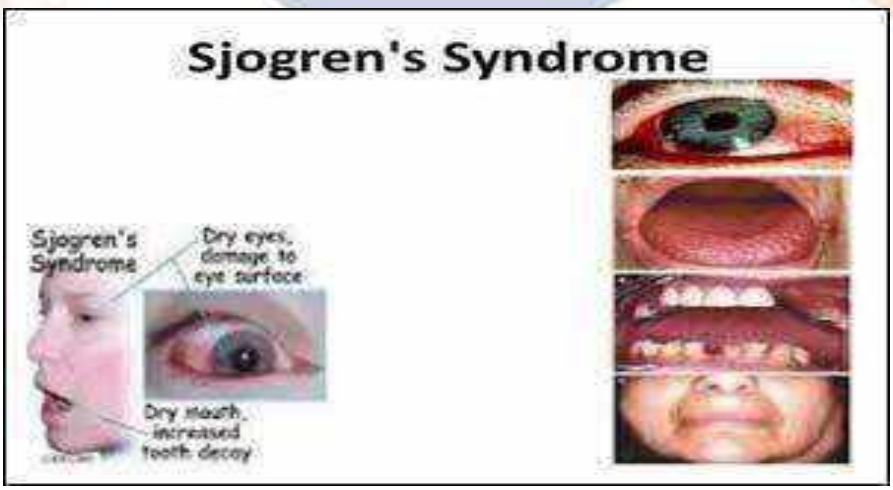
A. Lip biopsy
B. Schirmer test and measurement of autoantibodies
C. IgG antibody to mumps virus
D. Use of corticosteroids

Answer B: The complaints described are characteristic of Sjogren syndrome, an autoimmune disease with presenting symptoms of dry eyes and dry mouth. The disease is caused by lymphocytic infiltration and destruction of lacrimal and salivary glands. Dry eyes can be measured objectively by the Schirmer test Most patients with Sjogren syndrome produce autoantibodies, particularly anti-Ro (SSA).

Not option A: Lip biopsy is needed only to evaluate uncertain cases, such as when dry mouth occurs without dry eye symptoms.

Not option C: Mumps can cause bilateral parotitis, but would not explain the patient's dry eye syndrome.

Not option D: Corticosteroids are reserved for life-threatening vasculitis,particularly when renal or pulmonary disease is severe.



Keywords: dry mouth and a gritty sensation in eyes, buccal mucosa appears dry, lymphocytic infiltration and destruction of lacrimal and salivary glands

20.A 40-year-old female complains of exquisite pain and tenderness over the right ankle. There is no history of trauma. The patient is taking a mild diuretic for hypertension. On exam, the ankle is very swollen and tender.There are no other physical exam abnormalities. The next step in management is

A. Begin colchicine and broad-spectrum antibiotics
B. Obtain uric acid level and perform arthrocentesis
C. Begin allopurinol if uric acid level is elevated
D. Obtain ankle x-ray to rule out fracture

Answer B:Acute onset and severity of this monoarticular arthritis suggests acute gouty arthritis,especially in a patient on diuretic therapy.

Not option A:Colchicine is also effective, but causes nausea and diarrhea.Antibiotics should not be started for infectious arthritis before an arthrocentesis is performed.

Not option C: Hyperuricemia should never be treated in the setting of an acute attack of gouty arthritis. Long-term goals of management are to control hyperuricemia, prevent further attacks, and prevent joint damage.Long-term prophylaxis with a uricosuric agent or allopurinol is considered for repeated attacks of acute arthritis, urolithiasis

Not option D: X-ray of the ankle would likely be inconclusive in this patient with no trauma history.

Keywords:
unilateral,ankle,metatarsophalangeal joint involved, diuretic use,not always elevated serum uric acid level

21.A 70-year-old, non–sexually active male complains of fever and pain in his left knee. Several days previously, the patient skinned his knee while working in his garage. The knee is red, warm, and swollen. An arthrocentesis is performed, which shows 200,000 leukocytes/L and a glucose of 20mg/dL. No crystals are noted. The most important next step is?

A. Gram stain and culture of joint fluid
B. Urethral culture
C. Uric acid level
D. Antinuclear antibody

Answer is A:The clinical and laboratory picture suggests acute septic arthritis. The most important first step is to determine the etiologic agent of the infection.

Not option C:Gout would be unlikely to produce the 200,000 leukocytes in the joint fluid.

Not option D:There is no history of symptoms suggesting connective tissue disease.

Not option B:Gonococci can cause septic arthritis, but a urethral culture in the absence of urethral discharge would not be helpful.

The most likely organism to cause septic arthritis in the case above is Staphylococcus aureus>GABH

Keywords: red, warm, and swollen joint,arthrocentesis is performed, which shows 200,000 leukocytes/μL and a glucose of 20mg/dL, no crystals.

22.A 50-year-old male complains of low back pain and stiffness,which becomes worse on bending and is relieved by lying down. There are no symptoms of fever, chills, weight loss, or urinary problems. He has had similar pain several years ago. On exam, there is paraspinal tenderness and spasm of the lower lumbar back. There are no sensory deficits, and reflexes are normal. The next step in management is

A. Lumbosacral spine films
B. Stretching exercises
C. Weight training
D. Activity as tolerated, optional 2-day bedrest

Answer D: The patient presents with symptoms consistent with acute mechanical low back pain. Even patients with lumbar disc herniation and sciatica improve with nonoperative care, and imaging studies do not affect initial management. Activity as tolerated with optional 2 days of bed rest is recommended along with adequate pain control and reassurance. Active therapy to restore range of motion and function may be appropriate after pain and spasm are relieved.

Keywords:
paraspinal tenderness and spasm of the lower lumbar back. There are no sensory deficits, and reflexes are normal

23.A 60-year-old male complains of pain in both knees coming gradual over the past 2 years. The pain is relieved by rest and worsened by the movement. There is bony enlargement of the knees with mild inflammation.Crepitation is noted on motion of the knee joint. There are no other findings except for bony enlargement at the distal interphalangeal joint.The patient is 5 feet 9 in. tall and weighs 190 lb. The best way to prevent disease progression is

A. Weight reduction
B. Calcium supplementation
C. Total knee replacement
D. Aspirin

Answer is A:The clinical picture of a noninflammatory arthritis of weight-bearing joints is suggestive of degenerative joint disease, also called osteoarthritis. Crepitation over the involved joints is characteristic, as are bony enlargements of the DIP joints.In this overweight patient, weight reduction is the best method to decrease the risk of further degenerative changes.

Not option B: Calcium supplementation may be relevant to associated osteoporosis, but not to the osteoarthritis

Not option D: Aspirin or acetaminophen can be used as symptomatic treatment, but do not affect the course of the disease.

Not option C: Knee replacement is the treatment of last resort, usually when pain occurs around the clock and symptoms are not controlled by medical regimens.

Keywords:

obese,crepitation, pain is relieved by rest and worsened by the movement

24. A 20-year-old woman has developed low-grade fever, malar rash, and arthralgias of the hands over several months. High titers of anti-DNA antibodies are noted, and complement levels are low. The patient's white blood cell count is 3000/μL, and platelet count is 90,000/μL. The patient is on no medications and has no signs of active infection. Which of the following statements is correct?

A. If glomerulonephritis, severe thrombocytopenia, or hemolytic anemia develops,high-dose glucocorticoid therapy would be indicated

B. Central nervous system symptoms will occur within 10 years

C. The patient can be expected to develop Raynaud's phenomenon when exposed to cold

D. The patient will have a false-positive test for syphilis

Answer is A: The combination of fever, malar rash, and arthritis suggests systemic lupus erythematosus, and the patient's thrombocytopenia, leukopenia, and positive antibody to native DNA provide more than four criteria for a definitive diagnosis. Other criteria for the diagnosis of lupus include discoid rash, photosensitivity, oral ulcers, serositis, renal disorders (proteinuria or cellular casts), and neurologic disorder (seizures). High-dose corticosteroids would therefore be indicated for any life-threatening complication of lupus such as described in item a. Patients with SLE have an unpredictable course. Few patients develop all signs or symptoms.

Not optionB:Neuropsychiatric disease occurs at some time in about half of all SLE patients

Not option C:Raynaud's phenomenon in about 25%.

Not option D:Pregnancy Is relatively safe in women with SLE who have controlled disease and are on less than 10 mg of prednisone.

Keywords:

High titers of anti-DNA antibodies are noted, and complement levels are low, white blood cell count is low, and platelet count is low.

25.A 45-year-old woman has pain in her fingers on exposure to cold, arthralgias, and difficulty swallowing solid food. The most useful test to make a definitive diagnosis is?

A. Rheumatoid factor
B. Antinuclear antibody
C. ECG
D. BUN and creatinine

Answer b:The symptoms of Raynaud's phenomenon, arthralgia, and dysphagia point toward the diagnosis of scleroderma. Scleroderma or systemic sclerosis is characterized by a systemic vasculopathy of small and medium-sized vessels,excessive collagen deposition in tissues, and an abnormal immune system.It is an uncommon multisystem disease affecting women more than men. There are two variants of scleroderma—a benign type called the CREST syndrome and a more severe diffuse disease. Antinucleolar antibody occurs in only 20 to 30% of patients with the disease, but a positive test is highly specific. Cardiac involvement may occur, and an ECG would show heart block or pericardial involvement. Renal failure can develop insidiously.

Not option A:Rheumatoid factor is nonspecific and present in 20% of patients with scleroderma.

Not option C:cardiac involvement in server case only and not used for diagnose scleroderma

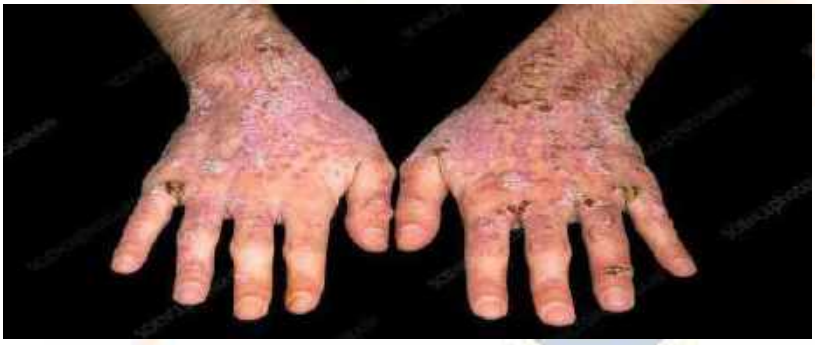
Not option D:renal involvement in server case only and not used for diagnose scleroderma

Keywords:

pain in fingers on exposure to cold, arthralgias,difficulty swallowing solid food but not liquid food.

26. A 20-year-old male complains of arthritis,eye irritation. He has history of burning on urination. On exam, there is a joint effusion of the right knee and a dermatitis of the glans penis,skin changes. Which of the following is correct?

A. Neisseria gonorrhoeae is likely to be cultured from the glans penis
B. The patient is likely to be rheumatoid factor positive
C. An infectious process of the GI tract may precipitate this disease
D. An ANA is very likely to be positive



Answer is C:Reiter syndrome is a reactive polyarthritis that develops several weeks after an infection such as nongonococcal urethritis or gastrointestinal infection caused by Yersinia enterocolitica,Campylobacter jejuni, or Salmonella or Shigella species. Reiter syndrome is characterized as a triad of oligoarticular arthritis, conjunctivitis, and urethritis.The disease is most common among young men and is associated with the HLA-B27 locus. A circinate balanitis is painless and occurs in 25 to 40% of patients. Other clinical features may include waxy papules on the palms and soles called keratoderma blenorrhagicum, spondylitis, myocarditis,and thrombophlebitis.

Not option B: rheumatoid factors are usually negative.

Not option D: ANA are usually negative

Not option A:Gonorrhea can precipitate Reiter syndrome, but patients with the disease are culture negative.

Keywords:

arthritis,eye irritation,joint effusion, . Neisseria gonorrhoeae not cultured.

27. A 50year male complains of unilateral headache.On one occasion he transiently lost his vision. He also complains of aching in the shoulders and neck. There are no focal neurologic findings. Carotid pulses are normal without bruit. There is some tenderness over the left temporal. Laboratory data show a mild anemia. Which of the following tests is most likely to be abnormal?

A. Carotid ultrasound
B. CT scan
C. Erythrocyte sedimentation rate
D. X-ray of the left shoulder

Answer C:Unilateral headache and visual loss in this elderly patient with polymyalgia rheumatica (PMR) symptoms lead to a clinical diagnosis of temporal arteritis. The erythrocyte sedimentation rate is high in almost all of these patients.Temporal arteritis occurs most commonly in patients over the age of 55 and is highly associated with polymyalgia rheumatica. About 25% of patients with PMR have some features of giant cell arteritis. Thus, older patients who complain of diffuse myalgias and joint stiffness, particularly of the shoulders and hips,should be evaluated for PMR with ESR. Sudden visual loss in such a patient makes temporal arteritis an important diagnosis to make quickly.

Not option A: Carotid disease would not be expected

Not option B: patient complaining of systemic involvement

Not option D: X Ray has no role in diagnosing temporal arteritis

Keywords:

Unilateral headache,visual loss in elderly patient,PMR,ESR elevated,sudden vision loss

28. A 65-year-old male develops the sudden onset of severe knee pain.The knee is red, swollen, and tender. He has a history of diabetes mellitus and cardiomyopathy. An x-ray of the knee shows linear calcification. Definitive diagnosis is best made by?

A. Serum uric acid
B .Serum calcium
C. Arthrocentesis and identification of positively birefringent rhomboid crystals
D. Rheumatoid factor

Answer C: The acute monoarticular arthritis in association with linear calcification of the cartilage of the knee suggests the diagnosis of pseudogout, also called calcium pyrophosphate dihydrate deposition disease. The disease resembles gout. Positive birefringent crystals (looking blue when parallel to the axis of the red compensator on a polarizing microscope) can be demonstrated in joint.Pseudogout is about half as common as gout but becomes more common after age 65. Calcium pyrophosphate dihydrate deposition disease is diagnosed in symptomatic patients by characteristic x-ray findings or crystals in synovial fluid. The disease is treated with NSAIDs or colchicine. Linear calcifications or chondrocalcinosis are often found in the joints of elderly patients who do not have symptomatic joint problems; such patients do not require treatment.

Not option A: fluid.Serum uric acid normal,

Not option B: calcium levels are normal

Not option D: Rheumatoid factor normal

Keywords:

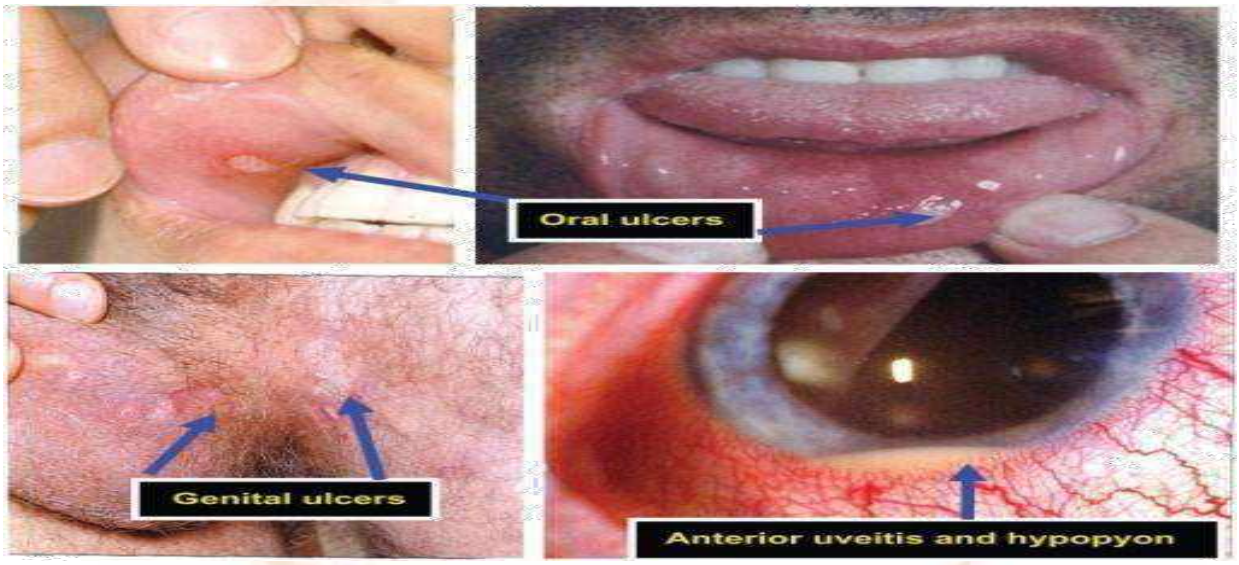
The acute monoarticular arthritis , with linear calcification of the cartilage, calcium pyrophosphate dihydrate deposition, or chondrocalcinosis are often found in the joints of elderly patients

29. A young male presents with leg swelling and recurrent aphthous ulcers of his lips and tongue. He has also recently noted painful genital ulcers. There is no urethritis or conjunctivitis. On exam, he has evidence of deep vein thrombophlebitis

A. Behcet syndrome
B. Ankylosing spondylitis
C. Polymyalgia rheumatica
D. Reiter syndrome

Answer A: :Behçet syndrome is a multisystem disorder that usually presents with recurrent oral and genital ulcers. One fourth of patients develop superficial or deep vein thrombophlebitis, iritis, uveitis, and non deforming arthritis may also occur.

Reiter syndrome:there will be a history of infection, arthritis, conjunctivitis, and nonspecific urethritis



Keywords:
and recurrent aphthous ulcers , painful genital,Ulcers, deep vein thrombophlebitis.

30. A 35-year-old woman complains of aching all over. She says she sleeps poorly and all her joints hurt. Symptoms have progressed over several years.Physical exam shows multiple points of tenderness over the neck, shoulders,elbows, and wrists. There is no joint swelling or deformity. A complete blood count and erythrocyte sedimentation rate are normal. Rheumatoid factor is negative. There is no tenderness over the median third of the clavicle,the medial malleolus, or the forehead. The best therapeutic option in this patient is?

A. Amitriptyline at night
B. Prednisone
C. Aspirin
D. HCQ

Answer is A:The patient's multiple trigger points, associated sleep disturbance, and lack of joint or muscle findings make fibromyalgia a possible diagnosis. The diagnosis hinges on the multiple tender points. CBC and ESR are characteristically normal.Tricyclic antidepressants restore sleep; aspirin and other anti-inflammatory drugs are not helpful. Biofeedback and exercise programs have been partially successful. The clavicle, medial malleolus, and forehead are never trigger points for the process.

Keywords:

sleeps poorly and all her joints hurt, shows multiple points of tenderness ,ESR, RF-normal.

31. A 70-year-old female with mild dementia complains of hip pain. There is some limitation of motion in the left hip. The first step in evaluation is?

A. CBC and erythrocyte sedimentation rate
B. Rheumatoid factor
C. X-ray of right hip
D. Bone scan

Answer C: Hip pain may result from fracture, bursitis, enthesitis, sacroiliac pain, sciatica, or pain referred from the lumbosacral spine. A film of the left hip is mandatory in this patient.Fracture of the hip must be ruled out, particularly in a woman with mental status abnormalities, who may be prone to falls. Elderly women with osteoporosis are most prone to hip fracture.

Keywords:
dementia complains of hip pain,elderly.

32. A 65-year-old woman who has a 12-year history of symmetrical polyarthritis is admitted to the hospital. Physical examination reveals splenomegaly, ulcerations over the lateral malleoli, and synovitis of the wrists,shoulders, and knees. There is no hepatomegaly. Laboratory values demonstrate a white blood cell count of 2500/μL and a rheumatoid factor titer of 1:4096. This patient's white blood cell differential count is likely to reveal?

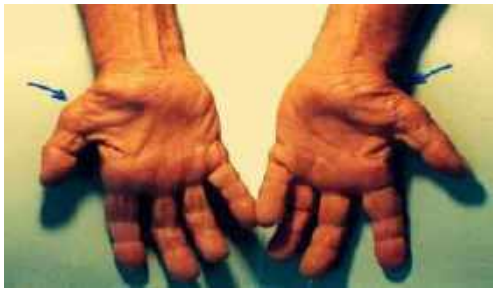
A. Pancytopenia
B. Lymphopenia
C. Granulocytopenia
D. Lymphocytosis

Answer C:Felty syndrome consists of a triad of rheumatoid arthritis, splenomegaly, and leukopenia.leukopenia of Felty syndrome is related to a reduction in the number of circulating polymorphonuclear leukocytes. The mechanism of granulocytopenia is poorly understood. Felty syndrome tends to occur in people who have had active rheumatoid arthritis for a prolonged period. These patients commonly have other systemic features of rheumatoid disease such as nodules, skin ulcerations, the sicca complex, peripheral sensory and motor neuropathy, and arteritic lesions.

Not option B: lymphopenia observed in patients who have systemic lupus erythematosus

Extra mile:

S	**S**plenomegaly
A	**A**nemia
N	**N**eutropenia
T	**T**hrombocytopenia
A	**A**rthritis (Rheumatoid)



33. A 35-year-old construction worker presents with complaints of nocturnal paresthesias of the thumb and the index and middle fingers. There is some atrophy of the thenar eminence. Tinel sign is positive. The most likely diagnosis is?

A. Carpal tunnel syndrome
B. De Quervain's tenosynovitis
C. Amyotrophic lateral sclerosis
D. Rheumatoid arthritis of the wrist joint

Answer A:Carpal tunnel syndrome results from median nerve entrapment and is usually due to excessive use of the wrist. The process has been associated with thickening of connective tissue as in acromegaly, or with deposition of amyloid. It also occurs in hypothyroidism, rheumatoid arthritis, and diabetes mellitus. As in this patient, numbness occurs in the distribution of the median nerve. Later in the process, atrophy of the abductor pollicis brevis becomes apparent.Tinel is very characteristic. Never hypertension causes

Not option B: DeQuervain's tenosynovitis causes focal wrist pain on the radial aspect of the hand and is due to inflammation of the tendon sheath of the abductor pollicis longus. It should not produce a positive Tinel sign.

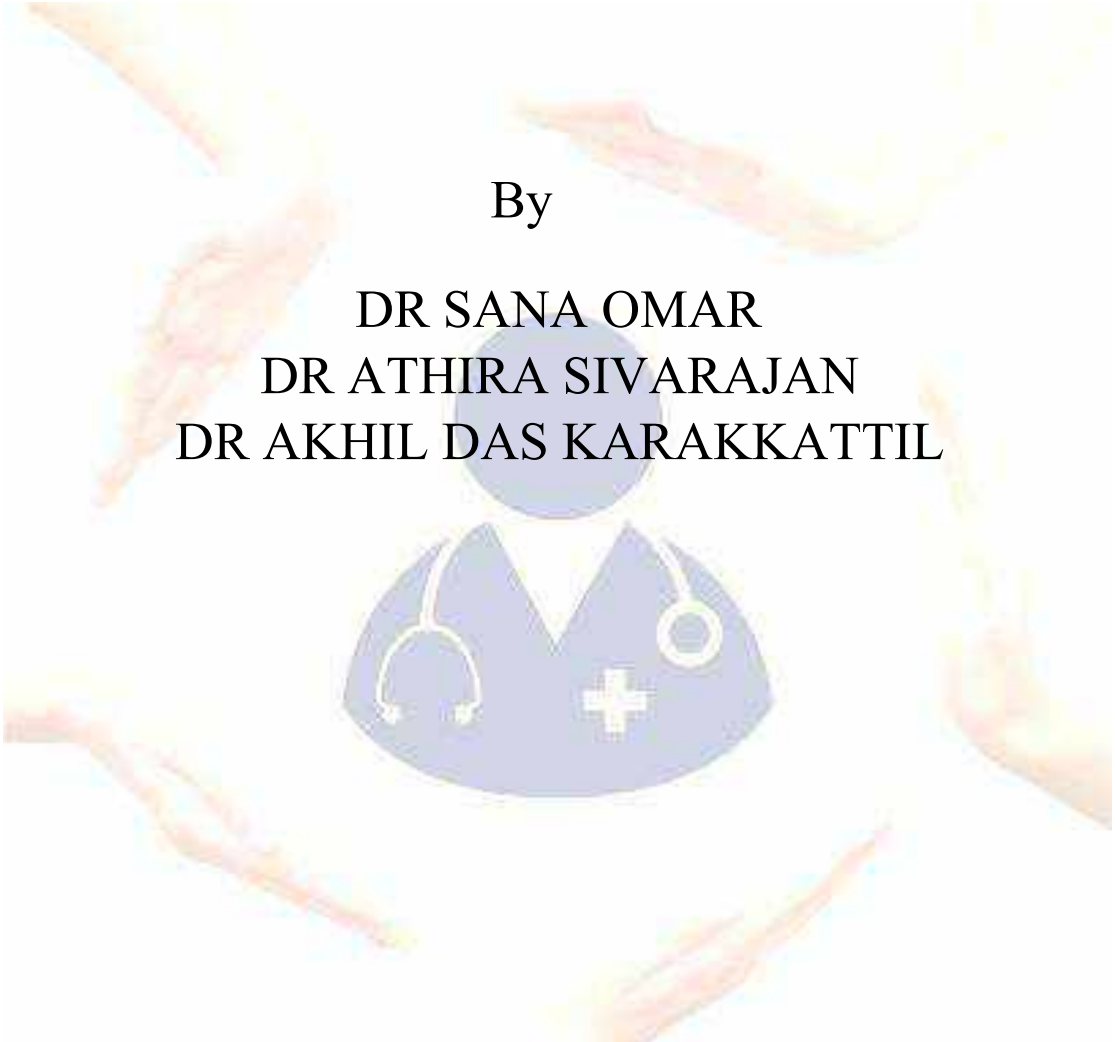
Not option C:Amyotrophic lateral sclerosis may present with distal muscle weakness that is diffuse and not focal. Diffuse atrophy and muscle fasciculations would be prominent.

Not option D:Rheumatoid arthritis would not produce these symptoms unless inflammation of the wrist was causing median nerve entrapment in the carpal tunnel.

Keywords:

Nocturnal paresthesias of the thumb and the index and middle fingers , atrophy of the thenar eminence,Tinel sign is positive.

PEDIATRICS



By

DR SANA OMAR
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"If people are doubting how far you can go, go so far that you can't hear them anymore." – Michele Ruiz

FMGE CLINICAL VIGNETTES

1. A baby was born to a multigravida at 30 weeks of gestation . Initial examinations and evaluations were done . There was no evidence of any perinatal complications. What should be the best initial method of feeding ?

(A) Katori spoon feeding

(B) IV fluid (+/-) TPN

(C) OG tube feeding.

(D) Normal breast feeding .

Answer (C) OG tube feeding .

Explanation: The preferred mode of feeding is based upon the gestation age .

28 weeks = Intravenous fluid (+/-) Total parenteral nutrition . [GIT is immature]
28 – 31 weeks = Orogastric tube feeding . [GIT is mature but the Sucking ,Swallowing and Rooting reflexes are developed yet] .
32 – 34 weeks = Katori spoon feeding [coordination between breathing and swallowing not well developed].
> 34 weeks = Direct breast feeding [coordination between breathing and swallowing well developed] .

2.Which of the following is false regarding Late onset hemorrhagic disease of new born ?

(A) Intra cranial hemorrhage is common .

(B) Biliary atresia is a common cause .

(C) may occur in a baby born to a mother . undergoing warfarin therapy .

(D) Starts between 2-7 days of life .

Answer (D) starts in 2-7 days of life .

Explanation : Hemorrhagic disease of newborn / vitamin K deficency bleeding . This is primarly due to deficency of vitamin k in the neonate. It is divided into 3 groups .

Early onset:

onset of bleeding: in utero and /or within the first 24 hours of life .

Risk factors: mother on certain drugs which can interfere with the metabolism of vitamin k . eg mother on warfain therapy , anti convulsant therapy etc .

Classical:

onset of bleeding: between 2 – 7 days of life .

Primarily results in home delivered babied who have not been supplemented with vitamin k at birth .

Late onset:

onset - 4 weeeks -6 months of age .

Risk factors = predisposing condition present . Such as Biliray atresia or warfarin therapy in the mother .

3.A baby was noted to have a diffused edematous collection of fluid on the scalp right after vaginal delivery . What could be the most probable diagnosis ?

(A) Subgaleal hemorrhage .

(B) Cephalohematoma .

(C) Caput succedaneum .

(D) Subdural hematoma .

Answer (C): Caput succedaneum .

Explanation :

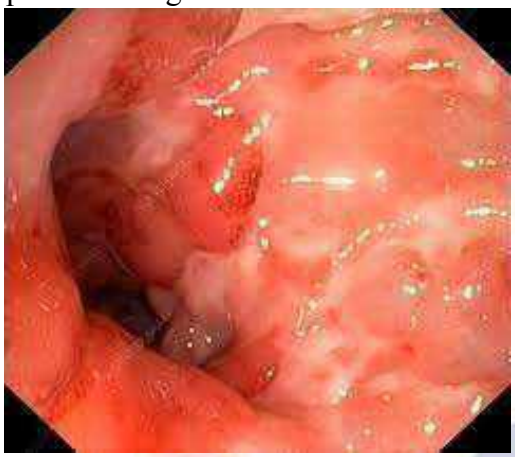
Caput succedaneum : Diffused , ecchymotic , edematous collection of fluid in the subcutaneous layer of the scalp. It appears immediately after birth. It may extend across the midline and suture lines. Disappears during the first few weeks of life . Associated with vaginal delivery.

Cephalohematoma: Sub periosteal hemorrhage . Appears several hours after birth . Do not cross suture lines . Resolves within 2 weeks to 3 months .

Subgaleal hemorrhage: Accumulation of blood between the epicranial aponeurosis of the scalp and the periosteum . Due to rupture of Emissary veins . Resolves in 2-3 weeks . Associated with vaccum associated delivery .

Subdural hematoma : Due to hemorrhage into space between dura and arachnoid membranes . Associated with vacuum and forceps delivery .

4. A 7 year old boy was bought to the OPD due to abdominal pain , blood occult in stool and fever . The stool culture was negative for known pathogens . The sigmoidoscopy appeared to be normal . Montoux test was done for evalution which showed negative results . The child's height is 101 cm and weight is 15 kg . What could the most probable diagnosis be ?



A. Intestinal tubersulosis
B. Crohns disease
C. Ulcerative colitis
D. Strongyloidiasis

Answer : (B) Crohns disease .

Explanation : Ulcerative colitis can be ruled out ad the sigmoidoscopy was normal .
Negative Mantoux test rules out any active tuberculosis .
A negative stool culture rules out Strongyloidiasis .

5.A 47 days old infant developed icterus and later went on to develop acute liver failure in the third day that followed .Further investigations were done to diagnose the condition upon which , the child was observed to be HBsAg positive . The mother was found out to a HBsAg carrier . Out of the following , which represents the mother's hepatitis B serological profile ?

(A) Mother infected with mutant HBV .

(B) HBsAg and anti-Hbe antibody positive .

(C) HBsAg and HBeAg positive .

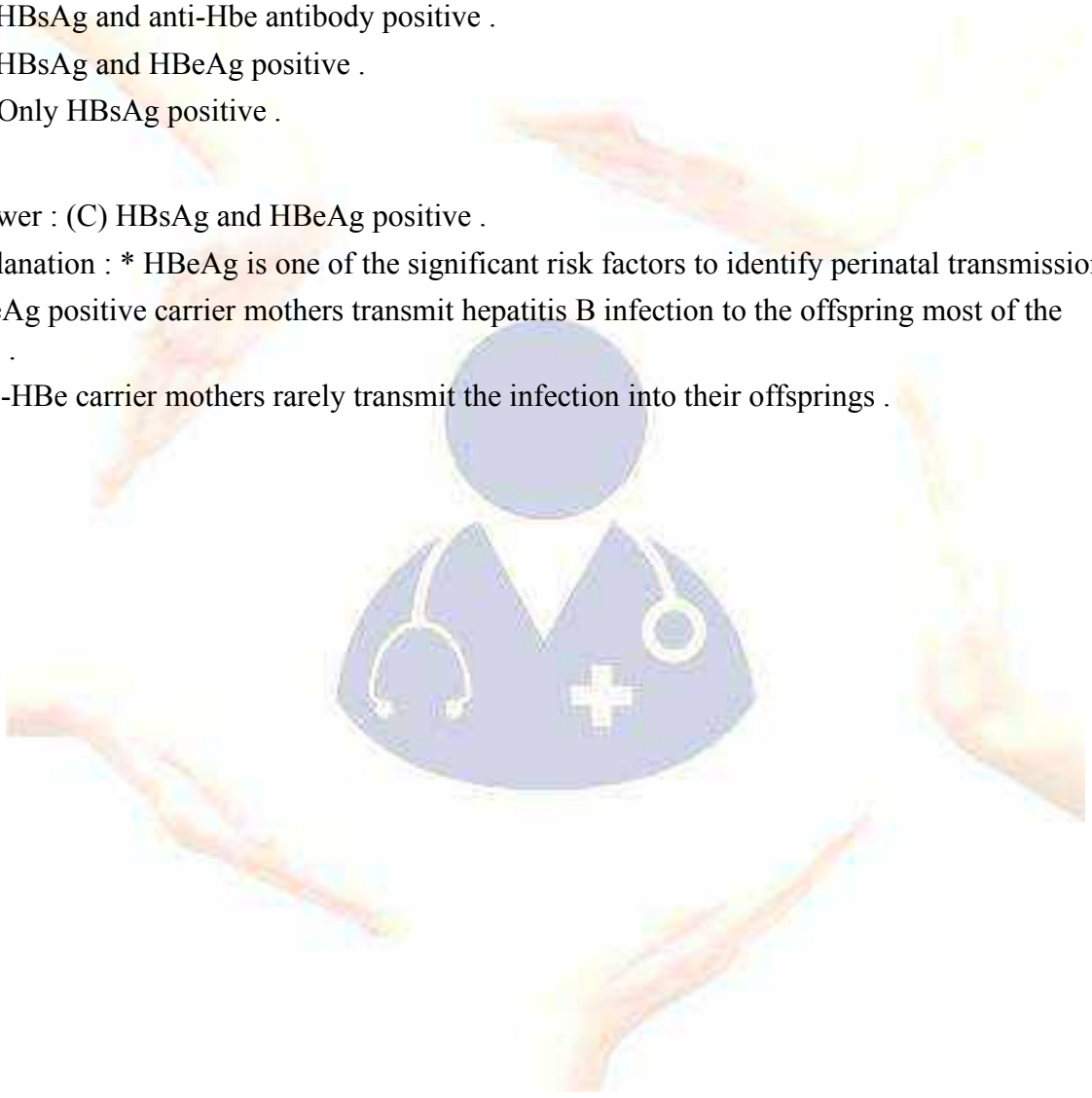
(D) Only HBsAg positive .

Answer : (C) HBsAg and HBeAg positive .

Explanation : * HBeAg is one of the significant risk factors to identify perinatal transmission .

HBeAg positive carrier mothers transmit hepatitis B infection to the offspring most of the time .

Anti-HBe carrier mothers rarely transmit the infection into their offsprings .



6.A male child with severe abdominal distention was bought to the emergency department . Mother stated that there was a history of recurrent urinary tract infection . Bilateral hydronephrosis was revealed on imaging . What could be the most probable diagnosis ?

(A) PUJ obstruction.

(B) Renal calculi .

(C) Posterior urethral valve .

(D) Urethral stricture .

Answer : (C) Posterior urethral valve .

Explanation : * Posterior urethral valve is the most common cause of lower urinary tract infection in male neonates .

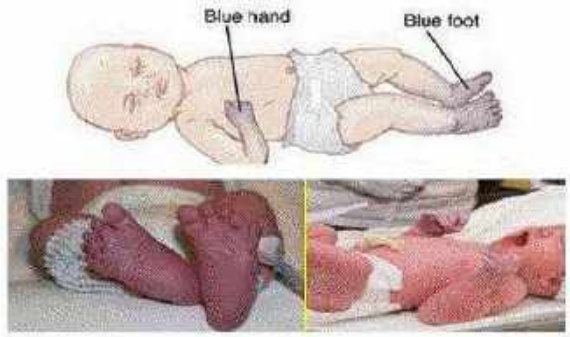
When the pathology is bilateral , then the problem has to be at the level of bladder or the urethral level .here the bladder is distended so the problem or obstruction should me at the urethral level .

Renal calculi does not leat to bilateral hydronephrosis and bladder distention .

In PUJ obstruction , there will be no bladder distention .

Urethral stricture cannot be suspected if there is no history of instrumentation , trauma or any other risk factor .

7.A primigravida delivered her baby at 37 weeks of gestation by cesarean delivery . On evaluation , the baby was found to have irregular breathing with a heart rate of > 100 bpm , showed some flexion . The body of the appeared pink with blue extremities . The neonate was also found to have grimace on insertion of catheter . Calculate the APGAR score and comment on the status of the neonate .



A. 3 ; severely depressed .
B. 6 ; moderately depressed .
C. 7 ; moderately depressed .
D. 8 ; normal

Answer (B) 6 ; moderately depressed .

Explanation :

Sign	Score		
	1	2	3
Color	Pale blue	Pink body, blue extremities	Completely pink
Reflex irritability	None	Grimace	Vigorous cry
Heart rate	Absent	Slow (<100)	>100
Respiratory effort	Absent	Slow (irregular)	Crying
Muscle tone	Flaccid	Some flexion of extremities	Active motion

Score interpretation	
Score	Status
7-10	Normal
4-6	Moderately depressed
0-3	Severely depressed

8.Soon after birth , the infant was noted to have shoulder dystocia , with adducted and internally rotated arm with pronated forearm . The nerves effected in the condition are ?

(A) C6
(B) C5 and C6
(C) T1 and T2
(D) C7 and C8

Answer : (B) C5 and C6 .

Explanation : In Erb's palsy , the injury occurs at the level of the 5th and the 6th cervical nerves .

The charactersitic porsition consists of adduction and internal rotation of arm with pronation of the forearm .

9.A term male child was born by spontaneous vaginal delivery to a multigravida . The mother received two doses of meperidine 2 hours before the delivery . The baby is apneic . What is the most important immediate management ?

(A) Administer nalaxone .

(B) Chest compression .

(C) Perform bag-mask ventilation.

(D) Obtain a cord blood ph .

Answer : (C) Perform bag-mask ventilation .

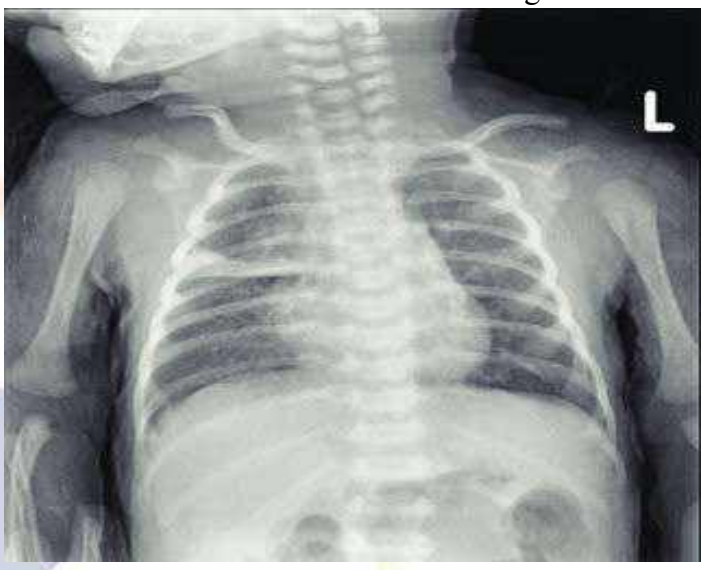
Explanation : Since the baby is apneic , the most important immediate management is to maintain adequate ventilation by bag-mask ventilation .

Respiratory depression in occurs in neonates due to administration of Meperidine to the mother shortly before delivery [within 4 hours prior] .

Naloxone hydrochloride is administered while bag and mask ventilation [adequate ventilation] is maintained .

Naloxone hydrochloride 0.1 mg/kg can be given intraveously or intramuscularly .

10. A 17 days old infant with conjunctivitis was bought to the OPD . Later , the infant developed respiratory distress and pneumonia. No fever or wheeze was noted in the infant .Bilateral lung infiltrates were revealed on the chest xray examination . Peripheral smear count showed 14,400/dL [N44,L53 , E4] . Which of the following is the most likely pathogenic organism ?



(A) Streptococcus pneumonia .

(B) Neisseria gonorrhoeae.

(C) Chlamydia trachomatis .

(D) Mycoplasma pneumonia .

Answer : (C) Chlamydia trachomatis .

Explanation: Organism to most likely cause the mentioned infection is chlamydia trachomatis .
Onset usually occurs within 1-3 months of age . There is persistent cough and tachypnea . Fever is absent. Rales are present . Wheeze is uncommon .
The most consistent finding of the chest xray is hyperinflation accompanied by minimal interstitial or alveolar infiltrates .

11. A 10 year old boy was found to have short stature . Though his bone age was found to be equal to the chronological age . The child has?

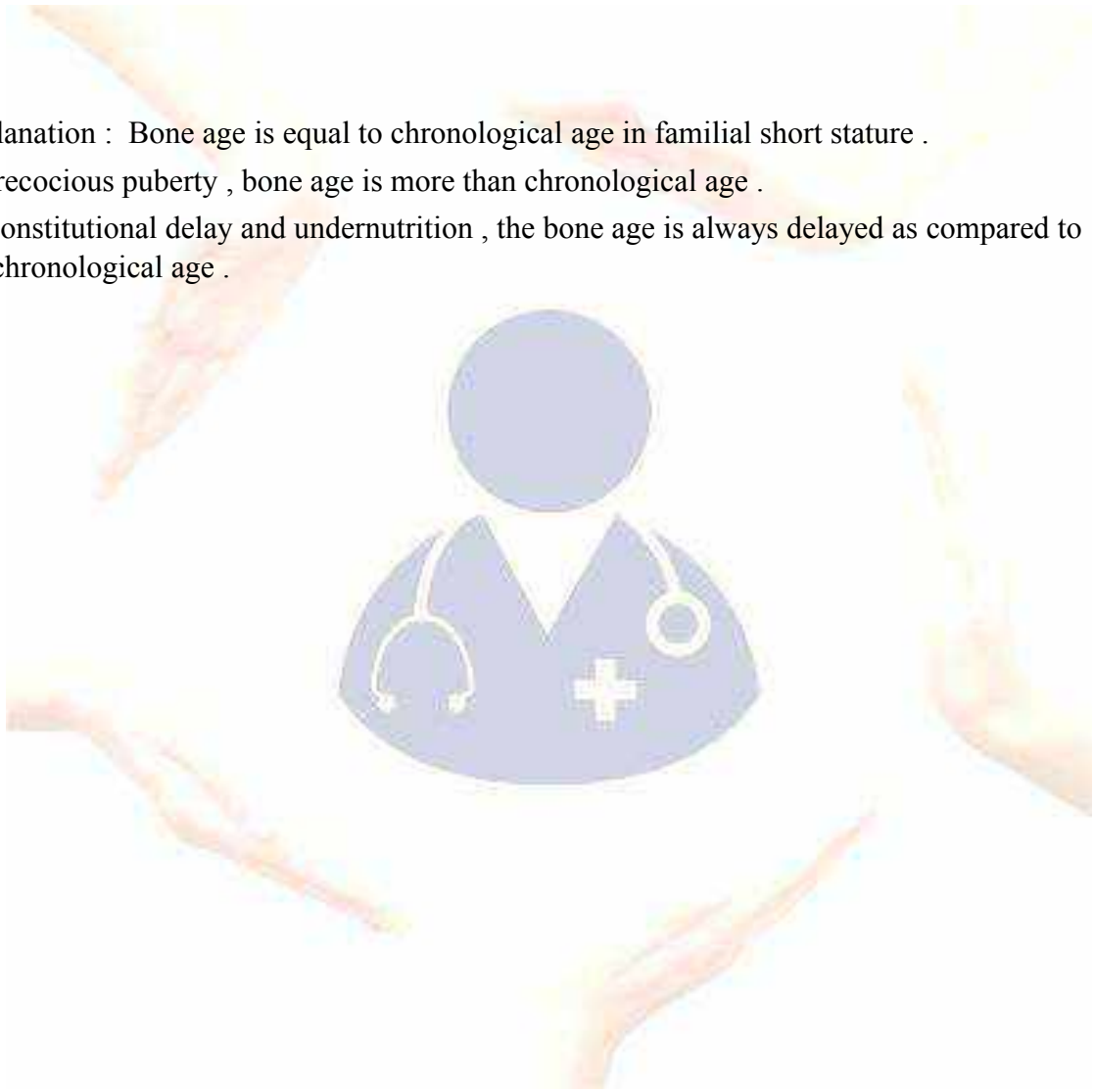
A. Constitutional delay .
B. Familial short stature.
C. Precocious puberty

Answer : (B) Familial short stature .

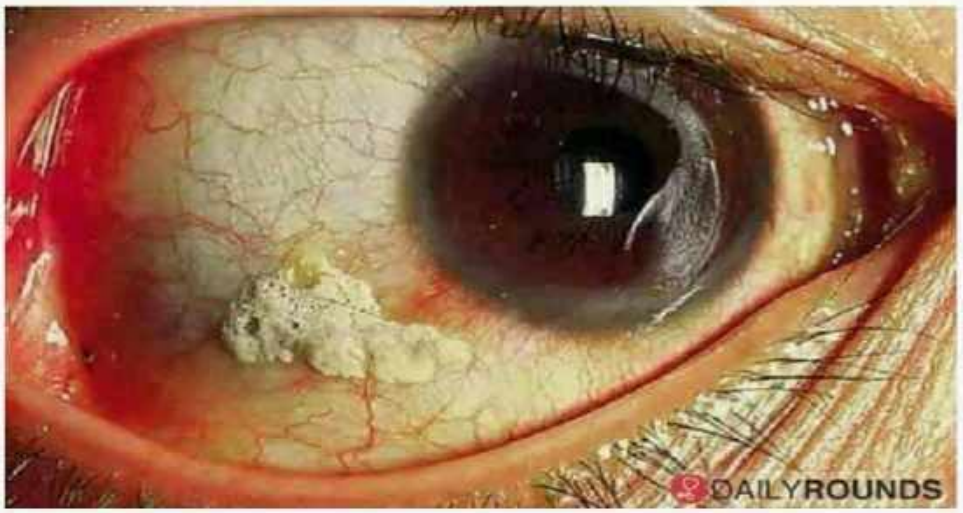
Explanation : Bone age is equal to chronological age in familial short stature .

In precocious puberty , bone age is more than chronological age .

In constitutional delay and undernutrition , the bone age is always delayed as compared to the chronological age .



12.A 10 year old girl was presented to the OPD with burning sensation in the eye . The feature shown below was found in the clinical examination . What is the mechanism of development of the lesion ?



A. Scarring of the conjunctiva .

B. Excessive growth of conjunctival tissue .

C. Deposition of calcium on the conjunctiva .

D. Keratinization of conjunctival epithelium.

Answer : (D) Keratinization of conjunctival epithelium .

Explanation :

Bitot spot is shown in the given clinical image . It occurs due to keratinization of the conjunctival epithelium .

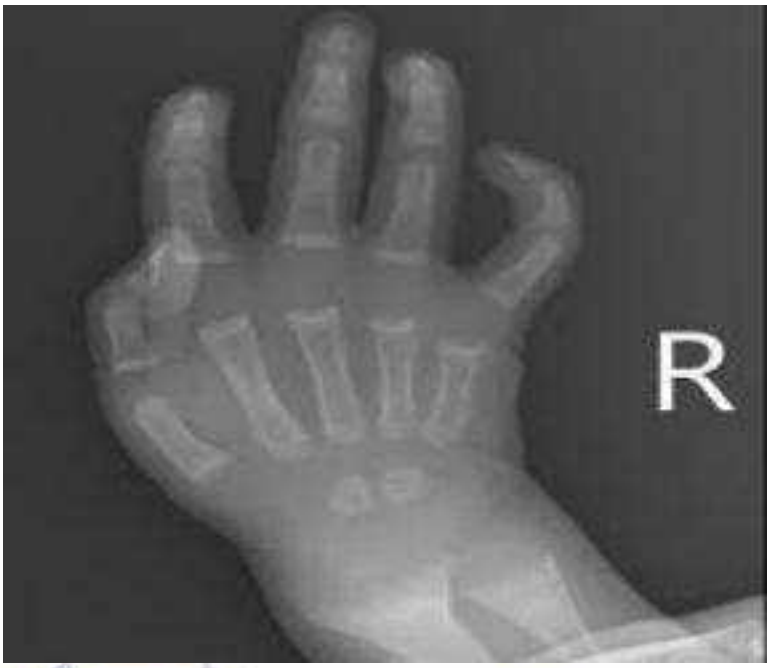
In vitamin A deficency , there is squamous metaplasia of the conjunctival epithelium and tangles of keratin admixed with bacteria producing dry, scaly faomy patches called as Bitot spots.

Deposition of calcium in the conjunctiva usually occurs in the palpebral conjunctiva , in chronic condition of the eye.

Scarring of the conjunctiva is seen in chlamydial infection of the eye.

Pterygium of the eye is characterised by excessive growth of conjunctival tissue .

13.A 1 year old child was bought to the emergency with muscle weakness and failure to thrive . X Ray is given below.What will be
your diagnosis?



(A)Rickets

(B)Scurvy

(C)Osteomalacia

(D) Osteoporosis

Answer : (A) Rickets .

Explanation : The above xray image shows fraying and cupping of metaphysis. This suggests Rickets .

Radiological features in Rickets are :- Fraying [Widening and irregularity of growth plate], cupping [concavity of metaphysis] , splaying of metaphysis , generalised retraction .

14.A 7 month year old baby was bought to the OPD with history of crying on touch . The mother stated that the child was fed exclusively on cow's milk . What could be the probable cause of the condition ?

A. Scurvy
B. Rickets
C. JRA
D. Caffey's disease

Answer : (A) Scurvy

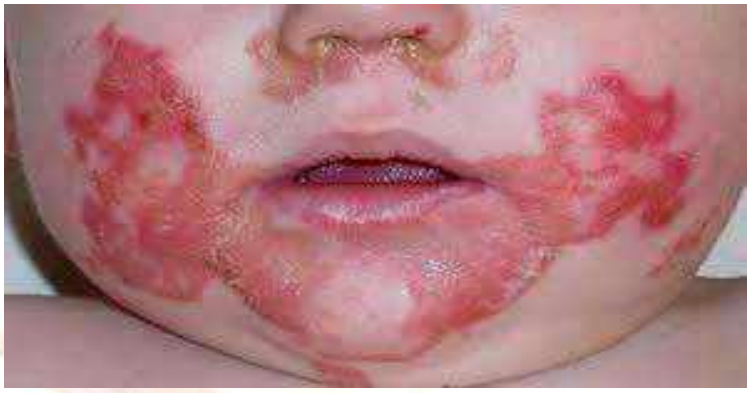
Explanation : Cry on touching is due to subperiosteal hemorrhage and is suggestive of scurvy .

Scurvy is caused due to deficiency of vitamin c , espicially in children fed predominantly with cow's milk [heated cow's milk as high tempreature destroys vitamin C].

Clinical features [infantile cortical hyperostosis] : pallor , irritability , anorexia , subperiosteal hemorrhage and long bone tenderness .

Caffey's disease is painfull soft tissue swelling and bone thickening which is usually present at 6 months of age .

15. A 1 year old child presented with pigmentation of palmar area and perioral oral rash . what is the cause ?



(A) Copper deficiency
(B) Zinc deficiency
(C) Selenium deficiency
(D) Manganese deficiency .

Answer : (B) Zinc deficiency

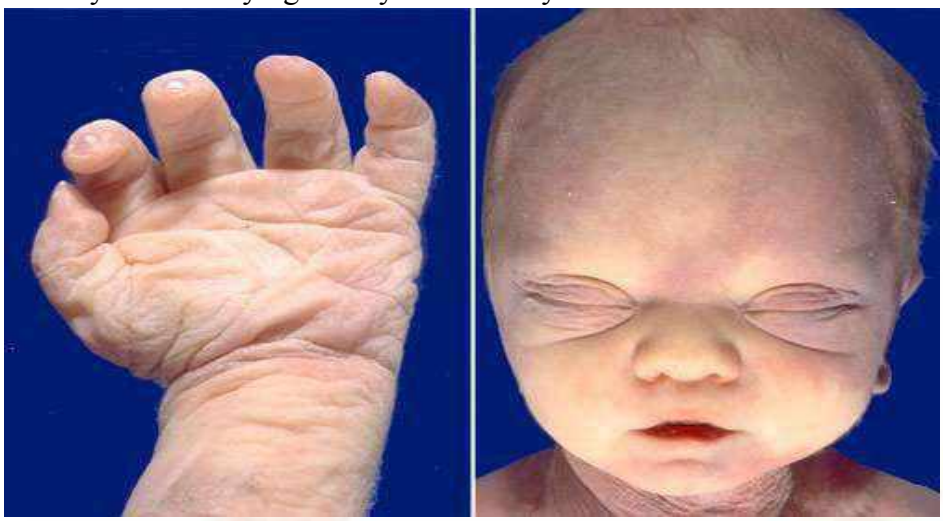
Explanation : In zinc deficiency , dermatitis around the orifice and that of the extremities are typical .

Peripheral neuropathy is a neurological manifestation that is caused due to copper deficiency .

Hypercholesterolemia and weight loss are features of manganese deficency.

Selenium deficiency presents as cardiomyopathy [Keshan's disease].

16.Identify the underlying kidney abnormality in the fetus shown below:



A. Polycystic kidney disease
B. Multicystic dysplastic kidney
C. Renal agenesis
D. Nephronophthisis

Answer: C. Renal agenesis

IDENTIFYING FEATURES	ABOUT POTTER'S SEQUENCES
Washerman's hand- with wrinkled skin Widely separated eyes with epicanthic folds, low set ears, flat nose and receding chin, suggestive of "Potter facies"	Bilateral renal agenesisoligohydraminos- Characteristic facial and limb abnormalities seen; Potter syndrome: Bilateral renal agenesis incomplete with extra uterine life; characteristic potter facies seen

17. A 5 year old child presented with generalized edema and ascites.There was no hypertension or hematuria. Renal function tests were normal. Urinalysis revealed massive protenuria. Most probable underlying cause is:

A. Membranous glomerulonephritis
B. Minimal change disease
C. Post streptococcal glomerulonephritis
D. IgA nephropathy

Answer: B MINIMAL CHANGE DISEASE

IDENTIFYING FEATURES	ABOUT MINIMAL CHANGE DISEASE
Generalized edema in a child with massive proteinuria, with no hypertension or hematuria and normal renal function suggest a diagnosis of Nephrotic syndrome due to minimal change disease;	Most common cause of Nephrotic syndrome in children; Light microscopy of kidney biopsy is normal in minimal change disease.

Extra mile:

Nephrotic range: Proteinuria is defined as protein excretion of > 40 mg/m2/hr or 1gm/m2/24hrs

Edema is the most common presenting symptom of children with nephrotic syndrome

Most common cause of idiopathic nephrotic syndrome in children is minimal change disease

Commonest form of congential Nephrotic syndrome is the autosomal recessive (Finnish nephrotic syndrome) NPHS 1 mutation (encodes for nephrin)

18.A 5 year old child presents with red coloured urine as shown in the given picture. On examination, BP was normal and there were no rashes. There is a history of sore throat 2 days before this. There is a history of similar episodes 4 months back. what is the most probable underlying abnormality?

A. Post streptococcal glomerulonephritis
B. Polycystic kidney disease
C. Nephrotic syndrome
D. IgA nephropathy

Answer: IgA neaphropthy

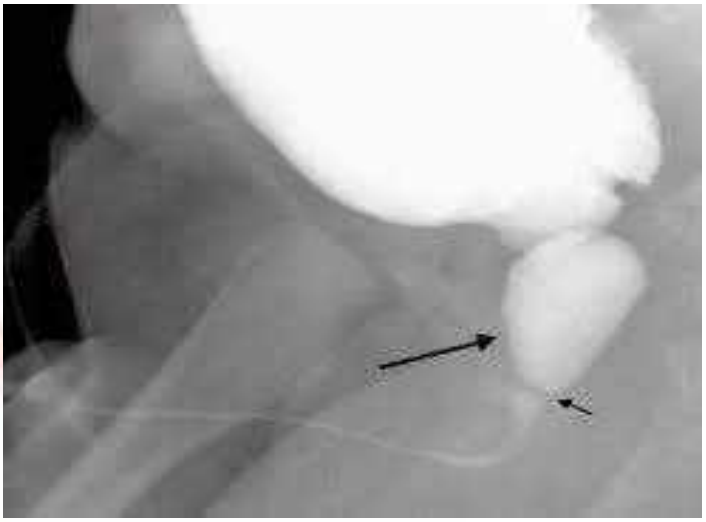
IDENTIFYING FEATURES	ABOUT IgA NEPHROPATHY
Recurrent gross hematuria in a child, with history of sore throat 2 days ago, suggest a diagnosis of IgA nephropathy.	Most common chronic glomerular disease in children; Diagnosis by demonstration of IgA in mesangium

Exra mile:

Kidney diseases with recurrent gross hematuria:

1. Hereditary nephritis (Alport syndrome)
2. Thin GBM disease
3. Primary glomerulonephritis
4. IgA nephropathy (Berger nephropathy)

19.Identify the abnormality shown in the voiding cystourethrogram of this 4 year old boy with history of recurrent urinary tract infection.



A. Vesicoureteric reflex
B. Posterior urethral valve
C. Ureterocele
D. Bladder diverticulum

Answer: (B) Posterior urethral valve

IDENTIFYING FEATURES	ABOUT POSTERIOR URETHRAL VALVE (PUV)
Small arrow shows constriction of urethra, at the level of posterior urethral valve; Large arrow shows dilated posterior urethra;	Most common cause of severe obstructive uropathy in children; Confirmed by micturating cystourethrography;

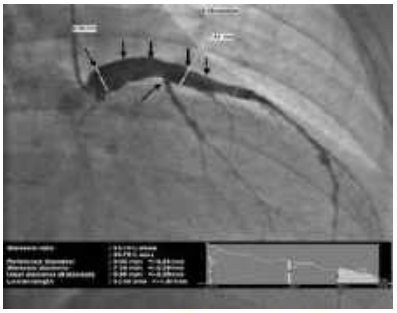
Extra mile:

Most common cause of severe obstructive uropathy in children are posterior urethral valves

30% of PUV patients experience end stage renal disease or chronic renal insufficiency

Vesicoureteral reflux occur in 50% of patients with PUV

20.Choose the TRUE statement regarding the disease depicted in the images shown:

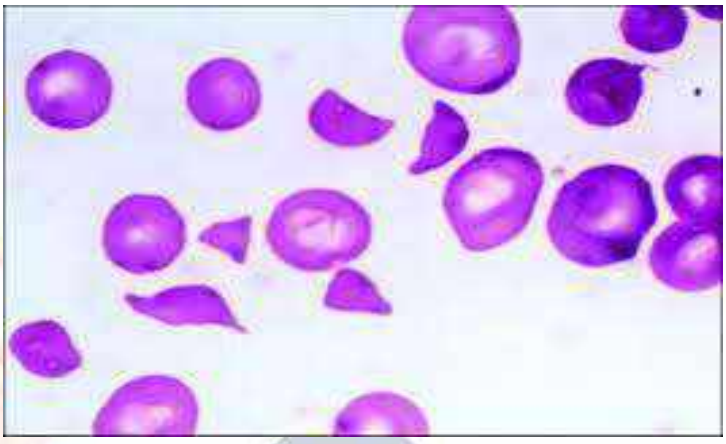


A. IV immunoglobulin is used in treatment
B. Bilateral purulent conjuctivitis
C. Lymphadeopathy is rare
D. Aspirin is contraindicated

Answer: IV immunoglobulin is used in treatment

IDENTIFYING FEATURES	ABOUT KAWASAKI DISEASE
A- shows mucositis (strawberry tongue) B- Angiography showing Coronary artery aneurysm; both of thses findings suggest a diagnosis of kawasaki disease, IV immunoglobulin is used in treatment of kawasaki disease	Diagnosed by fever for at least 5 days with at least 5 days with at least 4 out of 5 ('C-R-E-A-M') Conjuctivitis (non[-purulent), Rash, Erythema and Edema of palms and soles, Adenopathy, Mucosal invovlvement (strawberry tongue)

21.A 4-year old child presented with decreased urine output for last 20 hours and petechial spots over the body. There was a history of diarrhea 2 weeks prior to this. Blood investigations revealed a Hb level of 7g/dl, TLC 11,800/mm3, platelet count of 35,000/mm3. His peripheral smear findings are shown below.



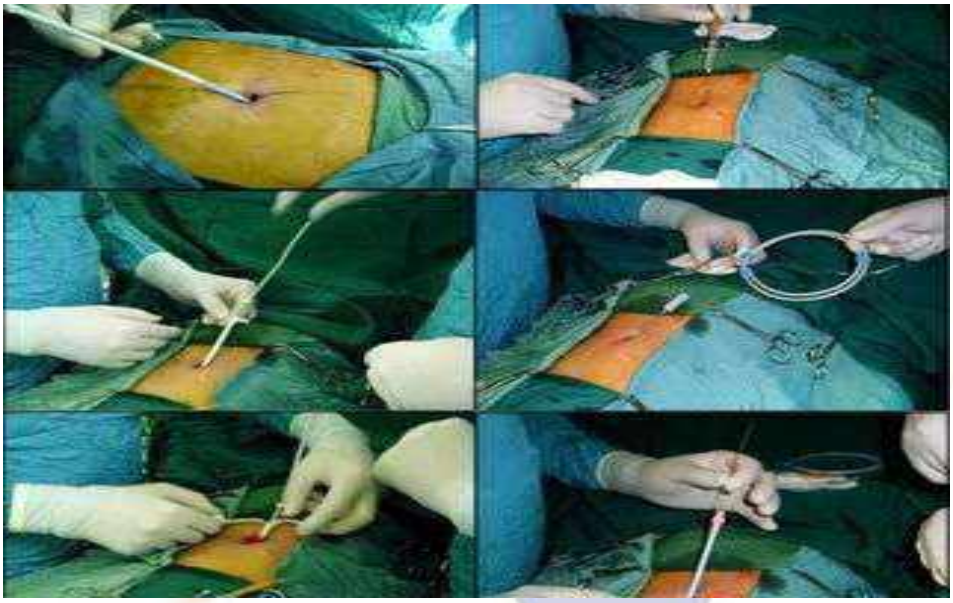
What is the diagnosis?

A. Malaria
B. Idiopathic thrombocytopenic purpura
C. Acute tubular necrosis
D. Hemolytic uremic syndrome

Answer: hemolytic uremic syndrome

IDENTIFYING FEATURES	ABOUT HEMOLYTIC UREMIC SYNDROME
Peripheral smear showing schistocytes in a child with oliguria, thrombocytopenia and a history of recent diarrhea suggest a diagnosis of hemolytic uremic syndrome	Triad of Microangiopathic hemolytic anemia, thrombocytopenia and uremia (deranged renal function) is seen;

22.An 8-year old child presented with a history of respiratory distress, altered sensorium and not passing urine for the last 15 hours. What is the procedure shown below that can be done as a part of emergency management of this child?

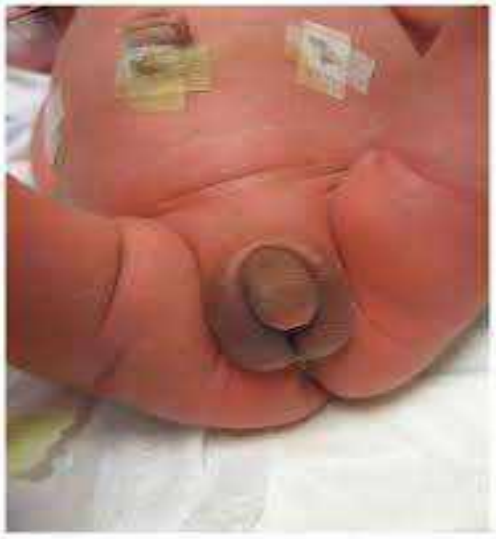


A. Hemodialysis
B. Peritoneal dialysis
C. Kidney biospy
D. Hydration therapy

Answer: (B) peritoneal dialysis

IDENTIFING FEATURES	ABOUT ACUTE KIDNEY INJURY
This child presented with a history suggestive of acute kidney injury; The given picture shows a stiff catheter inserted into the abdomen for peritoneal dialysis;	It is defined as urine output < 0.3mL/kg/hr for 24 hours or anuria for at least 12hours;

23.A 6 week infant with ambiguous genitalia (as shown below) presents with an episode of dehydration and shock requiring hospitalization. What is the electrolyte abnormality that you expect in this baby?



A.Hypokalemia

B.Hyperkalemia

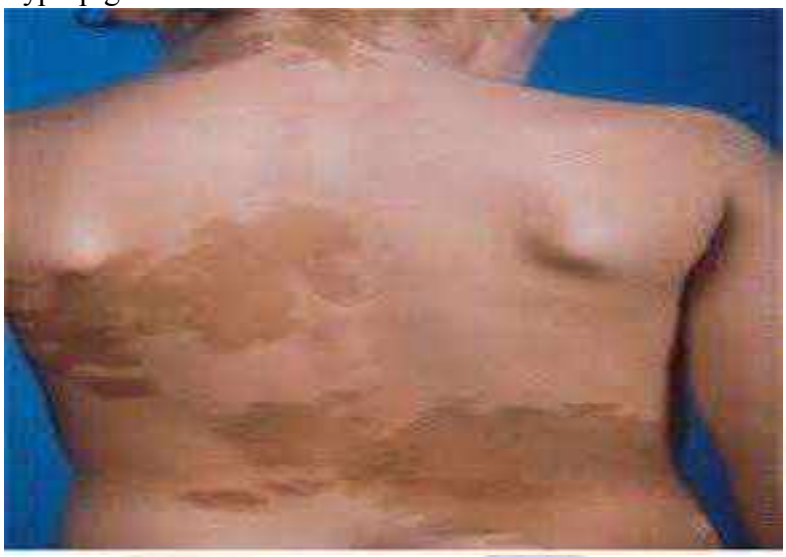
C.Hypocalcemia

D.Hypercalcemia

Answer: (b) hyperkalemia

IDENTIFYING FEATURES	ABOUT 21 HYDROXYLASE DEFICIENCY
Ambiguous genitalia in an infant with dehydration and shock, suggest the diagnosis of CAH due to 21 hydroxylase deficiency;	It is the most common cause of CAH Elevated 17 hydroxy progesterone is diagnostic; Hyponatremia and hyperkalemia are seen

24.A 6-year-old girl presents with precocious puberty, some bony lesions and hyperpigmented skin leisons as shown below. What is the most probable diagnosis?

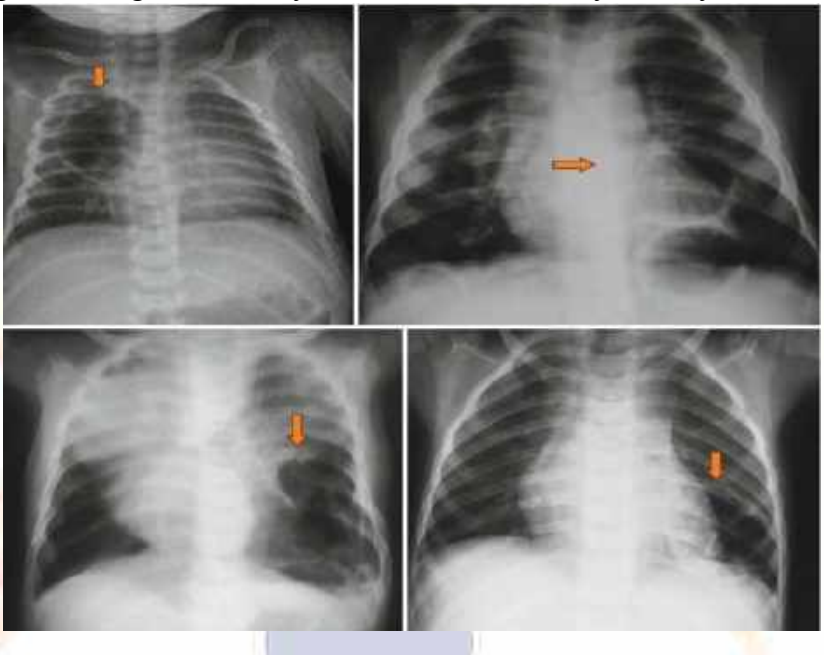


A. Prader Willi syndrome
B. Laurence Moon syndrome
C. Cushing syndrome
D. McCune-Albright syndrome

Answer (D) - McCune-Albright syndrome

IDENTIDYING FEATURES	ABOUT McCune Albright syndrome
Precocious puberty, polyostotic fibrous dysplasia and café au lait spots are features of McCune Albright syndrome	Caused by a missense mutation in the gene encoding alpha-subunit of Gs protien, that stimulates cAMP formation.

25.Identify the congenital lung abnormality seen in this chest x-ray of a 2 year child.

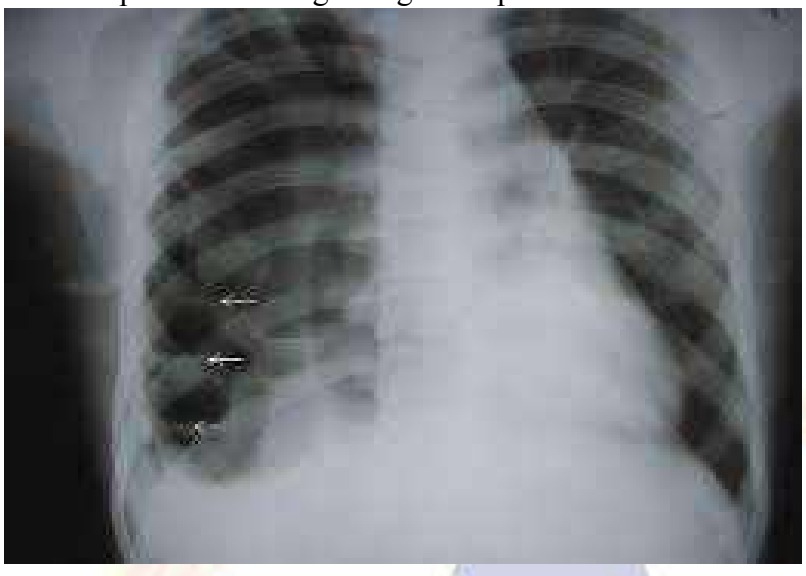


A. Congenital cystic adenomatoid malformation
B. Congenital lobar emphysema
C. Congenital diaphragmatic hernia
D. Pulmonary sequestration

Answer: (A) congenital cystic adenomatoid malformation

IDENTIFYING FEATURES	ABOUT CCAM
Cystic area in right lung of a child suggestive of Congenital cystic adenomatoid malformation(CCAM)	Itconsists of hamartomatous or dysplastic lung tissue mixed with more normal lung, general confied to 1 lobe.

26.A 10-year-old child presented with high grade fever, cough and respiratory distress. On examination , bilateral crackles were presented. CXR picture is shown below. What is the most probable etiological agent responsible?

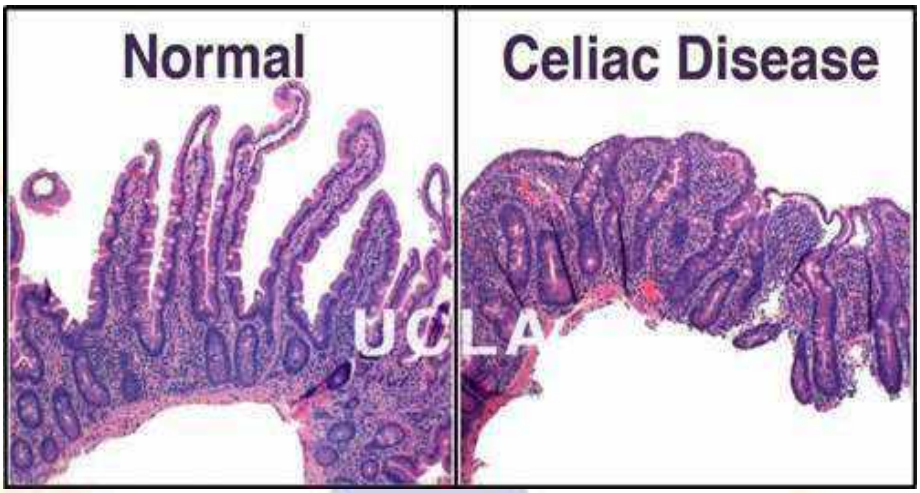


A. Streptococcus pneumoniae
B. Mycoplasma pneumoniae
C. Staphylococcus aureus
D. Chlamydia pneumoniae

Answer: (C) Staphylococcus aureus

IDENTIFYING FEATURES	ABOUT PNEUMONIA
Chest X-ray showing pneumonia with pneumatoceles suggest pneumonia due to Staphylococcus aureus	Most common cause of bacterial pneumonia in children is Streptococcus pneumoniae

27.A 2-year-old child presented with recurrent pain abdomen, failure to thrive and iron deficiency anemia refractory to iron therapy. His anti TTG antibody titres were 300U/L. An upper GI endoscopy was done and duodenal biospy was taken which showed the following. What is the diagnosis?

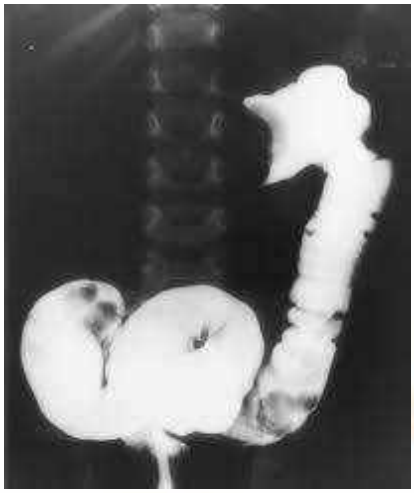


A. Crohn's disease
B. Hirschsprung disease
C. Celiac disease
D. Congenital lactase deficiency

Answer: (C) Celiac disease

IDENTIFYING FEATURES	ABOUT CELIAC DISEASE
Intestinal biopsy showing villous atrophy, crypt hyperplasia, intraepithelial lymphocytic infiltration in the given case scenario, suggest a diagnosis of Celiac disease	Recurrent pain abdomen, failure to thrive and refractory iron deficiency anemia are important clinical features. Elevated Anti TTG levels are seen.

28..A 3-year-old child presented with sudden onset severe paroxysmal colicky pain abdomen and red current jelly stool. His barium enema picture is shown below. What is the diagnosis?

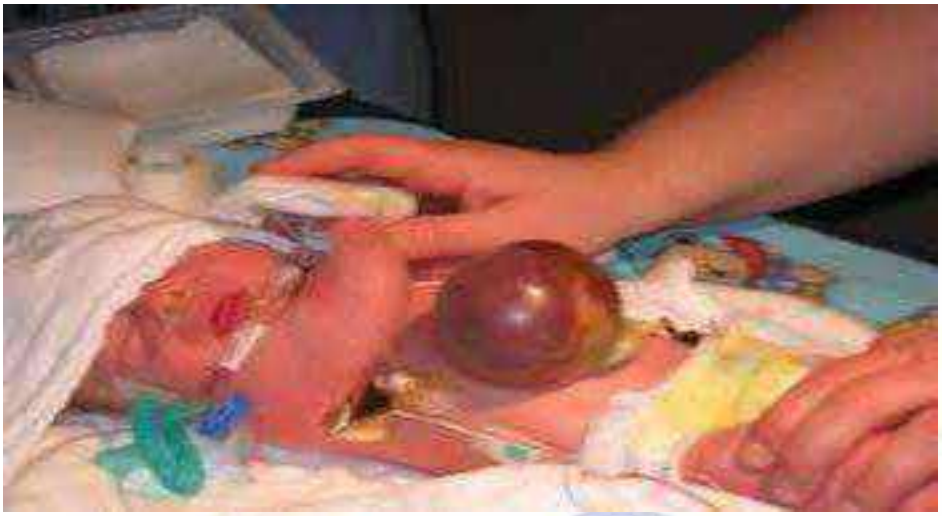


A. Intussusception
B. Ulcerative colitis
C. Crohn disease
D. Hirschsprung disease

Answer: (A) Intussusception

IDENTIFYING FEATURES	ABOUT INTUSSUCEPTION
Ba enema, showing 'coiled spring sign' or claw sign ,in a child with pain abdomen and red currant jelly stool, points to a diagnosis of intussusception	Pain abdomen, a palpable sausage shaped abdominal mass, and bloody or currant jelly stool, suggests a diagnosis of Intussuseception.

29.Identify this syndrome which carries increased risk of Wilm's tumor.

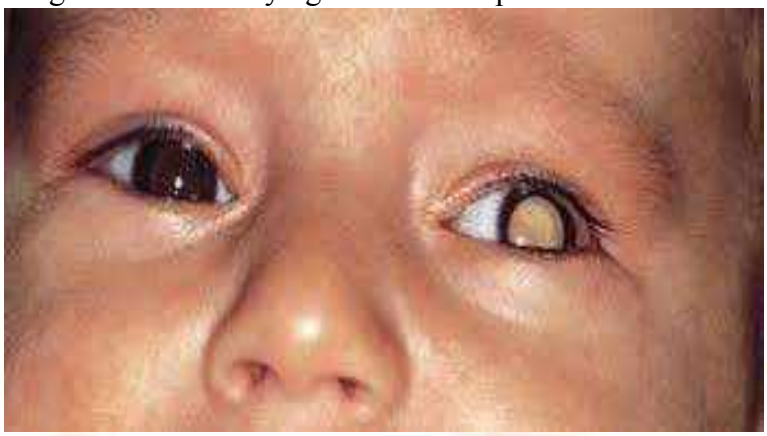


A. WAGR syndrome
B. Sturge-weber syndrome
C. Denys-Drash syndrome
D. Beckwith-Wiedemann syndrome

Answer:(D) Beckwith Weidemann syndrome

IDENTIFYING FEATURES	ABOUT BECKWITH-WEIDEMANN SYNDROME
This baby has hemihypertrophy of left side of body (compare left side with right side0 and omphalocele; these are seen in Beckwith-wiedmann syndrome, in which increased risk of wilm's tumor is seem	It is an overgrowth syndrome caused by mutations in chromosome 11p15.5 region I ncreased risk of Wilms tumor, hepatoblastoma, Adrenal carcinoma and Rhabdomyosarcoma

30..A 2-year-old child presented with the following abnormality. There is a similar history of illness in his father. What might be the underlying condition responsible?



A. Retinitis pigmentosa
B. Acute Leukemia
C. Retinoblastoma
D. Coloboma

Answer: (C)Retinoblastoma

IDENTIFYING FEATURES	ABOUT RETINOBLASTOMA
LEUCOCORIA or white eye reflex is presented in left eye; presence of leukocoria in a young child with a positive family history suggests a diagnosis of Retinoblastoma	It is the most common primary intraocular tumor in children. 60% are acquired while remaining 40% are hereditrary

31.A 2-week-old baby boy is brought to the clinic by his mother for routine examination. The patient is breast-fed, and his mother follows a vegan diet. The mother says she plans to breast-feed until the patient reaches six months of age, and then she will introduce him to solid foods that conform to her vegan diet. On the basis of this information, the patient is at greatest risk for deficiency of which of the following vitamins?

(A) B1

(B) B6

(C) B12

(D) C

Correct answer is Option (C), B12.

Because vitamin B12, or cyanocobalamin, is mainly found in animal products, individuals who follow a strict vegan diet commonly have deficiency of this nutrient. In breastfeeding mothers who follow a vegan diet, the breast milk supply is likely to reflect this deficiency. Because the patient described is breast-fed and his mother follows a vegan diet, he is at greatest risk for deficiency of vitamin B12.

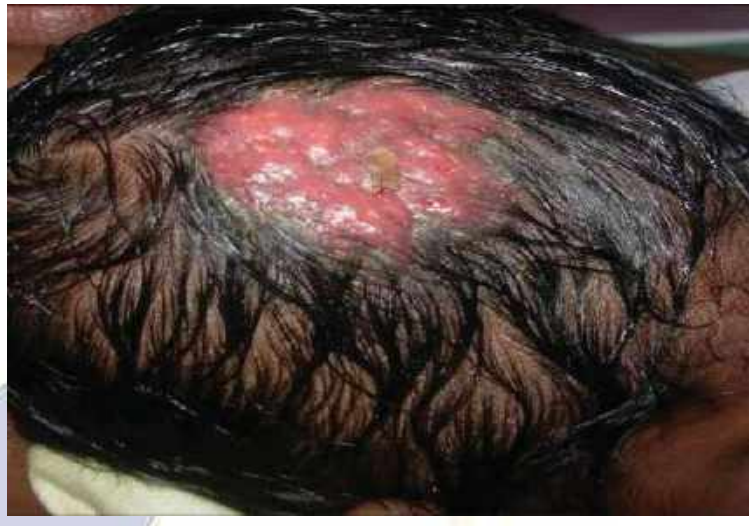
Option (A), B1, or thiamine, is incorrect because this nutrient is readily available in many vegetables, cereals, and fruits that are included in a vegan diet. Option (B), B6, or pyridoxine, is incorrect because this vitamin is commonly found in cereals that would likely be consumed by vegans.

Similarly, option (D), C, is incorrect because a vegan diet is rich in fruits and vegetables that contain vitamin C.

Option (E), K, is incorrect because a vegan diet is rich in leafy greens, beans, and soybeans, all of which are good sources of vitamin K.

Keywords:VIT B12 is found in meat and hence deficient in vegetarians.

32.A 4-year boy is brought to the clinic by his mother after noticing an area of sores on his scalp while cutting his hair. Weight is 19.1 kg . Vital signs are within normal limits. Physical examination shows a grouping of pustules in the right parietal region. The area surrounding this grouping is boggy and very tender, and annular hair loss is noted in that region. The cervical lymph nodes are diffusely tender and enlarged. No other abnormalities are noted. Which of the following is the most likely diagnosis?



A)Alopecia areata

B)Atopic dermatitis

C)Herpes simplex virus

D)Kerion

E)Mastocytosis

The correct answer is Option (D), kerion,

because the clinical presentation of inflammatory pustules with a surrounding area that is boggy and tender is most consistent with this condition.

Option (A), alopecia areata, is incorrect because although this condition does cause annular patches of hair loss, it does not cause the surrounding area to be boggy, tender, or inflamed.

Option (B), atopic dermatitis, is incorrect because although this condition often develops on the scalp, it does not cause alopecia or tenderness.

Option (C), herpes simplex virus, is incorrect because the lesions caused by this agent are vesicles, not pustules. Also, herpes simplex virus is not likely to cause localized alopecia, as noted in the patient described.

Option (E), mastocytosis, is incorrect because mastocytomas are not pustules; they are firm, fixed, nodular lesions that may be blistering and vesicular. In addition, mastocytomas are often accompanied by pruritus but not tenderness.

Keywords-Kerions presents with boggy,tender,inflammatory appearance.

33.A 5-day-old neonate is brought to the emergency department by ambulance 20 minutes after he had sudden onset of irritability, diaphoresis, and profound dyspnea. The patient has not had fever or other symptoms of systemic illness. He was delivered vaginally at term without complications. Temperature is 37.0°C (98.6°F), pulse rate is 200/min, and respirations are 50/min. On physical examination, auscultation of the chest shows a grade 2/6 systolic ejection murmur that is heard best at the left upper sternal border and radiates to the left interscapular area. Palpation of the abdomen shows enlargement of the liver. Femoral pulses are absent bilaterally, and the lower extremities appear somewhat cyanotic compared with the upper extremities. No other abnormalities are noted. Which of the following is the most likely diagnosis?

A. Air contrast enema

B. Colonoscopy

C. Enzyme immunoassay of stool

D. Esophagogastroduodenoscopy

E. Fecal leukocyte test .

Answer is Option (C), enzyme immunoassay of stool, is the correct answer because the clinical scenario described is characteristic of giardiasis, and the most appropriate next step is a stool study that would confirm the causative organism of Giardia lamblia.

Option (A), air contrast enema, is incorrect because it is an appropriate diagnostic and therapeutic intervention for intussusception but is not effective in identifying Giardia lamblia.

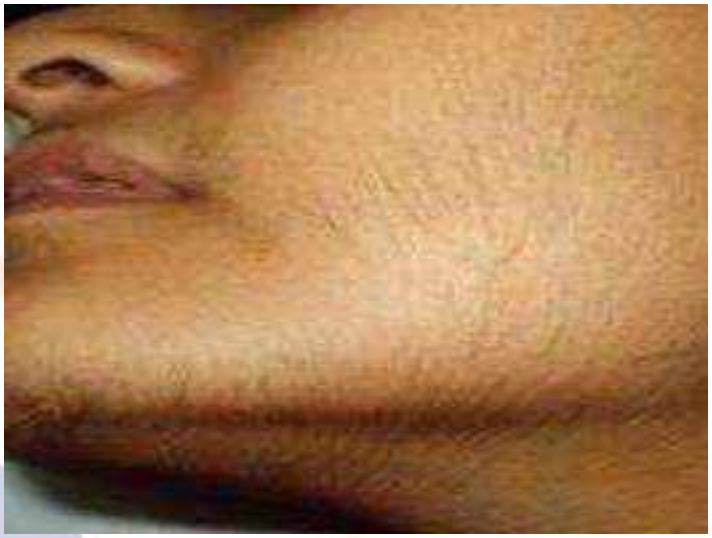
Option (B), colonoscopy, is incorrect because this study is used to identify disease states that are specific to the colon and is not the test of choice for infections of the digestive system such as giardiasis.

Similarly, Option (D), esophagogastroduodenoscopy, is incorrect because it is indicated for clinical findings suggestive of upper gastrointestinal disease but is not appropriate to evaluate conditions such as giardiasis.

Option (E), fecal leukocyte test, is incorrect because although it is useful in identifying disease states producing inflammation, it is not effective in correctly diagnosing giardiasis.

Keywords-investigation of choice for giardia lambia is enzyme immunoassay of stool.

34.A 14-year-old Diana is brought to the office for follow-up regarding recently diagnosed polycystic ovarian syndrome. Shet was initially examined because of hirsutism, amenorrhea, and virilization. These findings are most likely due to the effect of which of the following agents?



A. Estrogen
B. Follicle-stimulating hormone
C. Luteinizing hormone
D. Testosterone
E. Thyroid-stimulating hormone

Correct answer is Option (D), testosterone, because this is the agent that causes the hirsutism, amenorrhea, and virilization that are characteristic of polycystic ovarian syndrome.

Option (A), estrogen, is incorrect because an increase in this hormone causes breast tenderness, irregular menstrual bleeding, and water retention, whereas a decrease causes hot flashes and menopausal symptoms but not increase virilization.

Option (B), follicle-stimulating hormone, is incorrect because this agent causes stimulation of ovarian follicles but not the effects described in the clinical scenario.

Option (C), luteinizing hormone, is incorrect because this agent controls ovulation in women and does not cause the changes described in the clinical scenario.

Option (E), thyroid-stimulating hormone, is incorrect because although hypothyroidism can lead to menstrual irregularities, it does not regulate processes that lead to virilization.

Keywords-testosterone-hirsutism,amenorrhea,virilization

FMGE CLINICAL VIGNETTES

35.A 3-year-old Sanju was brought by his parents for routine examination. Height is in the third percentile, and weight is in the first percentile. During the interview, the parents say that the patient has been treated multiple times since infancy because of sinus infections and pneumonia. They also note that his stools are generally loose, greasy, and mucousy. During physical examination, the patient coughs frequently. No other abnormalities are noted. Which of the following studies is most effective to determine the diagnosis in this patient?

A. Bronchoscopy

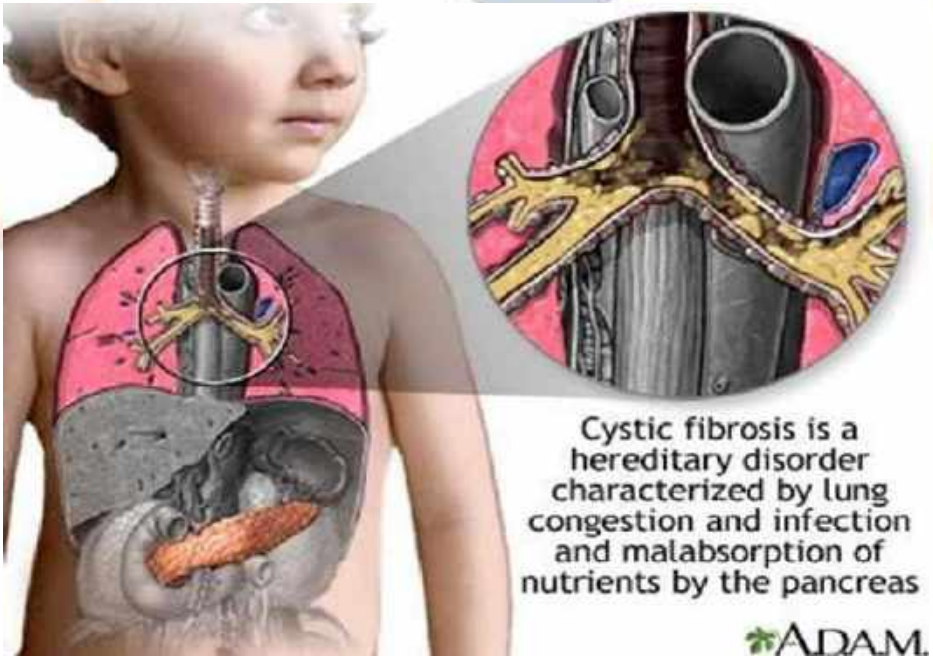
B. CT scan of the sinuses

C. Culture of aspirate from the trachea

D. Measurement of serum immunoglobulin levels (E) Sweat chloride test

Correct answer is option E.

The clinical scenario described includes characteristic symptoms of cystic fibrosis, including growth delay, multiple upper and lower respiratory tract infections, and malabsorption. sweat chloride test is the most effective study to confirm the presence of cystic fibrosis.



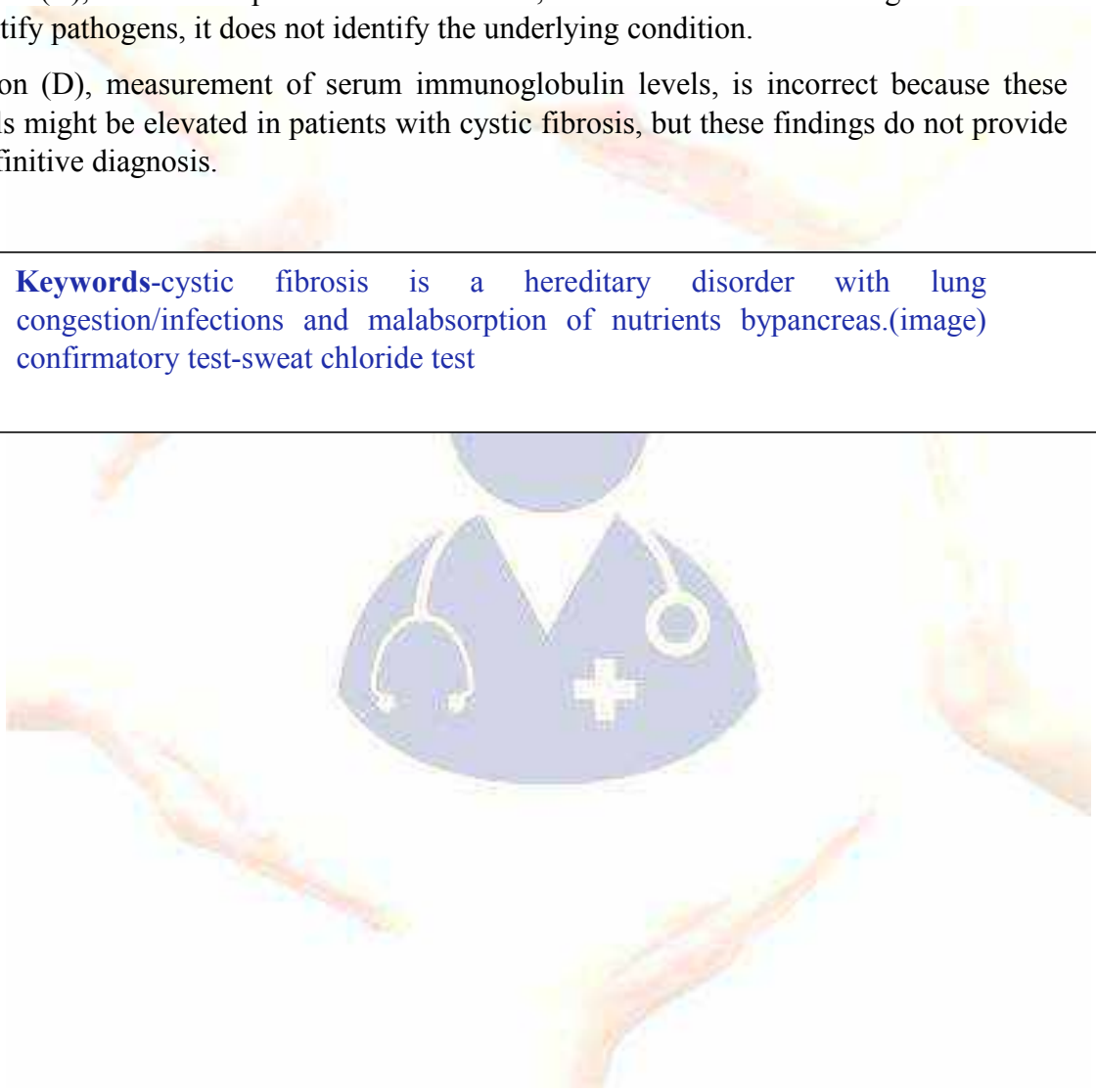
Option (A), bronchoscopy, is incorrect because although this study might identify Pseudomonas aeruginosa via lavage in a patient with cystic fibrosis, it is not diagnostic for the condition.

Option (B), CT scan of the sinuses, is incorrect because although sinus disease may be present in the patient described, this imaging study is not effective to provide a definitive diagnosis.

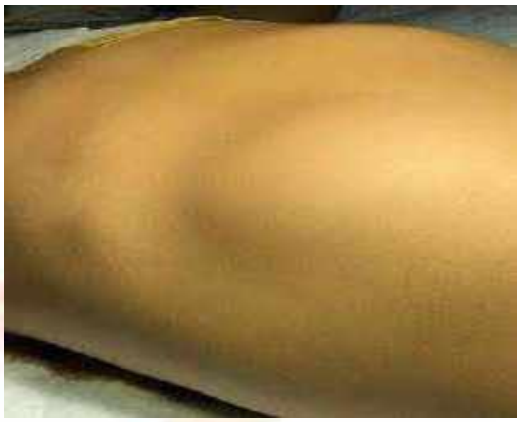
Option (C), culture of aspirate from the trachea, is incorrect because although it does identify pathogens, it does not identify the underlying condition.

Option (D), measurement of serum immunoglobulin levels, is incorrect because these levels might be elevated in patients with cystic fibrosis, but these findings do not provide a definitive diagnosis.

Keywords-cystic fibrosis is a hereditary disorder with lung congestion/infections and malabsorption of nutrients bypancreas.(image) confirmatory test-sweat chloride test



36.A 2-year-old girl Rani is brought by her parents after blood was noticed in her urine. The parents say she has had intermittent abdominal pain during the past two months but has been otherwise well. On physical examination, the abdomen is slightly distended and a mass is palpated in the right upper quadrant. Results of urinalysis are positive for blood and protein. Which of the following is the most likely diagnosis?



A. Cystic nephroma
B. Cystitis
C. Mesoblastic nephroma
D. Neuroblastoma
E. Wilms tumor

Correct answer is Option (E), Wilms tumor, because the clinical presentation of hematuria, abdominal pain of two months' duration, and a palpable mass in the right upper quadrant of the abdomen is characteristic of this tumor.

Option (A), cystic nephroma, is incorrect because this tumor typically presents as an asymptomatic benign mass in the kidney that is found incidentally.
Option (B), cystitis, is incorrect because this condition does not include a retroperitoneal mass.

Option (C), mesoblastic nephroma, is incorrect because this condition is exceedingly rare; in more than 90% of cases, it presents before 1 year of age.

Option (D), neuroblastoma, is incorrect because although it can present with intraabdominal mass, proteinuria and hematuria are rarely associated with this condition. In addition, neuroblastomas also present more often in children younger than 1 year of age, making this diagnosis less likely in the patient described.

Keywords-wilms tumor-hematuria with abdominal pain with right quadrant palpable mass.

37.A male neonate is delivered vaginally at term, and neonatal examination and testing confirms the diagnosis of sickle cell disease. On the basis of this finding, the most appropriate initial step is administration of which of the following?

(A) Erythromycin

(B) Hydroxyurea

(C) Oxygen

(D) Penicillin

(E) Pneumococcal and meningococcal vaccines

Correct answer is Option (D), penicillin, because administration of this medication in children with sickle cell disease who are younger than 5 years of age decreases the risk of serious bacterial infections such as pneumonia.

Option (A), erythromycin, is incorrect because this medication is not a recommended prophylactic antibiotic for neonates.

Option (B), hydroxyurea, is incorrect because although it is a medication used to treat sickle cell crisis, it is not indicated as an initial therapy in the patient described.

Option (C), oxygen, is incorrect because the clinical scenario described includes no indications for administration of oxygen.

Option (E), pneumococcal and meningococcal vaccines, is incorrect because immunization with these vaccines is not appropriate for the patient described until 2 and 9months of age, respectively.

38.A 5-day-old neonate is brought to the hospital by his mother for initial examination after uncomplicated pregnancy, delivery, and nursery stay. The mother has hypothyroidism that is well controlled with levothyroxine, and she is worried that the patient might have congenital hypothyroidism. If this condition is present in this patient, which of the following findings is most likely to be noted on physical examination?

(A) Bradycardia

(B) Enlarged fontanelle

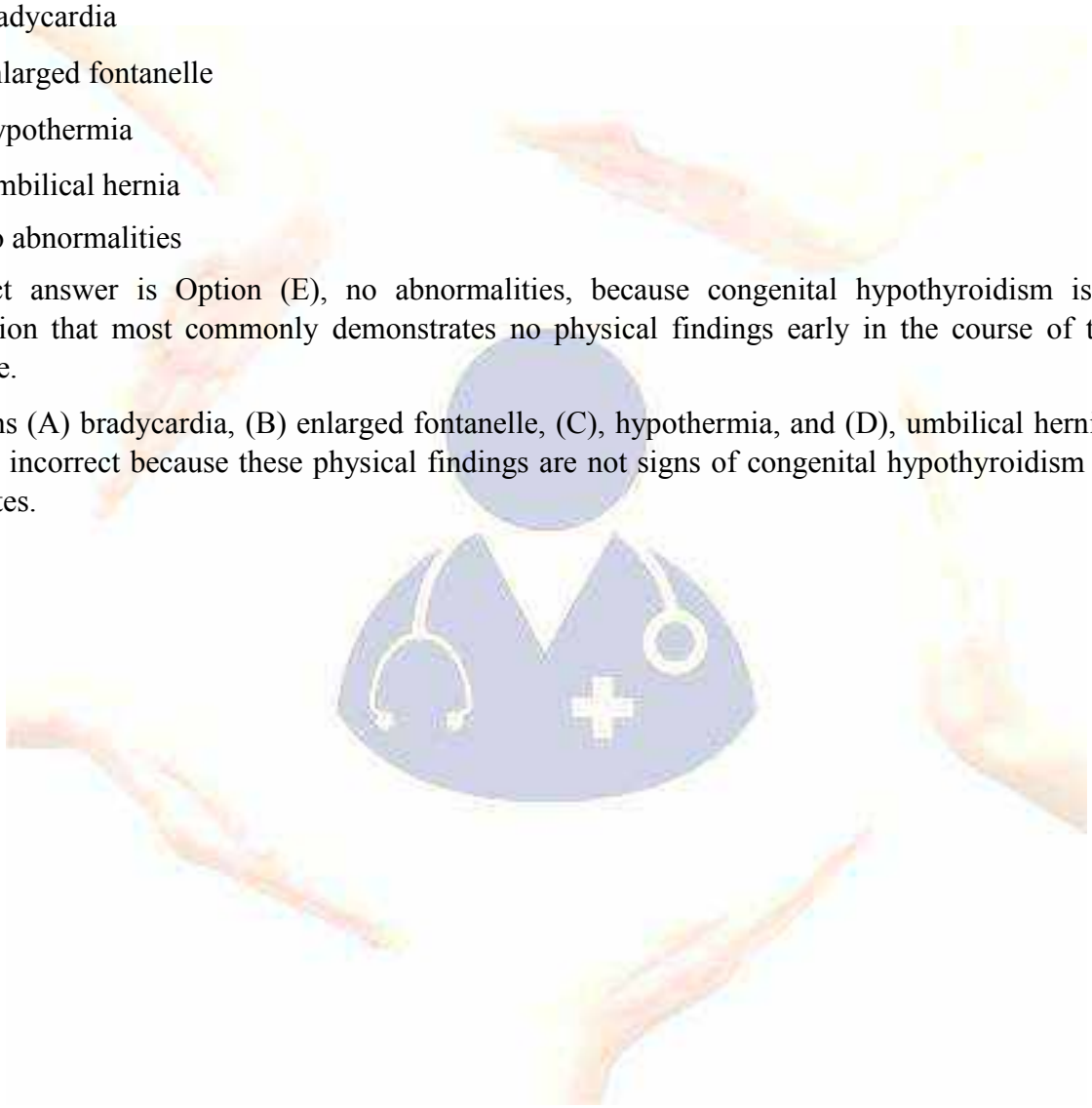
(C) Hypothermia

(D) Umbilical hernia

(E) No abnormalities

Correct answer is Option (E), no abnormalities, because congenital hypothyroidism is a condition that most commonly demonstrates no physical findings early in the course of the disease.

Options (A) bradycardia, (B) enlarged fontanelle, (C), hypothermia, and (D), umbilical hernia, are all incorrect because these physical findings are not signs of congenital hypothyroidism in neonates.



39.A 3-year-old boy Ahmed presents with fever; dysuria and gross hematuria. Physical examination shows a prominent suprapubic area which is dull on percussion. Urinalysis reveals red blood cells but no proteinuria. Which of the following is the most likely diagnosis?

A. Acute glomerulonephritis

B. Urinary tract infection

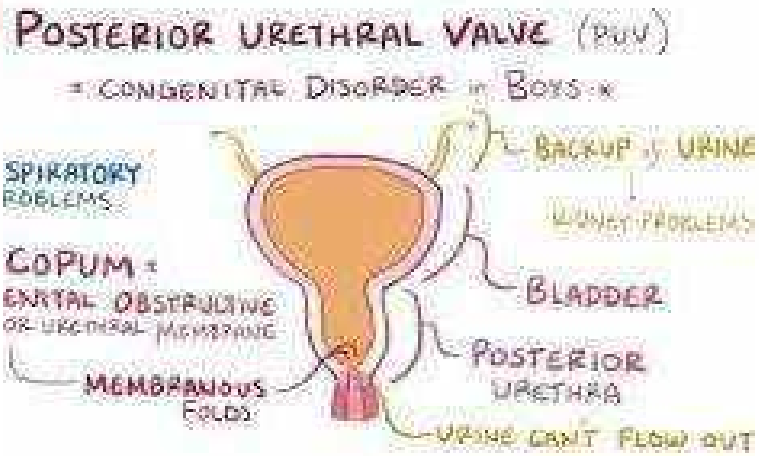
C. Posterior urethral valves

D. Teratoma

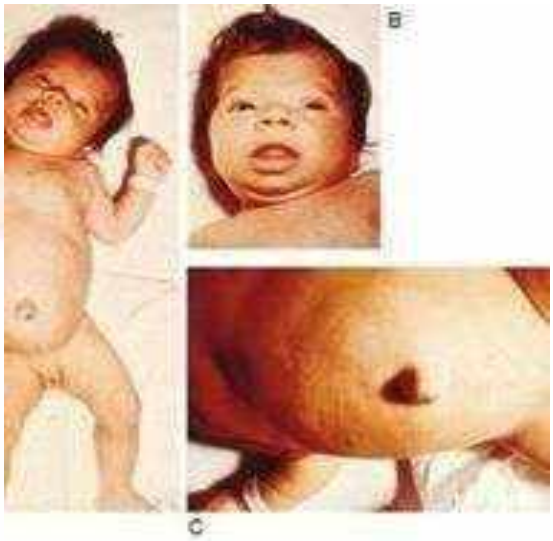
Correct answer :
Option C) Posterior urethral valves

.Lets analyse the question. There is fever, dysuria and gross hematuria – indicates urinary tract infection. But urinary tract infections are uncommon in boys unless there is some congenital anomaly of the urogenital tract. Physical examination shows a prominent suprapubic area which is dull on percussion – due to enlarged bladder – indicating obstruction below the level of bladder. Posterior urethral valve is the most common cause of obstructive uropathy in a male child.(refer image)

Option B)UTI is very uncommon in boys . And it classicallyshows fever,dysuria and gross hematuria.



40.Mrs.Sarika a mother of a 3 week old infant reports that since birth ,her infant sleeps most of the day;she has to awaken her every 4 hours.She is also concerned that the infant has persistently hard,pellet- like stools.On your examination you find an infant with normal weight and length,but with an enlarged head.The heart rate is 80 beats per minute and temperature is 96.7 degree farenheit.The child is still jaundiced .You note large anterior and posterior fontanelles,a distended abdomen and an umbilical hernia.This clinical presentation is likely a result of which of the following?



A. Congenital hypothyroidism
B. Congenital megacolon(hirshsprungs disease)
C. Sepsis
D. Infantile botulism

Correct answer- option A Congenital hypothyroidism-

The classic history of hypothyroidism is given here with constipation, bradycardia, hypothermia ,jaundice persists ,widenend fontanelle, distended abdomen ,umbilical hernia.

B) no bradycardia,hyperthermia or jaundice seen.

C)temperature is more in sepsis

Keywords -Why jaundice is seen in hypothyroidism?due to low levels of t3 and t4,maturation of glucoronly transferase is delayed.Therefore conjugation of bilirubin does not occur Unconjugated bilirubin>conjugated bilirubin

FMGE CLINICAL VIGNETTES

41.A 4 month old girl Lakshmi presents with mild respiratory distress.On examination she has a large tongue ,hepatomegaly and floppy limbs.Chest Xray revealed massive cardiomegaly, ECG reveal short PRinterval and tall QRS complexes.The most likely diagnosis is-

A. Pompes disease
B. Viral myocarditis
C. Ebsteins anomaly
D. Down syndrome

Correct answer-option A) Pompes disease

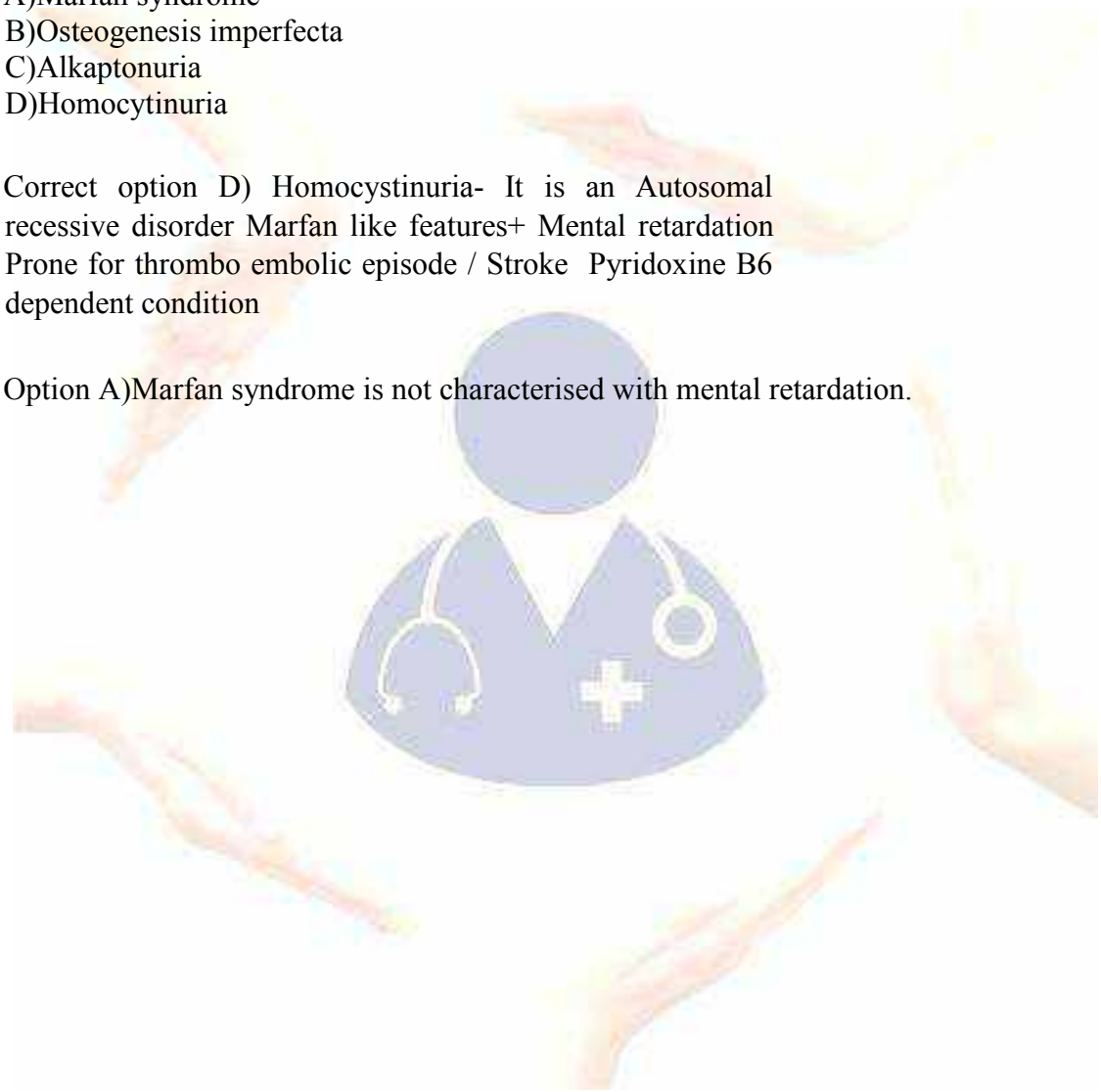
Here key is short PR interval with large tongue,organopathy,floppy baby, cardiomyopathy on Xray.Pompes disease results from lysosomal storage of glycogen in skeletal muscle, cardiac muscle, CNS.Cause-deficiency of Acid maltase enzyme in leucocyte.ECG shows- tall QRS because of cardiomegaly.the size of the ventricles are refelected by R waves.Short PR-PR denotes time taken for impulses to transmit from atria to ventricle.Since Pompes is a glycogen storage disease some glycogen will be deposited in the heart muscles and as glycogen is itself a fast conductor hence the impulse transmitted fast andPR interval short.

42.A 4 year old blue eyed white female manifest a malar flush, mild mental retardation, sub luxation of the ocular lens and marfanoid like features (tall thin, arachnodactyly). The most likely diagnosis is

A)Marfan syndrome
B)Osteogenesis imperfecta
C)Alkaptonuria
D)Homocytinuria

Correct option D) Homocystinuria- It is an Autosomal recessive disorder Marfan like features+ Mental retardation Prone for thrombo embolic episode / Stroke Pyridoxine B6 dependent condition

Option A)Marfan syndrome is not characterised with mental retardation.



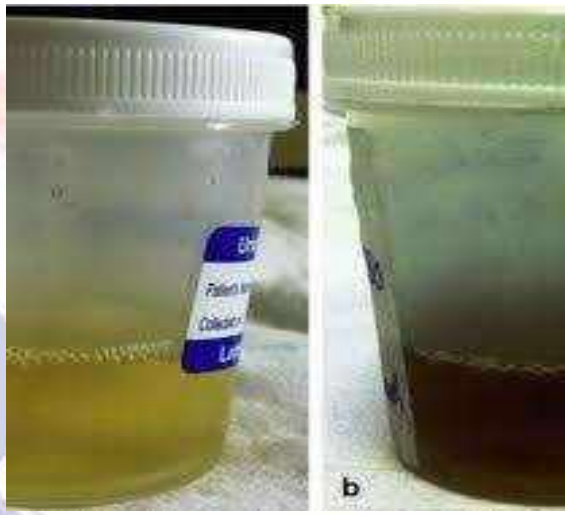
43.An infant is brought to a hospital because her wet diaper turns black when they are exposed toair. Physical examination of infant is normal. Urine is positive when tested with FeCl3. This disorder is caused by a deficiency of ?

A)Homogentisic acidoxidase

B)Phenylalanine hydroxylase

C)Ketoacid decarboxylase

D)Transaminase

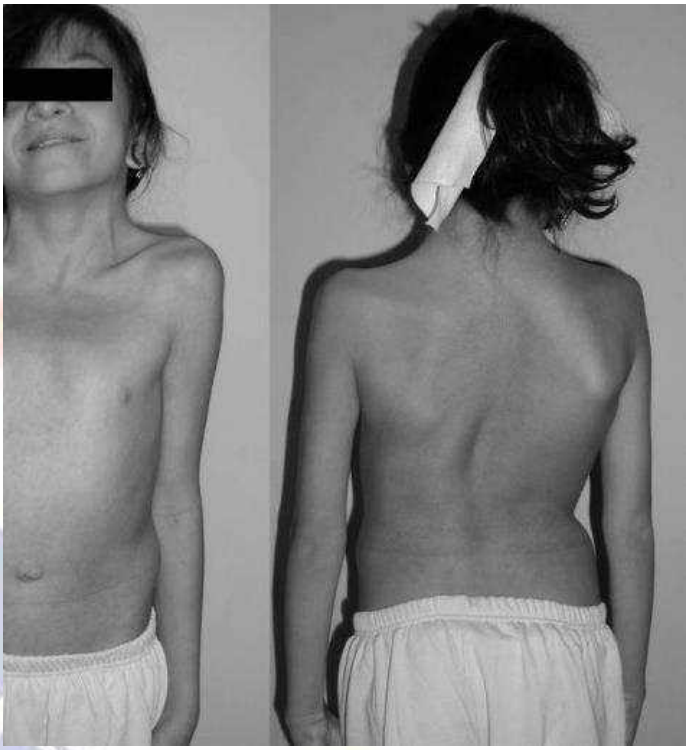


Correct Option A) The infant described in the question has alkaptonuria, an autosomal recessive disorder caused by a deficiency of homogentisic acid oxidase. The diagnosis is made in infants when their urine turns dark brown or black on exposure to air due to the oxidation of homogentisic acid. Affected children are asymptomatic. In adults, onchronosis—the deposition of a bluish pigment in cartilage and fibrous tissue—develops; symptoms of arthritis may appear later. No specific treatment is available for patients who have alkaptonuria, although supplemental ascorbic acid may delay the onset of the disorder and reduce clinical symptoms. The other deficiencies listed in the question are found in phenylketonuria, histidinemia, maple syrup urine disease, andisovaleric, acidemia, respectively. Refer the imageshown is normal urine to the left and black/cola colour urine to the right.

Option B) Phenylketonuria not characterized by black urine.

Option C)Maple Syrup Urine disease is charactrized by distinctive sweet odour of the infants urine and not colour.

44.A 10 year old female child presented with short stature,webbing of neck, cubitus valgus, Her chromosome study shows normal karyotype
most probable diagnosis is- •



A)Turner syndrome

B)Down syndrome

C)Edward syndrome

D)Noonan syndrome

Correct Option D)features are suggestive of Turners Syndrome but here in thequestion karyotype is said to be normal that shows it's a clear case of Noonan Syndrome. Noonans Syndrome- Males and females with normal karyotype who have certain phenotypic features of Turners Syndrome.Autosomal Dominant.Affects Male=Female .20% Familial. Mutation in PTPN 2 gene-chromosome 12q.

Option A)Turners Syn will never show normal karyotype,45XO.

Option B)Downs Syn has an abnormal Trisomy 21karyotype.

Option C) Edward Syn also has abnormal karyotype-Trisomy 18

Keywords-Feature like Turners Syndrome but karyotype normal is Noonans Syndrome.

45.A 10-day-old full term female is brought to the ER after 10 episodes of bilious emesis and increasing abdominal distention over the last 24 hours. She has no past medical history. She passed stool within 48 hours of life and has had a soft stool every 1-2 days since discharge. On physical exam, she has mild tachycardia, a distended, tender, tympanic abdomen, and increased tone on digital rectal exam with no retained fecal material. Upon withdrawal of your finger, a large amount of liquid stool and foul smelling gas is released.Which of the following is the BEST initial step in management of this patient?

A.Barrium enema.

B.IV antibiotics

C.stool sample for clostridium difficile toxins

D.surgical correction

E.Upper GI series with small bowel follow through.

Explanation: correct Answer: B. IV antibiotics

Hirschsprung Disease results from failure of ganglion cell precursors to migrate to the distal colon in utero, causing colonic dysmotility and spasm.

In 80 percent of cases, the affected segment is limited to the rectosigmoid, but it can extend more proximally 10-15 percent of the time.

Up to 95 percent of those with Hirschsprung will fail to pass meconium in the first 48 hours of life, but 5 percent will pass meconium and potentially go undiagnosed.

Definitive diagnosis of Hirschsprung disease is made by demonstrating absence of ganglion cells in arectal biopsy and can be treated with pull-through technique.

Enterocolitis is one of the most serious complications of Hirschsprung Disease, as the mortality rate is high. This complication is seen in both undiagnosed Hirschsprung Disease (such as the patient in the vignette) as well as in those with incomplete resection of the affected bowel.

Fecal retention causes distention of the bowel to the extent that blood flow is compromised and intestinal perforation can occur.

Patients can present with signs of distal obstruction (abdominal distention, bilious emesis), fever, and eventually signs of shock (tachycardia, hypotension, lethargy).

Digital rectal exam will demonstrate increased rectal tone without retained stool and explosive expulsion of foul- smelling stool upon removal of the finger (the socalled “blast sign”).

Abdominal X-ray will show colonic dilitation.

Initial treatment is with broad-spectrum antibiotics (to address the bacterial overgrowth and risk of peritonitis) and fluid resuscitation.

Option A: Although barium enema can be used to assist in the diagnosis of Hirschsprung disease, it is contraindicated when the child presents with acute enterocolitis due to the risk of iatrogenic perforation.

Option C: Acute entercolitis can lead to bacterial overgrowth, causing abdominal distention and foul-smelling stools, but stool testing is secondary to patient stabilization.

Option D: This patient will likely require surgical correction of her underlying Hirschsprung disease, but only after the acute illness is fully treated and the patient is clinically stable.

Option E: Bilious emesis can be a sign of small bowel obstruction, for which an upper GI series may be helpful. However, the presence of abdominal distention suggests distal obstruction, and the presence of the “blast sign” and increased rectal tone make Hirschsprung-associated enterocolitis the most likely etiology.

The Bottom Line:Undiagnosed Hirschsprung disease can present in the neonatal period as acute enterocolitis with abdominal distention and bilious emesis. Patients are at high risk of perforation and shock, and should receive broad-spectrum antibiotics and IV fluid resuscitation as quickly as possible.

46. Darcy is an 8-year-old coming in for academic issues. She has a history of partial seizures that have worsened to grand mal seizures and has been on antiepileptic drugs (AEDs) for approximately 3-years, but she was recently changed from Levetiracetam after her irritable mood became too much for the family. She has been excessively tired and is having problems with remembering items she learned during the school day.Which medicine is MOST likely to be causing these new academic issues?

A. Diphenhydramine
B. Ethosuximide
C. Valproic Acid
D. Zonisamide
E. Tiagabine

Explanation:Correct Answer: C. Valproic acid

Many medications impact academic performance. Side effects, particularly sedation, are common and children are particularly sensitive to this. Sedation not only causes falling asleep during the day or missing time, but also can cause irritability and aggression. (Think about how you feel when you're tired and still being asked to work.)

Medications that are necessary but cause sedation are problematic but a part of everyday practice. Working with known side effects is possible and options may include dosing before bedtime or spacing doses. Other side effects besides sedation impact children and their performance. As mentioned in the vignette, levetiracetam, an antiepileptic, are known to cause behavioral changes and aggression completely independent of sedation. Academic performance is also easily impacted by a variety of other factors, such as home life, sleep duration, and caffeine intake.

Valproic acid is an antiepileptic used in the treatment of generalized or grand mal seizures. Valproix acid has significant cognitive impact, such as memory problems, as well as headaches. (There are multiple other side effects to remember for Valproic acid for boards, but for school performance these are key.) Valproic acid inhibits CYP2C9, causing interactions with a variety of medication metabolized through the same enzyme system and so worsening the side effects of other medications as the medication builds up from inappropriate metabolism.

Option A: Diphenhydramine is an antihistamine used in allergy control, not seizure control. While it is highly sedating and would impact academic performance at least initially, the child would not be on Diphenhydramine for this vignette.

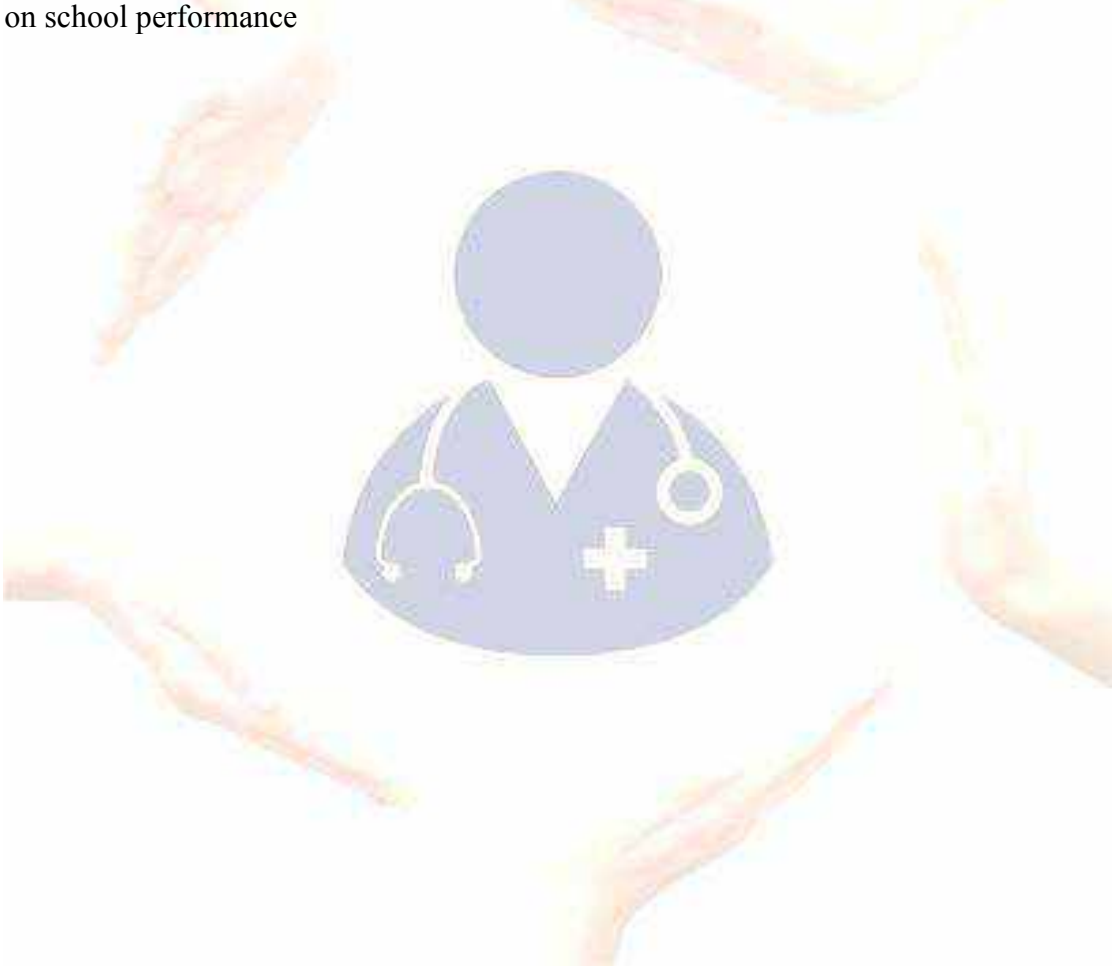
Option B: Ethosuximide is used to treat absence seizures, not grand mal seizures, and it is certain this child is not on this medication, even though sedation is a common side effect. Nephrotic syndrome and rash, as severe as Stevens-Johnson syndrome.

Option D: Zonisamide is an antiepileptic used as an adjunctive therapy, particularly in partial seizures, infantile spasm, Lennox-Gastaut syndrome, and generalized tonic clonic seizures. It would

be used in conjunction with another agent or after failing several agents. Side effects of note include renal stones, nystagmus, and attentional issues.

Option E: Tiagabine is an antiepileptic use to treat partial seizures. There are multiple off label uses that specialists may opt to try Tiagabine (such as neuropathic pain or fibromyalgia). While confusion, difficulty speaking, and psychiatric issues are known side effects which would be a reasonable cause of the academic performance, this would not have been prescribed in this case as the patient is having grand mal seizures.

The Bottom Line:A variety of medications can impact academic performance related to side effects, their known mechanisms, and idiosyncratic reactions. Antiepileptic drugs (AEDs) are a class of drugs that are known to cause sedation as well as cognitive slowing and may have a particular impact on school performance



47.Sathish 13 yr old boy is diagnosed with Celiac disease and experiences Celiac crisis secondary to upper respiratory tract infection. Which of the following is expected to be assessed?

A. Lethargy
B. Weight gain
C. Respiratory distress
D. Watery diarrhea

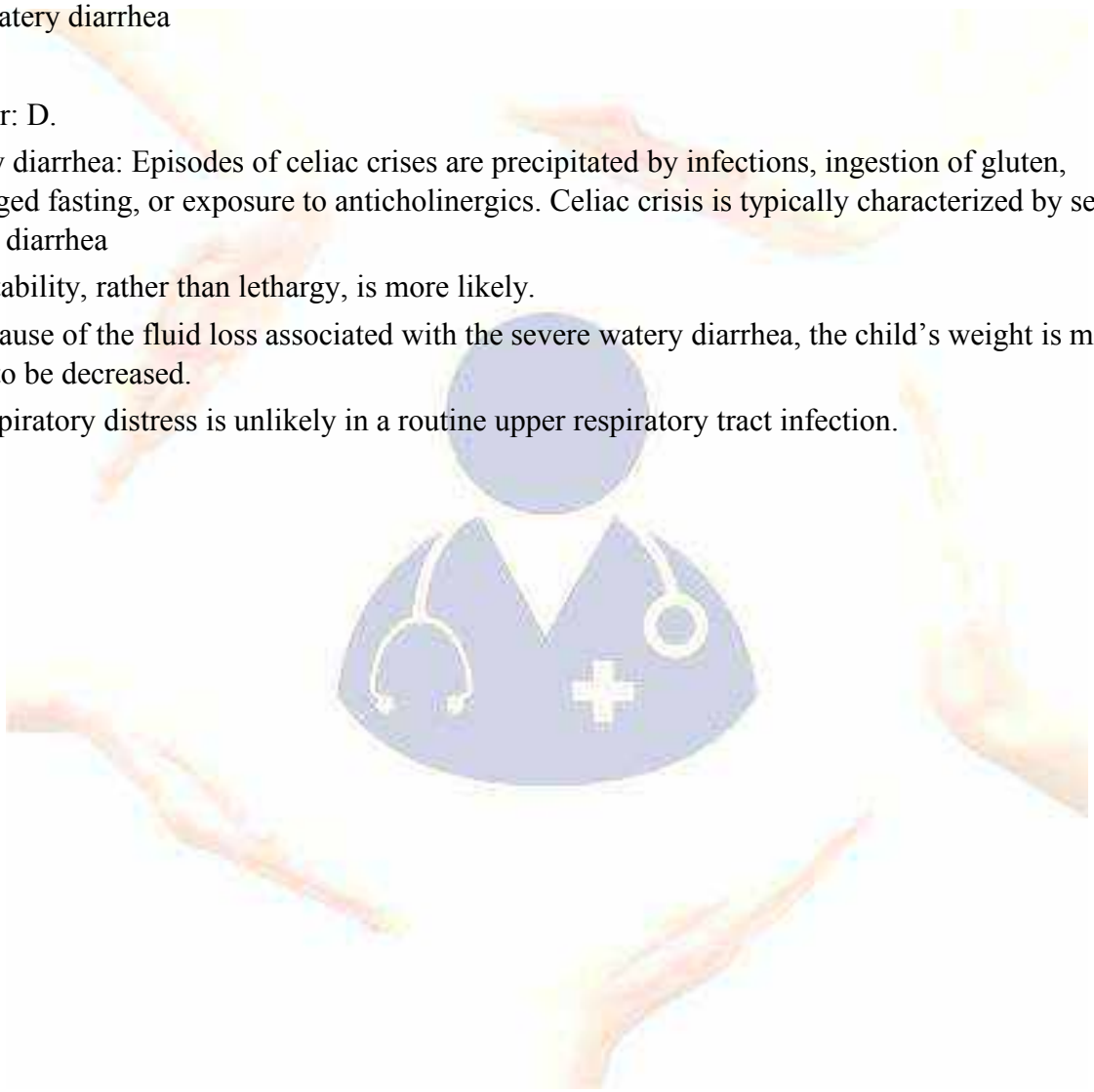
Answer: D.

Watery diarrhea: Episodes of celiac crises are precipitated by infections, ingestion of gluten, prolonged fasting, or exposure to anticholinergics. Celiac crisis is typically characterized by severe watery diarrhea

A: Irritability, rather than lethargy, is more likely.

B: Because of the fluid loss associated with the severe watery diarrhea, the child's weight is more likely to be decreased.

C: Respiratory distress is unlikely in a routine upper respiratory tract infection.



48.An infant was noted to have paralysis of the right hand right after delivery . Miosis and ipsilateral ptosis were also noted . What could be the most probable cause ?

A.Erb's palsy .
B.Horner syndrome .
C.klumpke's paralysis associated with horner syndrome .
D.Phrenic nerve palsy .

Answer : (C) Klumpke's paralysis associated with horner syndrome .

Explanation : All the clinical features [right hand paralysis with miosis and ipsilateral ptosis] that are explained in the above question suggests the diagnosis of klumpke's paralysis associated with horner syndrome .
In klumpke's paralysis , there is an injury to the 7^{th} and 8^{th} cervical nerve and the 1^{st} thoracic nerve . This leads to the paralysis of the hand and the ulnar flexors of the wrist and fingers . The baby lies with supinated arm and extended elbow . There may be unilateral horner syndrome [ipsilateral ptosis and miosis] if the sympathetic fibers of the 1^{st} thoracic root are also injured .

Erb's palsy affects the 5^{th} and 6^{th} cervical nerve .

Phrenic nerve palsy results in diaphragmatic paralysis .

49.A 6 year old child with progressive ataxia , raised intracranial pressure ,loss of weight and enhancing midline mass should be suspected to have which malignancy ?

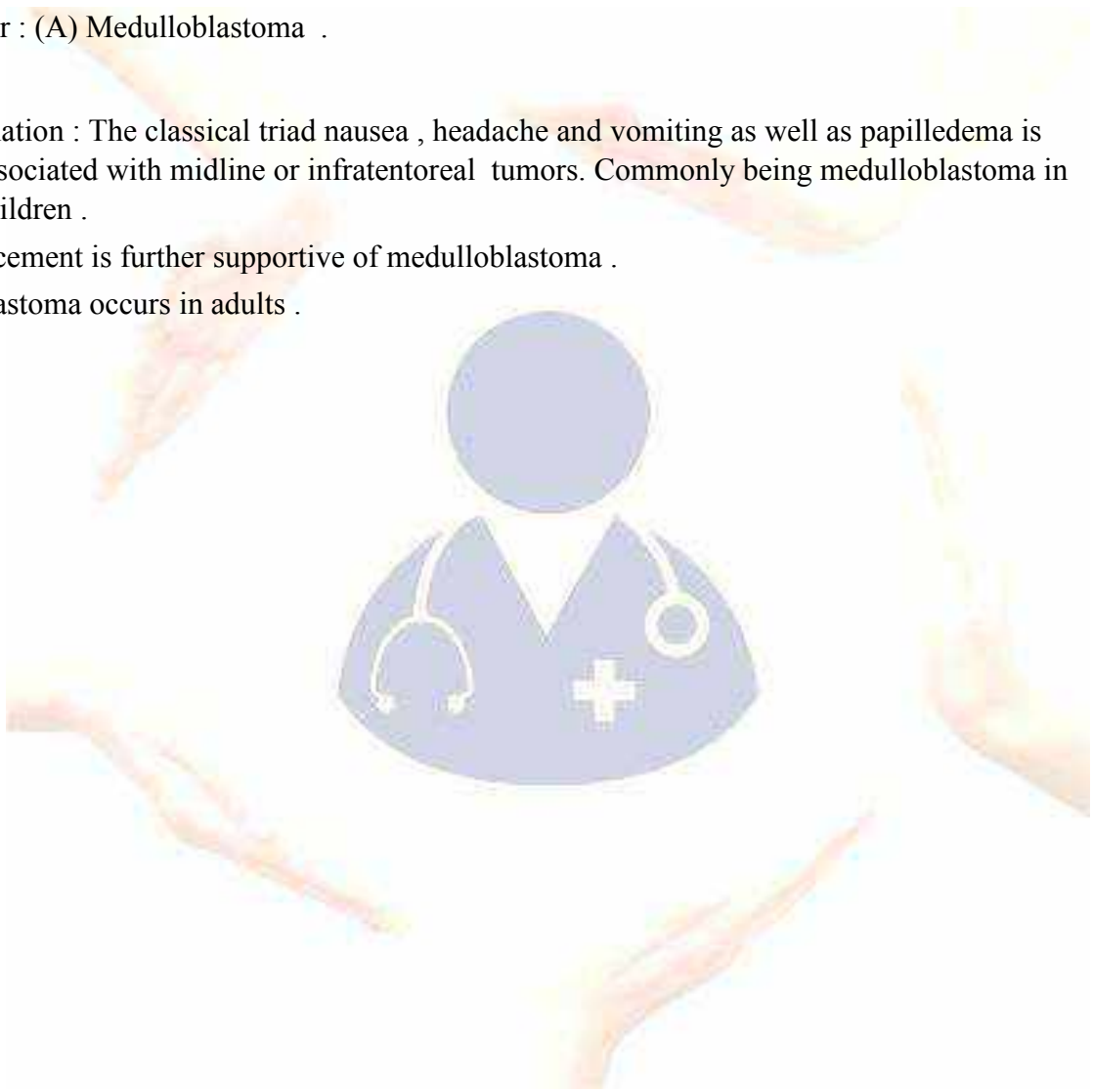
A. Medulloblastoma.
B. ALL with CNS involvement .
C. Neuroblastoma with cranial metastasis .
D. Glioblastoma multiforme .

Answer : (A) Medulloblastoma .

Explanation : The classical triad nausea , headache and vomiting as well as papilledema is associated with midline or infratentoreal tumors. Commonly being medulloblastoma in children .

Enhancement is further supportive of medulloblastoma .

Glioblastoma occurs in adults .



50.A neonate with congenital diaphragmatic hernia is brought to the emergency by his mother on the 3rd day of life with complaints of respiratory distress . The apex beat shifted to the right on intubation and the distress worsened . What is the next best step in the management ?

A. CXR to confirm tube porsition .
B. Insert nasogastric tube .
C. Perform capnography.
D. Emergency surgery .

Answer : (C) Perform capnography .

Explanation : Bag and mask ventilation is contraindicated in children with congenital diaphragmatic hernia .

The first clinical intervention to be done if the child is assymptomatic is , the insertion of nasogastric tube na keep it open .

The first clinical intervention to be done in a symptomatic child is intubation and to start PPV by the ET tube . If distress worsens and apex beat shifts to the right , it is suggestive od esophageal intubation . This can be confirmed by capnography . [If capnography is not availabe ,remove the tube and reattempt intubation]

There is no role of emergency surgery in congenital diaphragmatic hernia.

ORTHOPAEDICS

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"Successful men and women keep moving. They make mistakes, but they don't quit." -Conrad Hilton

INDEX

LOWER LIMB

PAEDIATRIC ORTHOPAEDICS

BONE TUMOUR AND NEUROMUSCULAR DISEASES

UPPER LIMB TRAUMA

PELVIS AND HIP

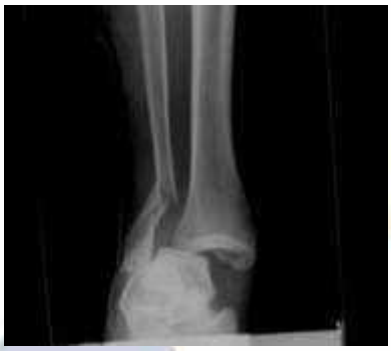
METABOLIC DISORDERS

GENERAL ORTHOPAEDIC AND FRACTURES

INFECTION AND TUBERCULOSIS OF BONES AND JOINTS

LOWER LIMB

1) Vishal a 22 years old male was playing kabaddi with his friends, while a Corner diving movement he landed with his medial side of foot. On inspection his Ankle seems to be tilted Laterally.



The above Radiological image shows the condition .Which classifying system can categorize this condition based on the foot position and the force applied ?

a) Pauwel and Garden Classification

b) Milch classification

c) Lauge Hansen & Danis Weber Classification

d) Winquist Classification

Answer : C Lauge - Hansen & Dannis Weber classification categorizes ankle fracture based on the foot position and the force applied.

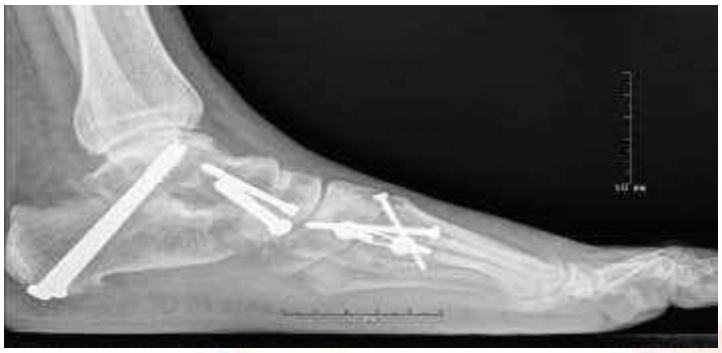
Option A : Pauwel and Garden Classification - Femur neck fracture

Option B : Milch classification - Lateral condyle fracture

Option D :Winquist Classification - Femur fracture

Extra mile: Elbow fracture :- Mayo classification , Proximal humerus fracture :- Neer classification.

2) A 10 years old male child vivek with continuous complaints of pain in rear foot & loss of normal Gait was Diagnosed with severe flat foot deformity.



Surgical procedure was carried out on a patient in order to relieve pain , correct deformity of foot and to stabilize foot . All the following joints are fused Except ?

a) Talonavicular joint

b) Tibiotalar joint

c) Subtalar joint

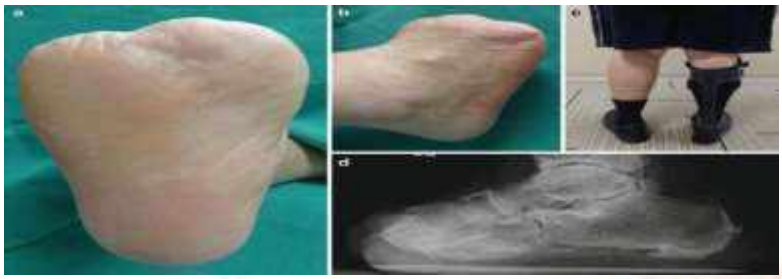
d) Calcaneocuboid joint

Answer : B

The Surgical procedure done here is Triple Arthrodesis done in order to relieve pain ,correct deformity & recreation of stability. Done in patients with Severe flat foot deformity & degenerating Arthritis.

Keywords: It is done by fusing hindfoot joint
#Talonavicular joint
#Subtalar joint
#Calcaneouboid joint

3) 52 year female patient presented to Orthopedic department with Midfoot wounds associated with osteomyelitis in the proximal metatrasals,On the Radilogical examination it is also noted to have dislocation between the three synovial joints between the tarsal and metatarsal bones as a complication.



Above amputation was performed in this patient by the sole being preserved to make flap. What is the Amputation procedure known as ?

a) Syme's Amputation

b) Chopart's Amputation

c) Lisfranc's Amputation

d) Transmetatarsal Amputation

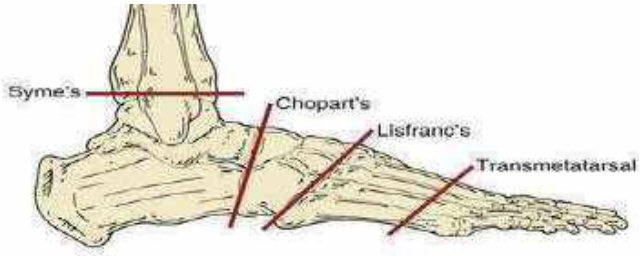
Answer :- C

Lisfranc's Amputation - Level of amputation is at Tarsometatarsal is generally indicated for midfoot wounds with associated osteomyelitis in the proximal metatarsals,extensive forefoot gangrene, frostbite and mangling injuries of the forefoot.

All the following options are incorrect because :-
Option A- Syme's Amputation - Done at level of distal tibia & fibula 0.6cm proximal to the periphery of ankle joint passing through the dome of ankle and both malleoli are removed.

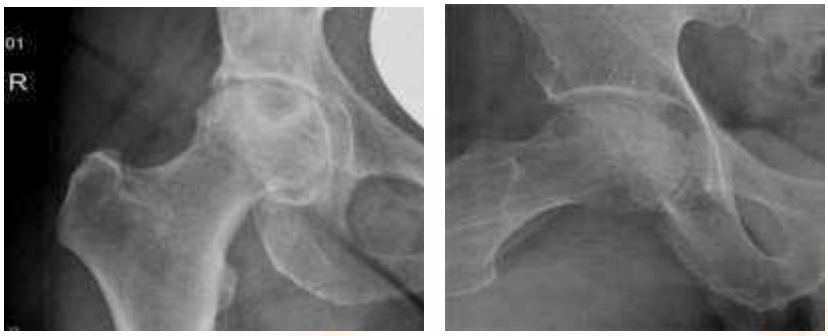
Option B - Chopart's Amputation- Done at level of transverse tarsal joints

Option D - Transmetatarsal Amputation- If all toes are removed along with their associated metatarsal heads



Keywords: #Midfoot wounds associated with osteomyelitis in the proximal metatrasals.
#Complications associated with tarsometatarsal joint.
#Sole preserved used as flap.

4) Ajith a 97kg overweight male with complain of not being able to crouch sit Indian domestic toilet and has rest pain in right hip for 5 months. He has a history of prednisone use .Below is his X-ray feature .



His MRI is suggestive of marrow edema. What is your diagnosis?

a) Osteochondroma of femur

b) Fracture neck of femur

c) Osteonecrosis of femoral head

d) Tuberculosis of Hip

Answer :- C)

Due to High dose steroid use.The left side image shows subchondral cyst , right side image shows positive crescent sign and there is evidence of destruction of articular surface. Steroid is also associated with avascular necrosis.

All the following options are incorrect because :-

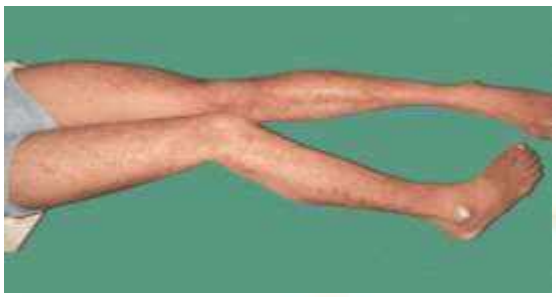
Option A) - Osteochondroma of femur - Bony outgrowths surrounded by a characteristic cartilaginous cap, most commonly arising from the long bones. They are most often asymptomatic.

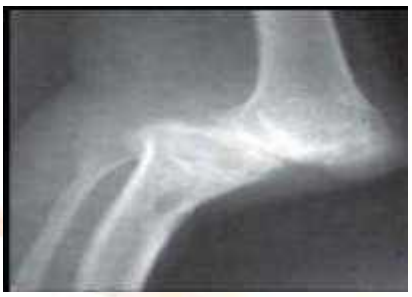
Option B)- Fracture neck of femur - Radiating pain to the knee. Inability to bear weight. Shortening or sideways rotation of the affected leg.Complicate with delayed union and AVN.

Option D) - Tuberculosis of Hip - Symptoms of TB -Fatigue,fever,weightloss & night sweat and Dangerous symptoms like - Neurological complication , paraplegia/paralysis , limb shortening in children & bone deformity.

Keywords:
High dose steroid use
subchondral cyst
crescent sign

5) 18 years old boy Ravi diagnosed with TB knee was presenting with Weight loss , night sweat On further examination and radiological investigation we noted flexion at knee , external rotation & valgus at knee and associated posterior subluxation of tibia as shown below.





All of the following conditions have similar Deformity except ?

a) Iliotibial contracture

b) Poliomyelitis

c) Low clotting capacity

d) Reactive arthritis

Answer : D

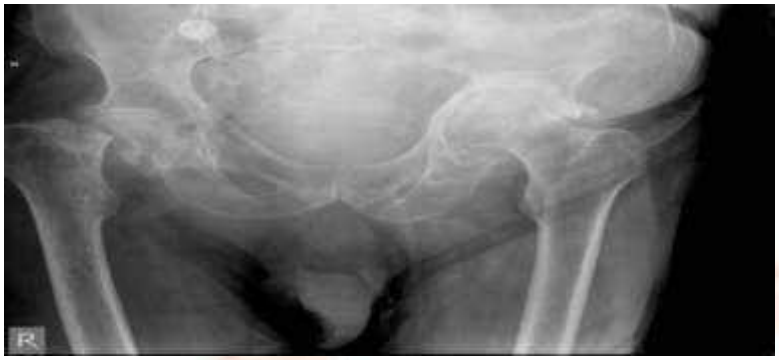
All the above conditions except reactive arthritis present with above mentioned deformity known as Triple deformity is result due to spasm and contracture of biceps femoris and tensor fascia lata.

It consists of :

1. Flexion at knee
2. Postero-lateral subluxation at tibia
3. Lateral rotation and abduction of the leg

Keywords: # Triple deformity of knee is seen in :-
T - Tuberculosis (most common cause)
R - Rheumatoid arthritis
I - Iliotibial band contracture
P - Polio
L - Low clotting capacity
E - Excess bleeding / Hemophilia

6.Satish a 23 year old male was climbing a tree suddenly by missing his balance he fell down . He was presented to a nearby government hospital with severe pain at right hip radiating to knee. After basic resuscitation X-ray was taken as given below.



What is the grading according to **pipkin classification ?**

a) Grade I

b) Grade II

c) Grade III

d) Grade IV

Answer :- C

GRADE	TYPE
I	Dislocation with fracture of the femoral head caudal to the fovea capitis femoris.
II	Dislocation with fracture of the femoral head cephalad to the fovea capitis femoris.
III	Type I or Type II injury associated with fracture of femoral neck .
IV	Type I or Type II injury associated with fracture of Acetabular rim.

7. A 19 year old boy while playing soccer at forward position he was hit by an opponent carelessly straight on the knee .While trying to walk he complained of his proximal leg falling forward . He was taken to near Hospital , the doctor performed a test and noted that the Anterior tibial tuberosity was easily subluxed anteriorly . What tests are being performed here ?

a) Anterior draw test and lachman test

b) Posterior draw test and posterior sag sign

c) Pivot shift sign and reverse pivot shift

d) Collateral ligament stress test and McMurray's test

Answer :- A

Positive result in this test diagnoses anterior cruciate ligament tear.

Anterior Draw test
90 degree fexion required

Lachmann test
10- 20 degree flexion required

All the following options are incorrect because :-

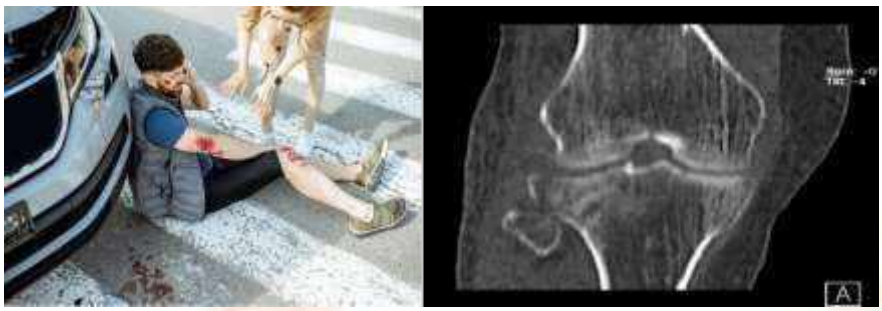
Option B) - Posterior draw test and posterior sag sign - Demonstrates Posterior cruciate ligament

Option C) - Pivot shift sign Demonstrates ACL tear and Reverse pivot shift Demonstrates PCL tear.

Option D)- Collateral ligament stress test - Demonstrates medial and lateral collateral ligament tear
McMurray's test & Crouch Compression - Demonstrates meniscal tear

Keywords: Anterior subluxation of ATT , c/o proximal leg falling forward, knee injury , Anterior draw test positive & lachmann test positive

8. Ashfaq was crossing the road while attending mobile call and talking simultaneously. Suddenly a car came and he got hit by the bumper (valgus force) of the car. There was a crepitation sound felt while moving the leg , After basic support Radiological examination was taken .



What is the next step?

a) Immediate resuscitation

b) Cylindrical caste

c) Ilizarov ring

d) ORIF

Answer :- D

Lateral tibial condyle in this case is freely moving there for fixation is only option All the following options are incorrect because :-

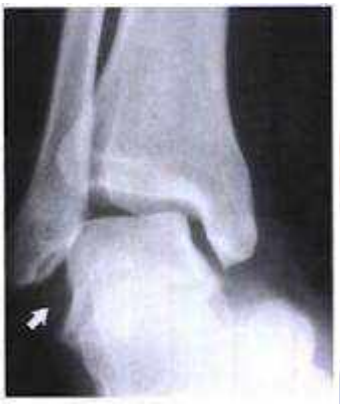
Option B) :- Cylindrical caste is for undisplaced patellar fracture

Option A):- Immediate resuscitation not needed since basic support already given before radiological examination

Option C) :- Ilizarov ring is fixed when bone gap is present.

Keywords: Car hit , lateral tibial plateu & Bumper

9) A 27-year-old man came to the orthopedic clinic because he had pain in the ankle since he sustained an inversion injury 8 days ago. The patient is otherwise healthy. On physical examination, the skin is intact and mild edema is noted. Tenderness to palpation is noted over the distal fibula and anteromedial ankle. Neurovascular examination shows no abnormalities. X -ray study is shown. Which of the following is the most appropriate management?



a) Application of a long leg cast

b) Application of a short leg cast

c) Open reduction and internal fixation

d) Closed reduction and external fixation

Answer :- C

The x-ray study shows oblique fracture of the lateral malleolus, widening of the medial clear space, and lateral displacement of the talus. On the basis of these findings, the diagnosis is supination external rotation, type IV (Danis Weber B2), which is an unstable injury to the ankle that requires operative intervention.

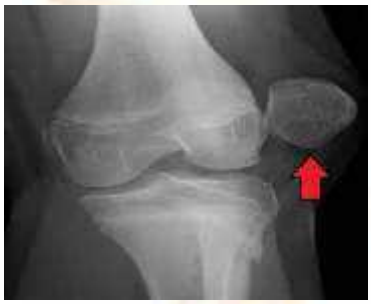
Option (A), Application of a long leg cast, is plausible but incorrect because closed reduction must be performed first. Additionally, even with adequate closed reduction and cast immobilization, outcomes with surgery are superior.

Option (B), Application of a short leg cast, is incorrect because this method of immobilization allows internal and external rotation of the leg and is, therefore, not suitable management of this patient's injury.

Option (D),Closed reduction and external fixation, is incorrect because although this intervention is useful for fractures of the tibial plafond or for ankle arthrodesis, it is not appropriate for the injury described.

Keywords: Oblique fracture of the lateral malleolus, widening of the medial clear space, and lateral displacement of the talus.

10) . A 21-year-old woman is brought to the emergency department after she sustained an injury to the left knee while Skating. The patient says she felt sudden, severe pain in the knee when she turned a corner quickly. She fell to the ground and was unable to bear weight on the left leg. Physical examination shows swelling and deformity of the Left knee as well as inability to fully extend and straighten the left lower extremity. X-ray studies show dislocation of the patella. In addition to administration of analgesics, which of the following is the most appropriate management?



a) Arthroscopic lateral release

b) Arthroscopic medial plication

c) Tibial tubercle medialization

d) Closed reduction of the patella

Answer :- D

Prompt reduction of a dislocated patella is the most appropriate management because the longer the patella remains dislocated, the more damage is done to the medial retinaculum and the medial ligamentous structure. In addition, risks of closed reduction are minimal compared with other surgical options.

Option (A), Arthroscopic lateral release, is incorrect because this procedure is not indicated for management of acute patellofemoral instability. It is a more suitable intervention for patients with retinacular tightness and pain.

Option (B), Arthroscopic medial plication, is incorrect because this procedure is used to manage chronic patellofemoral instability.

Option (C), Tibial tubercle medialization, is incorrect because this procedure is used to correct patellofemoral alignment in patients with patellofemoral instability due to factors such as increased Q angle.

Keywords: The patient's age, gender, and athletic activity are all predisposing factors of this injury, and the x-ray study confirms the diagnosis.Swelling and deformity of the Left knee as well as inability to fully extend and straighten the left lower extremity.

PAEDIATRIC ORTHOPAEDICS

1) Rahul, a 4-year-old boy presented with painful swelling over the left shoulder.

Radiograph of the shoulder as shown over the proximal humeral epiphysis. Biopsy of the lesion revealed an immature fibrous matrix with scattered giant cells. Which of the following is the most likely diagnosis?

a) Chondromyxoid fibroma

b) Osteosarcoma

c) Giant cell tumour

d) Chondroblastoma

Answer :- D

Radiograph of the shoulder showed an osteolytic area with stippled calcification over the proximal humeral epiphysis.

Option A) :- Chondromyxoid fibroma :- It can not be the answer because it is a very rare benign cartilaginous tumor representing less than 0.5% of all bone tumors while also being the rarest cartilaginous bone tumor. Common locations of occurrence include the metaphyseal region of the proximal tibia and distal femur.

Option B) :- Osteosarcoma :- It can not be the answer because the characteristic radiological features are sun-burst appearance, periosteal lifting with formation of Codman's triangle .

Option C) :- Giant cell tumour :- It can not be the answer because it occurs only with a closed growth plate about the articular surface: 84-99% come within 1 cm of the articular surface well-defined with non-sclerotic margin.

Keywords: # Painful swelling over shoulder
Osteolytic area with stippled calcification over the proximal humeral epiphysis. # Immature fibrous matrix with scattered giant cells

2) A 9-year-old boy presenting with a cubitus varus defor-mity and a history of trauma 3 months back on clinical examination, has the preserved 3 bony point relationship of the elbow. The most probable diagnosis is:

a) Non- union lateral condylar humerus

b) Malunited intercondylar fracture of humerus

c) Malunited supracondylar fracture of humerus

d) Old unreduced dislocation of elbow

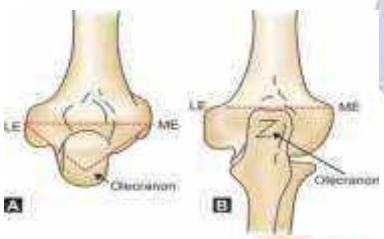
Answer :- C

Malunion is a more common complication of supracondylar fracture. The supracondylar joint area maintains the 3 bony points.

Gartland originally described a classification for extension-type supracondylar humerus fractures, dividing them into three types: type I is non-displaced

type II is displaced with an intact posterior cortex

type III is displaced without cortical contact.



The three prominent points of the elbow, namely the tips of the medial and lateral epicondyles and the tip of the olecranon, have a fixed relationship with one another.

Other options have no relation with 3 bony point.

Keywords: Bony point relationship of elbow, Carrying angle of the elbow, Complications of supracondylar fracture, Cubitus valgus deformity, Displacements in supracondylar fracture, Injuries around elbow.

3) Padhu a 3 year old boy, presents with refusal & is not willing to use his left arm for 1 day. He is otherwise well. His mother states she pulled upward on his arm the previous evening to keep him away from sharp utensils in the kitchen . Which of the following is the most likely diagnosis?

a) Subluxation of the radial head

b) Greenstick fracture of the humerus

c) Colles fracture

d) Rotator cuff injury

Answer :-A

Radial head subluxation, also known as pulled elbow or nursemaid's elbow. The annular ligament, that holds the elbow bones in place, is weaker in children than in adults.

The following options cannot be the answer because:-

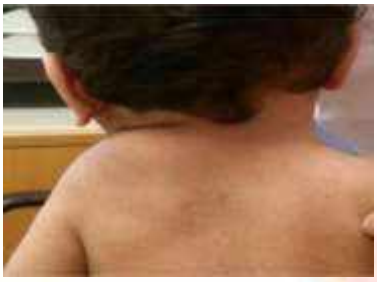
Option B) :- Greenstick fracture of the humerus :- the history commonly include accidental trauma like FOOSH, but can include history like being hit with a baseball bat or other item, and other forms of accidental trauma. However, non-accidental trauma should always be considered depending upon their age.

Option C) :- Colles fracture :- It is a complete fracture of the radius bone of the forearm close to the wrist resulting in an upward (posterior) displacement of the radius and obvious deformity Known as dinner fork deformity also known as a bayonet deformity, occurs as the result of a malunited distal radial fracture.

Option D):- Rotator cuff injury :- Difficulty achieving full range of shoulder motion may cause impingment syndrome

Keywords: # Age less than 3years
Sudden pulling force
Refusal of use

4)18 months old child has features of low set hairline , short web neck & restriction of neck movement as shown below also suffering from scoliosis and cardiac abnormality was noted.



What is your diagnosis ?

A) Sprengel shoulder deformity

B) Klippel feil syndrome

C) Turner syndrome

D) Noonan syndrome

Answer :-B

Condition affecting the development of the bones in the spine. People with KFS are born with abnormal fusion of at least two spinal bones (vertebrae) in the neck. Common features may include a short neck, low hairline at the back of the head, and restricted movement of the upper spine caused by mutations in the GDF6 or GDF3 genes; it is inherited in an autosomal dominant pattern.

The following options cannot be the answer because:-

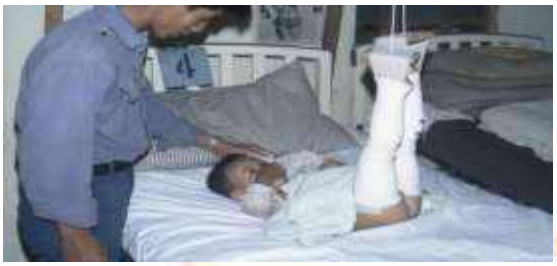
Option A) :- Sprengel shoulder deformity :- Rare congenital disorder in which the shoulder blade (scapula) is too high on one side of the body. The affected an abnormal shoulder blade is also abnormally connected to the spine, often restricting movement of the shoulder.

Option C):- Turner syndrome :-Turner syndrome, a condition that affects only females, results when one of the X chromosomes (sex chromosomes) is missing or partially missing

Option D):- Noonan syndrome :- Disorder that involves unusual facial characteristics, short stature, heart defects present at birth, bleeding problems, developmental delays, and malformations of the bones of the rib cage. Noonan syndrome is caused by changes in one of several autosomal dominant genes.

Keywords: Short neck, low hairline at the back of the head, and restricted movement of the upper spine caused by mutations in the GDF6 or GDF3 genes

5) You are a Intern doctor and while posted in orthopedic department you came across a procedure being done in 14 months baby like this :



This procedure is done in which fracture condition ?

a) Shaft of tibia

b) Tibial plafond

c) Shaft of femur

d) Neck of femur

Answer :- C

A method of treating fractures of the thigh bone (femur) in young children.
Skin traction is applied to both legs and the child is suspended from a beam so that the buttocks are just clear of the bed. Also known as Bryant's gallows traction.

The following options cannot be the answer because:-

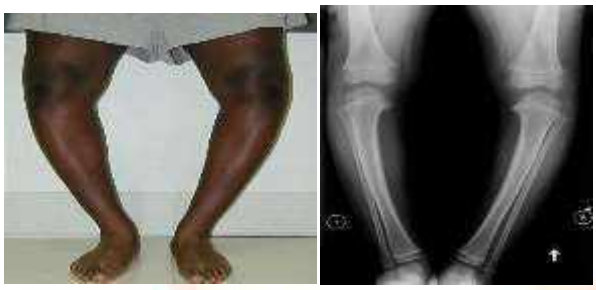
Option A):- Shaft of tibia :- This includes flexible intramedullary nailing, Kirschner wire fixation, external fixation, locked intramedullary nailing, and plating.
Complications are uncommon but include deformity, growth arrest, nonunion, and compartment syndrome.

Option B) :- Tibial plafond:- Long leg cast for 6 weeks followed by fracture brace and ROM exercises Operative :- Temporizing spanning external fixation across ankle joint .

Option D) :- Neck of femur :- For most proximal and neck of femur fractures in children, treatment consists of closed reduction followed by a spica cast or open or closed reduction followed by internal fixation and a spica cast.

Keywords: Both legs and the child is suspended from a beam so that the buttocks are just clear of the bed.

6) Jenin 3 year old obese male child from west indies presented with bowed legs caused by Dysplasia of proximal posteromedial tibial epiphysis.



There was no known family history and mental development was normal. What is your diagnosis ?

a) Blount's disease

b) Hunter's disease

c) Morquio disease

d) Engelmann's disease

Answer :- A

Classically seen in African- American obese male child (first 3 year) and in west Indies.Disease caused by abnormality of proximal posteromedial tibial epiphysis.Presents as pathologic tibia vara.

The following options cannot be the answer because:-

Option B):- Hunter's disease :- Dwarf with dorso lumbar kyphosis, knock knees, flat feet and mental deficiency may occur no corneal opacity.

Option C) :- Morquio disease:- Autosomal recessive, Dwarfism affecting both limbs & trunk and sometimes corneal opacity present.

Option D) :- Engelmann's disease :- Autosomal recessive, Symmetrical, fusiform enlargement and sclerosis of shafts of the long bones in children. Epiphysis is not involved.

Keywords: West indies , Dysplasia of proximal posteromedial tibial epiphysis & bowed legs

7.A 3-year-old girl is brought by her parents because she had pain in the Left hip with weight-bearing as well as obvious limping for the past week. The patient's parents say they have noticed the child favoring his left leg during the past few weeks. She has not had any recent illness or injury to the leg. Medical history includes no chronic disease conditions. Physical examination shows Pain on passive internal rotation of the hip joint and mild diffuse atrophy of the left thigh muscle. Radiological studies of the hip and femur show no abnormalities. Which of the following studies is the most appropriate next step?

a) Aspiration of the hip

b) Bone scan

c) CT scan

d) MRI

Answer :- D

The clinical presentation is characteristic of Legg-Calvé-Perthes disease, and MRI is the most sensitive study for staging of this condition.

Option (A), aspiration of the hip, is incorrect because the patient has no history of current or recent illness and, therefore, septic joint is very low on the differential diagnosis list.

Option (B), bone scan, is incorrect because it can only confirm the presence of avascular necrosis and not the extent of involvement of the femoral head.

Option (C), CT scan, is incorrect because although this study is used to diagnose Legg-Calvé-Perthes disease, it is not as sensitive as MRI.

Keywords:
Limping.
Pain or stiffness in the hip, groin, thigh or knee.
Limited range of motion of the hip joint.
Pain that worsens with activity and improves with rest.

8.Jeeva, a 9-year-old boy is brought to the office by his mother because he had intermittent pain in the right hip during the past two weeks. The patient moves with difficulty. The patient is obese but otherwise healthy. On physical examination, vague pain in the groin is elicited on range of motion of the right hip. The most appropriate next step is x-ray studies to rule out which of the following conditions?

a) Femoral acetabular impingement syndrome

b) Legg-Calvé-Perthes disease

c) Slipped capital femoral epiphysis

b) Septic arthritis

Answer :-C

Slipped capital femoral epiphysis. The history and physical examination findings are characteristic of slipped capital femoral epiphysis, including obesity, limp, and pain with range of motion of the joint.

Option (A), femoral acetabular impingement syndrome, is incorrect because the most appropriate study to rule out this condition is MRI, not x-ray studies.

Option (B), Legg-CalvéPerthes disease, is plausible but incorrect in this patient considering his age because the mean age of onset of Legg-Calvé-Perthes disease is 7 years and x-ray studies do not rule this condition out.

Option (D), septic arthritis, is plausible but incorrect because the patient has no history of acute illness and x-ray studies do not rule this condition out.

Keywords: Vague pain in the groin on range of motion, difficulty in moving & obesity.

9.A male neonate who was delivered vaginally at term two hours ago has a deformity of the right foot. On physical examination, plantar flexion of the ankle, inversion of the subtalar joint, medial subluxation of the talocalcaneal and calcaneocuboid joints are noted. The position of the foot cannot be passively corrected. Which of the following disorders is the most likely diagnosis?

a) Congenital clubfoot

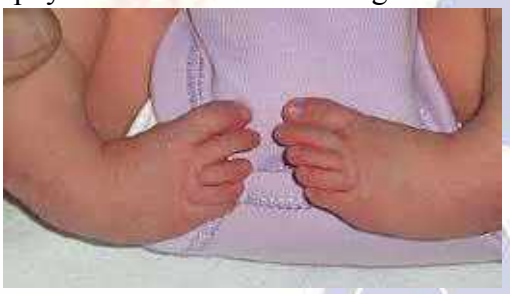
b) Calcaneovalgus

c) Metatarsus adductus

d) Pes planus

Answer :- A

The physical examination findings described are characteristic of congenital clubfoot.



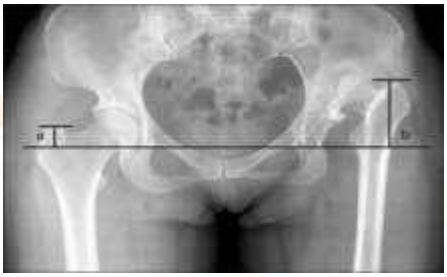
Option (B), calcaneovalgus, is incorrect because this condition involves the foot in dorsiflexion, not plantar flexion.

Option (C), metatarsus adductus, is incorrect because this condition is characterized by deformity that can be passively corrected.

Option (D), pes planus, is incorrect because in patients with this condition, the foot is flexible.

Keywords: Plantar flexion of the ankle, inversion of the subtalar joint, medial subluxation of the talocalcaneal and calcaneocuboid joints.

10) 6 month old male child with a history of breech presentation , His mother comes with a complaint that her left leg appears to be shorter and turned outward. The physician performed a test by adducting the thigh and push posteriorly & the physician is able to feel the clunk sound . Finally he ordered an X- ray .



What is the diagnosis and splint used?

A) Lower limb discrepancy and Von rosen splint

B) DDH and Von rosen splint

C) DDH and Pavlik Harness splint

D) Lower limb discrepancy and Pavlik Harness splint

Answer :-C

The Pavlik harness is a soft splint. It is most commonly used for treating infants with developmental dysplasia of the hip (DDH). It helps keep the infant's hips and knees bent and the thighs spread apart. It can also help promote healing in babies with broken thighbones (femurs). The test done here was the Barlow test.

The following options cannot be the answer because:-

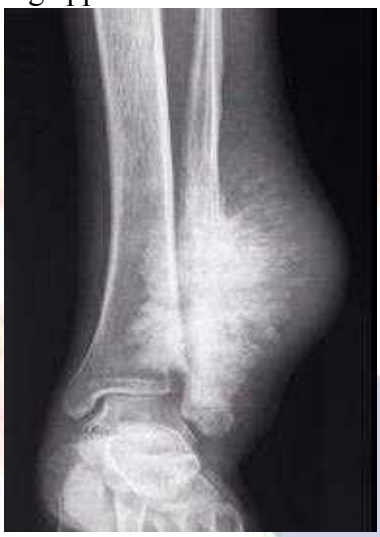
Option A &D) :- Lower limb discrepancy and Von rosen splint :-Treatment for a discrepancy depends upon the severity. In many cases, a minor difference in leg length can be evened out by wearing a lift in one shoe. A child with a more significant difference, however, may benefit from surgery to make his or her legs the same length.

Option B):-A von Rosen splint is used to treat unstable hip joints caused by congenital dysplasia. The splint is made of aluminium and covered with ethylene vinyl acetate, a soft, non- allergic and waterproof foam.

Keywords: Barlow test, leg appear shorter and turned outward.

BONE TUMOUR AND NEUROMUSCULAR DISEASES

1) The following appearance is seen in which tumor?



a) Ewing's sarcoma

b) Osteosarcoma

c) Multiple myeloma

d) Osteoclastoma

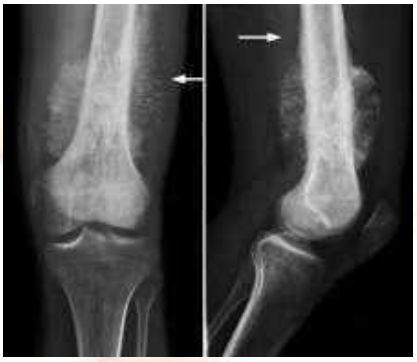
Answer:- B Osteosarcoma is immature bone forming tumour , primary is common in 15-25 years old ,common site include – lower end of Femur(MC)

Location – metaphysis , hematogenous spread mc to lungs

X-Ray findings include- Sunray appearance , codman's triangle

T/t – Biopsy, Neoadjuvant chemotherapy, limb salvage surgery,Amputation

2) A boy presenting with the swelling at lower end of femur in metaphysis with calcified ,nodular shadow in lung has?



a) Osteosarcoma

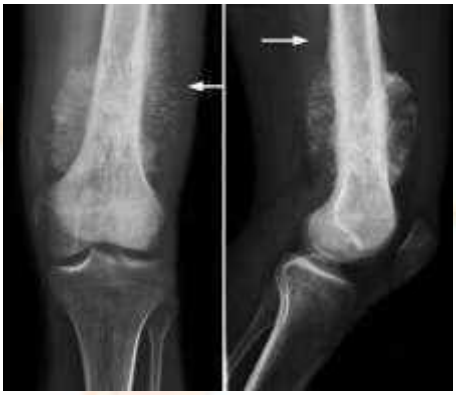
b) Osteochondroma

c) Tuberculosis femur lower end

d) Osteomyelitis

Answer :-B

3) A boy presenting with the swelling at lower end of femur in metaphysis with calcified ,nodular shadow in lung has?



a) Osteosarcoma

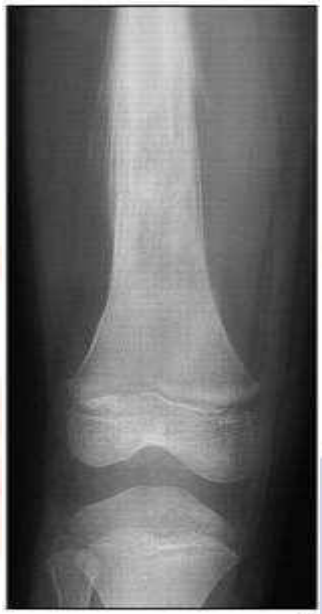
b) Osteochondroma

c) Tuberculosis femur lower end

d) Osteomyelitis

Answer:-A

4) A 13 years old boy having Round cell tumor on femur X-ray findings shows onion peel appearance as shown in the following image what is the diagnosis?



a) Osteosarcoma

b) Ewing's sarcoma

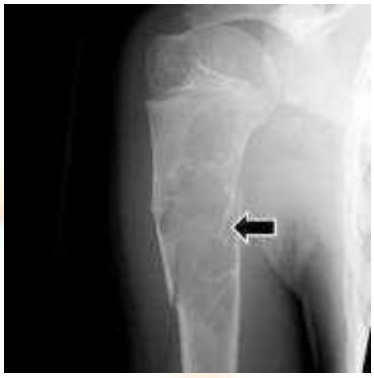
c) Osteoclastoma

d) Chondrosarcoma

Answer:-B It is marrow tumour mc in first decade of life

MC site – Femur and Tibia ,X-rays shows Onion- Peel periosteal reaction
T/t – Both Radio and chemosensitive

5. What is the most common site of the following



a) Upper end of humerus

b) Lower end of humerus

c) Lower end of tibia

d) Upper end of Femur

Answer:-A

This image is of simple bone cyst /unicameral bone cyst
MC site is proximal humerus
X-ray finding shows – fallen leaf appearance /fallen fragment
T/t- If small- observation/injection of steroids if large curettage

6.Shyam a 56 years old man has an expansive growth metaphysis with endosteal scalloping and dense punctate calcification .Most likely the bone Tumour is?

a) Osteosarcoma

b) Chondrosarcoma

c) Osteoclastoma

d) Osteoid osteoma

Answer :-B

Malignant cartilaginous tumors commonly in flat bones MC age is 55- 60 years

Histopathology shows – multiple punctate , calcification in an underlying chondroid matrix

T/t – Both Radio and chemo resistance Wide surgical excision

7.A 68 years old lady presented with mild low back pain tenderness in L3 vertebra. On examination Hb 8 gm, ESR – 110 mg/hr, A/G ratio of 1:2 Most likely diagnosis is ?

a) Chondrosarcoma

b) Multiple myeloma

c) Bone secondaries

d) None

Answer:-B

MC primary bone malignancy arise from plasma cells , age involves >50 years , site is flat bones
(spine mc)

C/F – involves back pain , pathological vertebrae fractures X-RAY skull – multiple punched out lytic lesions

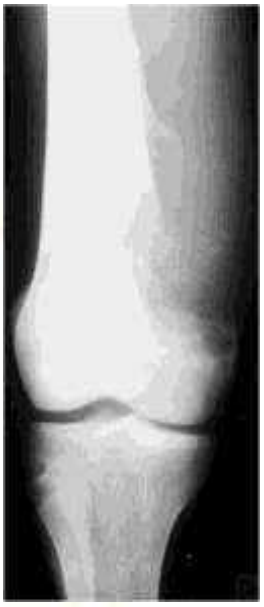
Investigations shows- Increase in ESR, hypercalcemia,alkaline phosphate N In LFT A:G 1:2

24- hrs urine sample- Bence Jones protein

T/t- chemotherapy

8.A child has a smooth, tender swelling at the lower end of femur for 6 months. On X Ray there in new growth seen. No joint involvement. Diagnosis?

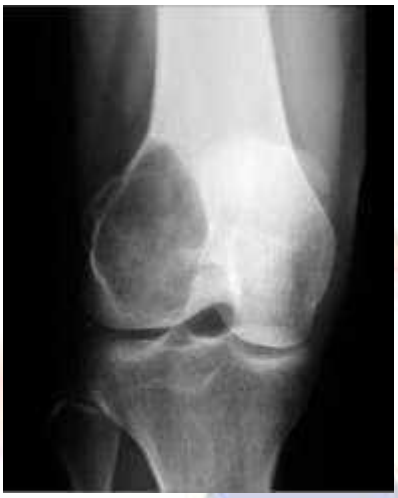
A.Osteosarcoma
B. Osteoclastoma
C.Arthritis followed by residual osteomyelitis
D. Chronic osteomyelitis



Answer: A

the image shows Codman's triangle which is a small area of subperiosteal new bone formation.

9) The following appearance is seen in?



A) Ewing's sarcoma

B) Osteoid osteoma

C) Osteoclastoma

D) Osteosarcoma

Answer:-C

It is benign but locally aggressive tumour

Mc age involve is 20-40 years , tumour of 5 E's expansile,eccentric, egg shell cracking ,epiphyseal , excision and bone grafting

X-ray shows soap bubble appearance

10.A 72 years old came to OPD with the chief complaint of back pain.On investigations his Hb was 8.5 gm ,ESR -115 mg/hr, A:G was 2:4 , 24 hrs urine sample shows Bence Jones protein ,What is the diagnosis?

a) Eosinophilic granuloma of bone

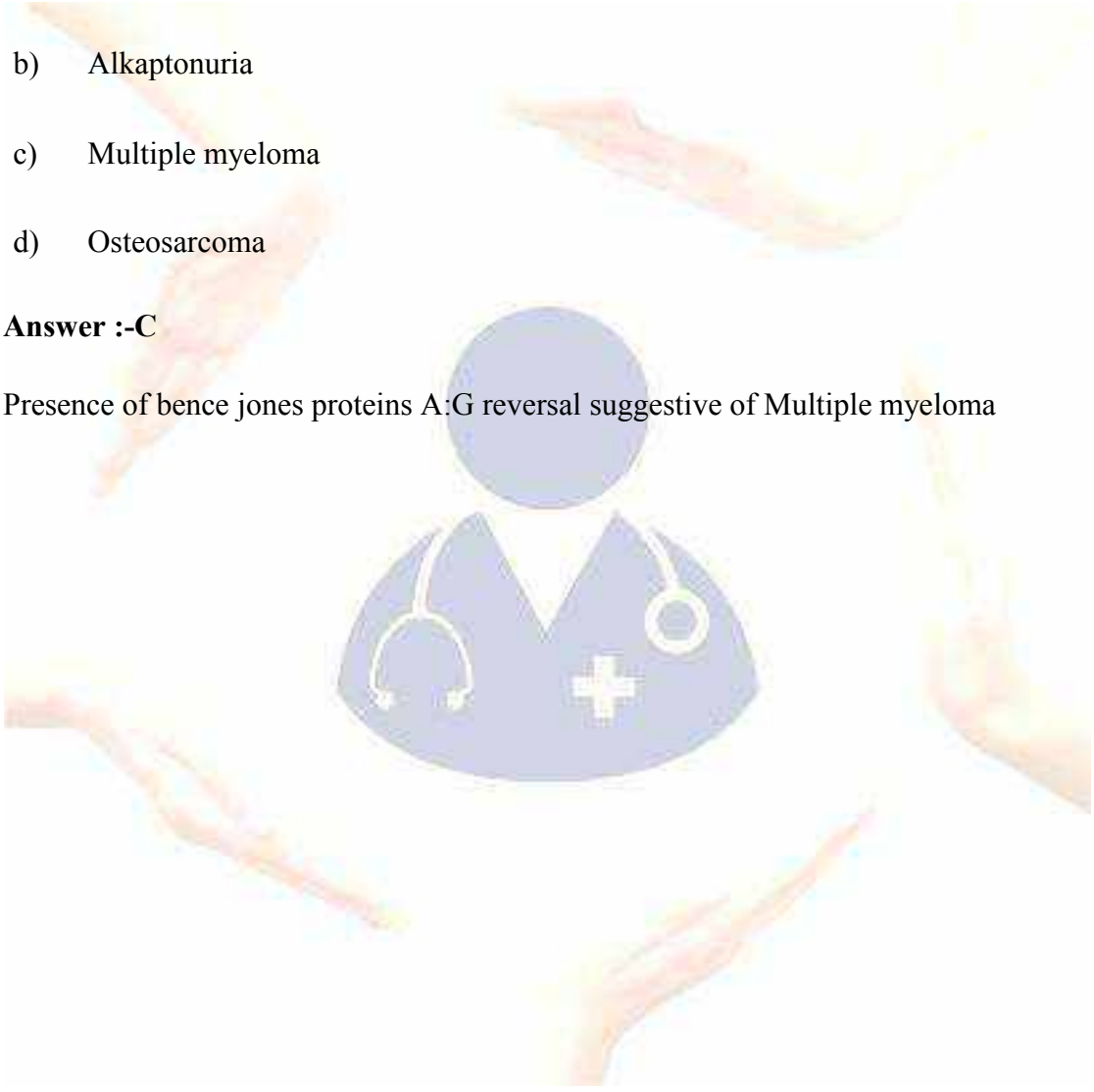
b) Alkaptonuria

c) Multiple myeloma

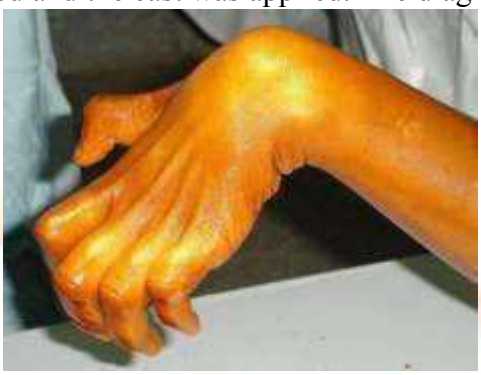
d) Osteosarcoma

Answer :-C

Presence of bence jones proteins A:G reversal suggestive of Multiple myeloma



11.A patient presented with claw hands after a supracondylar fracture was reduced and the cast was applied. The diagnosis is?



a) Median nerve injury

b) Volkmann's ischaemic contracture

c) Ulnar nerve injury

d) Radial nerve palsy

Answer:-C

Ulnar nerve injury claw hand deformity is due to ulnar nerve injury.

12) A factory worker has laceration proximal to the wrist with no opposition of thumb and fingers, loss of sensation over lateral aspect of thumb and fingers. Diagnosis is injury to ?

a) Median nerve +ulnar nerve

b) Median + radial nerve

c) radial + ulnar nerve

d) median nerve only

Answer:-A

UPPER LIMB TRAUMA

1.A biker dashed on to the back of a Lorry as the lorry doesn't have any brake indicator lights. The biker was conscious but was unable to stand on his own . His co riders brought him into the emergency . Doctor on duty investigated the patient and advised for an xray. After the results ,by other treatment methods the patient was made stable .Now the Doctor asked some of his interns to go through Allman's classification on their books and correlate with the patient.Which of the following is not the incorrect statement?

a) Axillary nerve is most commonly injured

b) Only bone that ossifies by endochondral ossification

c) Patient experiences floating shoulder with complete fracture of glenoid ,clavicle,proximal humerusand its ligaments

d) Malunion is the most common complication.

Answer**:- D**

Keypoint:- Allmanns classification

Explanation**:-**

Allmans classification is for clavicle fracture

Option A.Axillary nerve is most commonly injured in proximal humerus fracture

Option B.only bone that ossifies by enchondral ossification-its intramembranous Classification

Option C.patient experiences floating shoulder with complete fracture of Glenoid ,clavicle,proximal humerusand its ligaments –floating shoulder does not include fracture of proximal humerus.

2) Mother of a 4.5 year old boy brought his son to the OPD,requesting the doctor on duty to make some surgeries to bring back his son's hand structure(given in the picture) to its normal.While taking history,doctor comes to know the boy fell off from a tree 2 years back.On checking his older reports and xrays , doctor identified fracture on the patient's arm with unaltered bony point on elbow.what is the earliest complication,the patient might experienced in such case?

a) Tardy ulnar nerve palsy

b) Compartment syndrome

c) Myositis ossificans

d) Brachial artery injury

Answer:-B Compartment syndrome is the earliest complication of supracondylar fracture of humerus

Option A.Tardy ulnar nerve palsy seen in lateral condyle humerus fracture

Option C.Myositis ossificans is the late complication of supracondylar fracture of humerus

Option D.Brachial artery injury immediate complication of supracondylar fracture of humerus

Keypoints: Age (2-5),fall off from a tree,unaltered bony point on elbow and with the picture which denotes cubitus varus deformity aka gunstock deformity,the case is diagnosed as supracondylar fracture of humerus

3) In a birthday party of 1 year old female child, some of her relative pulled childs left hand to hold her.Suddenly the child started crying aggressively.Father ran into Emergency with the baby.Xray was advised.Results are shown as below.Which of the following in the given statement is wrong?

a) Fracture of coracoid process

b) .comminuted fracture of radial head

c) comes under Mason classification

d).posterolateral dilocation of elbow

Answer:-A

Explanation:-

Coronoid process is seen in radial bone, whereas coracoid process is seen in scapula

Keywords:- child, pulled childs left hand,XRayfinding-housemaid hand/nursemaid hand

4.A 45 years old gym trainer,complains of on and off pain during his work.when the doctor examined,patient had pain when the following test was performed,exaggerating approximately at 100 degrees.Which is the correct statement regarding the condition?

a) Rotator cuff on the inferior has been damaged

b) Bankart repair is done as the treatment

c) Patient is suffering from rotator cuff impingement

d).Axillary nerve in the upper triangular space is compressed

Answer:- C

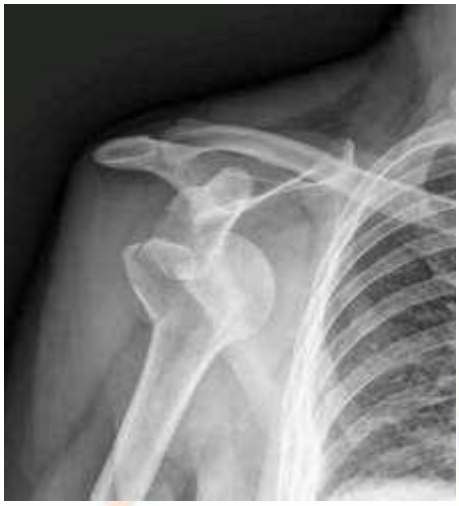
Option A Rotator cuff on the inferior has been damaged –rotator cuff lacks inferiorly

Option B Bankart repair is done as the treatment-Bankart repair is the treatment of recurrent anterior dislocation of shoulder

Option D Axillary nerve in the upper traingular space is compressed- axillary nerve is in the quadrangular space also compression doesnot causes pain,only it causes numbness(neuropraxia)

Keywords-Hawkins kennedy test is performed in the Picture, exaggerating pain at 100 degrees confirmed the diagnosis of rotator cuff impingement

5.A 34 years old EB wiring man was brought into Emergency as he fell from the transformer during his work.Doctor on duty,noticed that the arm was abducted and rotated outwards.The x ray results showed as below .Upon examination he also noticed increase in diameter of axilla.which of the following is the correct statement regarding the condition?



a) Lesion in anterior rim of glenoid labrum.

b) Suspecting an low intensity electric shock before falling down

c) The condition is also known as luxatio erecta

c) Depression of anteromedial surface head of humerus

Answer:- A

Lesion in anterior rim of glenoid labrum. known as bankart lesion leading to recurrent dislocation of the shoulder

Option B: Suspecting an low intensity electric shock before falling down-H/O

Electrical shock in posterior dislocation

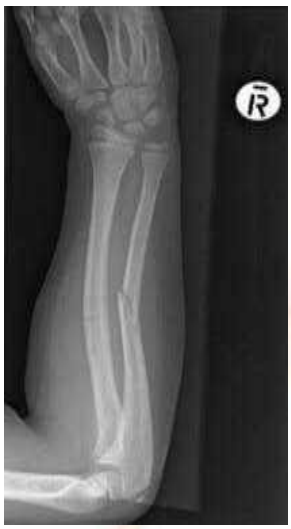
Option C: the condition is also known as luxatio erecta-another name of inferior dislocation

Option D: Depression of anteromedial surface head of humerus – in recurrent posterior dislocation

Keywords:- increase in diameter of axilla (callaway test), XRay denotes anterior dislocation

abducted and rotated outwards- shows recurrent anterior dislocation

6.A 9 year old boy while skating in his school, fell off. The boy was crying in pain holding his right wrist and forearm simultaneously.His trainer does some first aid and also suspected a fracture.Ran into the emergency department.Xray was advised and the results are shown as below.which is the most suitable statement for this condition?



a) Intraarticular fracture of distal radius

b) Isolated fracture of ulnar shaft with radius intact

c) Its an unicortical fracture

d) .Higher incidence seen also for adults with osteoporosis and achondroplasia

Answer:- C Its an unicortical fracture in both bones of forearm in children resulting in bending /deformation

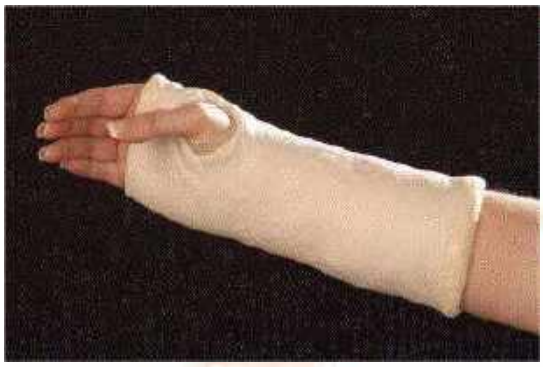
Option A Intraarticular fracture of distal radius –Barton fracture

Option B Isolated fracture of ulnar shaft with radius intact-Nightstick fracture

Option D.Higher incidence seen also for adults with osteoporosis and achondroplasia –never seen in adults.

Keypoints:- 9 year old boy, skating(sports injury),xray. Diagnosed as greenstick fracture

7.A 68 Years old female came in to the OPD for the follow up with the below shown cast.She has an history of slippage in her backyard during an heavy rain with power cut ,21 days back.what is the most common complication of this condition and which position does the cast immobilize the wrist?



a) Malunion,ulnar deviation

b) carpal tunnel syndrome,pronation

c) stiffness,pronation

d) carpal tunnel syndrome,palmar flexion

Amswer:- C Complications of Colles fracture: Stiffness (M.C), malunion , carpel tunnel syndrome and complex regional painful syndrome

Colles cast immobilize wrist by palmar flexion,ulnar deviation,pronation.

Keywords:- A 68 Years old female (elderly),colles cast(also known as handshaking cast), slippage in her backyard during an heavy rain with power cut(slippage leading to low velocity trauma),

8.A 52 years sickle maker came in to OPD complaining of some kind of irritation and mild pain near the left wrist radiating to the fingers also .He told the doctor , that he had fracture 6 years back near the thumb with tenderness in lateral snuff box and showing the doctor his old x ray report,which was given below.which of the following is incorrect regarding this condition except?

a) It is also known as garden spade deformity

b) Avascular necrosis on the distal pole is the most common complication

c) Precarious vascularity is the actual cause of malunion

d).patient was speaking about a bean shaped bone.

Answer:- D.

Patient was speaking about a bean shaped Scaphoid bone

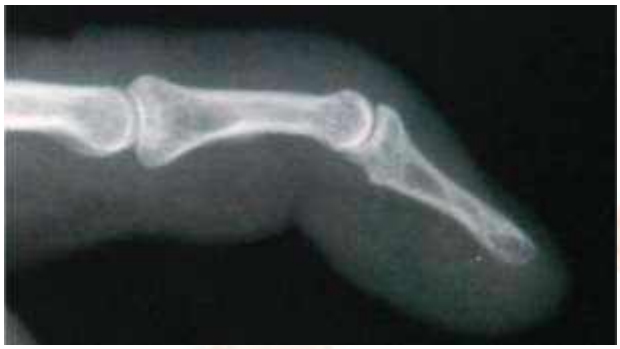
Option A.It is also known as garden spade deformity-garden spade deformity is smith fracture or reverse colles fracture

Option B.Avascular necrosis on the distal pole is the most common complication – It is not the distal pole it is proximal pole

Option C.Precarious vascularity is the actual cause of malunion-it is nonunion

Keywords:- tenderness in lateral snuff box.

9. An alcoholic was found Bullying with his neighbor.When trying to slap his neighbour unknowingly he hit a brickwall.Next day after his hangover,he felt pain on one of his finger and unable to extend his finger tip (distal interphalangeal joint).what is the name of the condition?



a) Skiers thumb

b) Mallet finger

c) Jersey finger

d) Boxer's fracture

Answer:- B

Mallet finger is a condition,unable to extend distal interphalangeal joints after hitting straight into the wall.

Option A skier's thumb-injury to ulnar /medial collateral ligament

Option C.jersey finger-inability to flex the d.i.p joint

Option D.boxer's fracture- fracture of neck of 5th metacarpal

Keywords: hit a brickwall, unable to extend his finger tip (distal interphalyngeal joint).

10. De Quervain Tenosynovitis coincides with which of the following?

a) Impingement of lateral boundaries of snuff box

b) Impingement of medial boundary of snuff box

c) Rupture of lateral boundaries of snuff box

d) Rupture of medial boundary of snuff box

Answer:- A De Quervain Tenosynovitis is condition due to impingement of abductor pollicis longus and extensor pollicis (which are the lateral boundaries of snuff box)

Keywords:know the exact definition of De Quervain tenosynovitis

PELVIS AND HIP

1. A patient came into Emergency after a car accident.After the examination patient was noted to have loss of sensation over dorsum ,foot and 1st web space of right leg.shortening was found.what is the most probable diagnosis?

A). Anterior dislocation of hip

B) bumper fracture

C). Posterior dislocation of hip

D). Bimalleolar fracture of ankle

Answer:- C.

The mechanism of posterior dislocation of hip is dashboard injury.comes under Thompson Epstein classification.
Sciatic nerve is the most commonly injured nerve.sciatic nerve is formed by tibial nerve and common peroneal nerve.deep peroneal nerve supplies the 1st web space and lateral compartment of the leg supplies the skin on dorsum and foot.

Keywords:- car accident, loss of sensation over dorsum ,foot and 1st web space of right leg, shortening was found

Option A.anterior dislocation of hip-no shortening will be seen

Option B bumper fracture-tibial condylar fracture

Option D.bimalleolar fracture of ankle-pott's fracture

2.A 67 years old female fell down slipping off in restroom.Attitude of the leg was found to be flexed,rotated externally and positioned away from thr body,but there was no shortening .what is the most probable diagnosis and what is the reason that there was no shortening.

a) Anterior dislocation of hip,rectus femoris

b) Anterior dislocation of hip,biceps femoris

c) Posterior dislocation of hip,rectus femoris

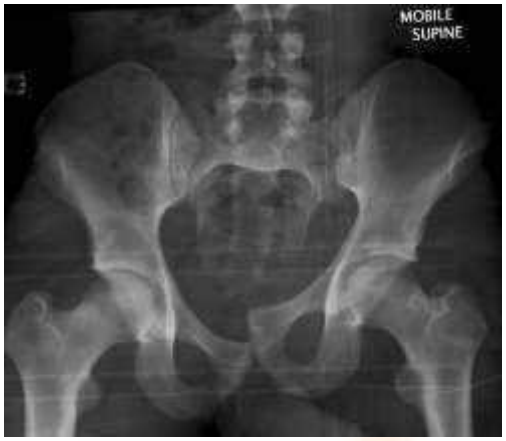
e) Posterior dislocation of hip,biceps femoris

Answer:- A

Anterior dislocation of hip is most commonly seen in elderly,attutude will be flexion+abduction+external rotation(faber).no shortening will be found as it is supported by rectus femoris muscle

Keywords:- 67 years old female, flexed,rotated externally and positioned away from the body(abducted), no shortening

3.Mechanism of given fracture ?



a) Lateral compression injury

b).anteroposterior compression

c) vertical shear injury

d) straddle injury

Answer:- C

Uprising of hemipelvis is known as Malgaigne fracture..Mechanism of malgaigne fracture is vertical shear injury.

Option A.lateral compression injury-crescent fracture

Option B.anteroposterior compression-open book injury

Option D.straddle injury- fracture of all 4 pubic rami

Keywords:- Left pelvis is moved upward in the xray finding.

4. Young & Burgess classification

a) # of neck of femur

b) # of acetabulum

c) # subtrochanteric

d) # in Pelvis

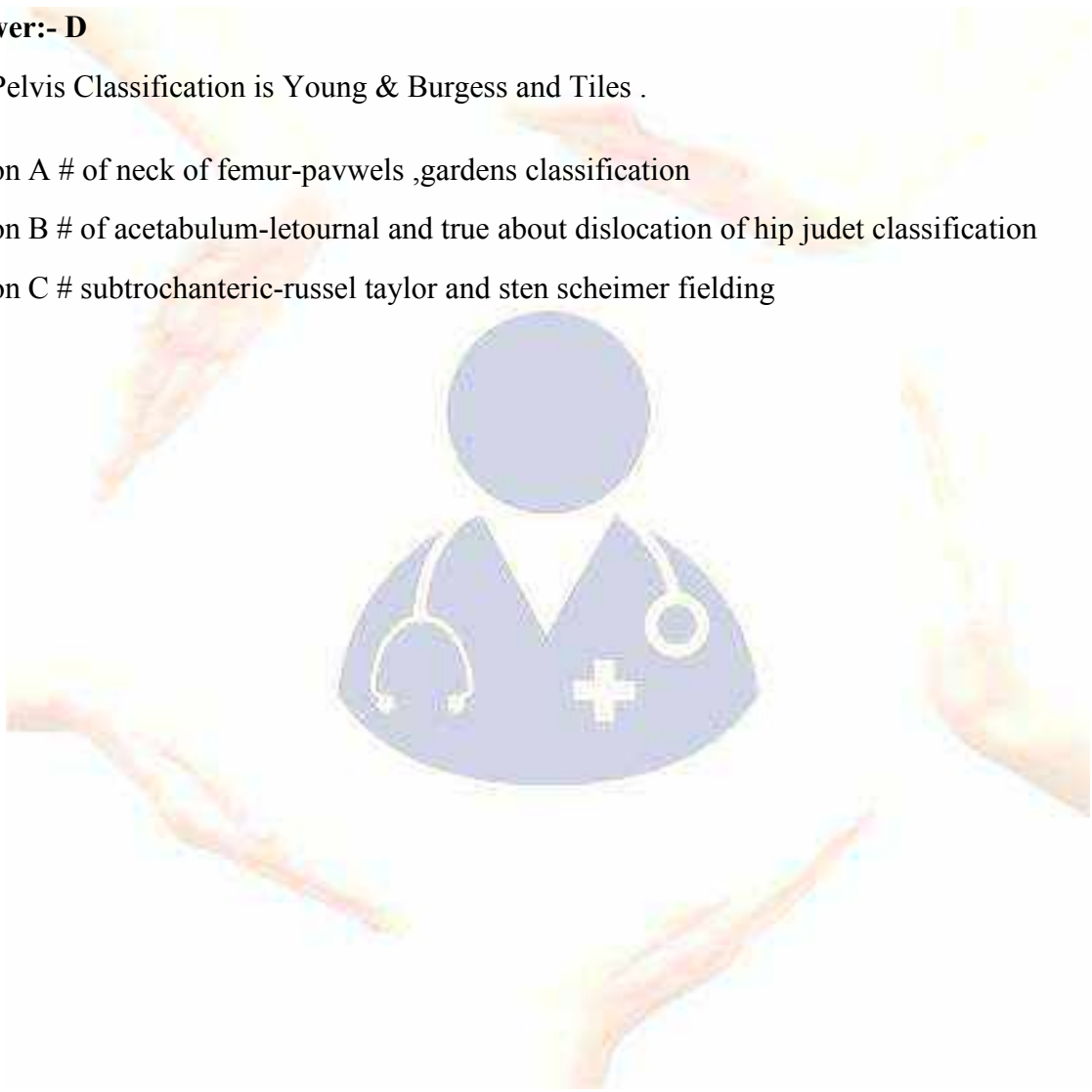
Answer:- D

in Pelvis Classification is Young & Burgess and Tiles .

Option A # of neck of femur-pavwels ,gardens classification

Option B # of acetabulum-letournal and true about dislocation of hip judet classification

Option C # subtrochanteric-russel taylor and sten scheimer fielding



5.True about dislocation of hip

a) Anterior dislocation is the most commonest

b) Palpable head of femur on per rectal examination in central dislocation of hip

c) central dislocation of hip is associated with posterior acetabular wall

d) Posterior dislocation of hip is commonly seen with elderly

Answer:- B

Palpable head of femur on per rectal examination is seen exclusively only in central dislocation of hip

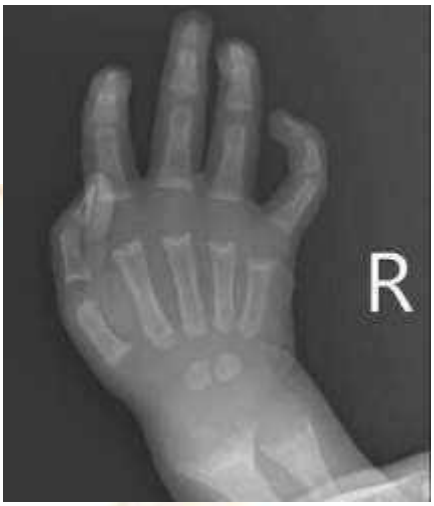
Option A.anterior dislocation is the most commonest-posterior dislocation is the most commonest

Option C. central dislocation of hip is associated with posterior acetabular wall #-central dislocation of hip is associated with displaced acetabular fracture

Option D.posterior dislocation of hip is commonly seen with elderly-anterior dislocation of hip is most commonly seen with elderly

METABOLIC DISORDERS

1.True about the given condition except?



a) Pigeon chest deformity is seen in this condition

b) ALP is the most consisitent marker with normal upper limit of 440IU/L

c) Knock knee is seen while the patient is walking.

d) ALP is decreased in case of chronic renal failure patients

Answer:- D

The given condition is rickets due to defect in mineralization of bone in children. alp is the most consistent marker with normal upper limit of 440iu/l.but in chronic renal failure(crf) patients ,due to decreased process of excretion ,alp starts accumulation in the body,hence alp will be seen increased in case of crf patients

Keywords:-xray of wrist with splaying fraying and cupping.

2.A 52 year old woman, came in to her physician complaining of joint pains.Some scans were done and scores are given as -2.3.What is the correct statement considering the score?

a).Severe osteoporosis

b).Osteopenia

c) Normal

d) osteoporosis

Answer:- B

0 to -1 Normal

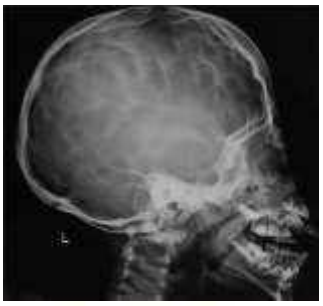
-1 to -2.5 Osteopenia

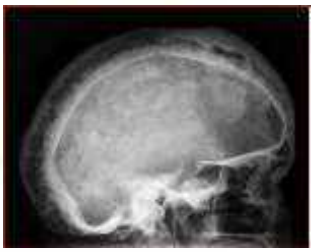
</= -2.5 Osteoporosis

-2.5 + pathological fracture Severe osteopenia

Osteopenia,osteoporosis,severe osteoporosis is seen mostly in post menopausal women

Keywords:-52 years old women- postmenopausal age





3. True about pagets disease

a) condition due to decrease in bone turnover

b) also known as osteomyelitis deformans

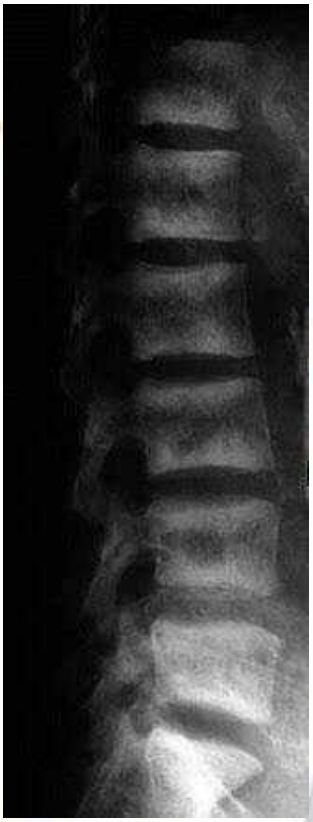
c) Copper beaten appearance

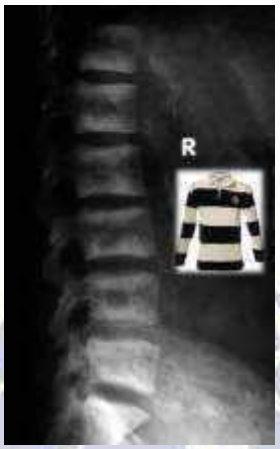
d) None of the above

Answer:-D

Paget's disease is caused by an increase in bone turnover. also known as osteitis deformans. Cotton on wool skull is the classical x ray finding in paget's disease (option c is copper beaten skull) seen in increased ICP.

4.Primary pathology for the given condition in x ray is?





a) Hormonal(postmenopausal)

b) Vitamin C deficiency

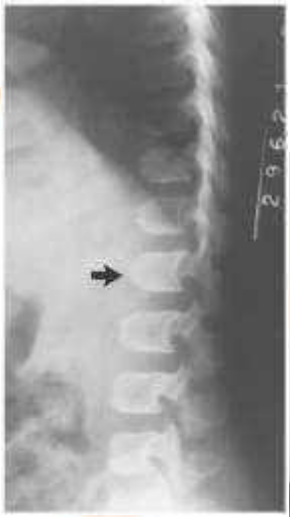
c) Inactive osteoclasts

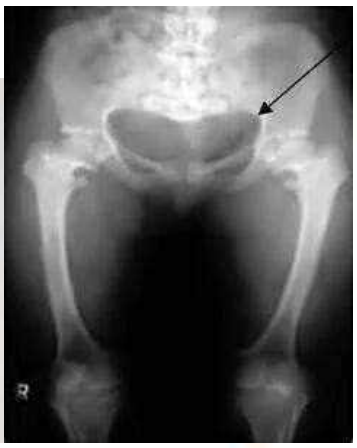
d).HLA B27 association

Answer :- C

Rugger jersey appearance is seen in osteoporosis.primary pathology of osteopetrosis is inactive osteoclasts.

5.False about the given condition





a).Normal life expectancy

b) rhizomeic shortening

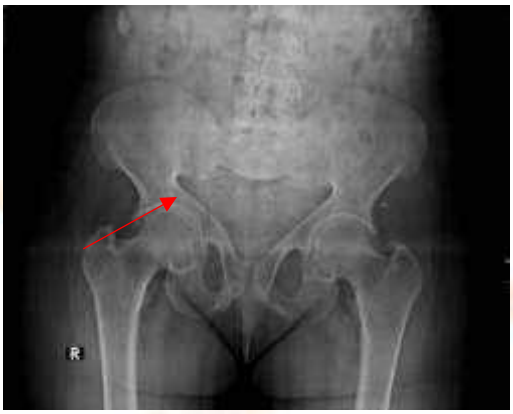
c).Associated with mental retardation

d) recurrent ENT infection

Answer :- C

Achondroplasia is a condition with rhizomelic shortening, bullet shaped vertebra(fig1) ,starfish shaped hand (fig 2),champagne glass pelvis(fig3) normal life expectancy, recurrent ent infection. No mental retardation is seen.

6.Identify.



a) Scurvy

b) Osteoporosis

c) Rickets

d) Osteomalacia

Answer :- D Osteomalacia is a defect in bone mineralization in adults.

Triradiate pelvis is shown in the x ray ,which is one of the classical findings.

Other x ray findings include pseudo fracture,milkmansfracture,loosers zone.

7. White line of frenkel is seen common with ?

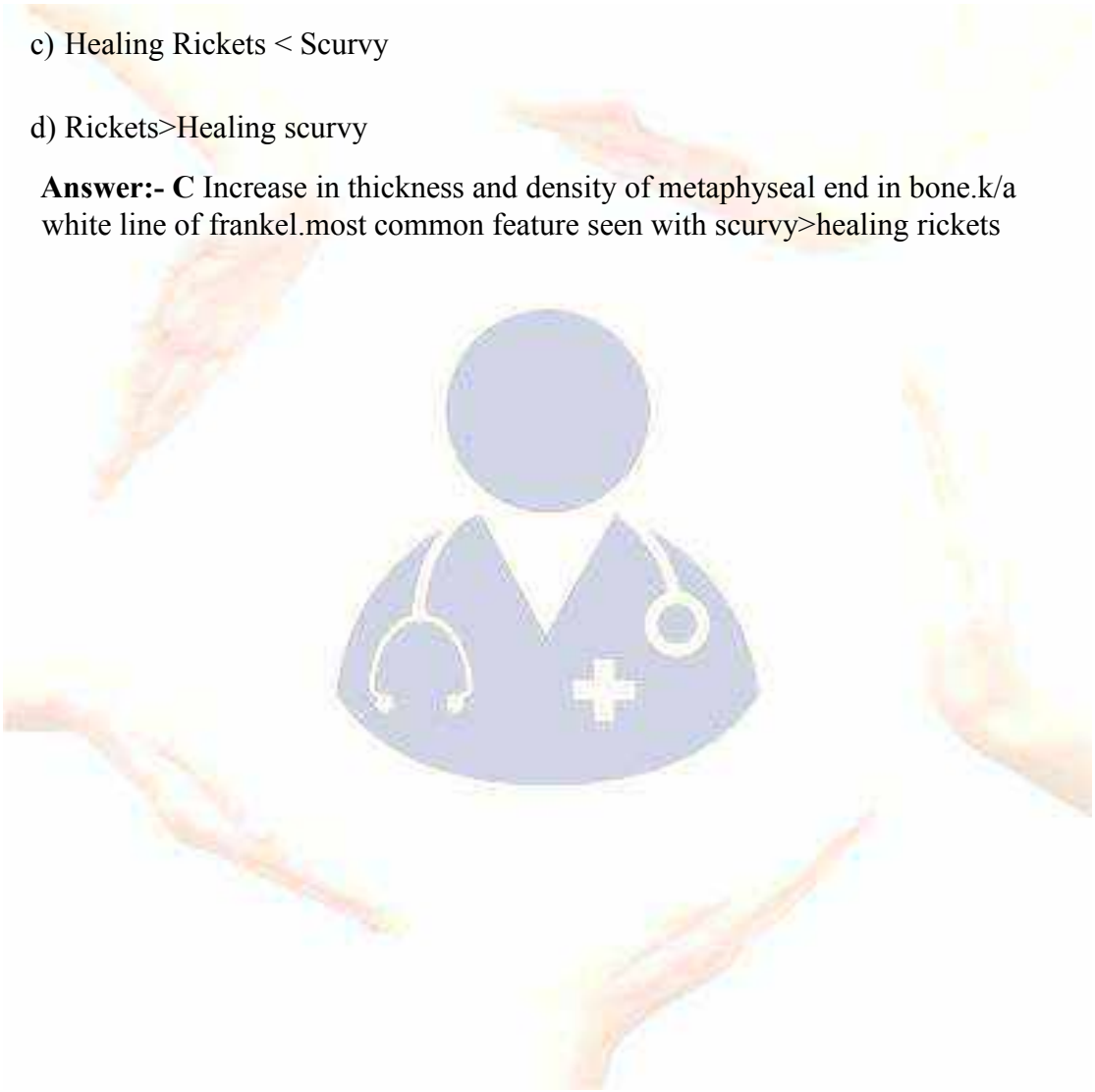
a) Osteopetrosis > osteomalacia

b) scurvy > osteomalacia

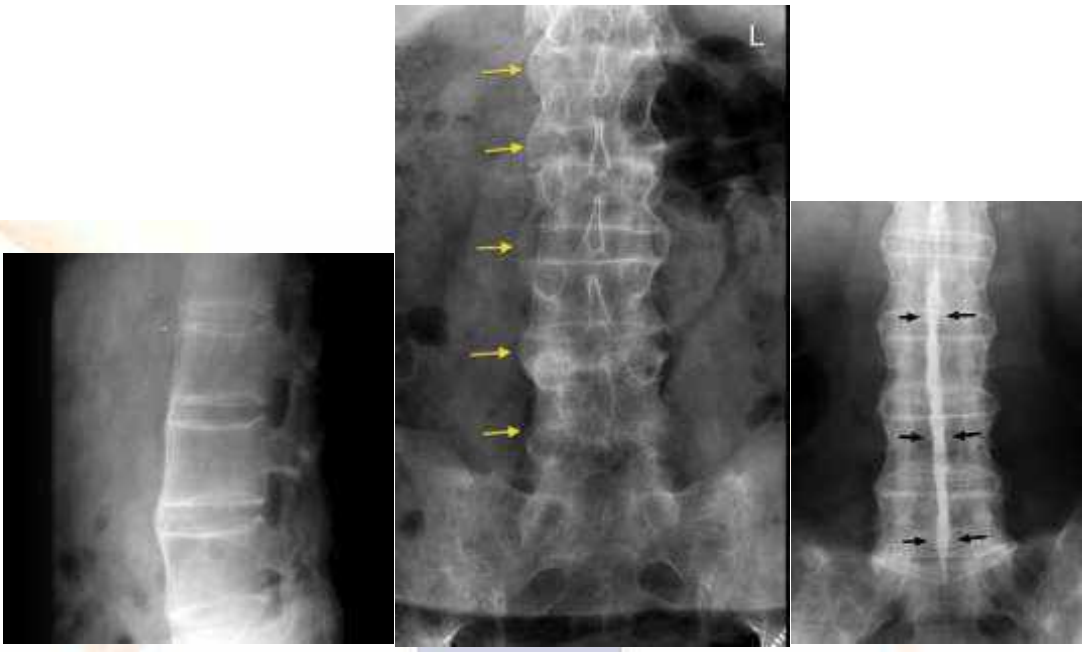
c) Healing Rickets < Scurvy

d) Rickets>Healing scurvy

Answer:- C Increase in thickness and density of metaphyseal end in bone.k/a white line of frankel.most common feature seen with scurvy>healing rickets



8. What are the extra articular features of the following condition except.?



a) prostatitis

b) Acute anterior uveitis

c) dilated cardiomyopathy

d) aortic valvular insufficiency

Answer :- C.

fig.1 squaring of vertebral body

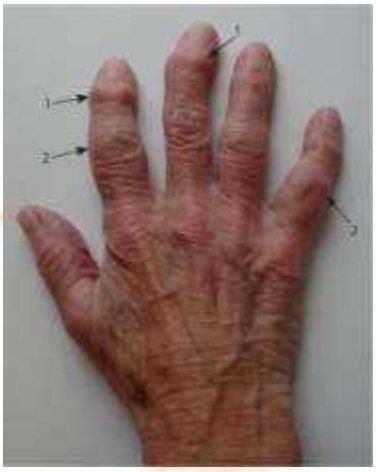
fig.2 bamboo spine

fig.3 dagger sign

Clinical case of ankylosing spondylitis is given to us. It is associated with HLA B27.

Prostatitis ,acute anterior uveitis,aortic valvular insufficiency,glaucoma,cataract,apical pulmonary fibrosis,retroperitoneal fibrosis,infalammation of ileum and colon are the extraarticular features of ankylosing spondylitis.Dilated cardiomyopathy is not a feature.

9. Identify 2 and which joint is spared in this condition.



a) Bouchard node, distal interphalangeal joint

b) Heberden node,distal interphalangeal joint

c) Bouchard node, metacarpophalyngeal joint

d) Heberden node, metacarpophalangeal joint

Answer:- C

It is a classical finding of osteoarthritis in hand .

1.herbeden node

2.bouchard node

Metacarpophalyngeal (MCP) joint is always not affected/spared in osteoarthrits in hand.

10.True about Rheumatoid arthritis

a). Boutonniere deformity--extension of pip and flexion of dip joint

b) DIP Joint is also involved in rheumatoid arthritis

c).Bouttoniere deformity -extension of dip and flexion of pip

d) Swan neck deformity -extension of dip and flexion of pip

Answer :- C

Rheumatoid arthritis is an inflammation is the chronic inflammation disorder.

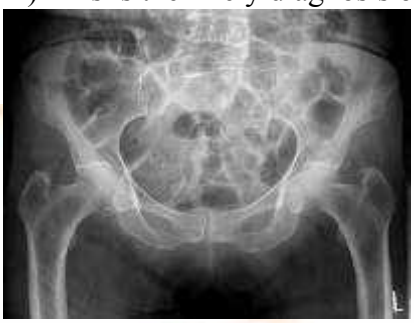
Option A. boutonniere deformity-- extension of dip and flexion of pip

Option B.dip joint is also involved in rheumatoid arthritis- dip joint is always spared in rheumatoid arthritis

Option D. Swan neck deformity -_extension of pip and flexion of dip joint

GENERAL ORTHOPAEDIC AND FRACTURES

1) This is the likely diagnosis of the image shown below



a) Coxa magna

b) Coxa valga

c) Coxa vara

d) Coxa saltans

Answer:-C

Coxa vara is a deformity of the hip, whereby the angle between the head and the shaft of the femur is reduced to less than 120 degrees.
This results in the leg being shortened and the development of a limp.
It may be congenital and is commonly caused by injury, such as a fracture.

<120 dergrees -coxa vara
>135 degrees -coxa valga

2) Diagnosis the condition given in x ray (picture above)

a) Colles fracture

b) Monteggia fracture

c) Galeazzi fracture

d) Gun stock fracture

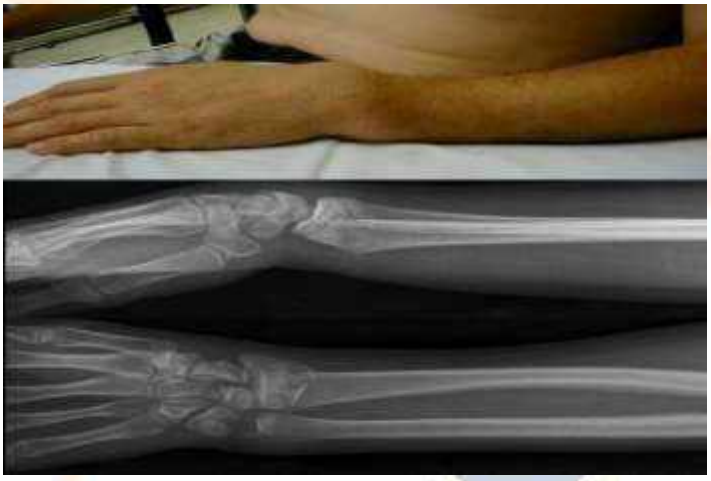
Answer:-B

Colles' fracture is a type of fracture of the distal forearm in which the broken end of the radius is bent backwards. Symptoms may include pain, swelling, deformity, and bruising. Complications may include damage to the median nerve. It typically occurs as a result of a fall on an outstretched hand.

Monteggia fracture is a fracture of the proximal third of the ulna with dislocation of the proximal head of the radius.

Galeazzi fracture is a fracture of the middle to distal one-third of the radius associated with dislocation or subluxation of the distal radioulnar joint (DRUJ). Advances in radiography and fracture research have helped define, classify, and guide operative management

3) A 60 year old woman falls on an extended and outstretched hand while walking her grandchild to school.she presents to emergency department in severe pain and holding her left wrist.on examination,there is swelling ,tenderness,and deformity of the wrist in a "dinner fork'' pattern .a image of injury shown below.An x-ray of the injury reveals displacement and angulation of the distal radius.there is no carpal displacement .which of the following is the most likely diagnosis?



a) Barton fracture
b) Chauffeur fracture
c) Colles fracture
d) Shepherd fracture

Answer:-C

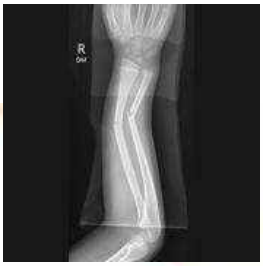
colles fracture: colles' fracture is a type of fracture of the distal forearm in which the broken end of the radius is bent backwards. symptoms may include pain, swelling, deformity, and bruising. complications may include damage to the median nerve. it typically occurs as a result of a fall on an outstretched hand.

Barton's fracture is an intra-articular fracture of the distal radius with dislocation of the radiocarpal joint. There exist two types of barton's fracture – dorsal and palmar, the latter being more common.

Chauffeur fractures (also known as hutchinson fractures or backfire fractures) are intra-articular fractures of the radial styloid process. the radial styloid is within the fracture fragment, although the fragment can vary markedly in size

Shepherd fracture refers to a fracture of the lateral process

4) A 15 year boy while playing football falls over a goal post and hurts his arm,a radiological image presentation is similar to that of in the image given below,what is the most likely diagnosis?



a) Greenstick fracture

b) Non union

c) Mal union

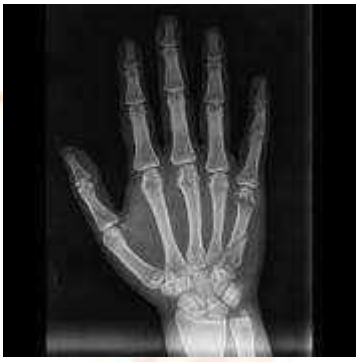
d) Torus fracture

Answer:A

Option A greenstick fracture: greenstick fracture is a fracture in a young, soft bone in which the bone bends and breaks. greenstick fractures occur most often during infancy and childhood when bones are soft..

Option D torus fractures, also known as buckle fractures, are incomplete fractures of the shaft of a long bone that is characterized by bulging of the cortex. They result from trabecular compression due to an axial loading force along the long axis of the bone.

5) diagnosis of image given below



a) Bennet fracture

b) Fracture of 5th metacarpal

c) Fracture of 1st metatarsal

d) Fracture of 5th metatarsal

Answer:-A

Bennett fracture is a fracture of the base of the first metacarpal bone which extends into the carpometacarpal (CMC) joint.

This intra-articular fracture is the most common type of fracture of the thumb, and is nearly always accompanied by some degree of subluxation or frank dislocation of the carpometacarpal joint

6) A 5 year old child suffered from a fall on outstretched hand.x ray revealed a fracture with the fracture line at the physes with small metaphyseal fragment there was no epiphyseal fracture.there was no epiphyseal fracture .what type of injury by salter harris classification is this ?

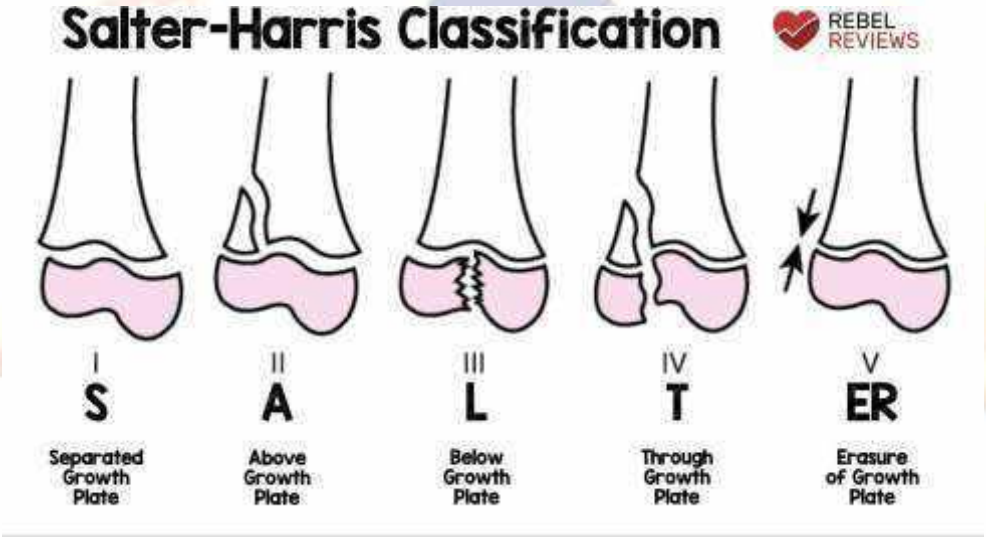
a) TYPE 1

b) TYPE 2

c) TYPE 3

d) TYPE 4

Answer:-B

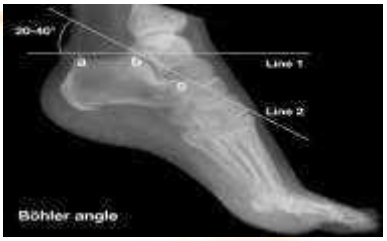


7.Clinical test done in orthopaedic clinic shown in picture given above:

a) Straight leg raising test
b) Femoral nerve stretch test
c) Lasegue test
d) Ortolani's test

Answer:-A

8.Angles shown in photographs are used for assessment of…. fracture?



a) Talus

b) Calcaneus

c) Metatarsal

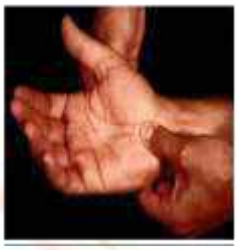
d) Phalangeal

Answer:-B

9.Most specific test for carpal tunnel syndrome

a)  (Cozen test)

b)  (Phalen test)

c)  (Durkan test)

d) Torniquet test

Answer:-C

10.Treatment of choice for fracture lower ¼ th of tibia in non union with mutiple scarred wounds and discharging sinuses and about 4cm shortening of leg

A. External fixation

B. Intramedullary nail

C. Plate

D. Illizarov fixator

Answer:- D

Option D ilizarov fixator- An Ilizarov external fixator (Ilizarov frame) is a ring-like brace The frame is applied to the outside of the limb and connected through the unbroken part of the bone inside the limb. This is done by using a number of tensioned wires sometimes called pins.

Option B intramedullary rod, also known as an intramedullary nail (IM nail) or inter-locking nail or Küntscher nail (without proximal or distal fixation), is a metal rod forced into the medullary cavity of a bone. IM nails have long been used to treat fractures of long bones of the body

11.Army soldier with gun shot wound in tibia presents with comminuted fracture tibia with 2cm wound.this belongs to what grade of gustiloanderson classification of open fracture

A. GRADE 1

B. GRADE 2

C. GRADE 3

D. GRADE 3a

Answer:-C

Type I : wound ≤1 cm, minimal contamination or muscle damage

Type 11 : wound 1-10 cm, moderate soft tissue injury

Type IIIA : wound usually >10 cm, high energy, extensive soft-tissue damage, contaminated adequate tissue for flap coverage ;farm injuries are automatically at least Gustillo IIIA

Type IIIB : extensive periosteal stripping, wound requires soft tissue coverage (rotational or free flap)

Type IIIC : vascular injury requiring vascular repair, regardless of degree of soft tissue injury
Most accurate way to grade open fratures is by intra-operative examination

12.Identify the given brace .

a) Minerva

b) Milwaukee

c) Boston

d) Risser

Answer:-A

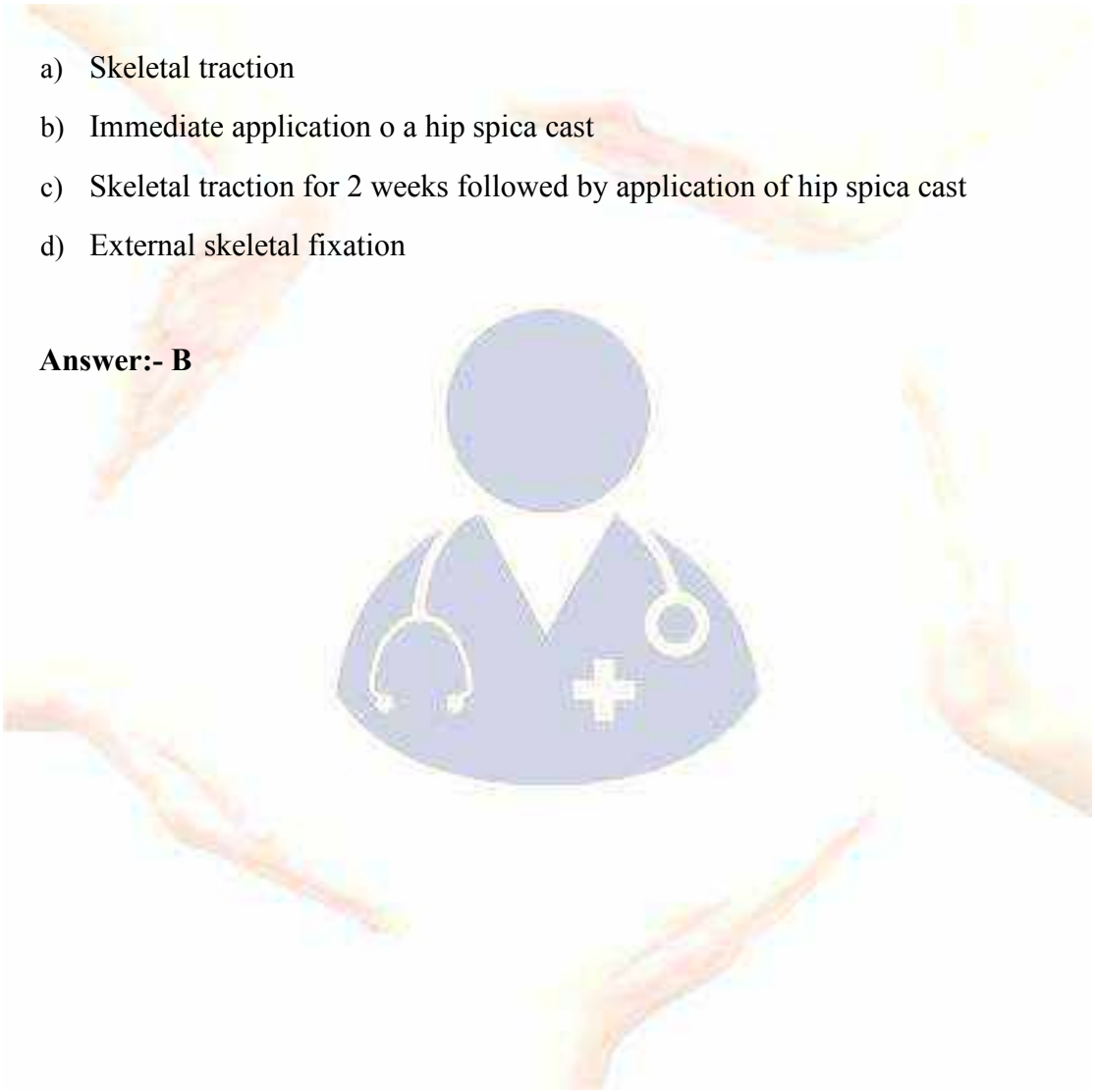
Minerva- body cast that extends from the top of the head to the iliac crests, leaving the facial features exposed, but supporting the chin and neck.It is used to treat odontoid fractures in children.

Option B The Milwaukee brace is an active corrective spinal orthosis. It consists of a neck ring with a throat mould and two occipital pads to avoid a high pressure in the neck. Other elements are a plastic pelvic girdle, aluminium uprights, leather L-shaped thoracic pads and metal bars in the front and in the back.

13.A 7 years old hyperactive boy sustained an isolated,closed,diaphyseal fracture of her left femur in a motor vehicle accident.the fracture was transverse with approximately 1.5cm of shortening.the most appropriate definitive management of this fracture is

a) Skeletal traction
b) Immediate application o a hip spica cast
c) Skeletal traction for 2 weeks followed by application of hip spica cast
d) External skeletal fixation

Answer:- B



14. 40 year old female was brought to casualty following road traffic accident.on examination,the right lower limb was shortened,internally rotated, flexed and adducted at the hip.what is the possible diagnosis?

a) Anterior disslocation of hip

b) Posterior disslocation of hip

c) Intertrochanteric fractured

d) Fracture neck of femur

Answer:- B

Posterior dislocation of a hip - approximately 90% of hip dislocation patients, the thigh bone is pushed out of the socket in a backwards direction. This is called a posterior dislocation. A posterior dislocation leaves the lower leg in a fixed Position, with the knee and foot rotated in toward the middle of the body.

Anterior hip dislocations are usually the result of a significant force, such as trauma, or from a poorly positioned total hip arthroplasty. In a traumatic setting, the hip is forced into abduction with external rotation of the thigh and often related to a motor vehicle accident or fall.

intertrochanteric fracture is a specific type of hip fracture. “Intertrochanteric” means “between the trochanters,” which are bony protrusions on\ the femur (thighbone). They're the points where the muscles of the thigh and hip attach.

A fractured neck of femur (broken hip) is a serious injury, especially in older people. It is likely to be life changing and for some people life threatening. It occurs when the top part of the femur (leg bone) is broken, just below the ball and socket joint.

INFECTION AND TUBERCULOSIS OF BONES AND JOINTS

1. A 45-year -old obese boy was referred to the emergency with a history of hip pain .he was observed to be inlimping and complained of severe pain ,which of the following investigation is not required

a) x-ray of the hip

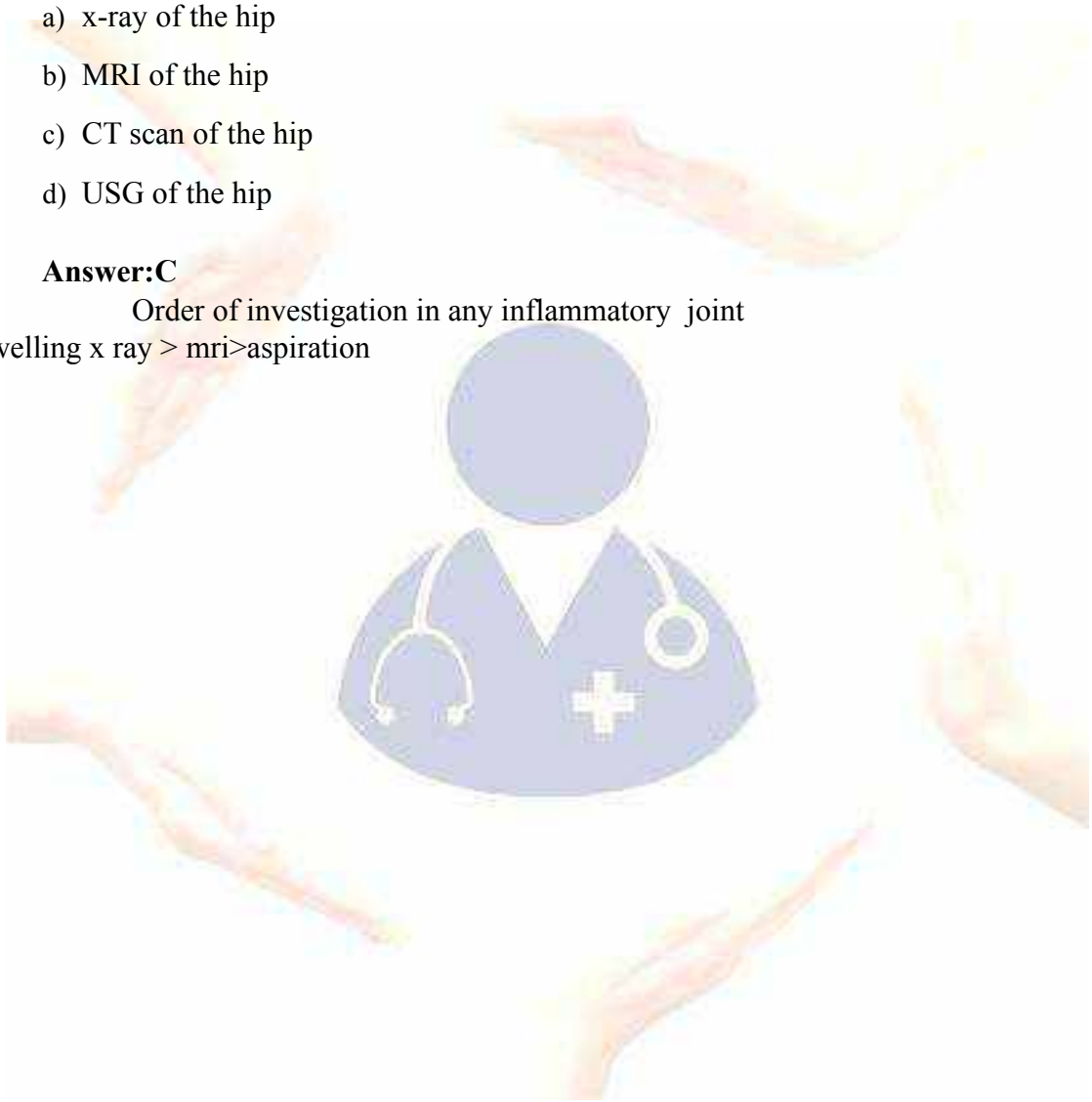
b) MRI of the hip

c) CT scan of the hip

d) USG of the hip

Answer:C

Order of investigation in any inflammatory joint swelling x ray > mri>aspiration



2. A 40 year male present with history of gradual onset pain and swelling in left knee since 8 months .now since last 1 month patient has started limping while walking and also has flexion deformity of knee.ultrasonography shows presence of synovial thickening .what is the most probable diagnosis?

a) Tuberculosis of knee

b) Pigmeneted villonodular synovitis

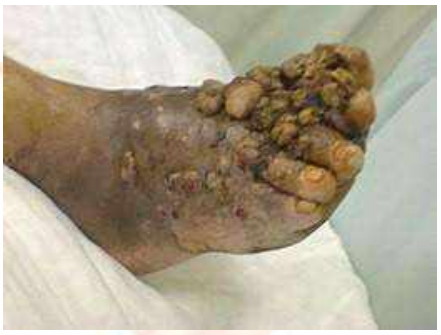
c) Synovial sarcoma

d) Hemarthrosis

Answer:-A

Joint TB may be suspected in a chronic case of joint pain, usually monoarticular. Although pulmonary TB may be absent, patients may demonstrate systemic symptoms of fatigue, lethargy, and weight loss. Pyrexia of unknown origin also may be a presenting feature.

3) A patient ram with swelling foot ,pus discharge,multiple sinuses.koh smear shows filamentous structure.diagnosis is?



a) Osteomyelitis

b) Madura mycosis

c) Anthrax

d) Actinomycosis

Answer:B

Madura foot is a chronic infection of the skin and underlying tissues caused by both bacteria (actinomycotic mycetoma or actinomycetes) and fungi (eumycetoma or mycotic mycetoma). Mycetoma occurs most often in people who work in rural areas, usually in farmers, hunter-gatherer populations, and field laborer

Option A Osteomyelitis is an infection in a bone. Infections can reach a bone by traveling through the bloodstream or spreading from nearby tissue. Infections can also begin in the bone itself if an injury exposes the bone to germs

Option C Anthrax is an infection caused by the bacterium Bacillus anthracis. It can occur in four forms: skin, lungs, intestinal, and injection. Symptom onset occurs between one day to over two months after the infection is contracted

4) 40/m hiv positive on antiretroviral therapy has pain in left hip region.flexion,abduction and external rotation deformity of left hip for 2 months ,what is the most likely diagnosis?

a) Avascular necrosis

b) TB hip

c) Transient synovitis

d) Septic arthritis

Answer:B

TB hip is still a common condition in developing countries.
Early presentations are pain around hip and limp.Later the patient presents with deformities,shortening of limb and restriction of movements.The constitutional symptoms may or may not be present in all the cases.

Option A Osteonecrosis of the hip(avascular necrosis) is a painful condition that Occurs when the blood supply to the head of the femur (thigh bone) is disrupted. Because bone cells need a steady supply of blood to stay healthy,osteonecrosis can Ultimately led to destruction of the hip joint and severe arthritis.

Option C Transient synovitis commonly called irritable hip,is the most common cause of
Limping in children.It is due to inflammation (swelling) of the lining of the hip joint.In Most cases of irritable hip,your child will have recently recovered from a viral infection.

Option D Septic arthritis is also known as infectious arthritis,and is usually caused by bacteria.It can also be caused by a virus or fungus.The condition is an inflammation
of a joint that'scaused by infection.Typically,septic arthritis affects one large joint in the body,such as the knee or hip

DERMATOLOGY

By:

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"Whatever you are, be a good one."

-Abraham Lincoln

FMGE CLINICAL VIGNETTES

1: A boy aged 8 years from Tamil Nadu presents with a white, non aesthetic, non scaly hypopigmented Maxine on his face, likely diagnosis is:-

a) Pityriasis alba
b) Pityriasis versicolor
c) Indeterminate leprosy
d) Pure neuritic leprosy

Answer:- **Indeterminate leprosy**

The answer here is indeterminate leprosy and the only catch Her distinguishes from pityriasis Alba in non scaly.

The same question if asked with the omission of non scaly or with the inclusion of scaly hypopigmented macule, should be answered as pityriasis Alba.

Indeterminate leprosy:-

One or more hypopigmented or hyperpigmented macule plaques may be seen as an anaesthetic or paresthetica patch is the first symptom noted by the patient.

Sensation is often preserved in early lesions, particularly those on face.

Pityriasis Alba:-

White scaly hypopigmented macule

Site- Face (cheek and chin)

Age – 6-12 years

Self limiting

Not a variant of vitiligo

Pityriasis versicolor :-

Scaling – rice powder like

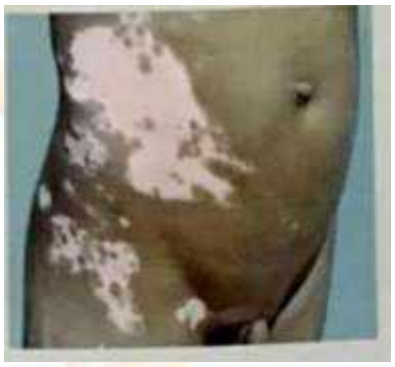
Hypopigmented > Hyperpigmented

Macule/Papule

Upper trunk

10 percent KOH gives spaghetti and meatballs appearance.

2 :A 12 year old boy with localised depigmented skin on the right flank and upper thigh in segmental distribution. The depigmentation started 1 year back but has been static for the last five months. Mother reports use of topical steroids which was ineffective. Diagnosis is



a) Hypomelanosis of ito

b) Hypopigmented streaks

c) Piebaldism

d) Segmental vitiligo

Answer:- Segmental vitiligo

Vitiligo:-

Autoimmune condition

Absence / destruction of melanocyte

Depigmented

Most Common – vitiligo vulgaris

Piebaldism:-

Autosomal dominant condition

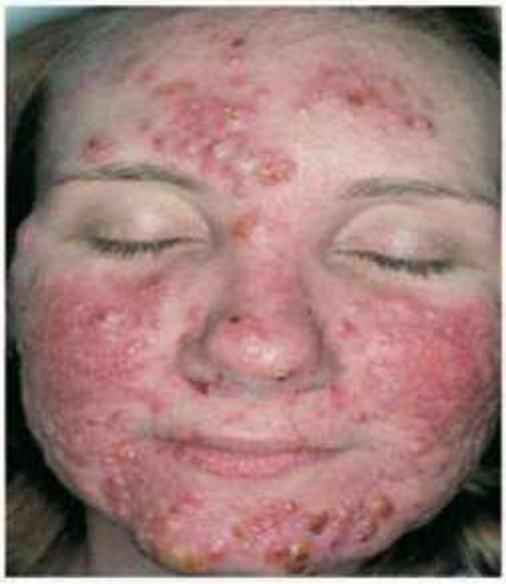
Absence of melanocyte

Depigmented localised patch with white forelock

Since birth no change

3: A 27 year old woman presents to a general medical clinic in distress. She has suffered from acne all her life and nothing has seemed to work. Her past treatments include benzoyl peroxide , topical terrapin and oral and topical antibiotics, yet nothing has seemed to improve her symptoms; she has no past medical history. Her physical examination is within normal limits with the exception of prominent scarring and nodulocystic acne as shown in figure. You begin her on the moat appropriate treatment for this clinical scenario. Regarding this medication which of the following is true

a) Prior to starting the medication the patient must agree to use the contraception
b) The medication is associated with development of bipolar disorder
c) The medication is indicated as a first line approach for comedones
d) The medication is associated with agranulocytosis

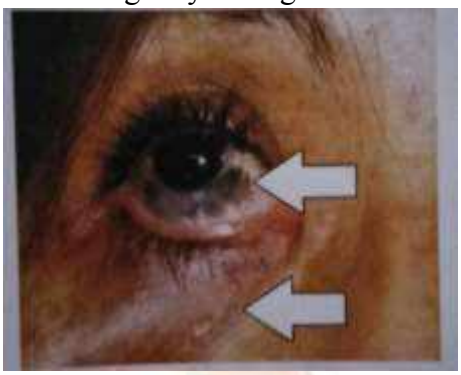


Answer : A

Oral isotretinoin is the appropriate treatment for nodulocystic acne and resulting in scars. The drug is highly teratogenic so extra cautions are required to prevent pregnancy.

Other side effects of isotretinoin :- Dry skin, Hepatotoxic ,Increase triglycerides, Pseudotumor cerebri, Diffuse interstitial hyperostosis.

4 : A lady presents with bluish lesion over the right side forehead with an irregular bluish lesion in the conjunctiva of the right eye. Diagnosis is



a) Nevus of ota
b) Nevus of Ito
c) Becker's Nevus
d) Nevus spilus

Answer :- Nevus of Ota

Bluish grey

Ophthalmic and maxillary distribution

Rarely malignant

Nevus of Ito:-

Bluish grey

Acromioclavicular nerve area

Malignancy absent

Becker's Nevus:-

Hyperpigmented with thick terminal hairs

Shoulder and trunk involved

Malignant potential absent

Nevus Spilus:-

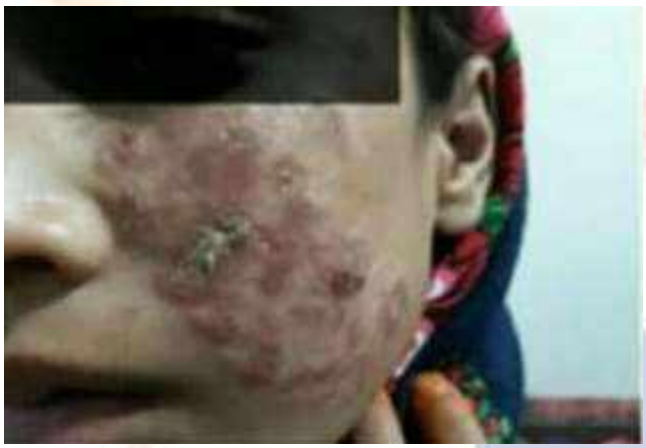
Hyperpigmented patch with multiple darker macule over it

Trunk involved

Melanoma develops

5 : A lesion was seen on the face of a 40 year old patient as shown below. Which of the following would be ideal management for this condition

a) Start on antitubercular therapy
b) Multidrug therapy
c) Itraconazole
d) Cephalosporin



Answer:- start on antitubercular therapy

The image shown is of lupus vulgaris

Lupus vulgaris:-

It is the most common type of cutaneous TB

Erythematous plaque

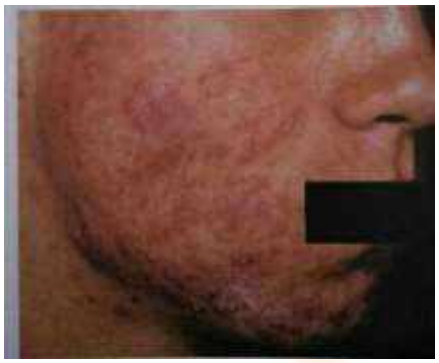
Central scaring

Match stick sign positive

On diascopy:- apple jelly nodule

Treatment is start on antitubercular therapy

6: A young boy presents to the dermatologist OPD with the condition shown in the image. The correct treatment of choice for the condition is



a) Topical retinoids
b) Topical steroids
c) Oral doxycycline
d) Oral isotretinoin

Answer:- oral isotretinoin

<u>Grade lesions Treatment</u>

Comedones	topical retinoids
Papules	topical retinoids + topical antibiotics (erythromycin)
Pustules	topical retinoids + oral antibiotics +benzoyl peroxide
Severe acne / nodulocystic	oral retinoids (DOC Isotretnoin)

7: A 24 year old man had multiple small hypopigmented macules on the upper chest and back the last three months. The macules were circular arranged around follicles and many had coalesced to form large sheets. The surface of the macule showed fine scaling. He had similar lesions one year age which subsides with treatment. The most appropriate investigation to confirm the diagnosis is:-

a) Potassium hydroxide preparation of scales
b) Slit skin smear from discrete macules
c) Tzanck test
d) Skin biopsy of macules

Answer:- potassium hydroxide preparation of scales

The clinical diagnosis is of Pityriasis versicolor which can be confirmed by examination of scales as wet mounts after treatment with 10 percent KOH

Information in the question:-

Adult patient

Multiple small hypopigmented macule

On chest and back

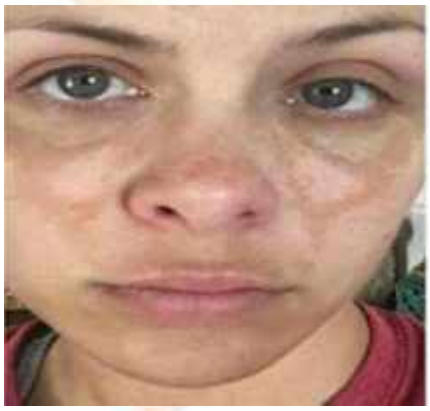
Macules had started around follicles

Fine scales

Recurrent after treatment

8: 23 year old lady develops brown mucilage lesion over bridge of the nose and cheeks following exposure to the sunlight. The probable diagnosis is

A) Chloasma
B) Acne rosacea
C) Systemic lupus erythematosus
D) Photodermatitis



Answer:- Chloasma

Brown pigmentation over the molar area in a young woman after sun exposure suggests the diagnosis of Chloasma.

9: A 5 year old male child has multiple hyperpigmented macules over the trunk. On rubbing the lesion with the rounded end of the pen, he devey urticarial wheal confined to the border of the lesion. The most likely diagnosis is a) Fixed drug eruption

b) Lichen planus
c) Urticaria pigmentosa
d) Urticaria vasculitis

Answer:- **urticaria pigmentosa**

Urticaria pigmentosa:-

It is an familial cutaneous disorder characterised by generalised distribution of red brown macules

Each lesion represents a collection of mass cell in the dermis with hyperpigmentation of overlying epidermis

When rub on pigmented lesion it's become red and education – Darier sign

Fixed drug eruption:-

Hyperpigmented

Always occurs at same site

NSAID – lips

Tetracycline – genitals

Erythematous lesion

Lichen planus:-

Skin – purple, polygonal, plane, pruritic, papule

Mucosal – pattern – white lacy

Nail – pterygium

Hair –scarring alopecia

Wickham's striae- reticulated pattern over lesion

Koebners/ isomorphic phenomenon

Histopathological examination – saw tooth appearance,Max Joseph space,Vibrate / colloid bodies

10: A 5 year old boy has multiple asymptomatic oval and circular faintly hypopigmented macules with fine scaling on his face. The boy presents with recurrent scaly hypopigmented patch on face. The diagnosis is ?

a) Vitiligo
b) Indeterminate leprosy
c) Pityriasis alba
d) Pityriasis rosea

Answer :- **Pityriasis Alba**

A child with scaly hypopigmented patch over face – pityriasis alba

Pityriasis Rosea:-

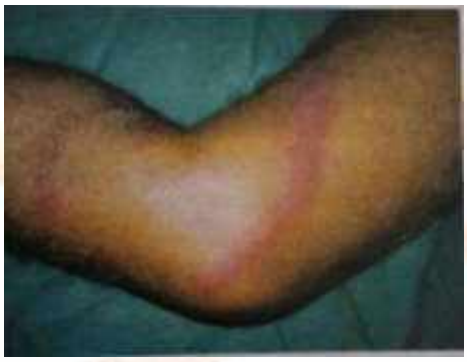
Collarette scale

Hanging curtain sign

Fir tree / Christmas tree appearance

Herald patch

11: A patient with leprosy presents to OPD with characteristic lesion on knee. Diagnosis is ?



A) Tubercular leprosy
B) Lepromatous leprosy
C) Borderline tubercular
D) Borderline borderline

Answer:- **borderline borderline**

Borderline borderline leprosy:-

Smaller multiple lesion

Hypopigmented

Inverted saucer shaped

Symmetrical nerve thickening

Tuberculosis leprosy :-

Number of lesion 1

Well defined

Round

Lot nerve thickening

Sensation loss only on the lesion

Reactions are not common

Borderline tubercular

N.of lesions 1-5

Satellite lesion

Local nerve thickening

Sensation loss

Type 1 reaction

Lepromatous leprosy:-

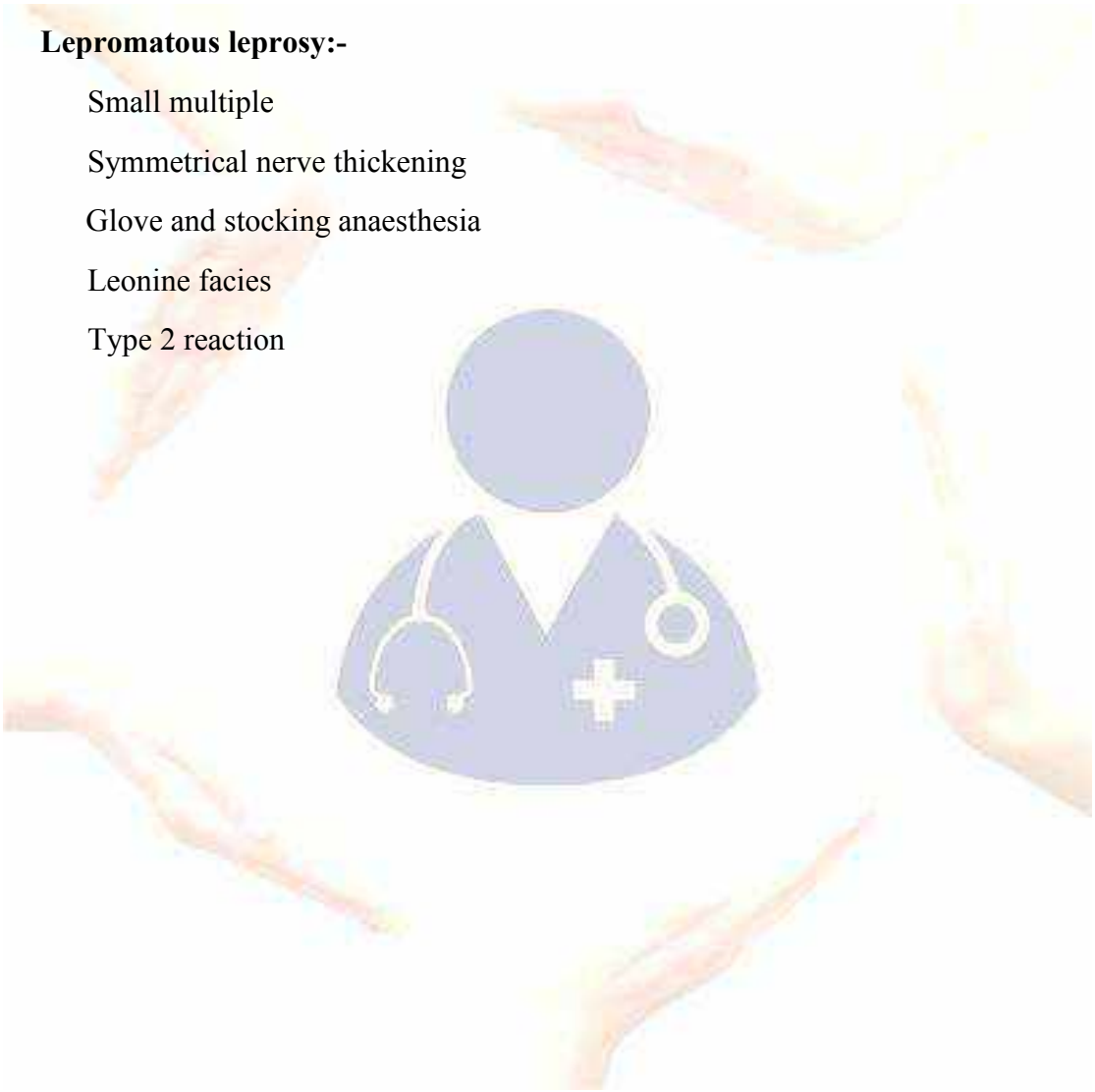
Small multiple

Symmetrical nerve thickening

Glove and stocking anaesthesia

Leonine facies

Type 2 reaction



12: A boy presents with a depigmented localised patch as shown in image. The diagnosis is:

a) Xeroderma pigmentosum
b) Incontinentia pigmenti
c) Vitiligo
d) Piebaldism

Answer:- **Piebaldism**

Piebaldism:-

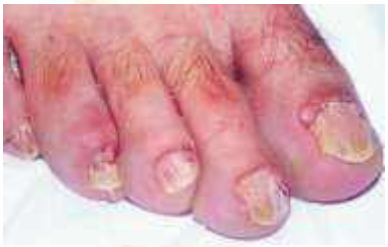
Autosomal dominant condition

Depigmented localised patch with white forelock

Since birth

13: A 17 year old boy presented to the clinic with the following nail manifestation as shown in the image. The lesion is asymptomatic and has a smooth surface, overgrowing above the nail matrix. The boy also had cognitive problems and behavioural abnormalities. What is the diagnosis?

a) Onychomycosis
b) Koenen tumor
c) Onychodystrophy
d) Onychogryphosis



Answer: B Koenen tumor

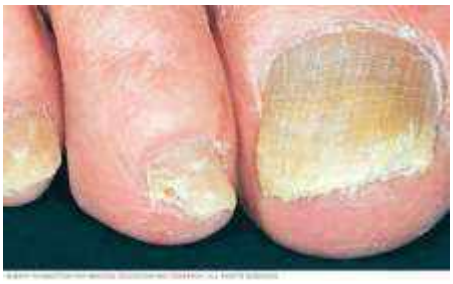
Koenen tumor, either periungual or subungual, appear after puberty in nearly half of patients with tuberous sclerosis.

{Tuberous sclerosis complex (TSC) is a rare multisystem autosomal dominant genetic disease that causes non-cancerous tumours to grow in the brain and on other vital organs such as the kidneys, heart, liver, eyes, lungs and skin. A combination of symptoms may include seizures, intellectual disability, developmental delay, behavioural problems, skin abnormalities, lung disease, and kidney disease.

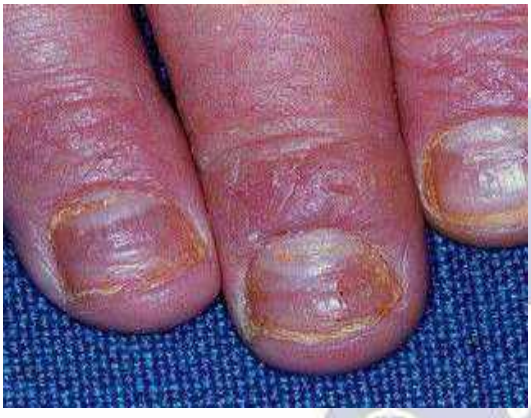
TSC is caused by a mutation of either of two genes, TSC1 and TSC2, which code for the proteins hamartin and tuberin, respectively. These proteins act as tumor growth suppressors, agents that regulate cell proliferation and differentiation.}

An isolated periungual fibroma may represent the sole clinical sign of Tuberous sclerosis and warrants clinical and genetic evaluation. These asymptomatic tumors are more frequently seen in toes and are round, small, and flesh-colored, with a smooth surface, overgrowing above the nail matrix, and cause longitudinal depressions and eventually can destroy the nail plate

Other options : **Onychomycosis (tinea unguium)** is a fungal infection of the nail . Symptoms may include white and yellow nail discolouration , thickening of nails and separation of nail from the nail beds .



Onychodystrophy refers to the various abnormalities in nail morphology caused by changes in the attachment of the nail plate or changes in nail surface or colour.



Onychogryphosis is a nail disease that causes one side of the nail to grow faster than the other.

Keywords : Asymptomatic , overgrowing , above the nail matrix , cognitive problems , behavioural abnormalities .

14: which of the following statements regarding the given image is

false? a) It is transmitted from child to child

b) Caused by ringworm
c) Is a fungal infection and most commonly involves deep organs
d) treatment of choice is Griseofulvin

Answer: Option C Is a fungal infection and most commonly involves deep organs

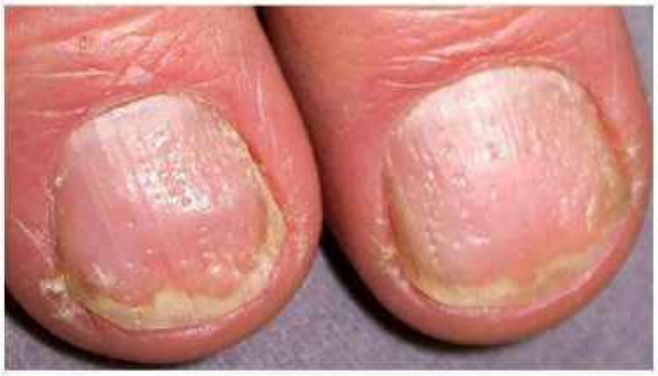
The given image shows tinea capitis, a disease caused by superficial fungal infection of the skin of the scalp, eyebrows, and eyelashes, with a propensity for attacking hair shafts and follicles. It is a highly contagious infection that's usually spread through person-to-person contact or by sharing combs, towels, hats, or pillows. Ringworm is most common in children.

The most common symptom of ringworm is itchy patches on the scalp. Sections of hair may break off near the scalp, leaving scaly, red areas or bald spots (patchy hair loss).

Griseofulvin has been the traditional treatment of choice in all ringworm infections of the scalp.

Keywords: ringworm, child to child, superficial fungal infection, patchy hair loss, Griseofulvin

15: A patient presents to the clinic with the following manifestation shown in the image.The findings of the nails show pitting, leukonychia, onycholysis and transverse lines. The patient is unable to move the joints of fingers and is in pain. What could be the underlying cause?



a) Psoriatic arthritis
b) Thyroid disease
c) Arsenic poisoning
d) rheumatoid arthritis

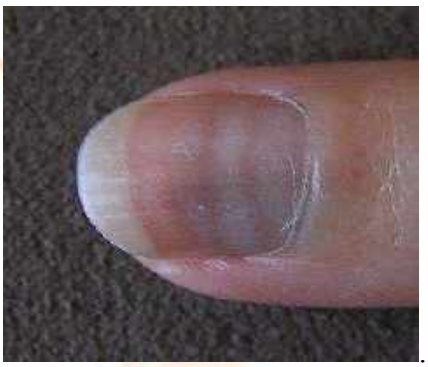
Answer: Option A **Psoriatic arthritis**

Pitting is the most common nail symptom, affecting about 68 percent of people with psoriasis and nail changes. The nail surface may look uneven. In some cases, random indents appear in the nail. Pink or oily patches: The skin underneath the nail may develop discolored, pink patches.

- Pitting is a sign of partial loss of cells from the surface of the nail plate. It is due to psoriasis in the proximal nail matrix.
- Leukonychia (areas of white on the nail plate) is due to parakeratosis within the body of the nail plate and is due to psoriasis in the mid-matrix.
- Onycholysis describes the separation of the nail plate from the underlying nail bed and hyponychium. The affected distal nail plate appears white or yellow.
- Transverse lines and ridges are due to intermittent inflammation, causing growth arrest followed by hyperproliferation in the proximal nail matrix. The lines and ridges move out distally as the nail grows.

Other options:

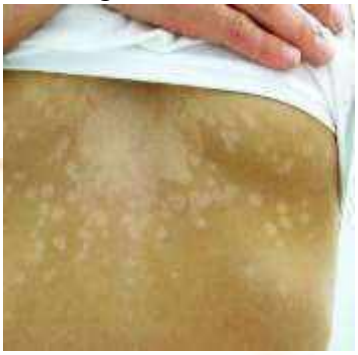
Option b: **Thyroid diseases** such as hyperthyroidism or hypothyroidism may cause brittle nails or splitting of the nail bed from the nail plate (onycholysis). Severe illness or surgery may cause horizontal depressions in the nails Beau lines.
Option c: Nail changes in **arsenic poisoning** include fingernail pigmentation called leukonychia striata (Mees's lines, or Aldrich-Mees's lines). Check image below



Option d: The only nail abnormalities significantly associated with **Rheumatoid arthritis** is longitudinal ridging.

Keywords: Pitting, Leukonychia , Onycholysis, Transverse lines

16: A patient presented with flaky discoloured patches on the chest and back as shown in the image below. Which of the following statements is TRUE regarding this presentation?



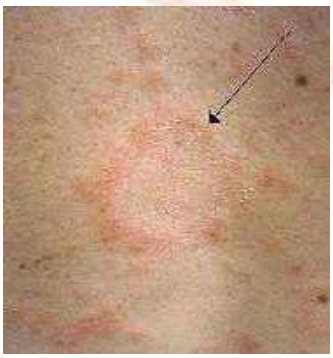
a) Has a characteristic fir tree appearance on back
b) Secondary to a viral infection
c) Large lesions and often symptomatic
d) caused by yeast called Malassezia.

Answer: Option D caused by yeast called Malassezia

Diagnosis: **Pityriasis versicolor**
Pityriasis versicolor affects the trunk, neck, and/or arms, and is uncommon on other parts of the body. The patches may be coppery brown, paler than surrounding skin, or pink. Pityriasis versicolor is caused by Malassezia, a dimorphic lipophilic fungus, also known as Pityrosporum

Other options:

Option A: **Pityriasis rosea** is a type of skin rash. It is also called Christmas tree(fir tree) rash. It starts with one large round or oval scaly patch. This is called the herald patch. Check image below:



Option C: **Pityriasis versicolor** is usually asymptomatic, but in some people it is itchy.

Keywords: flaky discoloured patches on the chest and back, Malassezia

17: A 45 year old farmer has itchy erythematous papular lesions on face, neck, 'V' area of chest, dorsum of hands and forearms for 3 years. The lesions are more severe in summer and improve by 75% in winter. The most appropriate test to diagnose the condition would be:

a) Skin biopsy
b) Estimation of IgE levels in blood
c) Patch test
d) Intradermal prick test

Answer: Option C. Patch test

The history is suggestive of photodermatitis, an abnormal skin reaction to sunlight, or more specifically to ultraviolet (UV) rays. It can be acute (sudden) or chronic (ongoing). Photodermatitis occurs when your immune system reacts to UV rays. You may develop a rash, blisters, or scaly patches. Patch test is used for diagnosis of photodermatitis.

Patch test: 2 patches containing photosensitising material is applied on 2 different sites on the body. One of them is irradiated with UVA rays. The other is kept as control. Development of eczema is looked for up to 72 hours.

Analysis of results:

No development of eczema – patient does not have photodermatitis

Development of eczema under the patch irradiated with UVA – Photodermatitis

Development of eczema under both patches – Contact dermatitis

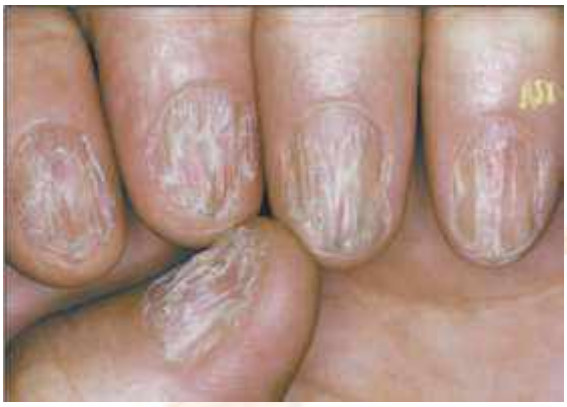
Other options:

Option A: A skin biopsy is a procedure that removes a small sample of skin for testing. The skin sample is looked at under a microscope to check for skin cancer, skin infections, or skin disorders such as psoriasis.

Option D: Intradermal prick tests are often used for environmental allergies and drug allergies, but not for food or latex allergies.

Keywords: severe in summer, ultraviolet (UV) rays, Photodermatitis, patch test

18: A 36 year old female presented to the clinic with painful bluish white spots with a lacy network in the oral cavity and spreading lesions on flexural surfaces of the upper limbs. Nail changes include grooves and ridges with onycholysis and pterygium as shown in the image. Diagnosis ?



a) Lichen planus
b) Psoriasis
c) Tinea unguium
d) Alopecia areata

Answer: Option A **lichen planus**

On skin, lichen planus appears as purplish, itchy, flat-topped lesions. On mucous membranes, such as in the mouth, it forms lacy, white patches, sometimes with painful sores.

Purplish, flat bumps, most often on the inner forearm, wrist or ankle, and sometimes the genitals with Itching.

On nails, Lichen planus thins the nail plate, which may become grooved and ridged.

The nail may darken, thicken or lift off the nail bed (onycholysis). Sometimes the cuticle is destroyed and forms a scar (pterygium).

Pterygium of nail is characteristically seen in Lichen planus.

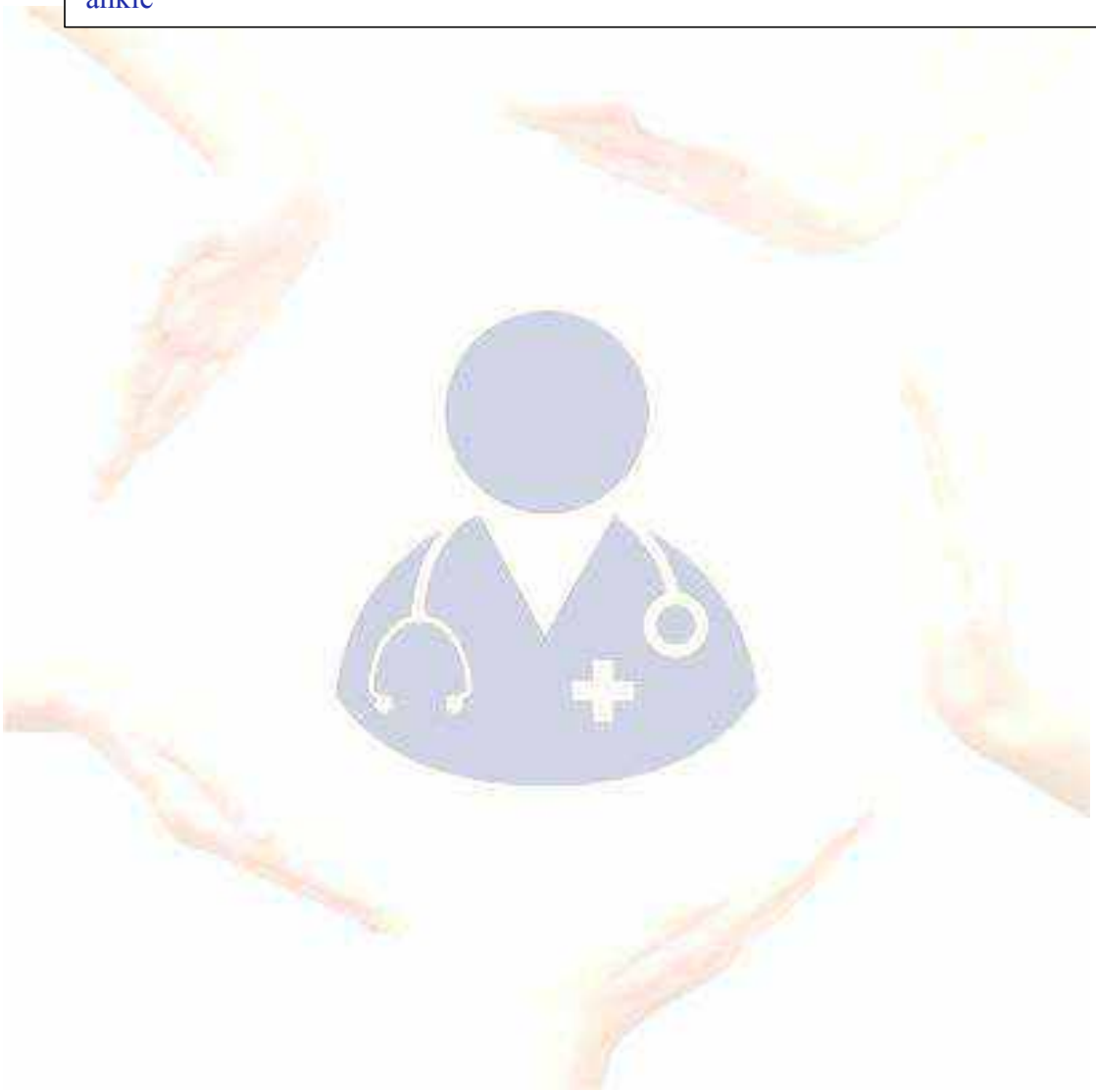
other options:

Option B: Features of **Nail Psoriasis**

- Colour. Nails may turn green, yellow, or brown.
- Surface appearance. Ridges or grooves or pitting (small pinprick holes) on the nail surface.
- Debris build-up.
- Thickening.
- Separation.

Option C: **Tinea unguium**, is a fungal infection of the nail. Features include white or yellow nail discoloration, thickening of the nail, and separation of the nail from the nail bed. Toenails or fingernails may be affected, but it is more common for toenails to be affected.

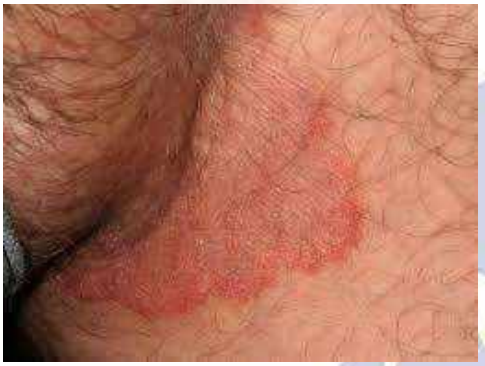
Keywords: Purplish, Itching, onycholysis, pterygium, inner forearm, wrist or ankle



19: A 36 year old factory worker developed itchy, annular scaly plaques and red and itchy rash in both groins. Application of a corticosteroid ointment led to temporary relief but the plaques continued to extend at the periphery. The most likely diagnosis is:
a)Erythema annulare centrifugum
b) Granuloma annulare
c) Annular lichen planus
d)Tinea cruris

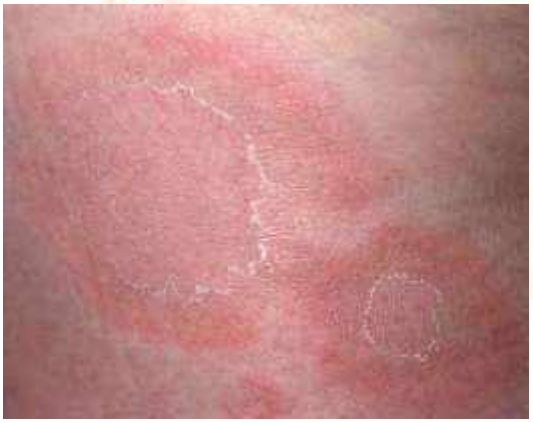
Answer: Option D **Tinea cruris.**

Tinea cruris-ringworm of groin (Jock's itch or dhobi's itch) is characterised by itchy, annular scaly plaques in both groins. There is central clearing and advancement at the periphery. It is more common in tropics. Affected areas may appear reddish, tan, or brown, with flaking, rippling, peeling, iridescence, or cracking skin as shown:

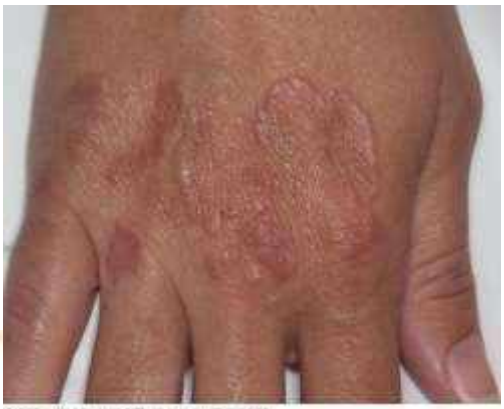


Other options:

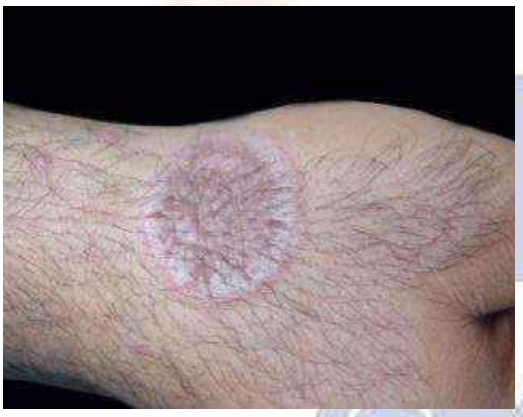
Option A: **Erythema annulare centrifugum** is a rare skin rash. The rash has small red bumps that spread out from a central area. The bumps often form a ring-like pattern, but may spread into irregular shapes. The central area may lighten up.



Option B: **Granuloma annulare** causes raised reddish - coloured lesions on the skin in a ring pattern. The lesions are usually on the hands and feet. Minor skin injuries and some drugs might trigger the condition.



Option C: **Annular lichen planus (LP)** is a rare form of lichen planus, that affects the skin and/or mouth, specifically, affected people develop ring-shaped, slightly raised, purple lesions with no central atrophy (tissue breakdown)



Keywords: groin, itchy, reddish, plaques continued to extend

20: A 39-year-old man presented to the emergency department reporting several weeks of generalized weakness, headache, nausea, and migratory arthralgia. The patient had exclusively had sex with men, had participated in condomless anal insertive and receptive intercourse, and had been in a monogamous relationship during the past 6 months.

Physical examination revealed a painful ulcerated plaque on the upper lip, a macular rash with three crater-like scarred painless lesions (considered to be healing chancres) on the glans (see image), a nonpruritic hyperkeratotic maculopapular palmar rash and bilateral submandibular lymphadenopathy.

No alopecia, gummas, neurologic deficits or ocular or cardiovascular abnormalities were noted.

Results of laboratory testing included a positive reactive syphilis immunoglobulin G (IgG) enzyme immunoassay and a positive rapid plasma reagin (RPR) test (titer 1:256). Human immunodeficiency virus (HIV) testing was negative and serologic testing demonstrated prior immunization to hepatitis B virus. Diagnosis?

a) Primary syphilis

b) Secondary syphilis

c) Tertiary syphilis

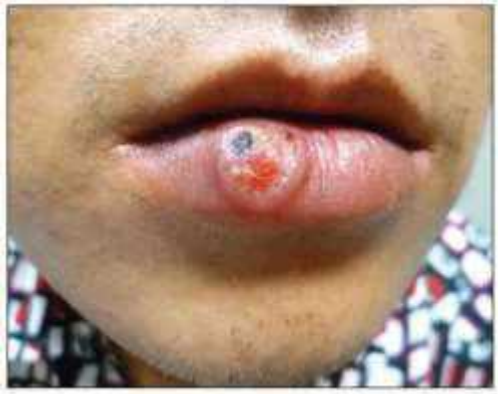
d) Latent syphilis

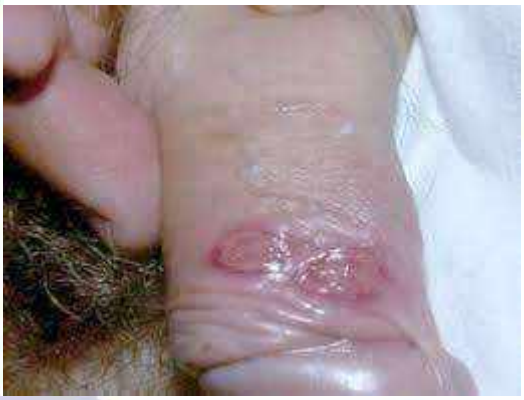
Answer: option B **secondary syphilis.**

Given the clinical presentation and laboratory findings, secondary syphilis was considered the most probable diagnosis. Most cases occur in men who have sex with men. Additional risk factors include condomless intercourse and drug use.

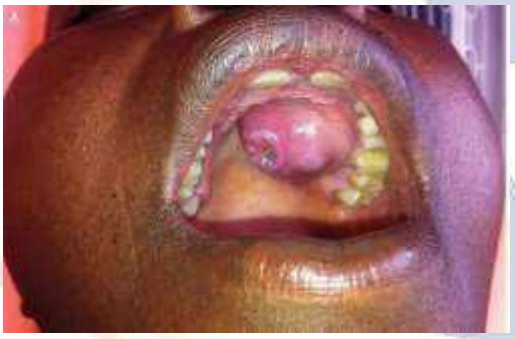
Other options:

Option A: **Primary syphilis** begins two to three weeks after inoculation of a mucosal surface. This stage is marked by one or more painless chancres and, in some cases, local non tender lymphadenopathy. Secondary syphilis presents four to eight weeks later with systemic symptoms including rash, classically involving the palms or soles, lymphadenopathy, myalgia, fever and weight loss. Chancre (painless) is characteristic.





Option C: **Tertiary syphilis**, defined as gummas or cardiovascular syphilis, occurs 15 to 30 years after an untreated exposure. Neurosyphilis can present at any stage of the disease.



Option D: Untreated primary and secondary syphilis may progress to **latent or asymptomatic disease.**

Keywords: painful ulcerated plaque on the upper lip, sex with men, condomless anal insertive and receptive intercourse

21: You are reviewing the report of a skin biopsy performed on a 40 year old male patient who had multiple blisters over his trunk and extremities. The report states that immunofluorescence shows deposition of IgG along the basement membrane. Which of the following diagnoses would be in keeping with this result?

a) Erythema multiforme

b) Pemphigoid

c) Dermatitis herpetiformis

d) Pemphigus

Answer: Option B **Pemphigoid** - deposition of IgG along the basement membrane

Pemphigoid is a family of rare autoimmune conditions that causes blistering and rashes on the skin and mucous membranes. The body mistakenly sends antibodies to bind to cells in the skin. These antibodies trigger a chain reaction that separates the bottom layer of cells from above layers.

Other options:

Option A **Erythema multiforme** - widespread keratinocyte death

Option C: **Dermatitis herpetiformis** - granular deposition of IgA at the papillary tips of the dermis Option D: **Pemphigus** - intracellular staining

Keywords: listerine and rashes on the skin and mucous membranes, deposition of IgG along the basement membrane, antibodies trigger a chain reaction.

22: 43 year-old man with uncontrolled HIV disease presents with yellowish, red papules, draining sinuses and ulcers peri anally and peri urethrally. Which histopathological or immunohistochemical stain may aid in diagnosis?

a) Von Gieson (EVG)

b) Von Kossa

c) Steiner

d) CD 20, CD 3

Answer: Option B. Von Kossa

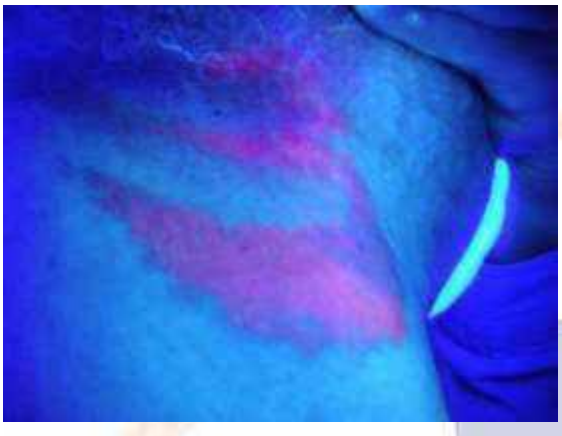
The most likely diagnosis is **malakoplakia**. Malakoplakia, an infection usually attributed to S. aureus, P.aeruginosa, or E. coli is characterized histopathologically by Michelis-Gutmann bodies. These are foamy eosinophilic macrophages containing calcified, laminated, intracytoplasmic bodies. They can be highlighted by a calcium stain such as von Kossa.

Other options:

CD3 and CD20 are lymphocyte markers.

Von Gieson is an elastic tissue stain and Steiner stain is used to highlight spirochetes. These would not aid in the diagnosis of malakoplakia.

23: This middle-aged man with diabetes came to the clinic with a rash in his axilla for over a year. Initially he ignored it, but after a time it started to itch and more recently it had become 'rubbed and sore'. At first he assumed that it was a reaction to his deodorant but discontinuation made no difference. A topical hydrocortisone cream from the chemist also failed to help. A welldefined, pinkish brown, wrinkled, scaly rash was noted in both axilla . Given below is the appearance of the image under the wood's lamp. Diagnosis?



a) Vitiligo

b) Melasma

c) Erythrasma

d) Pityriasis versicolor

Answer: C: **Erythrasma**

The diagnosis of erythrasma was confirmed by viewing the affected area under a Wood's lamp in a darkened room: the lesion fluorescence a coral red. Also, skin scrapings from the area would confirm the presence of Corynebacterium minutissimum, the cause of erythrasma.

24: A 26-year-old male patient came to the dermatology clinic complaining from severe burning sensation during urination and dysuria for 4 days. Additionally, he was suffering from penile discharge and testicular tenderness. He had a history of multiple heterosexual relationships with a last contact 8 days ago.

On physical examination, vital signs showed: blood pressure 110/79, pulse 75, and temperature 37.6°C. There was mucopurulent cloudy discharge from urethra. Swollen testicles were also observed. When the patient asked about any other symptoms, he mentioned feeling fatigue with pain in the knee joints and ankles 2 weeks ago but he did not receive any medical remedy until the appearance of severe irritation, redness in the eye, as well as edema in the eyelid with the presence of copious discharge (conjunctivitis). What is the causative agent of this condition?

a) Treponema pallidum

b) Chlamydia

c) Human papillomavirus

d) N. gonorrhoeae

Answer: D: **N. gonorrhoeae**

Patients with risky sexual behavioural history presented with copious mucopurulent urethritis associated with conjunctivitis and painful joints suspected in a high index to be infected with N. gonorrhoeae. Co-infection with C. trachomatis could not be excluded.

While female patients suffering from gonococcal infections are mostly asymptomatic, male patients commonly present dysuria accompanied with urethral discharge as a major symptom. Inflammation of the conjunctiva due to gonococci is a rare symptom in adult patients and usually caused by autoinfection through the accidental transfer of the urethral discharge into the eyes. This kind of infection is devastating to the eye that may cause corneal perforation and loss of vision.

Other options:

Option A. Treponema pallidum causes **syphilis**
Symptoms of primary syphilis are: Small, painless open sore or ulcer (called a chancre) on the genitals, mouth, skin, or rectum that heals by itself in 3 to 6 weeks. Enlarged lymph nodes in the area of the sore.

Keywords: sexual behavioural history, mucopurulent urethritis, conjunctivitis, painful joints

25: Diana was 28 and seriously worried about her hair loss. Six months earlier she had first noticed a small bald patch on her scalp, but in recent weeks a large patch had suddenly appeared, as well as some loss behind the ears. No obvious cause could be found, although she mentioned some recent stresses at work. Her mother had a similar problem in the past and there was a history of diabetes and other autoimmune disease in the family. On examination, the skin over the affected areas was entirely normal but 'bald', except for a few white hairs. What is the diagnosis and management?

a. Trichotillomania – Antidepressants and Cognitive behavioural therapy

b. Alopecia Areata – Prednisolone

c. Scarring Alopecia - Intralesional triamcinolone acetonide at 3-10 mg/mL

d. Tinea Capitis – Oral Griseofulvin

Answer: B

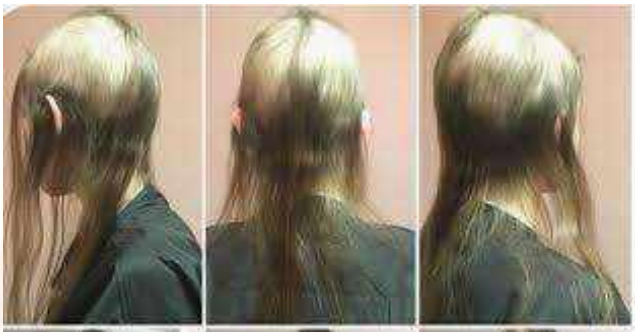
The diagnosis of **alopecia areata** seemed clear in Diana's case so no skin biopsy was necessary. Diana was aware that, as in her mother's case, the problem may resolve spontaneously and that the white hairs might herald a recovery, she was alarmed by the recent dramatic changes and requested some medical intervention. Diana was prescribed prednisolone for the next month, which led to some improvement followed by further recovery.

Option A: **Trichotillomania** - Anxiety disorder in which patients pull out their own hair.

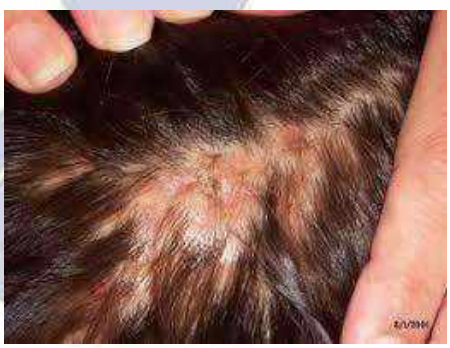
Average age of onset is 13.

Most commonly affects the scalp.

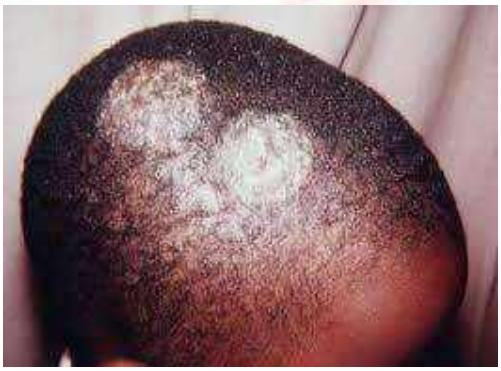
Punch biopsy should confirm the diagnosis if necessary.



Option C: **Scarring Alopecia** - The scarring alopecia patches usually look a little different from alopecia areata in that the edges of the bald patches look more "ragged." The destruction of the hair follicle occurs below the skin surface so there may not be much to actually see on the scalp skin surface other than patchy hair loss.



Option D: **Tinea Capitis** - Alopecia areata presents with smooth hairless patches, which have a high spontaneous rate of resolution. Tinea capitis causes patches of alopecia that may be erythematous and scaly.

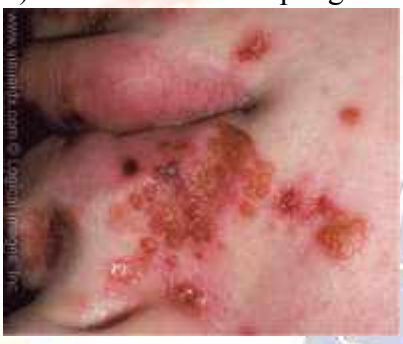


26: Three-year-old boy Hari lives in a very rural part of Kerala. One day in late July Hari develops a series of red papules around his mouth and nose. By the next day, these papules have evolved into vesicles and pustules. Over the next 18-24 hours, the lesions start to break down, coalesce, and form thick, amber-coloured, honeycomb-like crusts.

The boy is not in pain and he doesn't really feel ill at all. His face looks a little scary and his family visits the hospital. The boy's vital signs are normal and there are no remarkable physical findings aside from the skin lesions.

What is the Diagnosis?

a) Insect Bite
b) Bullous Impetigo
c) Herpes simplex Virus
d) Non – Bullous impetigo



Answer: D

Impetigo occurs most often in young children, especially between the ages of 2 and 5. It is more frequent in the summer months and more prevalent in semitropical and tropical areas than in cold climates. The disease is particularly common in settings of poor hygiene, among children of relatively low economic status. The location of the lesions, the manner in which they developed, the amber colour of the crusts, and the boy's age are all characteristic of non bullous impetigo, a relatively superficial infection of the skin.

Other options:

Option A – **Insect Bite** - Bullae seen with pruritic papules grouped in areas in which bites occur

Option B- **Bullous Impetigo** -Typically produces more extensive, rapidly enlarging bullous lesions (vesicles filled with thin fluid) that break down and leave thin, paper-like crusts (rather than the thick amber crusts associated with streptococcal impetigo). The bullous impetigo lesions closely resemble regular blisters and they can be quite large.

Option C – **Herpes Simplex Virus** - Grouped vesicles on an erythematous base that rupture to become erosions covered by crusts, usually on the lips and skin; may have prodromal symptoms which are not usually observed in impetigo

27: A 2 year old child comes with a presentation of Small, raised, pink, pearly lesions which are typically flesh coloured and dome shaped with a dimple in the centre.

On examination, Lesions were present mainly on the arms, torso and armpits and are about 3mm in diameter. Mother gives the history of a child having a weak immunity since birth and the family living in a crowded area.

What do you think the child is suffering from by looking at the following

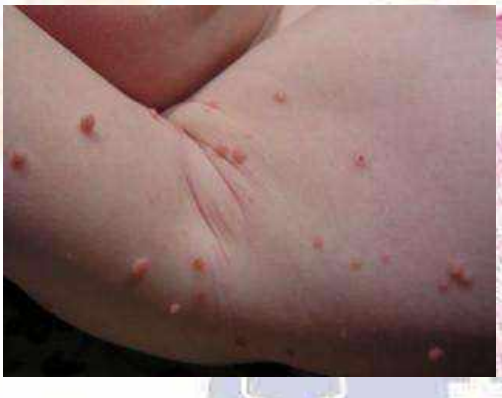
pictures ?

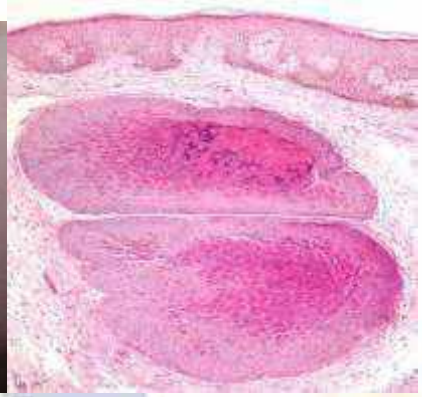
a) Water Warts

b) Chickenpox

c) HSV

d) Folliculitis



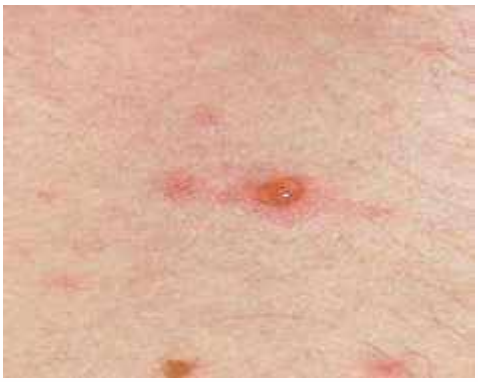


Answer: A – Water Warts aka **Molluscum Contagiosum.**

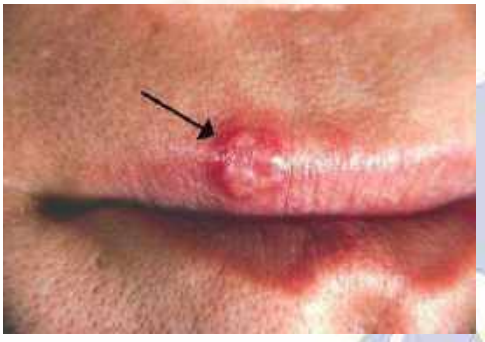
Molluscum contagiosum is an infection caused by a poxvirus (molluscum contagiosum virus).
The result of the infection is usually a benign, mild skin disease characterized by lesions (growths) that may appear anywhere on the body. Within 6-12 months, Molluscum contagiosum typically resolves without scarring but may take as long as 4 years. The above mentioned clinical features are typical of Water Warts.

Other options:

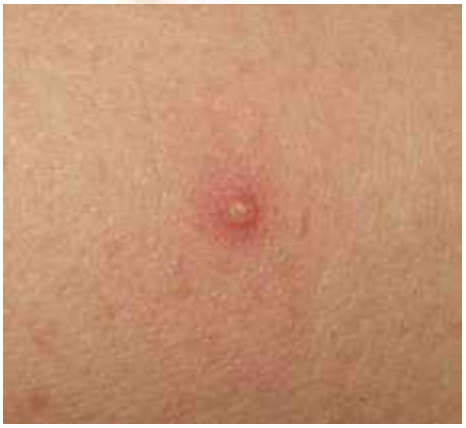
Option B – **Chicken pox -** In Children first sign is the rash or the spots in the oral cavity. The rash begins as small red dots on the face, scalp, torso, upper arms and legs; progressing over 10–12 hours to small bumps, blisters and pustules; followed by umbilication and the formation of scabs.



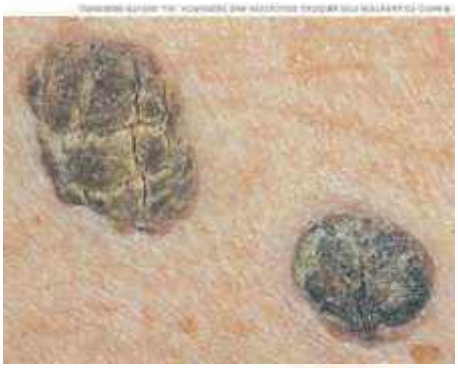
Option C – **HSV** - Blisters that break open and form small ulcers, fever, swollen lymph nodes.



Option D – Folliculitis - **Folliculitis** is the infection and inflammation of one or more hair follicles. The condition may occur anywhere on hair covered skin. The rash may appear as pimples that come to white tips on the face, chest, back, arms, legs, buttocks, or head.



28: A 65 year old man presents with the clinical features as shown in the picture below. Identify the disorder and its characteristic feature.



a) Often appears on the face, chest, shoulders or back & has a waxy, scaly, slightly elevated appearance.
b) It is most common on the face, lips, ears, back of hands, forearms, scalp and neck. The rough, scaly skin patch enlarges slowly
c) Benign moles are usually brown, tan, pink or black (especially on dark-coloured skin).
d) a small "pearly" bump that looks like a flesh-coloured mole or a pimple that doesn't go away.

Answer: A

Seborrheic Keratosis- A non-cancerous skin condition that appears as a waxy brown, black or tan growth. Aka senile wart. Multiple growths are more common. No treatment is necessary.

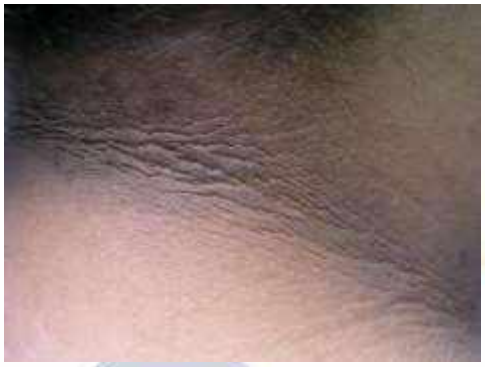
Other options:

Option B – **Actinic Keratosis** - A rough, scaly patch on the skin caused by years of sun exposure. Usually affects older adults. Because it can become cancerous, it's usually removed as a precaution.

Option C – **Melanocytic nevus** – It can be rough, flat or raised. They can exist at birth or appear later. Rarely, melanocytic nevus can become cancerous.

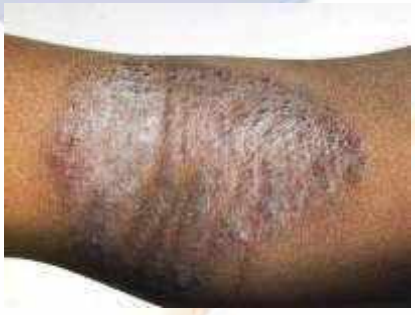
Option D – Pigmented **Basal Cell Carcinoma** - At first, a basal cell carcinoma comes up like a small "pearly" bump that looks like a flesh-coloured mole or a pimple that doesn't go away. Sometimes these growths can look dark. Or you may also see shiny pink or red patches that are slightly scaly. Another symptom to watch out for is a waxy, hard skin growth.

29: Sunita , a 25 year old female comes to the OPD with the following presentation as shown in the diagram. She is obese and is upset over such blackening of the skin on neck, axilla and groin.On examination and proper history taking, she is diagnosed with Acanthosis Nigricans. All of the following are causes of Acanthosis Nigricans except?



a) Birth control Pills
b) Underactive Thyroid
c) Elevated IgE
d) Ovarian Cysts

Answer: C – Elevated IgE – Seen In Atopic Dermatitis which is a differential diagnosis of Acanthosis Nigricans. Atopic dermatitis (AD) is a chronic, pruritic inflammatory skin condition (see image below) that typically affects the face (cheeks), neck, arms, and legs but usually spares the groin and axillary regions.



Option A, B, D – Causes of Acanthosis Nigricans. Other causes are :

Insulin resistance - Most people who have acanthosis nigricans have also become resistant to insulin. Insulin is a hormone secreted by the pancreas that allows your body to process sugar. Insulin resistance is what eventually causes type 2 diabetes.

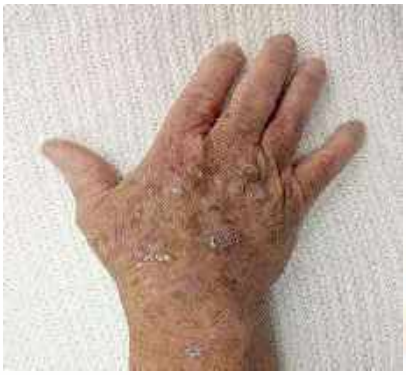
Hormonal disorders - Acanthosis nigricans often occurs in people who have disorders such as ovarian cysts, underactive thyroids or problems with the adrenal glands.

Certain drugs and supplements - High-dose niacin, birth control pills, prednisone and other corticosteroids may cause acanthosis nigricans.

Cancer. Acanthosis nigricans also sometimes occurs with lymphoma or when a cancerous tumour begins growing in an internal organ, such as the stomach, colon or liver.

30: A 54 year old man presents with dry, crusty patches on skin. It has a combination of colours and has a rough and raised texture. It is around 3mm in diameter. Lesions are present mainly on the sun exposed areas as the man works as a labourer.

What is the inappropriate treatment for his condition ?



a) Fluorouracil cream
b) Photodynamic Therapy
c) Freezing and Tissue scraping
d) No Treatment is necessary

Answer: D

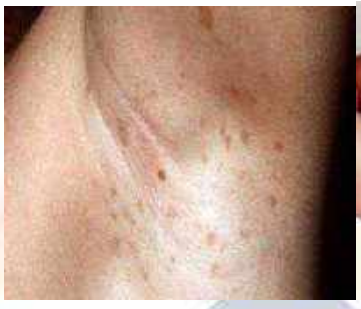
Option A , B , C – Treatment of Actinic Keratosis : Because it can become cancerous, It is usually removed as a precaution. Other treatment involves

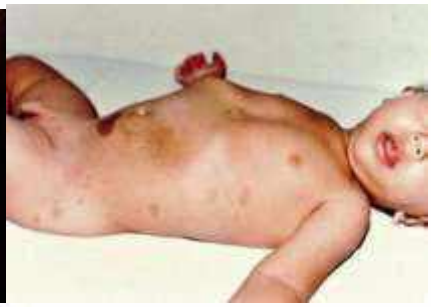
1. Topical Anti – cancer medication – Fluorouracil, Imiquimod
2. Chemotherapy and NSAIDs
3. Photodynamic therapy
4. Freezing and tissue scraping

31: A 3 year old child presents with freckling in the armpits and groin area, soft pea-sized bumps on the skin and scoliosis.

On examination the child was below average in height for age and some vision related problems. Earlier the child was diagnosed with hyperactivity disorder as well.

What is the disease he is suffering from?





a) NF-2

b) NF-1
c) Schwannomatosis
d) None of the above

Answer: B – **Neurofibromatosis -1** - Neurofibromatosis 1 (NF1) usually appears in childhood. Signs are often noticeable at birth or shortly afterward, and almost always by age 10. Common symptoms are :

1. Flat, light brown spots on the skin (cafe au lait spots).
2. Freckling in the armpits or groin area.
3. Tiny bumps on the iris of the eye (Lisch nodules).
4. Soft, pea-sized bumps on or under the skin (neurofibromas).
5. Bone deformities.
6. Tumour on the optic nerve (optic glioma).
7. Learning disabilities.
8. Larger than average head size.
9. Short stature. Other options:

Option A – **Neurofibromatosis -2** – Much less common than type 1

Signs and symptoms generally appear in the late teen and early adult years, and can vary in severity. Signs and symptoms can include:Gradual hearing loss ,ringing in the ears , poor balance ,headaches

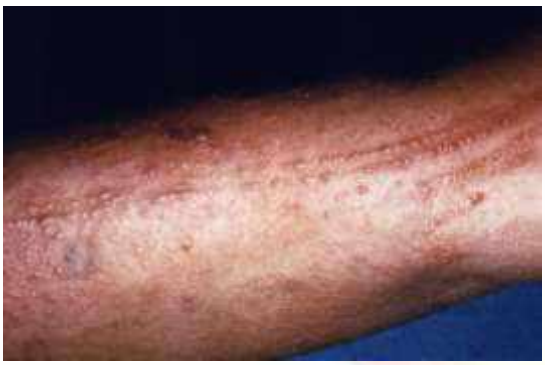
Option C - This rare type of neurofibromatosis usually affects people after age 20. On average, symptoms appear between ages 25 and 30.

Schwannomatosis causes tumours to develop on the cranial, spinal and peripheral nerves. Because tumours don't usually grow on both hearing nerves, schwannomatosis doesn't cause the hearing loss experienced by people with NF2.

Symptoms of schwannomatosis include:

Chronic pain, which can occur anywhere in your body and can be disabling Numbness or weakness in various parts of your body & Loss of muscle

32: A 30 year old man develops rashes all over the skin which are itchy, red and causes skin to become dry, scaly and cracked on exposure to Poison Ivy. The symptoms worsen on exposure to heat, cold, friction and even low humidity. The episodes occur every time he comes in contact with poison ivy. What is the diagnosis?



a) Contact Dermatitis
b) Irritant Contact dermatitis
c) Photo Contact Dermatitis
d) Allergic Contact Dermatitis

Answer: D – **Allergic Contact dermatitis** - Occurs when the skin develops an allergic reaction after being exposed to a foreign substance. This causes the body to release inflammatory chemicals that can make the skin feel itchy and irritated. Common causes of allergic contact dermatitis include contact with:

1. jewellery made from nickel or gold
2. latex gloves
3. perfumes or chemicals in cosmetics and skin care products
4. poison oak or poison ivy

Option A – Includes all the types of **contact dermatitis**

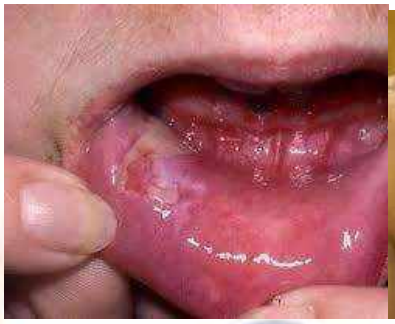
Option B - **Irritant contact dermatitis** is the most common type of contact dermatitis. It happens when the skin comes in contact with a toxic material.

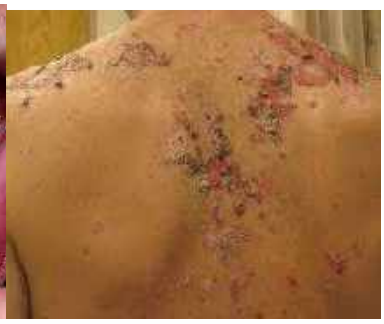
Toxic substances that can cause irritant contact dermatitis include:

1. battery acid
2. bleach
3. drain cleaners
4. kerosene
5. detergents
6. pepper spray

Option C – **Photo contact dermatitis** is less common. It's a reaction that can occur when the active ingredients in a skin product are exposed to the sun and result in irritation.

33: A 45 year old female comes with a h/o fluid filled lesions all over the body. Patient was apparently asymptomatic 20 days back when she developed swelling over the face with erythema which gradually spread to lower limbs and oral mucosa. Some of the blisters ruptured with minimal trauma and developed erosions.She took treatment after which lesions subsided so she stopped taking it.This lead to recurrence of lesion after 4 days with erythema and blisters all over the body.She has been taking antihypertensives for past 5 years.What is the condition?





a) Pemphigus Vulgaris
b) Bullous Pemphigoid
c) Hailey- Hailey Disease
d) Drug Induced Pemphigus

Answer: A – **Pemphigus**

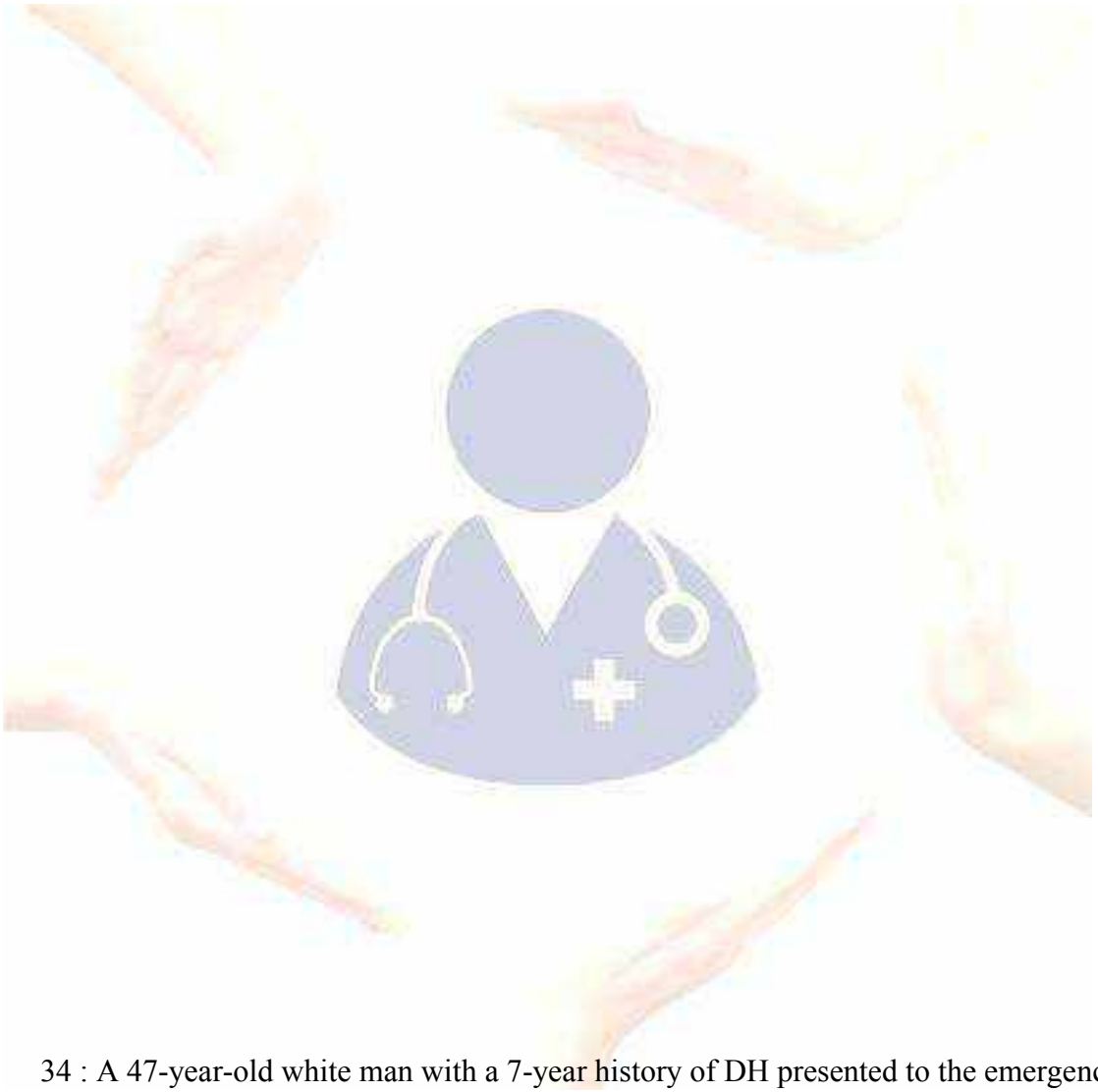
Vulgaris Other options:

Option B – **Bullous pemphigoid** – Bullous pemphigoid is a chronic, inflammatory, subepidermal, blistering disease. If untreated, it can persist for months or years, with periods of spontaneous remissions and exacerbations. The most common presentation; tense bullae arise on any part of the skin surface, with a predilection for the flexural areas of the skin.

Option C – **Hailey- Hailey Disease** – aka Familial Benign Pemphigus

Familial benign pemphigus is a chronic autosomal dominant disorder with incomplete penetrance. Approximately two thirds of patients with familial benign pemphigus have a family history of the disorder. A history of multiple relapses and remissions is characteristic.

Option D – **Drug Induced Pemphigu**s – Most commonly seen in Pemphigus foliaceous.



34 : A 47-year-old white man with a 7-year history of DH presented to the emergency department for the evaluation of a generalized petechial rash and tender swelling of the left arm.
Physical examination of the skin found erythematous papulovesicles on the scalp, upper arms, and elbows and well-demarcated erythematous macules coalescing into larger patches distributed on the upper back, buttock, and trunk. In addition, purpuric macules and patches were noted in the periphery of erythematous patches on the anterior shins, knees, and anterior thighs.

Scattered petechiae were also noted on the distal fingertips. Additionally, a large tender ulcer with purulent discharge and thick yellow crusting in the periphery was present in the left extensor forearm.

Identify the disease and its treatment?

a. Linear IgA Disease - Prednisolone
b. Eczema – Cetaphil Daily hydrating Lotion
c. Duhring Disease – Dapsone and Gluten free diet
d. Pemphigoid – Methotrexate and Prednisone

Answer: C

Duhring Disease aka **Dermatitis Herpetiformi**s - The rash of dermatitis herpetiformis consists of small red spots, tiny fluid-filled blisters and wheals. The most commonly affected sites are the backs of the elbows, the fronts of the knees, the scalp, bottom and back.

A chronic, very itchy skin rash made up of bumps and blisters.

The exact cause of isn't known. Genetics, gluten sensitivity and disorders in which the immune system attacks healthy cells (auto-immune disorders) may play a role.

The main symptom is an off-and-on skin rash.

Antibiotics and a gluten-free diet are treatments.

Closely look at the distribution of lesions

Other Options:

Option A - **Linear IgA bullous dermatosis** is a rare immune-mediated blistering skin disease frequently associated with medication exposure, especially vancomycin.

The clinical presentation is heterogeneous and appears similar to other blistering diseases, such as bullous pemphigoid and dermatitis herpetiformis.

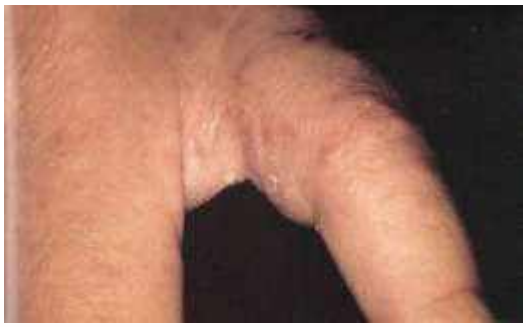
Option B – **Eczema** – it usually develops in early childhood and is more common in people who have a family history of the condition.

The main symptom is a rash that typically appears on the arms and behind the knees, but can also appear anywhere.

Treatment includes avoiding soap and other irritants. Certain creams or ointments may also provide relief from the itching.

Option D – **Pemphigoid** – Mainly resembles Bullous Pemphigoid.

35: A 26 year old woman comes to see you with a seven week history of a rash which is worse on her hands. It is extremely itchy, particularly at night, and she is worried that she could give “something” to her 4 year old son. Diagnosis was made clinically by looking at the burrows and rash.



What is the treatment of the above

condition?

a) 5% Permethrin Cream

b) Retino -A Cream
c) Tacrolimus
d) 1% hydrocortisone

Answer: A – **Scabies** treatment is 5% Permethrin Cream - Acquired through direct, prolonged, skin-to-skin contact with an infected person (i.e., same household, sexual partner).

Diagnosis of scabies is made by looking at the burrows or rash.

Skin scraping may be taken to look for mites, eggs, or mite faecal matter to confirm the diagnosis.

Eosinophilia is also present in crusted scabies.

Classic locations- the webbing between the fingers; the skin folds on the wrist, elbow, or knee; the penis, the breast, axillae, feet, buttocks.

Pimple-like irritations, burrows or rash of the skin. In light-skinned individuals, burrows have a whitish colour with occasional dark specks.

Intense itching that usually spares the head and neck, and is worse at night.

Differential diagnosis- adverse cutaneous drug interaction, atopic dermatitis, contact dermatitis, eczema, urticaria, pityriasis rosea, dermatitis herpetiformis, pediculosis corporis/pubis, scabies, lichen planus, delusions of parasitosis, metabolic pruritus.

Other options:

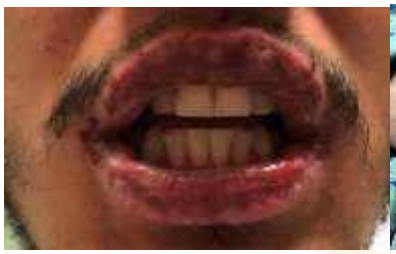
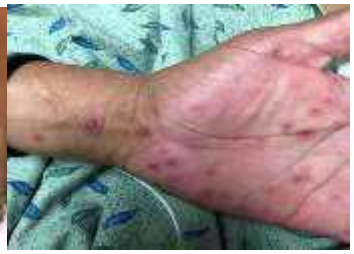
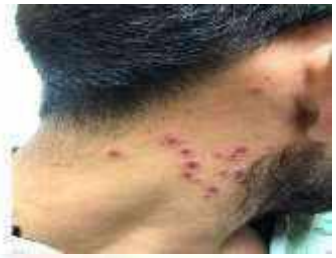
Option B – Treatment of Lichen Planus

Option C – Treatment of atopic Dermatitis

Option D – Treatment of Contact Dermatitis

36: A 23-year-old Hispanic male presented to the emergency department, with rash, mouth sores, and subjective fevers that began after eating fish five days prior. His symptoms started with sores in his mouth and on his lips with penile and anal pruritus. After 24 hours, the patient developed a pruritic rash over his upper extremities, neck, upper back, and palms, as well as two non-painful sores on his penis and one blister on his rectum. Despite medicating at home with Benadryl, the patient's symptoms persisted, which caused the

patient to seek care in our emergency department.The patient reported having unprotected intercourse with a female two months ago. On physical examination, he had heme-crusted polycyclic erosions of vermillion lips, buccal mucosa, and labial mucosa. He was also found to have numerous 2-12 mm erythematous, urticarial, targetoid papules and plaques with central hyperpigmented purple/red duskiness over bilateral palms, dorsal hands, upper arms, lateral neck, cheeks, nasal tip, and alae. Diagnose.

a) TEN

b) Urticaria
c) SJS
d) Erythema Multiforme

Answer : D – **Erythema Multiforme** –Targetoid lesions located on the extensor surfaces of the acral extremities are the hallmark presentation for this disorder. Diagnosis can be made by Clinical features only.

Other options:

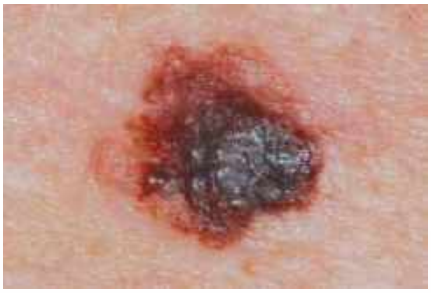
Option A, C - **Steven-Johnson syndrome (**SJS) and toxic epidermal necrolysis (TEN) are classified as a spectrum of diseases, distinguished solely by severity. SJS is the less severe disorder and is identified when there is less than 10% skin involvement. When skin involvement is over 30%, the condition is then classified as TEN.

The clinical presentation of SJS/TEN often includes fever, skin tenderness, blistering, exanthematous eruption, and mucositis. Skin lesions appear as ill-defined, erythematous macules with purpuric centres or can also appear as diffuse erythema. The involvement of the scalp, palms, and soles is typically not observed.

Option B – **Urticaria** – Rashes appear most commonly on the face and neck region. There is an intense sense of itching, forcing the person to scratch that region following which there is redness and appearance of these patches. Occurs more commonly in afternoons. They remain for 1-2 hours and then start disappearing gradually.

37: A young couple, construction workers by occupation comes to emergency department with the following presentation :Bigger mole diameter, darkening of the skin, mole colour

changes and skin mole with irregular border.Redness or a new swelling beyond the border of the mole.



Identify the condition ?

a) Squamous Cell carcinoma
b) Dysplastic nevus
c) Benign melanocytic lesion
d) Malignant melanoma

Answer: D

Malignant Melanoma - Melanoma occurs when the pigment-producing cells that give colour to the skin become cancerous. Mostly occurs in sun exposed areas.

In this case the couple works at construction sites which are generally in open spaces hence there body is exposed to sun for a long duration.

Symptoms might include a new, unusual growth or a change in an existing mole. Melanomas can occur anywhere on the body.

Treatment may involve surgery, radiation, medication or in some cases, chemotherapy.

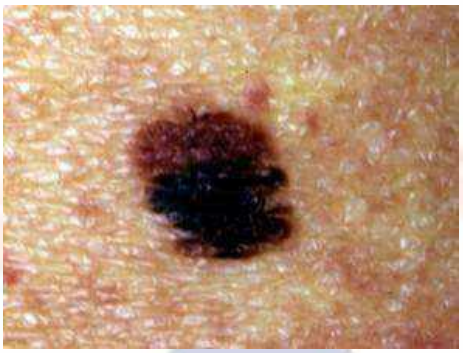
Other options:

Option A -

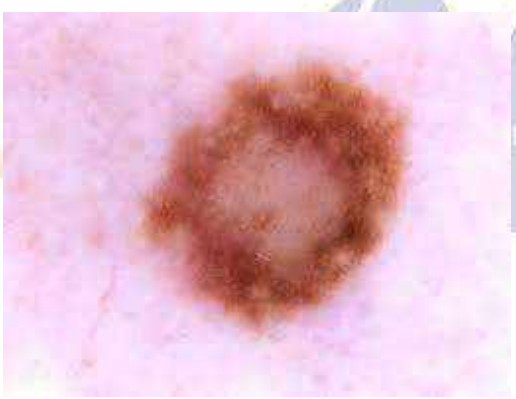
Squamous cell carcinomas may appear as flat reddish or brownish patches in the skin, often with a rough, scaly, or crusted surface. They tend to grow slowly and usually occur on sun-exposed areas of the body, such as the face, ears, neck, lips, and backs of the hands.

Option B - Moles that are bigger than a common mole and irregular in shape are known as **atypical (dysplastic) nevi**. They tend to be hereditary. And they often have dark brown centres and lighter, uneven borders.

Another important difference is that a common mole or dysplastic nevus will not return after it is removed by a full excisional biopsy from the skin, but melanoma sometimes grows back. Also, melanoma can spread to other parts of the body.



Option C – **Benign Melanocytic Lesion** - dermal naevi often present as skin coloured or pink lesions. In general darker skin types have darker moles. Sun exposure leads to a greater number of lesions, but they are not confined to sun exposed sites



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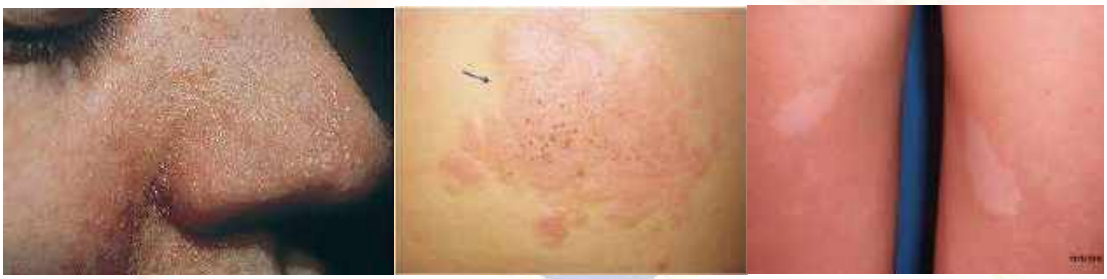
38: An 11 year old male child from Pulchowk, Lalitpur presented to the Emergency Department with history of multiple episodes of generalized tonic-clonic seizure for the last 10 days. In the past, he had multiple hospital admissions for the same reason and was on an antiepileptic drug since the age of one year with poor control. There was no history

of seizure in family members; however his father had skin nodules over the face and neck along with a hypopigmented macule over the trunk.

On detailed examination, the child was malnourished with Tanner stage I of physical development. The child had multiple hyper-pigmented papules over the nasolabial region. He also had multiple (five) hypo-pigmented macules (ash leaf) over the lower limbs along with a Shagreen patch over the lateral aspect of the left buttock.

Investigations showed sub ependymal nodules in computed tomography (CT) scan of head, other test like haemoglobin, complete blood count, renal and liver function tests were normal.

What is the condition he is suffering from ?



a. Tuberous Sclerosis
b. Complex Partial seizures
c. West Syndrome
d. Lennox-Gastaut Syndrome

Answer : A - **Tuberous sclerosis complex (TSC)** is a rare genetic disorder with heterogeneous presentation varying from severe mental retardation and incapacitating seizures to normal intelligence and an absence of seizure, often within the same family. It is due to inactivating mutation in one of the two genes, TSC1 encoding hamartin, or TSC2 encoding tuberin2.

The major neurological manifestations of tuberous sclerosis complex are seizures, autism, developmental delay and behavioural and psychiatric disorder.

Major and Minor Criteria of tuberous sclerosis complex

Major Criteria **Minor Criteria**

1. Cortical tuber lines	1. Cerebral white matter migration
2. Subependymal nodule	2. Multiple dental pits
3. Facial angiofibroma or forehead plaque	3. Gingival fibromas
4. Ungual or periungual fibroma (nontraumatic).	4. Bone cysts
5. Hypomelanotic macules (>3)	5. Retinal achromic patch
6. Shagreen patch	6. Confetti skin lesions
7. Multiple retinal hamartomas	7. Nonrenal hamartomas
8. Cardiac rhabdomyoma	8. Multiple renal cysts
9. Renal angiomyolipoma	9. Hamartomatous rectal polyps 10. Pulmonary lymphangioleiomyomatosis

Other options:

Option B, C, D – these are differential diagnosis of Tuberous Sclerosis.

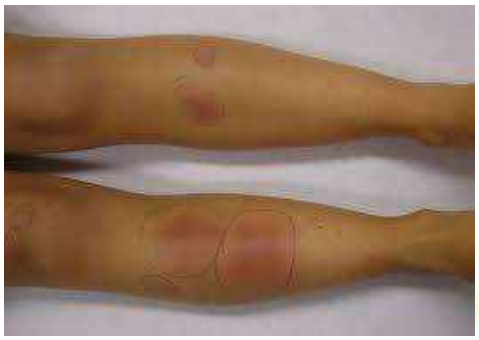
A complex partial seizure, now known as a focal impaired awareness seizure starts focally within the brain and causes impairment of consciousness. In most patients, focal impaired awareness seizures represent underlying temporal lobe epilepsy.

West syndrome is a severe epilepsy syndrome composed of the triad of infantile spasms, an interictal electroencephalogram (EEG) pattern termed hypsarrhythmia, and mental retardation. It is an age-dependent expression of a damaged brain, and most patients with infantile spasms have some degree of developmental delay. The term infantile spasm has been used to describe the seizure type, the epilepsy syndrome, or both.

Lennox-Gastaut syndrome (LGS), or childhood epileptic encephalopathy, is a pediatric epilepsy syndrome characterized by multiple seizure types; mental retardation or regression; and abnormal findings on electroencephalography (EEG).

39 : 27 year old Rahul came to the OPD with the complaint of Painful lumps on the shins of both limbs. On clinical examination : Many flat, firm, hot, red and painful lumps appeared on the shins. He also had pain in the joints and fever.

By looking at the picture below, all are the causes of this given condition except



a) Cat Scratch Disease
b) Strep Throat
c) Sulphonamides
d) 0.05% of chlorhexidine

Answer : D – 0.05% Chlorhexidine – Used in the treatment of Erythema

Multiforme Other options:

Option A, B, C – These are causes of given condition Erythema Nodosum

A painful disorder characterised by tender bumps (nodules) under the skin.

Erythema nodosum is an inflammatory disorder. In many cases, the cause is unknown. In some cases, it may be triggered by strep throat or other infections.

Symptoms include flat, firm, hot, red and painful lumps that usually appear on the shins. Later, they may fade and look more like a bruise and then resolve on their own.

Any underlying infections or conditions need to be treated. Medication can treat pain associated with the rash.

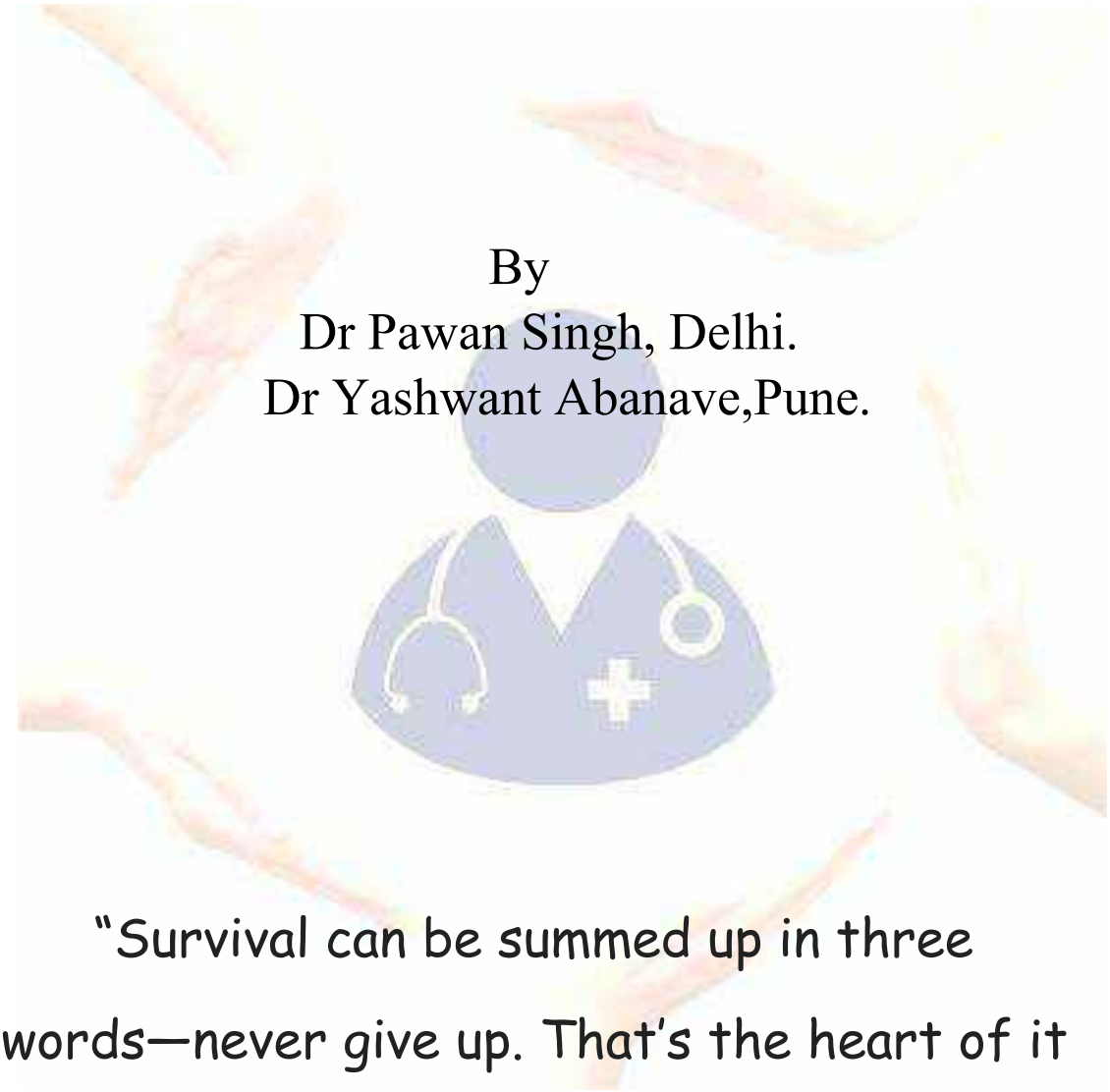
Beta-haemolytic streptococcal infections are the most common identifiable cause of erythema nodosum. Streptococcal infections account for up to 44 percent of cases in adults and 48 percent of cases in children.

FMGE CLINICAL VIGNETTES

FMGE CLINICAL VIGNETTES

Psychiatry

By
Dr Pawan Singh, Delhi.
Dr Yashwant Abanave,Pune.



"Survival can be summed up in three words—never give up. That's the heart of it really. Just keep trying." —Bear Grylls

FMGE CLINICAL VIGNETTES

1) Aversion therapy is used in treatment of -

A Paraphilias

B Tribalism

C Cunnilingus

D Nymphomama

Ans.-A

Paraphilias- experience of intense sexual arousal to atypical objects, situation, fantasies, individuals etc.

- **Aversion therapy** is used for the treatment of conditions which are **pleasant** but **undesirable** (e.g., alcoholism,

- Although aversion therapy can potentially be used to help eliminate almost any unwanted behavior. Two of the most common applications of this treatment approach over the years are rehabilitation programs for sex offenders and drug and alcohol addiction treatment.

2) Which of the following is not a Paraphilia?

A) Transsexualism

B) Pedophilia

C) Fetishism

D) Masochism

Ans. A. Transsexualism

Disorders of sexual preference (Paraphilias/ Perversions)

1. Fetishism: Sexual focus on non-living object (like shoes, gloves) as a stimulus for sexual arousal and sexual gratification objects are intimately associated with human body such as articles of clothing (gloves) or footwear

2. Transvestism: (formerly: Transvestic fetishism) Wearing of clothes of the opposite sex principally to obtain sexual excitement

3. Exhibitionism: Recurrent/ persistent tendency to expose genitalia to strangers (usually of the opposite sex) or to people in public places: without Inviting or intending closer contact.

4. Voyeurism (scopophilia): Recurrence or persistent tendency to look at people engaging in sexual or intimate behavior such as undressing. Usually leads to sexual excitement and masturbation and is carried out without the observed people being aware.

5. Pedophilia: Sexual preference for children: usually of prepubertal or early pubertal age or less then 13yrs.Person with pedophilia are at least 16 years of age and at least 5 years older than victim
Some are attracted only to girls: others only to boys, others again Interested in both sexes.

6. Frotteuristic Disorder: Recurrent & intense sexual arousal from touching or rubbing against a non-consenting person, as manifested by fantasies: urges: or behaviors.
Eg- man rubbing his penis against buttocks or other body parts of fully clothed women

3) Identify the Treatment technique of Sexual disorder shown in photograph.

A Sensate focus technique

B Master's & Johnson's technique

C Squeeze technique

D Dual-sex therapy

Ans-C

Squeeze technique or thumb squeeze technique is TOC for premature ejaculation.
MCC-Stress inc.symp. erectile dysfunction premature ejaculation(<1min)

B) Master's & Johnson's technique (couple therapy)

1. sensate focus- Erectile dysfunction
2. squeeze technique- Premature ejaculation

D) Dual **Sex therapy** is a strategy for the improvement of **sexual** function and treatment of **sexual** dysfunction

4 In which of the following pervasive developmental disorders only one modality is impaired, others are normal.

A) Autism

B) Asperger syndrome

C) Rett syndrome

D) All of the above

Ans- B (Asperger syndrome)

Pervasive development disorders include several clinically similar conditions which are characterized by :

i) Impairment of social interaction:- eg, Lack of social smile or eye contact

ii) Impairment of communication (language and non-verbal):- Language problems, delayed or absent speech-

iii) Restricted repetitive and stereotyped behavior, interests and activities:-

iv) Another associated feature is mental retardation.

In Autism and Rett syndrome all three features are found. Where as In Asperger syndrome -

a) Only Social interaction is impaired.

b) Intelligence is normal (The only pervasive development disorder in which intelligence is normal.)

c) No language and cognitive Impairments.

5. True about Autism:

A) Persistent delusion

B) Hallucination

C) Incoordinate social interaction and Defective reciprocal interaction

D) Onset after 5yr

Ans: C

Autism - marked impairment in social & interpersonal interaction

• Inability to develop normal social skill (lack of eye contact gestures and facial expression)

• Understand little or no language (Therefore fail to acquire speech)

• Deficient comprehension and communicative use of speech and gesture.

Severe deficit in social responsiveness and interpersonal skills

Intrusive stereotypes (Repetitive behavior) together with inability to concentrate may prevent children from engaging in meaningful activity or social interaction (difficulty in making friends)

Early diagnosis of children at risk for autism can be facilitated by the use of the Checklist for Autism in Toddlers (CHAT), a screening instrument

Mental retardation (about 75% of children with autism are mentally retarded)

Epilepsy develops in one fifth to one third of autistic individuals
Diagnosis by -**3 yr**
Corpus callosum involved in autism

Attention-Deficit Hyperactivity Disorder (ADHD)

It is characterized by;

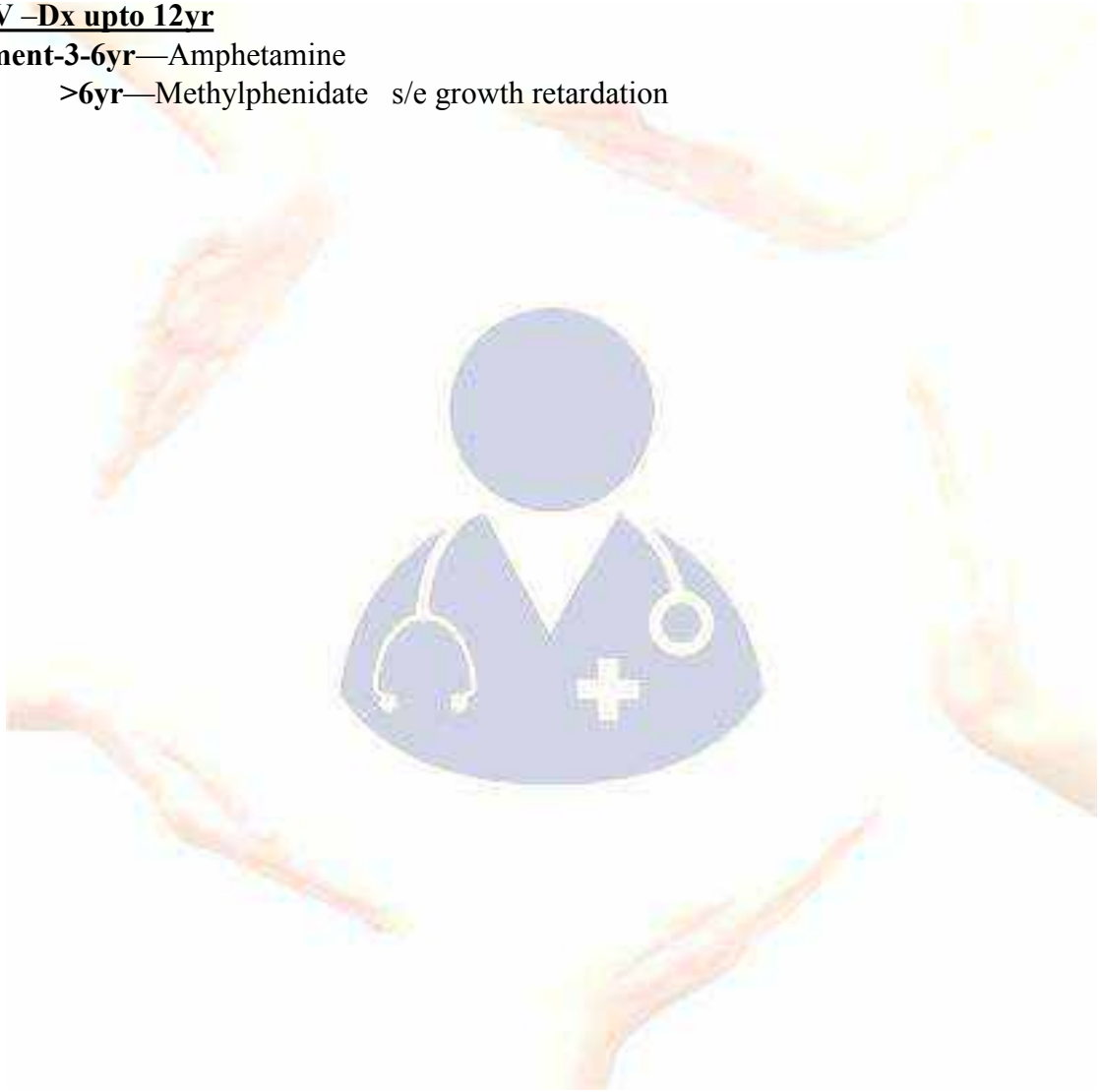
- Inattention
- Hyperactivity-h/o leaving class room
- Impulsivity –not able to wait for turn

.

DSM-V –Dx upto 12yr

Treatment-3-6yr—Amphetamine

>6yr—Methylphenidate s/e growth retardation



6.A 7 yrs old child has conservative behavior, not playing quietly with peers, and difficulty in organization- He also interrupts others in school and easily gets distracted. Which of the foiling is a likely diagnosis?

A) Specific Learning disorder

B) Autistic disorder

C) Attention deficit hyperactivity disorder

D) Conduct disorder

Ans-C

"Excessive motor activity, usually with intrusive and annoying qualities, poor sustained attention, difficulties inhibiting impulsive behaviors in social situations and on cognitive tasks, and difficulties with peers are the main characteristics of ADHD.

Specific Learning disorder-problem in writing, learning, reading and mixed but IQ is normal

Conduct disorder

- Children with conduct disorder display a persistent disregard for rules and other people's rights that lasts at least one year.

- Aggression toward people and animals, destruction of property: deceit and illegal activities, and frequent truancy from school are the main characteristics of the disorder.

- Later on he converted into an antisocial personality.

Autistic disorder

Autistic disorder is characterized by lack of interest in social interaction : severely impaired verbal and nonverbal communication, stereotyped behaviors, and a very restricted range of interests.

- Children with autism do not involve themselves in imaginative and imitative play and can spend hours lining and spinning things or dismantling toys and putting them together.

- Patients with obsessive-compulsive disorder may spend hours on repetitive tasks (such as lining up toys) but do not show the difficulties with language and social interaction that this patient displays.

7. A 6-year-old boy does not show any interest in other children, ignores adults other than his parents. He spends hours lining up his toy cars or spinning their wheels. He rarely uses speech to communicate. He remains confined to himself. If his routine is disturbed, he becomes restless. Which of the following disorders the child is most likely suffering from?

A) Social phobia

B) Intellectual disability

C) ADHD

D) Autism

Ans- D. Autism

Social phobia
Social anxiety disorder (also called social phobia) is a mental health condition. It is an intense, persistent fear of being watched and judged by others.

Intellectual disability
Intellectual disability (ID), once called mental retardation, is characterized by below-average intelligence or mental ability and a lack of skills necessary for day-to-day living. People with intellectual disabilities can and do learn new skills, but they learn them more slowly

8.All are mechanism for defense except:

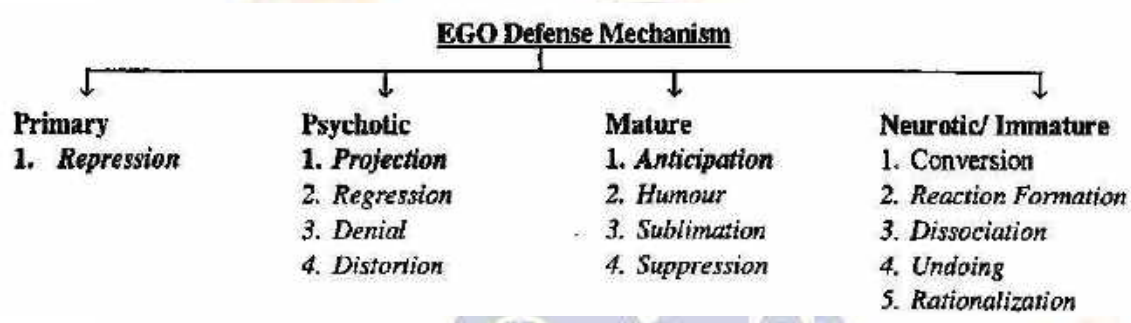
A) Repression

B) Transference

C) Projection

D) Anticipation

Ans-D



9.Term psychoanalysis was coined by?

A) Eysenck

B) Freud

C) Jung

D) Adler

Ans-D

Term	Coined by
• Dementia precoce	• Moral Emil
• Dementia precox	• Kraepelin
• Catatonia, cyclothymia	• Kahlbaum
• Hebephrenic	Hecker
• Schizophrenia	• Euger Bleuler
• Ambivalence	• Euger Bleuler
• Free association	• Sigmund Freud
• Psychoanalysis,Psychodynamics	• Sigmunnd Freud
• Id: ego: Superego	• Sigmund Freud
• Psychiatry	• Johann christian Reil

10) All are used in OCD except:

A) Clomipramine

B) Behavioral therapy

C) SSR1s

D) ECT

Ans-D

Cognitive therapy:	Drug treatment a) Benzodiazepines

OCDs have now been categorized under anxiety disorders.
Compulsions are defined as repetitive acts, behaviors, or thoughts that are designed to counteract the anxiety associated with an obsession. The key characteristic of a compulsion is that it reduces the anxiety associated with the obsession.

OCD frequently co-occurs with other disorders. The association with major depression is particularly prominent. OCD exhibits a particularly interesting association with Tourette 's syndrome. Approximately half of all patients with Tourette's syndrome meet criteria for OCD

The prevalence of the disorder is approximately equal in men and women, although men tend to have an earlier onset than women do.

OCDs typically begin in late adolescence: although onset in childhood is not uncommon
Washing of hands or the

Psychotherapy	Drug treatment
Behavior therapy and Cognitive therapy: (Very effective modes of treatment). The techniques used are: A) Thought stopping B) Response prevention C) Systematic desensitization D) Modeling	a) Benzodiazepines b) Antidepressants-The SSRIs are the Main agents used. Fluoxetine with its low side effect profile has become the Preferred drug. Other drugs are clomipramine: fluvoxamine.etc c) Antipsychotics d) Buspirone

11) A girl feels very depressed as her father died one month back. She feels moody and does not join with others, and she thinks about joining her father. This is a case of:

A) Post traumatic stress reaction

B) Grief reaction

C) Depressive psychosis

D) Bipolar disorder

Ans-B

Post-Traumatic Stress Disorder (PTSD):

It is an anxiety disorder that some people get after seeing or living through a dangerous event. PTSD may develop after a person is exposed to one or more traumatic events, such as sexual assault, warfare, serious injury, or threats of imminent death.
Some people get PTSD after a friend or family member experiences danger or is harmed-Sudden: unexpected death of a loved one can also cause PTSD.

Grief is a multifaceted response to loss, particularly to the loss of someone or something that has died, to which a bond or affection was formed.

Grief reaction, a complex of somatic and psychological symptoms associated with extreme sorrow or loss, specifically the death of a loved one.

Somatic symptoms include feelings of tightness in the throat and chest with choking and shortness of breath, abdominal distress: lack of muscular power, and extreme tiredness and lethargy.

Depressive psychosis: also called Delusional depression or Psychotic depression, is a mental health disorder characterized by symptoms of both depression and psychosis. Psychosis consists of a combination of fears and threats that are present in the mind but not true to life.
Those who have this condition, may feel depressed while perceiving physical threats and experiencing hallucinations

Bipolar disorder
Mania+depression

12) A 41 -year-old male admitted in hospital with diagnosis of schizophrenia. He claims that the wife present with him is not his wife but a nurse who wanted to kill him and even tried this 1 day before by giving him something mixed in the food. He continues to claim that despite being convinced otherwise? What is the likely diagnosis?

A) Frégoli's syndrome

B) Capgras syndrome

C) Delusion of infidelity

D) Delusion of intermetamorphosis

Ans-B
Capgras' syndrome Delusional disorder In which the patient believes that persons in the environment are not their real selves but are double imitating the patient or imposters imitating someone else.

A) In fregoli syndrome non familial people appear familial.

c) Othello syndrome: The **delusion of infidelity** of a spouse or partner. The Othello syndrome affects males and, less often, females. It is characterized by recurrent accusations of **infidelity**, searches for evidence, repeated interrogation of the partner, tests of their partner's fidelity, and sometimes stalking.

d) Delusional misidentification syndromes may be superimposed on neurological or psychiatric disorders and include delusional beliefs that the people, objects, or places around the patient change or are made to change with one another.

13) Which is not 1st rank symptom of Schizophrenia:

A) Audible thoughts

B) Voices commenting

C) Perplexity

D) Thought broadcasting

Ans-C

1. Audible thoughts: Voices speaking out thoughts aloud or "thought echo'

2_ Voices heard arguing: Two or more hallucinatory voices discussion the subject in third person

3. Voices commenting on one's action

4_ Thought withdrawal: Thoughts cease and subject experiences them are removed by an external force by some external force on person's passive mind.

5. Thought diffusion or broadcasting: Experience of imposed.

6- Thought diffusion or broadcasting: Experience of thoughts escaping the Confines of self and as being experienced by others around.

7. 'Made Feeling or affect

S. 'Made' impulses

9. 'Made' volition or acts: in 'made" affect, impulses and volitions, the person experiences feelings, impulse or acts which are Imposed by some external force, m 'made ‘volition, for example, one's own acts are experienced as being under the control of some external force.

10. Somatic passivity: Bodily sensations especially sensory' symptoms are experiences as Imposed on the body by some external force.

ll. Delusion perception: Normal perception has a private and illogical meaning,

14) Schizophrenia results with?

A) Increased GABA

B) Decreased norepinephrine

C) Increased dopaminergic activity

D) Decreased dopaminergic activity

Ans-C
Dopamine hypothesis is the most accepted hypothesis for schizophrenia. There is hyperactivity of dopaminergic system- This hypothesis is supported by: l) Amphetamine and cocaine which release dopamine in central synapses induce schizophrenia like symptoms; and 2) Antipsychotic drugs control the schizophrenic symptoms by blocking dopamine (D2) receptors. However, the dopamine hypothesis has been questioned also as Homo vanillic acid (HVA the principal metabolite of dopamine) is not elevated and prolactin level is not decreased (Dopamine has inhibitory action on prolactin release).

Other neurotransmitters Involved are : - Increased serotonin, Decreased GABA, variable change (Increased or decreased) glutamate, and Increased norepinephrine.

15) Feature of schizophrenia is ?

A) Alogia

B) Affective blunting or flattening

C) Associality

D) all of the above

Ans-D
Schizophrenia is just one of the many causes of psychosis- Prevalence: 1 %
Schizophrenia by definition is a disturbance that must for 6 months or longer (DSMlV)including at least 1 month of delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior or negative symptoms-

Major positive symptoms:

Delusions

Hallucinations

Distortions/ exaggerations in language or communication

Disorganized speech

Disorganized behavior

Catatonic behavior

Agitation

Major negative symptoms:

Alogia - restrictions in fluency and productivity of thought and speech

Affective blunting / flattening - •restrictions in the range and intensity of emotional

Asociality - reduced social drive and interaction

Anhedonia - reduced ability to experience pleasure

Avolition - decreased desire, motivation or persistence

Attentional impairment

Poor rapport

Passivity

Cognitive blunting

Scales used to assess cognitive symptoms:

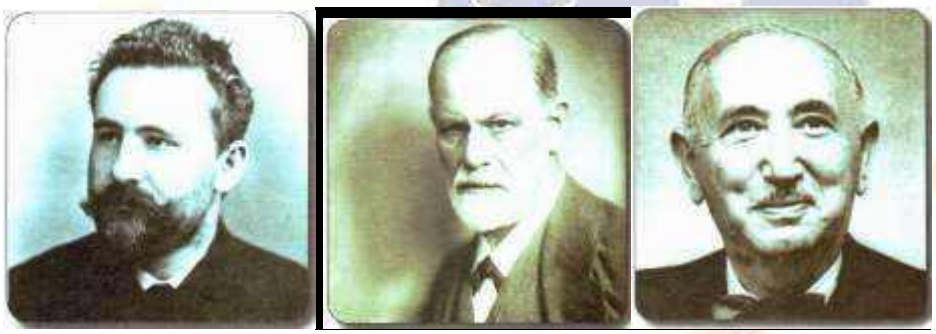
BPRS - Brief psychiatric Rating Scale (retardation factor)

PA-XSS - Positive and Negative Syndrome Scale (negative symptom subscale)

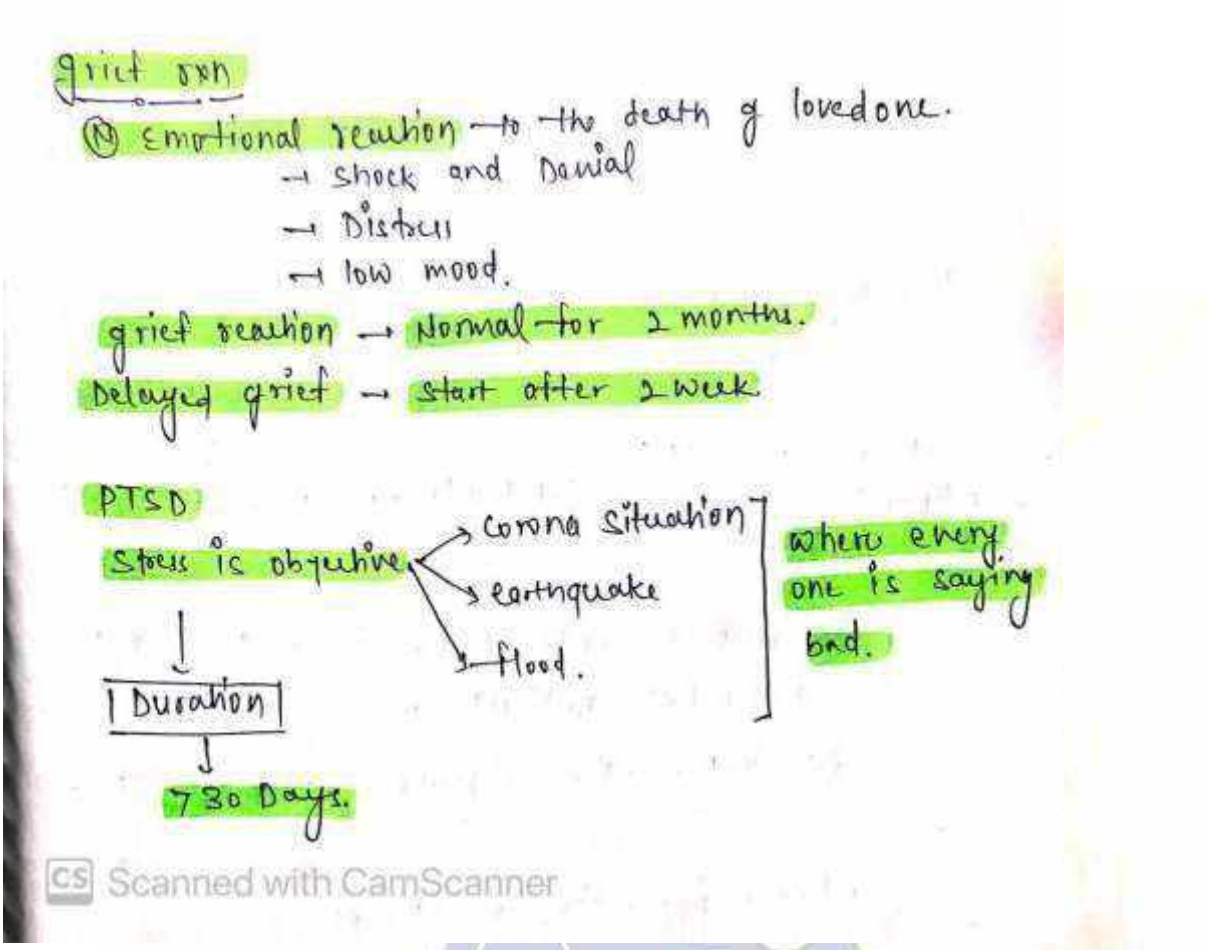
SANS - Scale for of Negative Symptoms

NS A -16 - Negative Symptoms

SDS - Schedule for Deficit Syndrome



EMIL KRAEPELINE **SIGMUND FREUD** **DAVID WECHSLER** **SPOT DX**


Grief rxn
Emotional reaction to the death of lovedone.
→ Shock and Denial
→ Distress
→ low mood.
grief reaction → Normal for 2 months.
Delayed grief → start after 2 week.
PTSD
Stress is objective
Corona situation
earthquake
flood.
when every one is saying bad.
Duration
730 Days.
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16. . A 51 -year-old woman presents with a history of body pain and generalized weakness for five years. She cannot sleep because of the illness and has lost her appetite as well. She has a lack of interest in work and doesn't like to meet friends and relatives. She denies feelings of sadness.Her most likely diagnosis is:

A. Somatoform pain disorder.
B. Major depression.
C. Somatization disorder.
D. Dissociative disorder

Answer: B Major Depression

Keywords: half of the patients of depression deny sadness. Most common psychiatric illness in India. Diagnostic criteria: sadness, anhedonia, guilt, worthlessness, fatigue, poor conc., weight changes (may increase or decrease), sleep disturbances.
Duration: more than 2 weeks.
Important: cognitive theory; by Aaron beek: worthlessness, hopelessness, helplessness. Treatment: SSRI (Fluoxetine), TCA. : increase serotonin in synapse.

Note: if a patient is having suicidal thoughts, drugs take time for their action. So for immediate relief we go for electro convulsive therapy. (ETC)
ETC is treatment of choice in:

1. Suicide risk.
2. Depression with stupor
3. Sleep deprivation

Sign of depression: veraguth fold and omega sign

Vertical wrinkling between the eyebrows joined at the top by a horizontal crease (Omega sign sign-white arrow); also shows diagonal palpebral folds running medially upward (Veraguth's sign-black arrow)

17. A woman, 27 years old, comes to your clinic with a history of depression. She had many unstable relations which eventually lead to break up. The woman is workaholic and a high functioning person. What is the most likely diagnosis?

A. Major depression
B. Bipolar disorder
C. Unipolar mania D. Bipolar 2 disorder
E.

Answer: B. Bipolar disorder

Why B,
Bipolar mood disorders are characterized by recurrent Episodes of mania and depression at different times, Along with a history of unstable relations.

Why not,
A: Patients who are afflicted only with major depressive episodes Are said to have – major depressive disorder or unipolar Depression.

C: The term unipolar mania, pure mania, or euphoric Mania is sometimes used for bipolar patients who do NOT have depressive episodes.

D: Bipolar I disorder aka classic manic depression: episodes of major Depression contrasting vividly with episodes of Mania
Bipolar 2 disorder: milder disorder consisting of depression alternating with periods of **Hypomania**.

18. Which of the following is most important risk factor of suicide?
A. Dysthymia
B. Previous suicide attempt
C. Copycat suicide
D. Melancholic depression

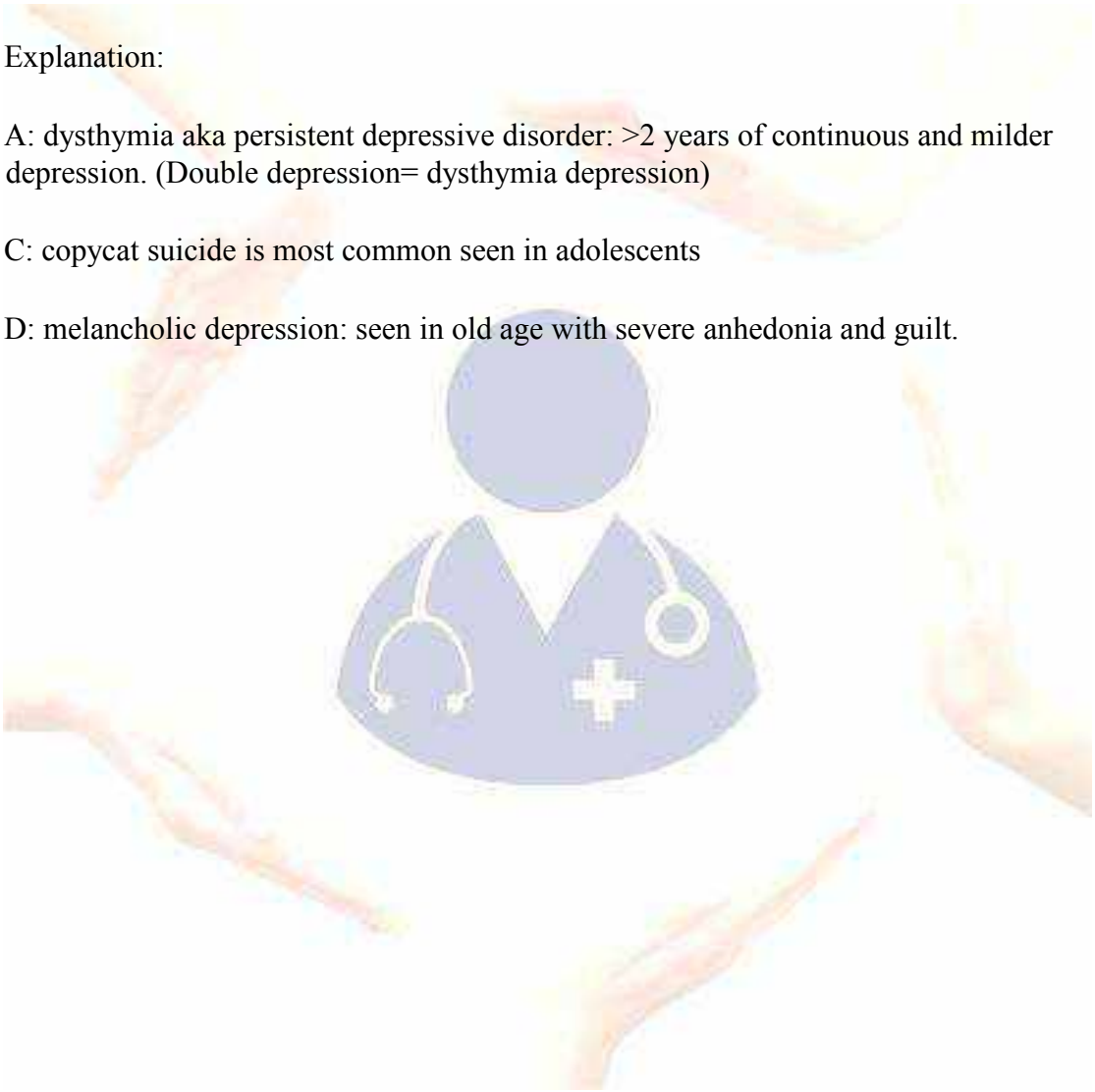
Answer: B previous suicide attempt

Explanation:

A: dysthymia aka persistent depressive disorder: >2 years of continuous and milder depression. (Double depression= dysthymia depression)

C: copycat suicide is most common seen in adolescents

D: melancholic depression: seen in old age with severe anhedonia and guilt.



19. Female, 23 years old, comes to your OPD with a history of palpitations, tremors, diaphoresis, nervousness. She describes it as 'feeling of impending Doom' and felt as if she was having a heart attack and about to die. On examination, all her vitals were normal. What is the most likely diagnosis?

    A. Myocardial infarction
    B. Hyperthyroidism
    C. Acute Asthma Attack
    D. Panic attack

    Answer: D. Panic Attack

    Note: Treatment: benzodiazepines (Alprazolam), SSRI (fluoxetine), CBT

    Why Not,

    A. Her vitals like BP, HR were NORMAL. So, we can rule out CVS causes

    B. Hyperthyroidism presents with weight loss, irregular menses and increased sympathetic activity. Also on examination thyroid gland would be enlarged. Plus, increase in BMR.

    C. Patient would present with Dyspnoea, history of atopy and a triggering factor. Most common age group is <16 year ~ 7 years.

    Keywords: 20 to 30 years old, females, history of increased sympathetic activity, feeling of impending doom, examination is normal.

20. What is Agoraphobia?

A. Fear of being in an open or crowded space.
B. Fear of enclosed space.
C. Fear of travelling alone or using public transport.
D. All of the above.

Answer: D. all of the above.

Note: Agoraphobia is fear of places from which escape is difficult and help would be unavailable.
Therefore, patients avoid such situations.

Acrophobia: (aCrophobia: C: ceilings) fear of height

Tip: AGORaphobia: agro: farmers: no help is given to farmers.
aGoraphobia: G: open Grounds.

Why "all of the above",

A. No help in open grounds, similarly, no one will help me in crowded places.(NOT to be confused with social anxiety)

B. No help in closed space (NOT to be confused with claustrophobia), and cannot escape.

C. No help possible, as the patient is alone.

21. A 19 years old girl feels that germs contaminate her whenever she opens her room's door or windows. This repetitive thought causes anxiety. SHE KNOWS there is actually no such thing after she has cleaned her hands 7 times. Cleaning her hands reduces her anxiety. This behaviour has led her into social withdrawal. What is the most likely diagnosis?

    A. Delusion
    B. Depression
    C. Mysophobia
    D. OCD

Answer: D. Obsessive compulsive disorder (OCD)

Note: Most common obsession (thought): contamination
Most common compulsion (action): washing

Other options,

a. Delusion is fixed false belief; the patient believes them to be true. (egosyntonic).
   In OCD, the patient is aware that their obsessions (thoughts of contamination) are irrational, (ego- dystonic).
   Differential diagnosis: thought insertion: someone else has put the thoughts into the patient mind.

b. Depression: this is the main differential of OCD, and often both are comorbid.
   Depression – Anhedonia (lack of interest)
   Fatigability
   Sadness
   Nihilism: worthlessness, helplessness, hopelessness

   Therefore, OCD: patient is active with repetitive thoughts.
   DEPRESSION: patient is passive/tired with sad thoughts.

c. Mysophobia: fear of germs/dirt.

Keywords: female, adolescent, thoughts cause anxiety which is reduced on action, repetitive action.

22.A soldier, male, 30 years old, injured in war, was admitted in ICU for 1 month. Later he was in the general ward under observation for 5 months. After discharge, he often gets up at night terrified due to recurrent dreams about the war. He is afraid to go back into the army. What is the most probable diagnosis?

A. Panic attack
B. Adjustment disorder
C. Acute stress disorder
D. PTSD

Answer: D. PTSD

Why not,

A. Panic attack: acute symptoms, anxiety, feeling of dread/doom, no flashback and no history of trauma.
B. Adjustment disorder: Is an emotional response to NORMAL negative life events, like, death of a loved one. It is characterised by: DABDA: Denial/shock, Anger, Bargain, Depression, and Acceptance. Normal period from trauma to recovery is 6 months. In PTSD, symptoms start around 6 months after trauma.
C. Acute stress disorder: PTSD with symptoms starting <1 month of trauma If onset of symptoms is after 6 month of trauma: PTSD with delayed onset

Keywords: history of trauma (war, injury, accident, or any other overwhelming experience), symptoms develop around 6 months of trauma. Symptoms: recurrent dreams, arousal (hypervigilance, startle), avoidance (reluctant to go back to army), flashbacks.

23.Mr. Sam, 50 years old, was found in Delhi, he has a girlfriend, stable job and Normal circumstances. A family in Mumbai (wife, 2 sons) who found Mr. Sam on Facebook claims Mr. Sam to be her husband and father respectively. This was further proven by old family photos and DNA matching. His name was in fact Mr. Peter and was reported lost 5 years ago. Mr. Sam declines to know them and coincidentally his girlfriend and job too are 5 years old. What is the likely diagnosis?

A. Dissociative Amnesia
B. Dissociative fugue
C. Dissociative Identity disorder
D. La Belle Indifference

Answer: B. Dissociative fugue

Why not,

A. Dissociative Amnesia: sudden loss of personal (autobiographic) memory for a particular stressful/traumatic event. (History is present). No history of travel.

C. Dissociative Identity Disorder: aka Multiple Personality Disorder. Patient interchanges between self and new personalities. No history of traveL. In Dissociative Fugue: Patient assumes new Identity and forgets about past.

D. La Belle Indifference: lack of concern towards symptoms. Patient is aware of physical symptoms but just NOT concerned.

Keywords: History of sudden and unexpected travel.
Inability to recall past memory (differential diagnosis: amnesia)
Patient maintains basic care during travel.
May assume new identity (differential diagnosis: personality disorder)

24. Female, 26 years old, comes to your OPD with complaints of Abdominal pain. On examination, everything was normal. The patient says that she has gastric perforation. On explaining that she is exaggerating her symptoms the patient agrees. What is the most probable diagnosis?

A. Delusion
B. Gastric perforation and needs endoscopy
C. Somatization
D. Hypochondriasis

Answer: D. Hypochondriasis

Explanation: patient interprets normal bodily function (peristalsis for eg) as serious medical condition. Examination is normal. Patient agrees that they were exaggerating (insight present). +/- General anxiety disorder.

Why not,

A. Delusion: In delusion, No Insight is present. The patient has firm false belief which on challenged patient will deny and may even turn aggressive.
   Here, the patient agrees with the doctor. Therefore, In Hypochondriasis Insight is present.
B. Gastric perforation: Any bleed will present as decrease in blood pressure and increase in heart rate.
C. Somatization: aka Briquet syndrome: patient presents with: persistent complaint of various symptoms: diagnostic criteria: pain in 4 different body site+ 2 GIT symptoms+1 sexual symptoms + 1 neurological symptom. The symptoms are multiple and persistent with 2 years duration.

25. A female, 20 years old, student of nursing, present to OPD with complaints of bone pain, fatigue, fever, loss of appetite. Examination was normal. She has a history of previously being admitted to hospital with varying complaints which were never sustained by investigations. What is the most probable diagnosis?

    A. Pseudocyesis
    B. Malingering
    C. Munchausen by proxy
    D. Munchausen

Answer: D. Munchausen syndrome

Why not,

A. Pseudocyesis: aka false pregnancy. Clinical presentation: abdominal enlargement (obese in fact), subjective foetal movement, labour pain (peristalsis in fact). On examination- No Pregnancy.

B. Malingering: Wilful production of symptoms for external gains like insurance fraud, avoid legal cases etc. patient is non-cooperative. Possibility of external benefit on diagnosis.

C. Munchausen by proxy: harming close dependents (mom harming child) for attention (satisfying own psychological needs).
Differential diagnosis: Battered baby syndrome/shaken baby syndrome: child abuse (maybe child is unwanted), but without intention of getting attention.

Keywords: aka koro, latah, dhaat, factitious syndrome. Wilful production of symptoms to get attention. Patients are usually related to health care. Signs of previous hospital admittance aka professional patients/ hospital addicted.

26. Match the following

A. cocaine	1. morbid jealousy, mc Ewan's sign (constricted pupil dilates on pain)
B. Alcohol	2. magnum phenomenon/ tactile hallucinations
C. Phencyclidine	3. run amok
D. cannabis	4. dissociative anaesthesia

A. A-1 B-2 C-3 D-4 B. A-2 B-1 C-4 D-3 C. A-3 B-4 C-2 D-1
D. A-4 B-3 C-1 D-2

Answer: B. A-2 B-1 C-4 D-3

Seen in cocaine use

27.Patient (alcoholic) presents to emergency with generalised tonic clonic seizures. How long ago he must have had his last drink?

B. Alcohol overdose
C. 12-24 hrs ago C. 24-48 hrs ago
D. 48-72 hrs ago

Answer: C. 24-48 hrs ago

Time of appearance of symptoms after cessation of alcohol	symptoms
6-12 hours	Tremors, nausea, vomiting, anxiety, headache, sweating, palpitation.
12-24 hours	Hallucinosis, most common- auditory>>visual
24-48 hours	Withdrawal seizures- GTCS
48-72 hours	Delirium tremors—hallucinations- most common visual, disorientation, tachycardia, hypertension, sweating, tremors.

Why not,

A. Alcohol overdose: decrease thinking and slow motor performance. Later, incoordination, slurring of speech, blackouts, anterograde amnesia, death.

Alcohol overdose: inhibits the body
Alcohol withdrawal: over excites the body.

28.Which of the following are Alcohol induced disorders?

D. Delirium tremens
E. Wernicke's Encephalopathy
F. Korsakoff syndrome
G. All of the Above

Answer: D. All of the Above

Explanation:

A. Delirium tremens: occurs after 48 to 72 hrs of alcohol withdrawal. Disturbances of consciousness. Disorientation. Hyperactivity. Tremors. Hallucination Visual(most common)

B. Wernicke's encephalopathy: GOA: Global confusion, Ophthalmoplegia (most common 6^{th} nerve palsy>>3^{rd} nerve palsy), Ataxia (thiamine deficiency)

C. Korsakoff syndrome: (vitamin B1 deficiency) Amnesia (anterograde>>retrograde), Confabulations- honest lying (patient believes in his own lies), symmetrical lesions in mammillary bodies, midbrain, pons.

29.match the following

Name	Withdrawal	Overdose	Treatment
A .Opioids Heroin, morphine, codeine	1.Flu like symptoms (lacrimation, rhinorrhoea, sweating, diarrhoea, YAWNING, PILOERECTION/Goose bumps)	a.Respiratory depression.	h.Methadone, buprenorphine (for detox) Naltrexone (for maintenance) Naloxone I.V (for overdose)
B. Cannabis Weed marijuana, pot, and joints.	2.Irritability, flashback phenomenon	b.Euphoria, reflex hallucination (seeing sounds, hearing colours)	i.Symptomatic treatment
C.cocaine	3. Lethargy, insatiable hunger, fatigue, depression, and cocaine induced psychotic disorder.	c.Magnum, phenomenon, formication, auditory hallucinations + jetblack tongue	j.------
D.Tobacco	4. Irritability, poor concentration, anxiety, restlessness, bradycardia, Drowsines,but paradoxical insomnia.	d.---------	k.Bupropion, varenicline

A. A-1-a-h
B. B-4-d-i
C. C-2-c-j
D. D-3-b-k

Answer: A. A-1-a-h

Listening to music produces visual hallucinations

RADIOLOGY

BY

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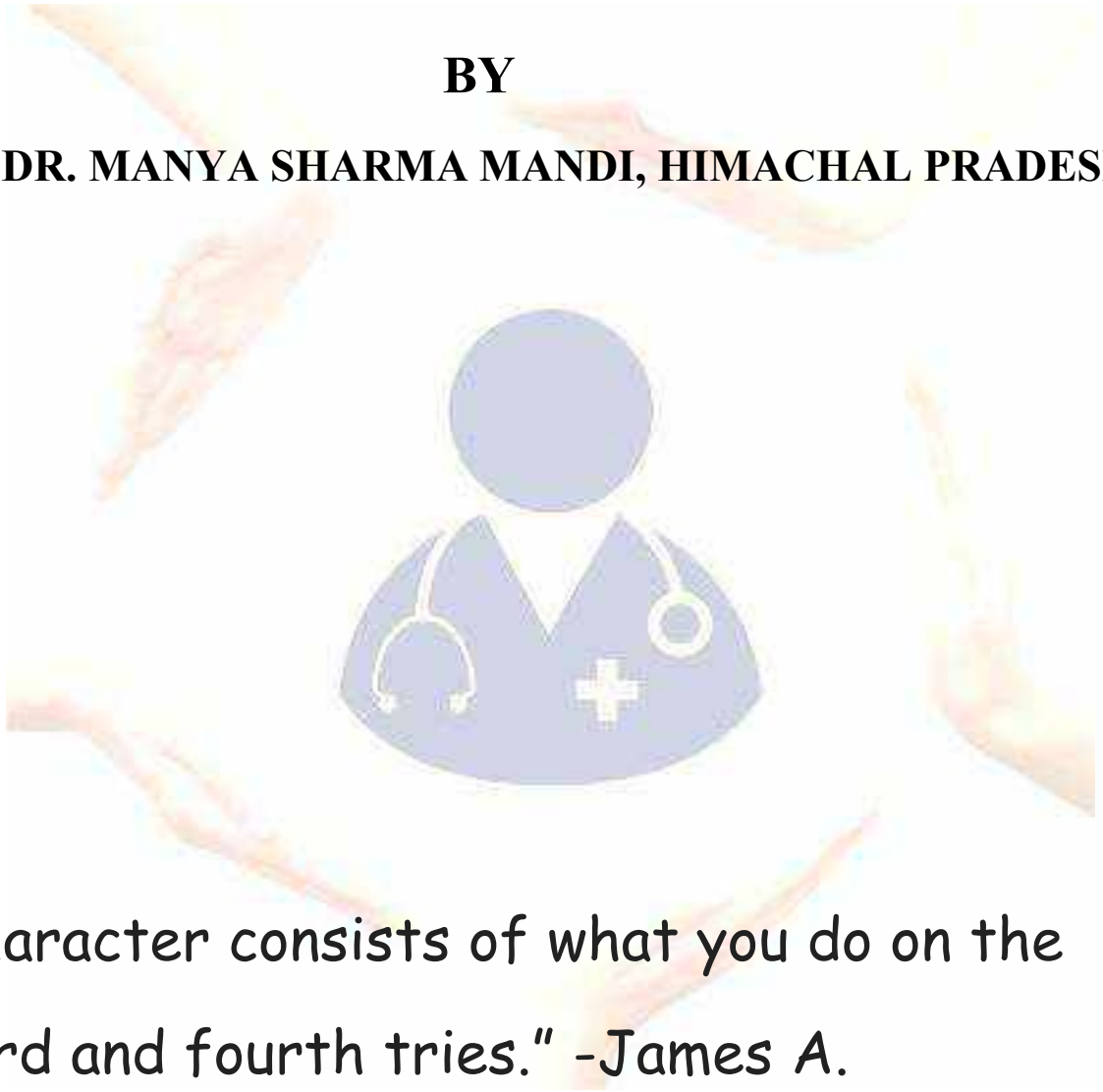


"Character consists of what you do on the third and fourth tries." -James A. Michener

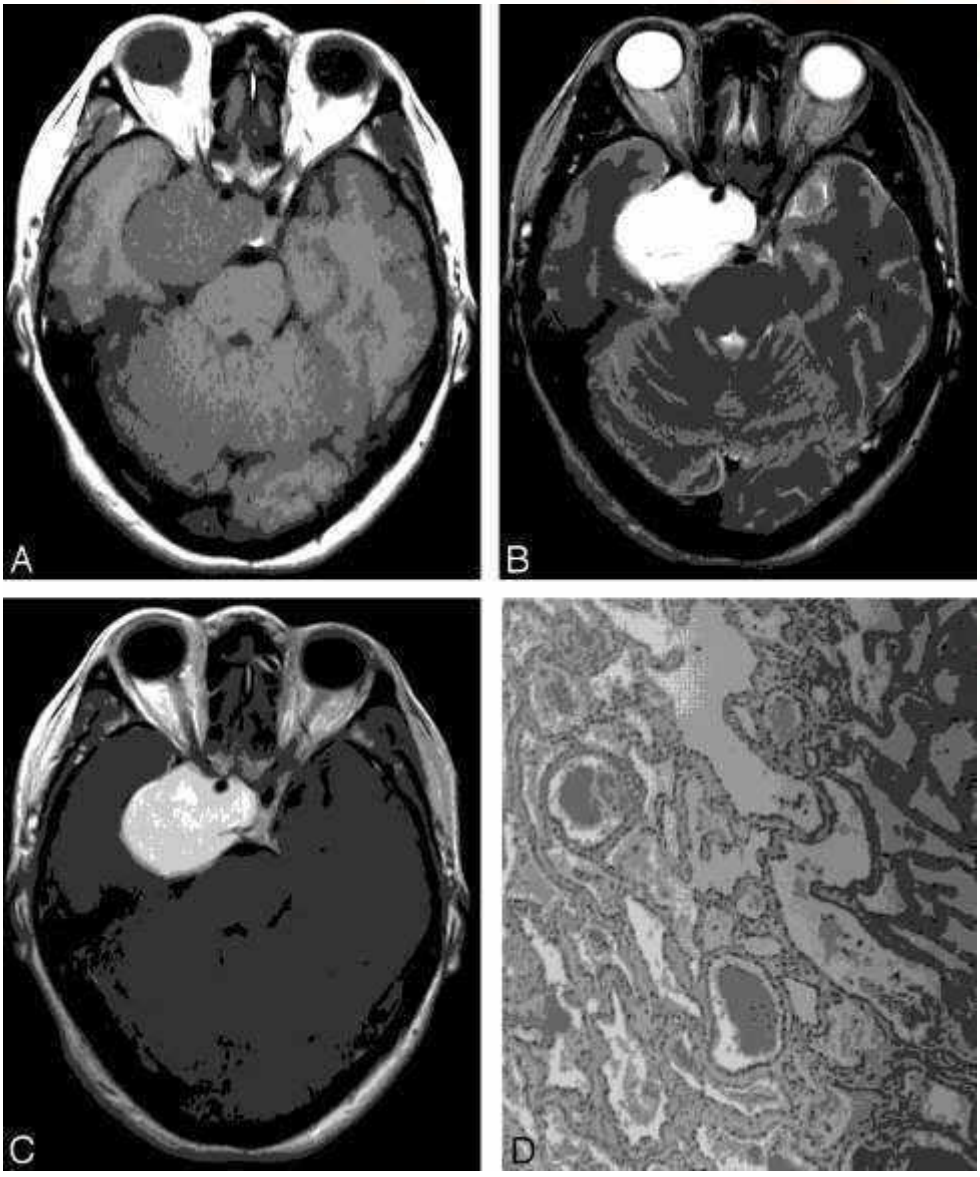
FMGE CLINICAL VIGNETTES

1. A female aged 48 years comes to a hospital with complaints of ptosis , diplopia due to extraocular muscle dysfunction , and visual loss , facial numbness headache and on examination you found out 6th cranial nerve palsy on T2 weighted MRI Hyperintense shadow which shows homogeneous contrast enhancement. What is the most probable diagnosis?

a)schwannoma

b)meningioma

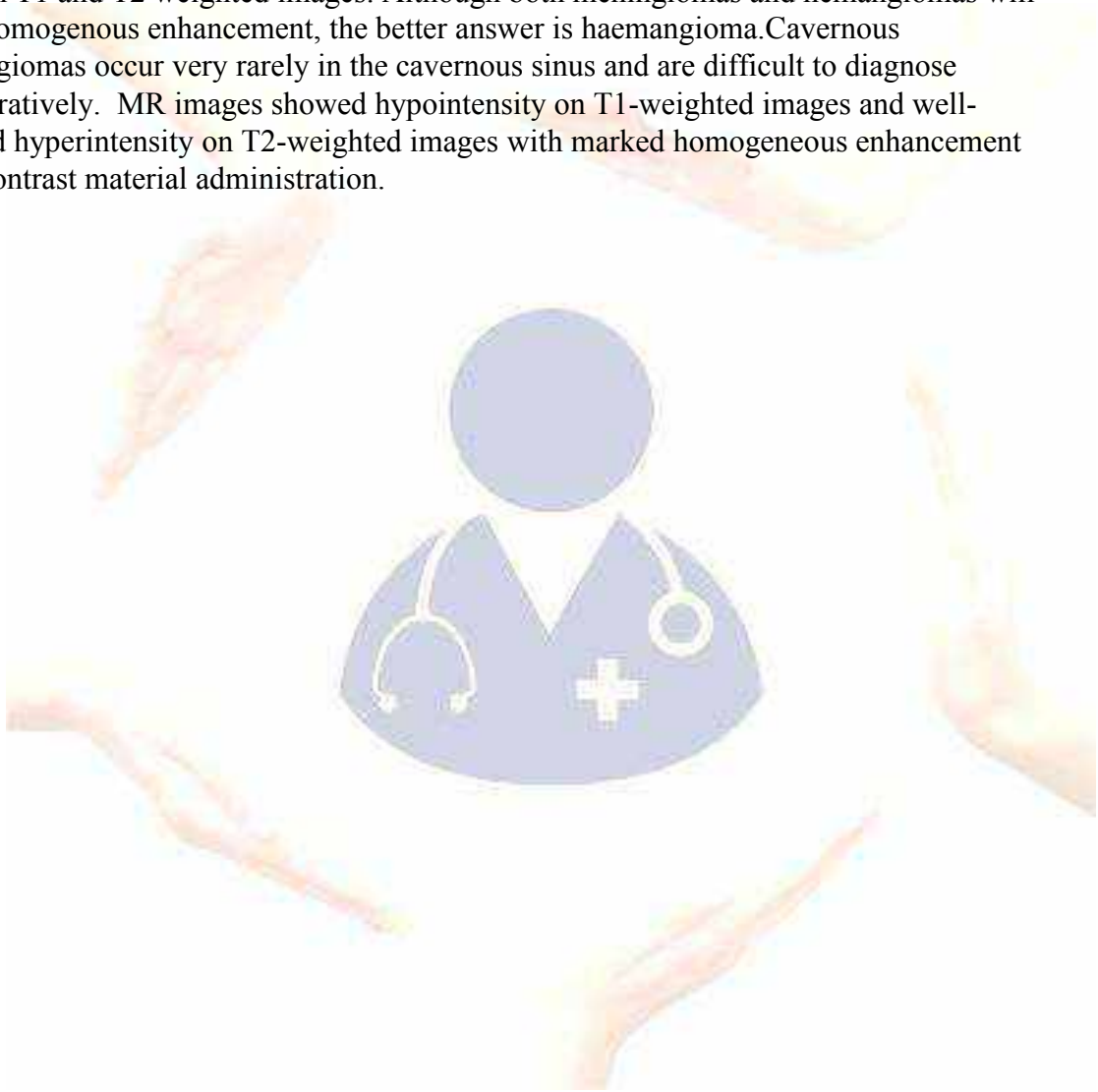
c)cavernous sinus hemangioma



Answer c)cavernous sinus hemangioma.

Key points- age , ptosis , diplopia , 6th cranial nerve palsy on T2 weighted MRI Hyperintense shadow

Schwannomas are heterogeneously enhancing, while meningiomas usually are isointense on both T1 and T2 weighted images. Although both meningiomas and hemangiomas will have homogenous enhancement, the better answer is haemangioma.Cavernous hemangiomas occur very rarely in the cavernous sinus and are difficult to diagnose preoperatively. MR images showed hypointensity on T1-weighted images and well-defined hyperintensity on T2-weighted images with marked homogeneous enhancement after contrast material administration.



2. Molybdenum is the most common filter material in mammographic systems.It is used because it produces:

a. Characteristic radiation.

b. Increased breast penetration.

c. High absorption above the K-edge energy.

d. High absorption below the K-edge energy.

Answer -c High absorption above the K-edge energy.

Reasoning- The molybdenum filter used in mammography has a different function than the aluminum filtration used in other x-ray systems. It specifically absorbs the high-energy component of the spectrum just above the characteristic x-ray energy. It does absorb some of the low-energy components of the spectrum but that is not why molybdenum is used specifically.

3. The radiographic visibility and contrast of a 1 cm soft tissue mass in the body would generally be decreased by an increase in the:

a. Focal spot size.

b. Field of view. Yes

c. KV. Yes

d. Object-receptor distance.

Answer - C and B

Reasoning - There are two effects relating to this. The increase in KV will generally reduce contrast and the increase in the field of view increases the amount of scattered radiation produced. Because this is a relatively large object, changes in the focal spot size and objectreceptor distance would not decrease visibility.

4. For routine chest radiography you would expect to get the best contrast characteristics by using:

a. 35 kV.

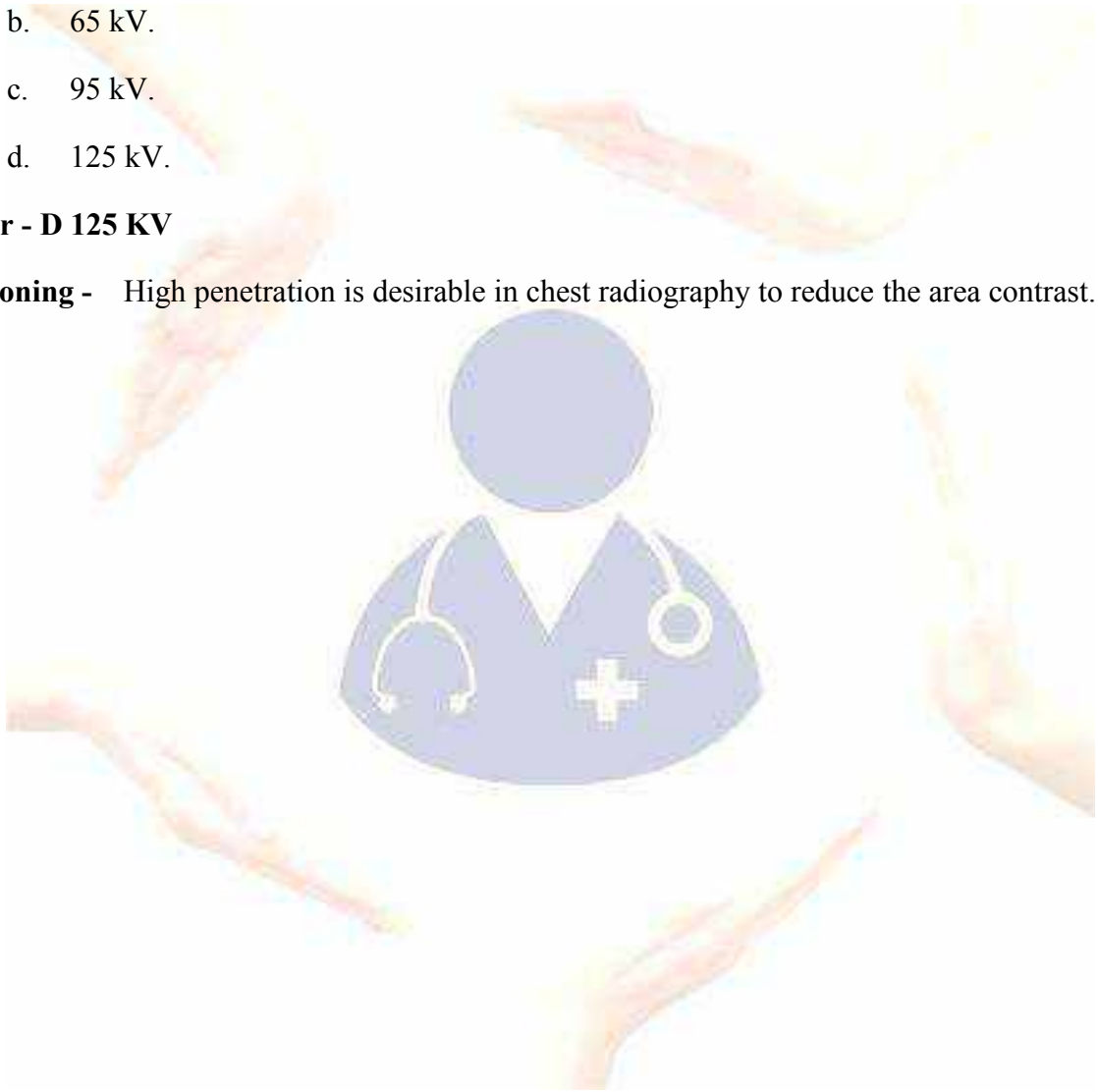
b. 65 kV.

c. 95 kV.

d. 125 kV.

Answer - D 125 KV

Reasoning - High penetration is desirable in chest radiography to reduce the area contrast.



5. IOC for acute aortic dissection in a stable patient ?

a. CT angio

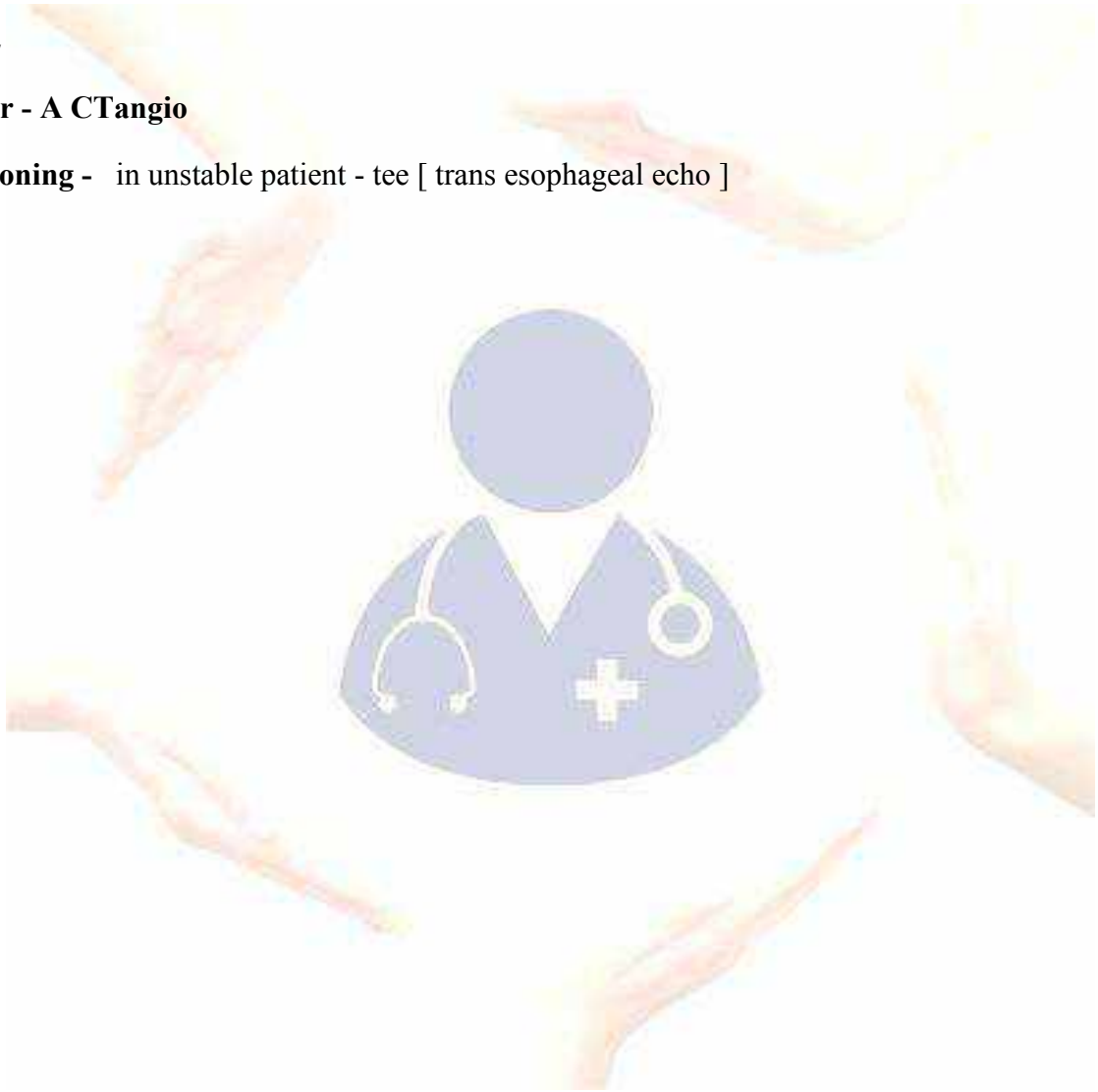
b. NCCT

c. MRI

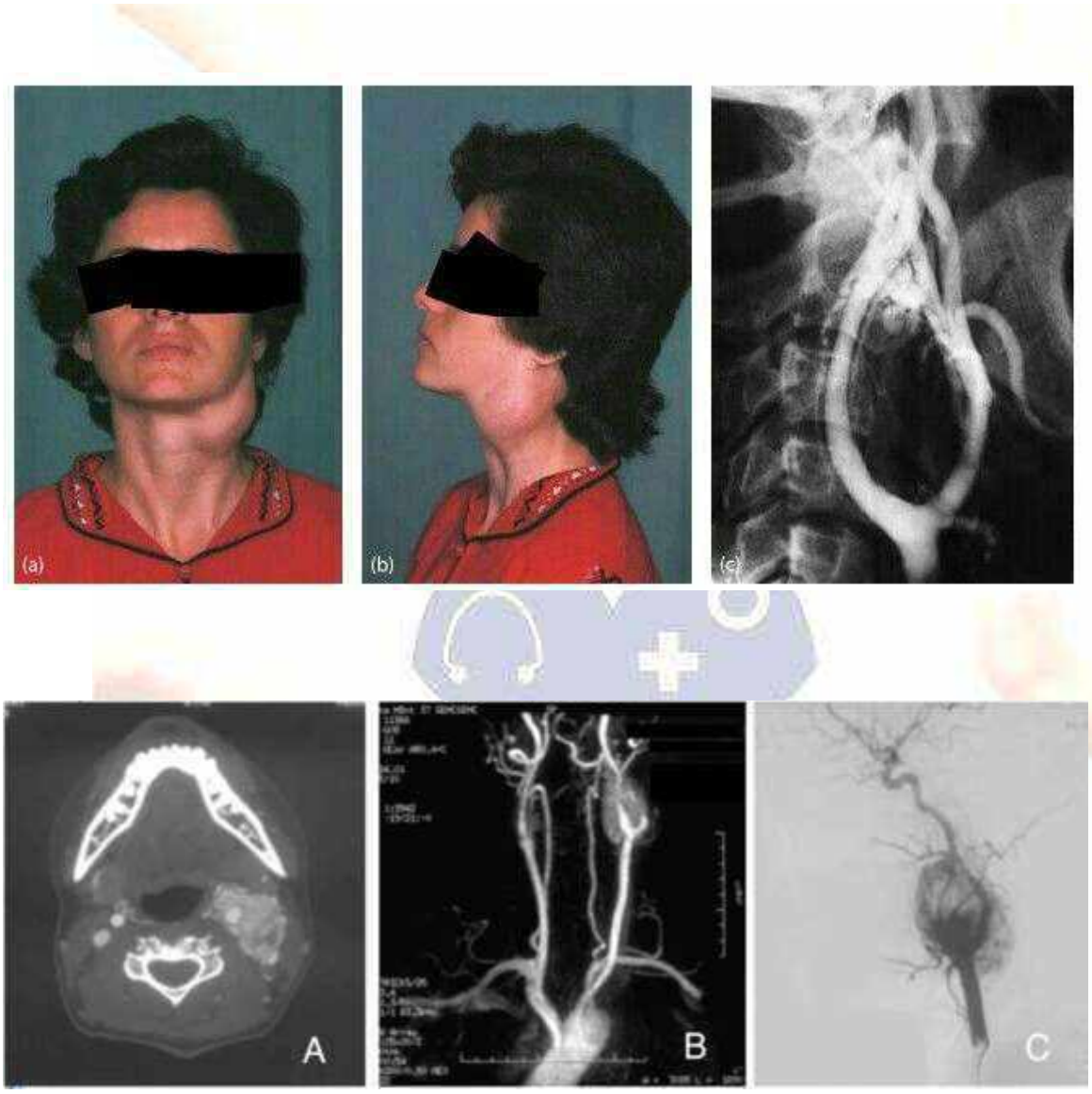
d. TEE

Answer - A CTangio

Reasoning - in unstable patient - tee [trans esophageal echo]



6. A patient age 36 presented with slow-growing, painless mass on the side of the neck. over the course of several years begin to cause symptoms like Hoarseness,Difficulty swallowing,Partial paralysis or numbness in the tongue,Weakness or pain in the shoulders,Vision changes, or a drooping eyelid,High blood pressure or heart palpitations investigation was done the image listed below. Identify the disease.



A. angiomyolipoma

b. carotico cavernous fistula

c. carotid body tumor

d. meningioma

Answer - C carotid body tumor

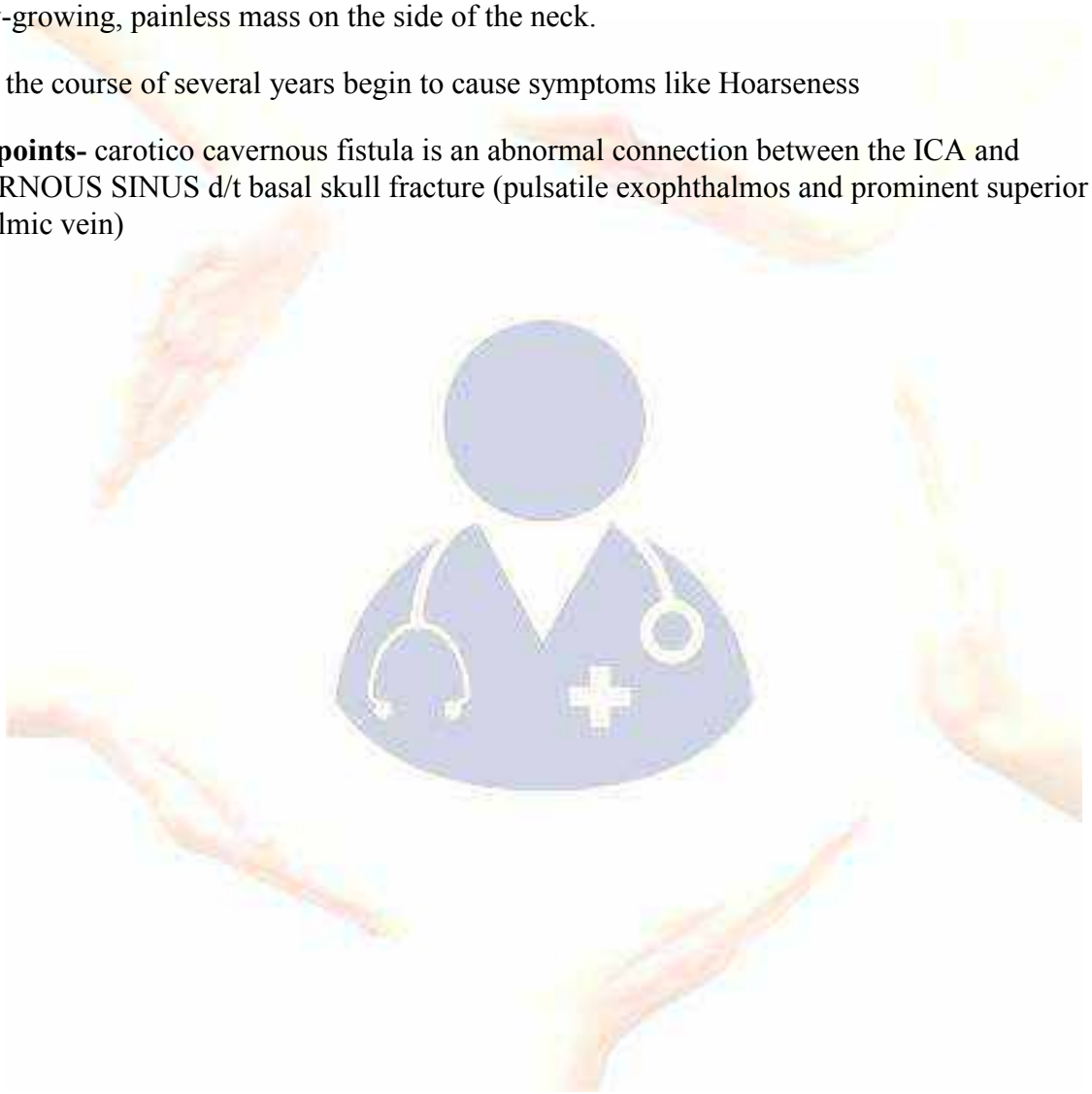
Reasoning - clear cut clinical picture of carotid body tumor .

Keywords -

1. slow-growing, painless mass on the side of the neck.

2. over the course of several years begin to cause symptoms like Hoarseness

Extra points- carotico cavernous fistula is an abnormal connection between the ICA and CAVERNOUS SINUS d/t basal skull fracture (pulsatile exophthalmos and prominent superior ophthalmic vein)



7. IOC for pulmonary thromboembolism ?

a. X Ray

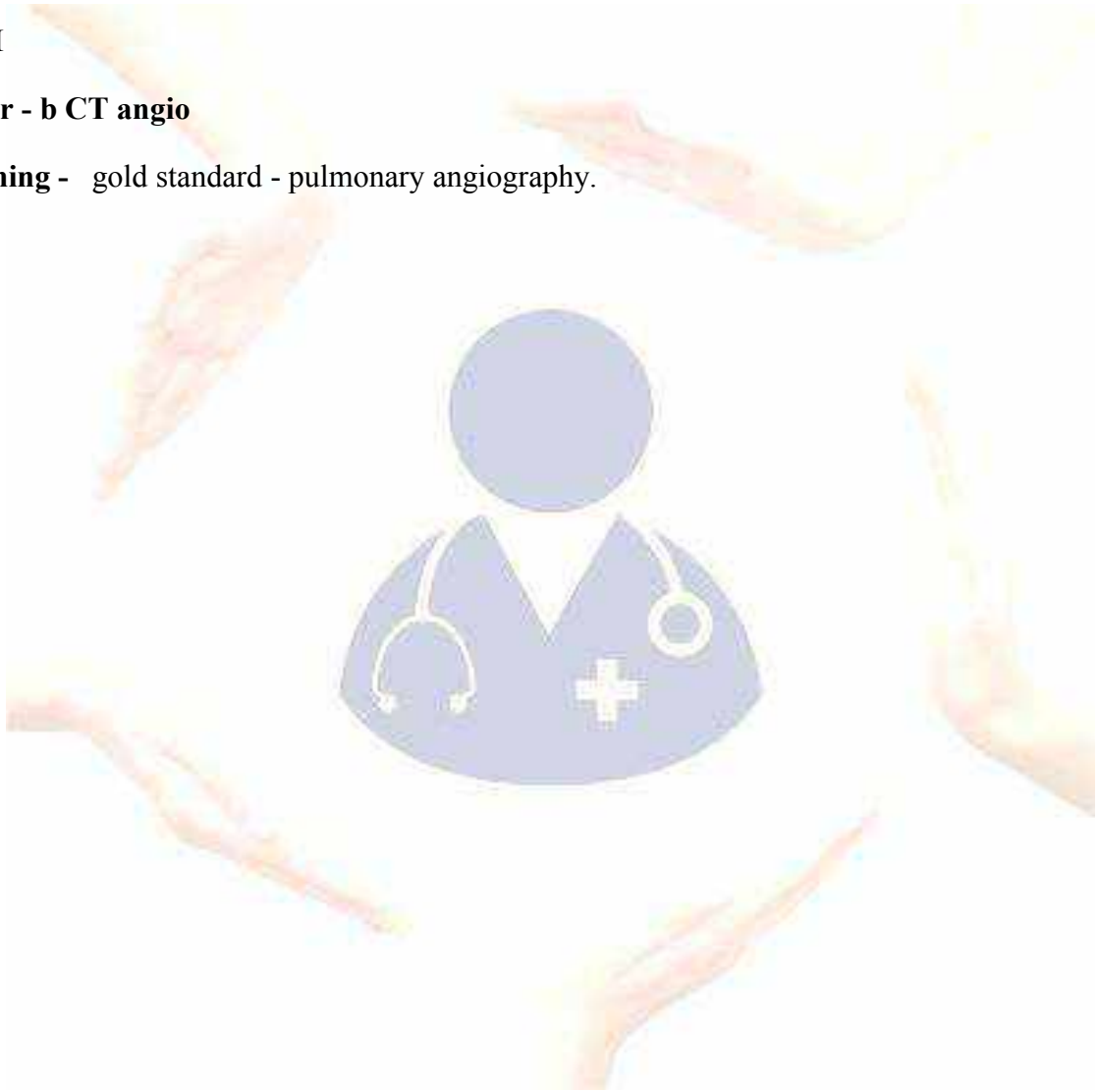
b. CTangio

c. angiography

d. MRI

Answer - b CT angio

Reasoning - gold standard - pulmonary angiography.



8. Radiological signs of coarctation of aorta are all EXCEPT :

a. rib notching

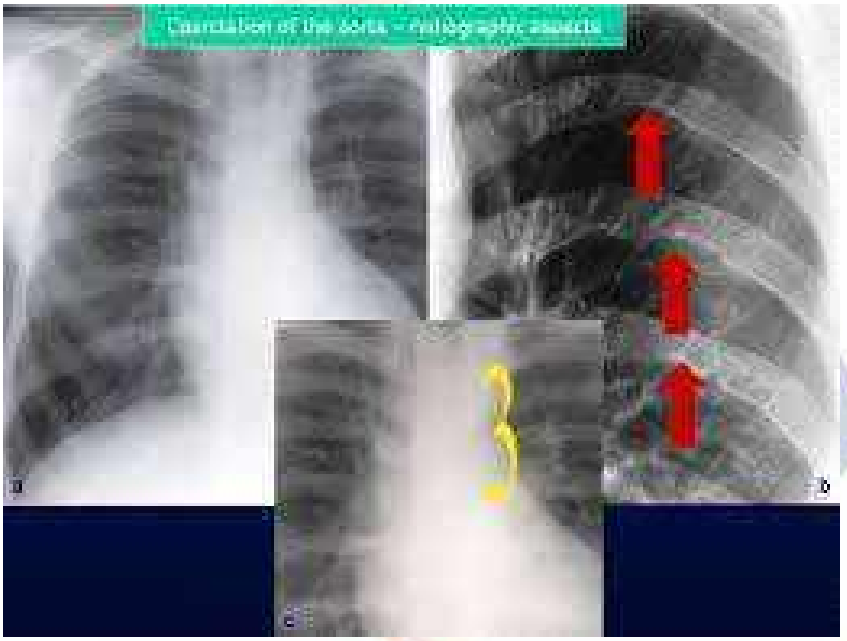
b. E SIGN

c. normal shaped heart

d. egg on side appearance

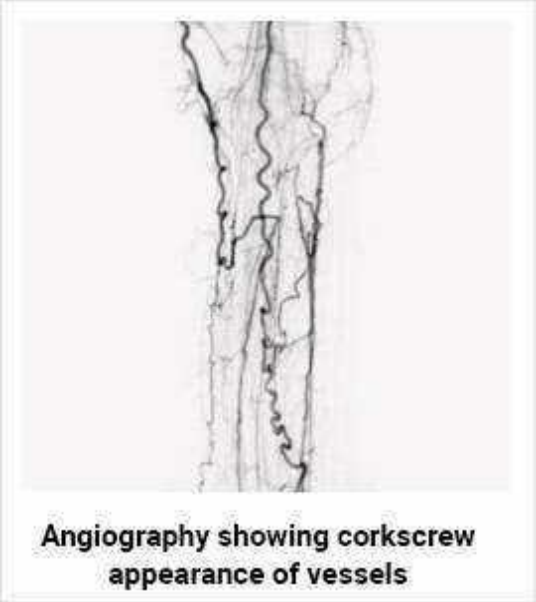
Answer - d egg on side appearance

Reasoning - COA is the most common congenital cardiovascular cause of hypertension. diagnosis is confirmed by chest x ray and tee (trans esophageal echocardiography)

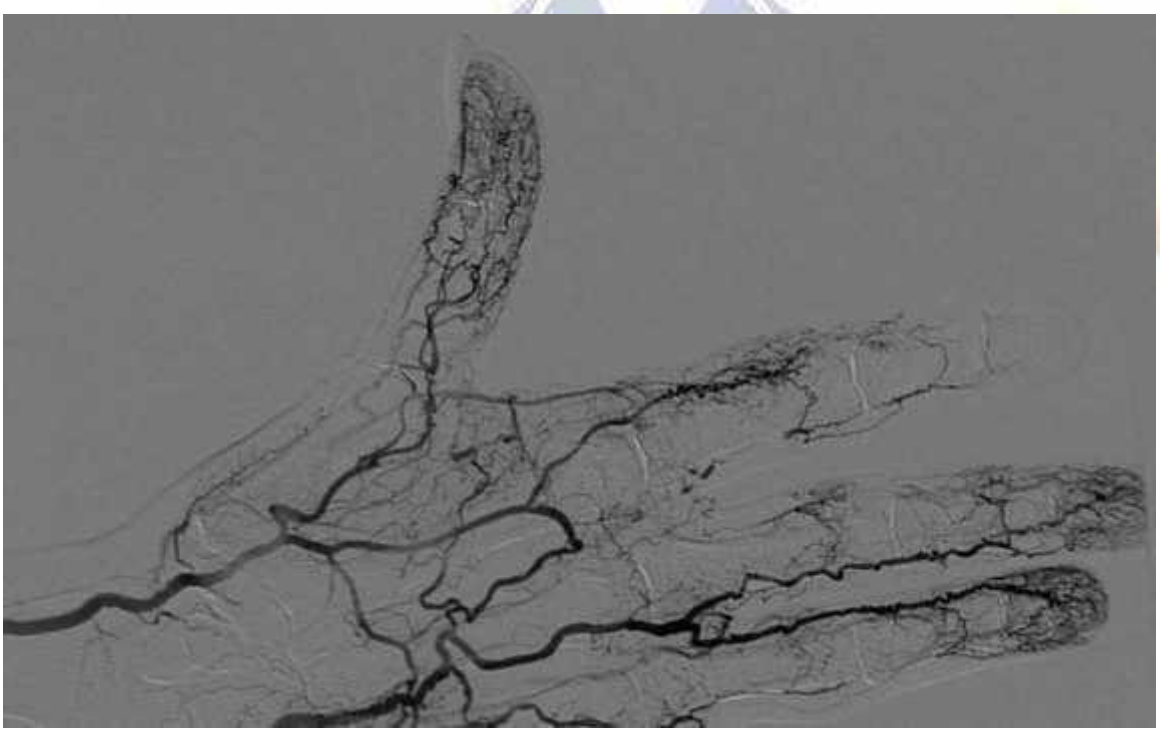


the 3 here is signifying the famous 3 sign on the left border of heart.

9. A 38 year old female presented to a hospital with complaints of pain in the hands and feet that may feel like burning or tingling. History was taken by an intern where the female told she's smoked from the past 15 years .On clinical examination Fingers and toes appear pale and bluish. both hands and feet are cold.Pain in the legs, ankles, or feet when walking—often located in the arch of the foot. Angiogram was done in the patient . identify disease .



Angiography showing corkscrew appearance of vessels

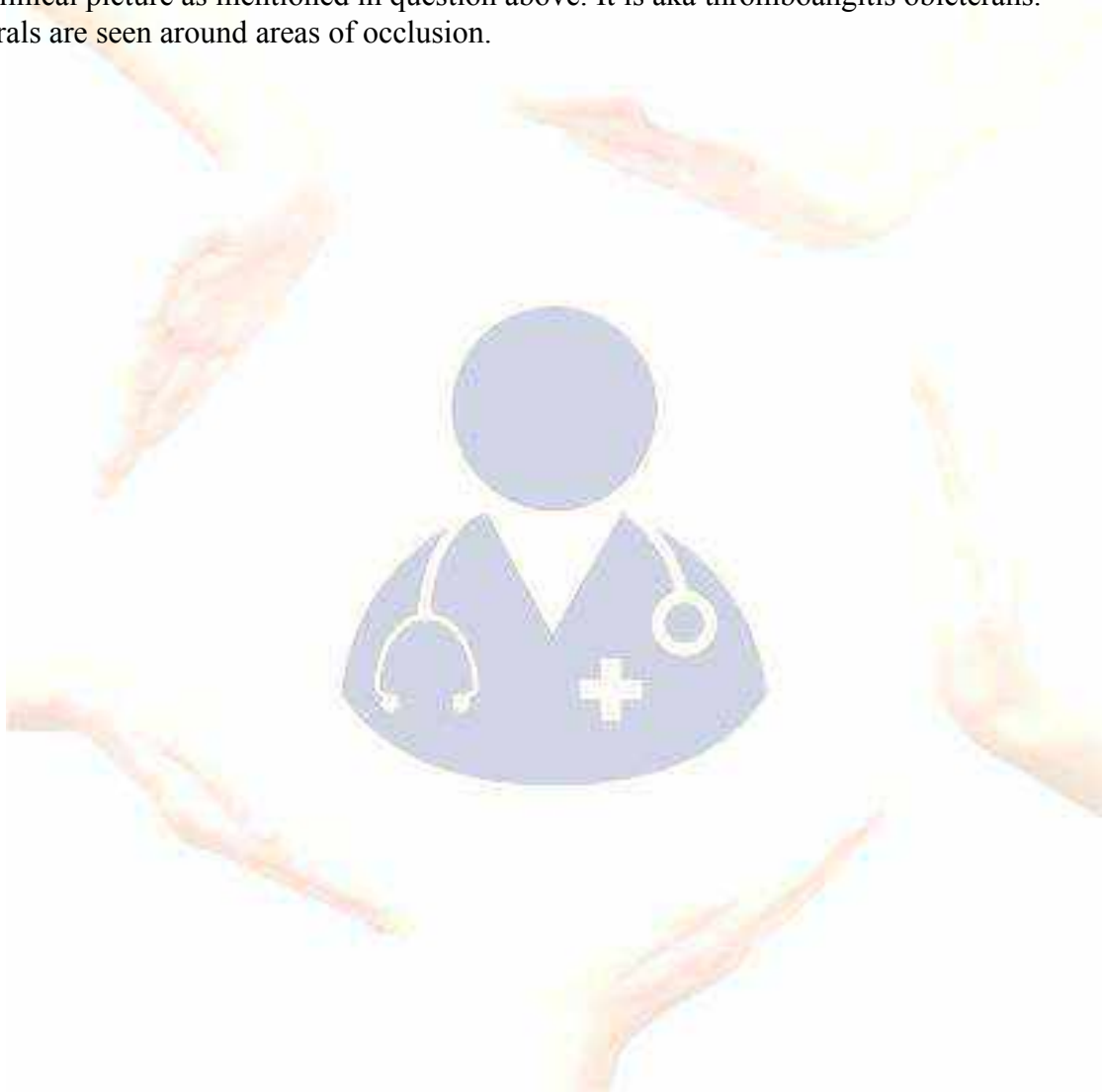


a. atherosclerosis
b. buerger's disease

c. takayasu disease

d. kawasaki's disease **answer - b** buerger's disease **key points :** smoking history ,female,pain in hands and feet. **reasoning**: corkscrew appearance is hallmark of buerger's disease.

exact clinical picture as mentioned in question above. It is aka thromboangitis obleterans. collaterals are seen around areas of occlusion.



10. A 72 year man who becomes acutely short of breath after a total hip replacement.

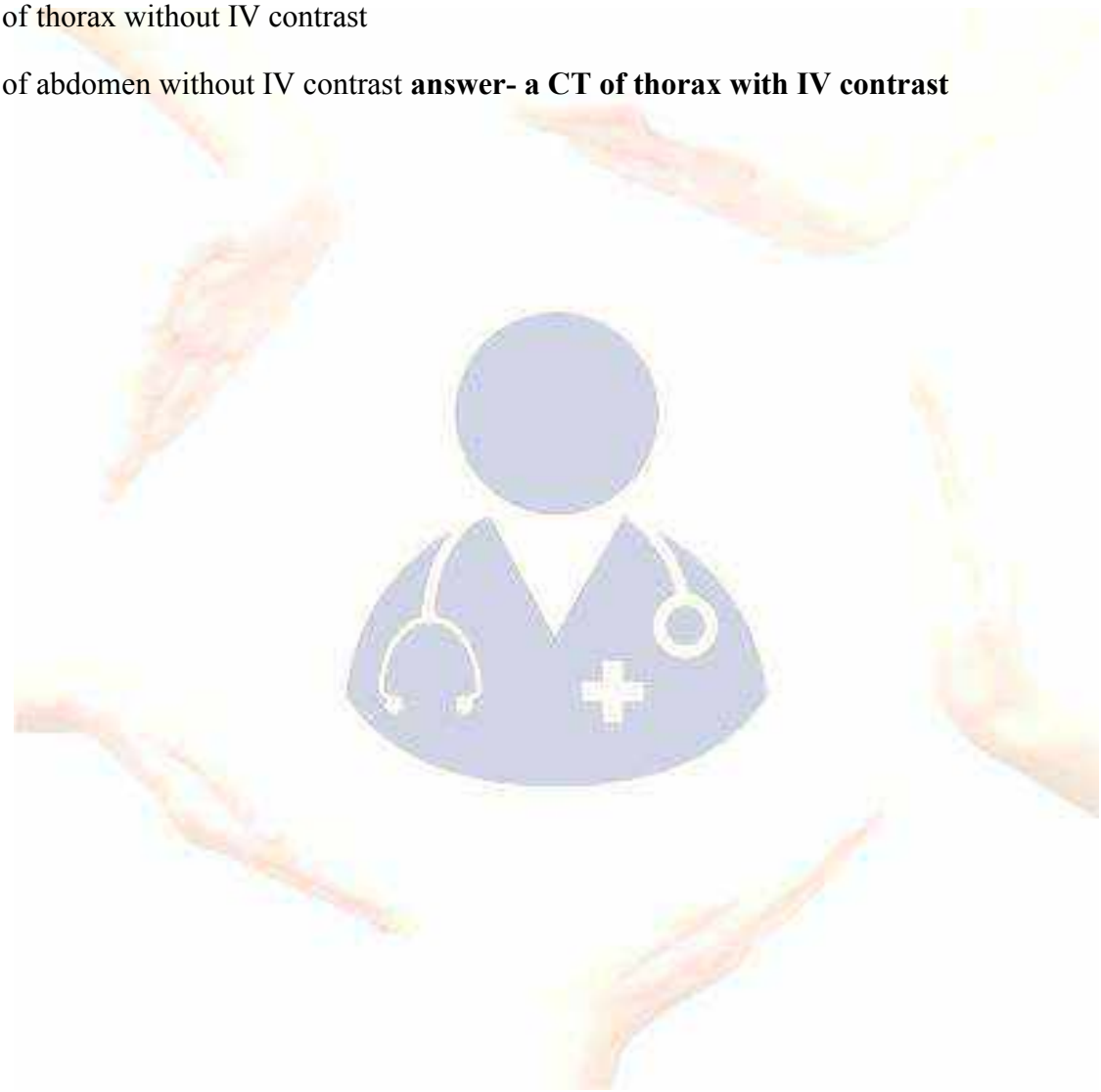
Pulmonary embolism is suspected.

a) CT of thorax with IV contrast

b) CT of abdomen with IV contrast

c) CT of thorax without IV contrast

d) CT of abdomen without IV contrast **answer- a CT of thorax with IV contrast**

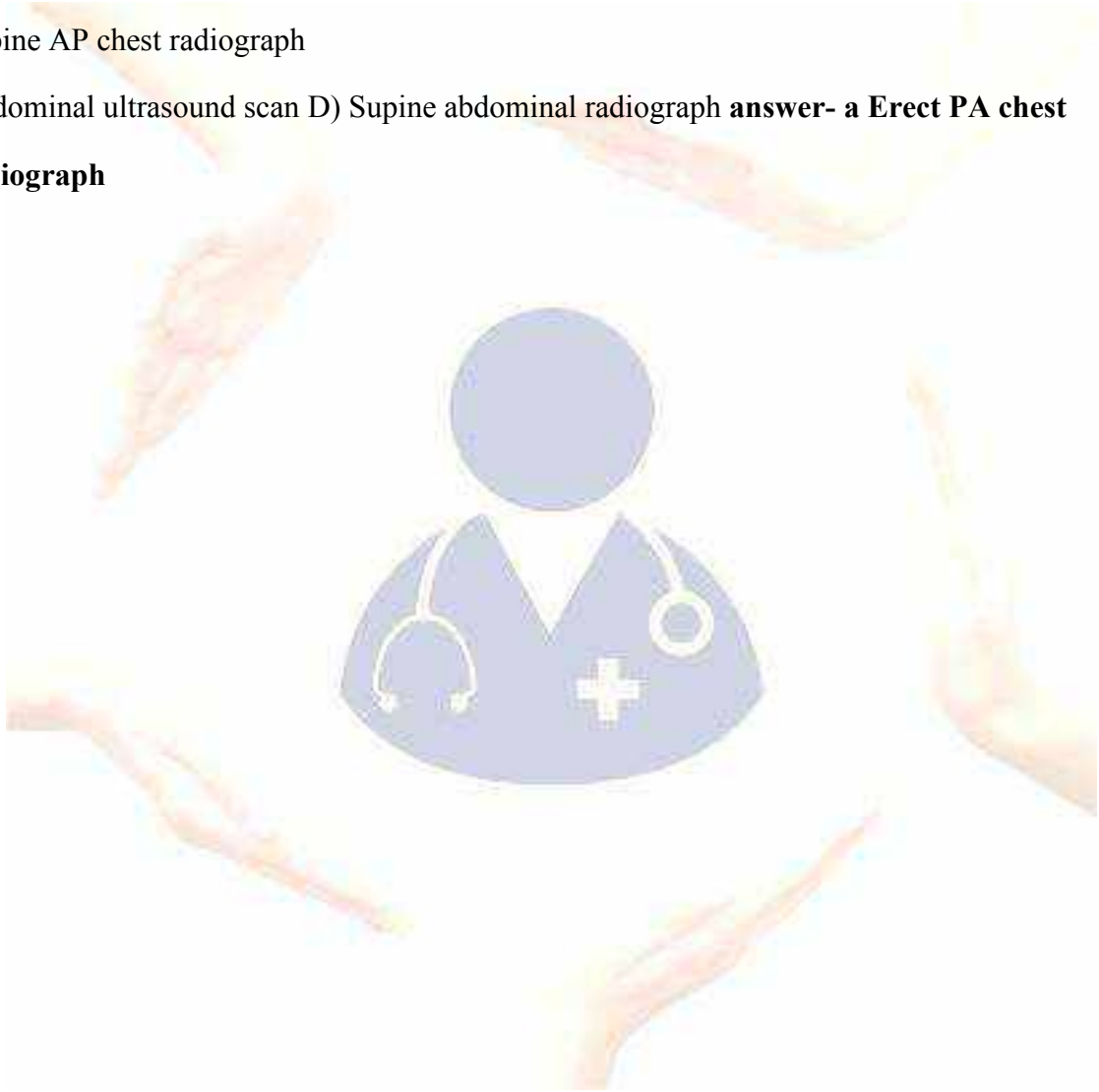


11. A 42 year old woman with rheumatoid arthritis who develops acute abdominal pain. A perforated peptic ulcer is suspected

A) Erect PA chest radiograph

B) Supine AP chest radiograph

C) Abdominal ultrasound scan D) Supine abdominal radiograph **answer- a Erect PA chest radiograph**



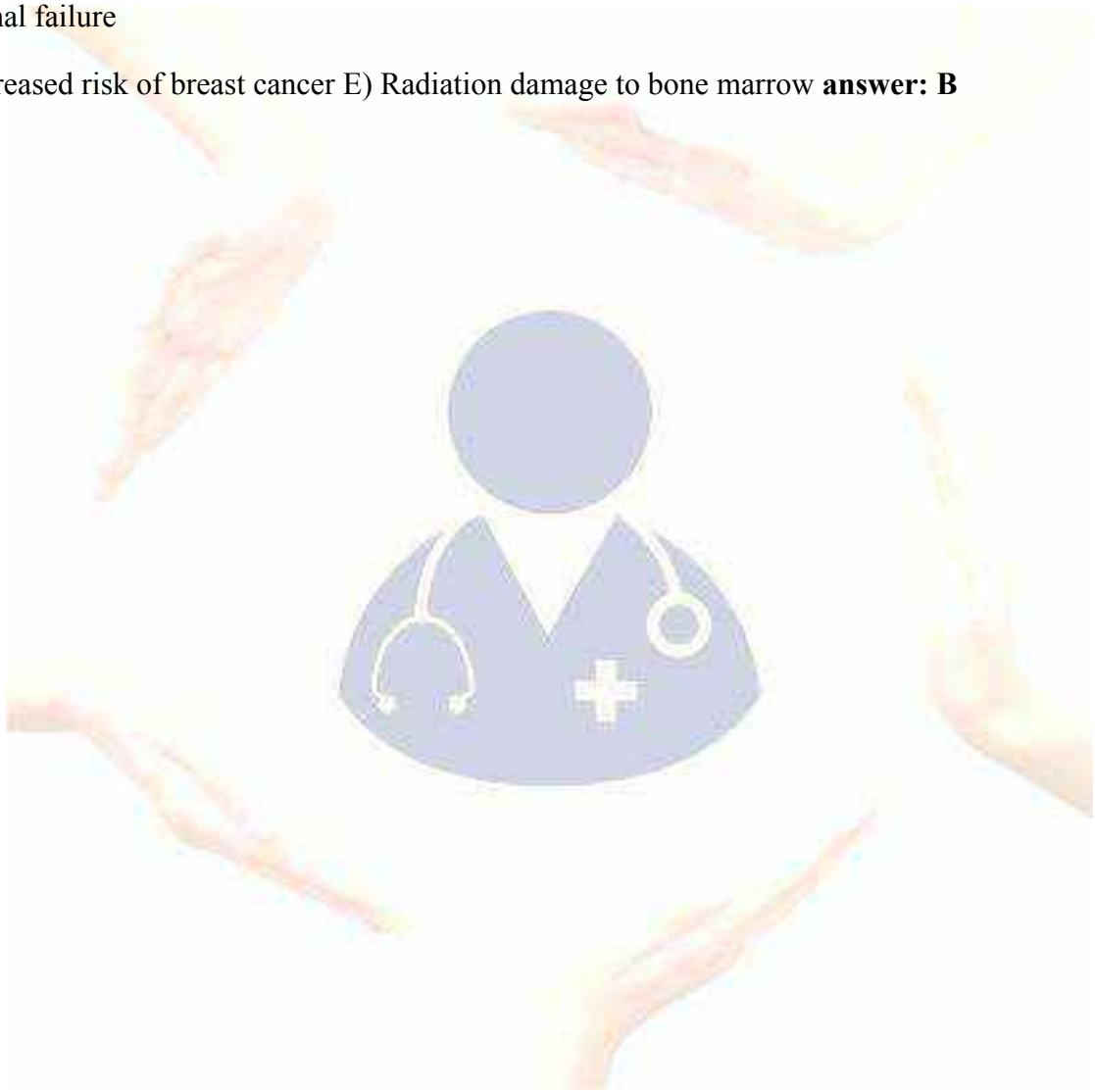
12. A 35 year old female is highly suspected of pulmonary embolism. A CT pulmonary angiography (CTPA) is considered. Which of the following risks is not relevant?

A) Allergic reaction to media contrast

B) Pneumothorax

C) Renal failure

D) Increased risk of breast cancer E) Radiation damage to bone marrow **answer: B**



13. An MRI of the brain is requested for a patient suspected of metastatic cancer. Which of the following pieces of clinical information is a contraindication to MRI?

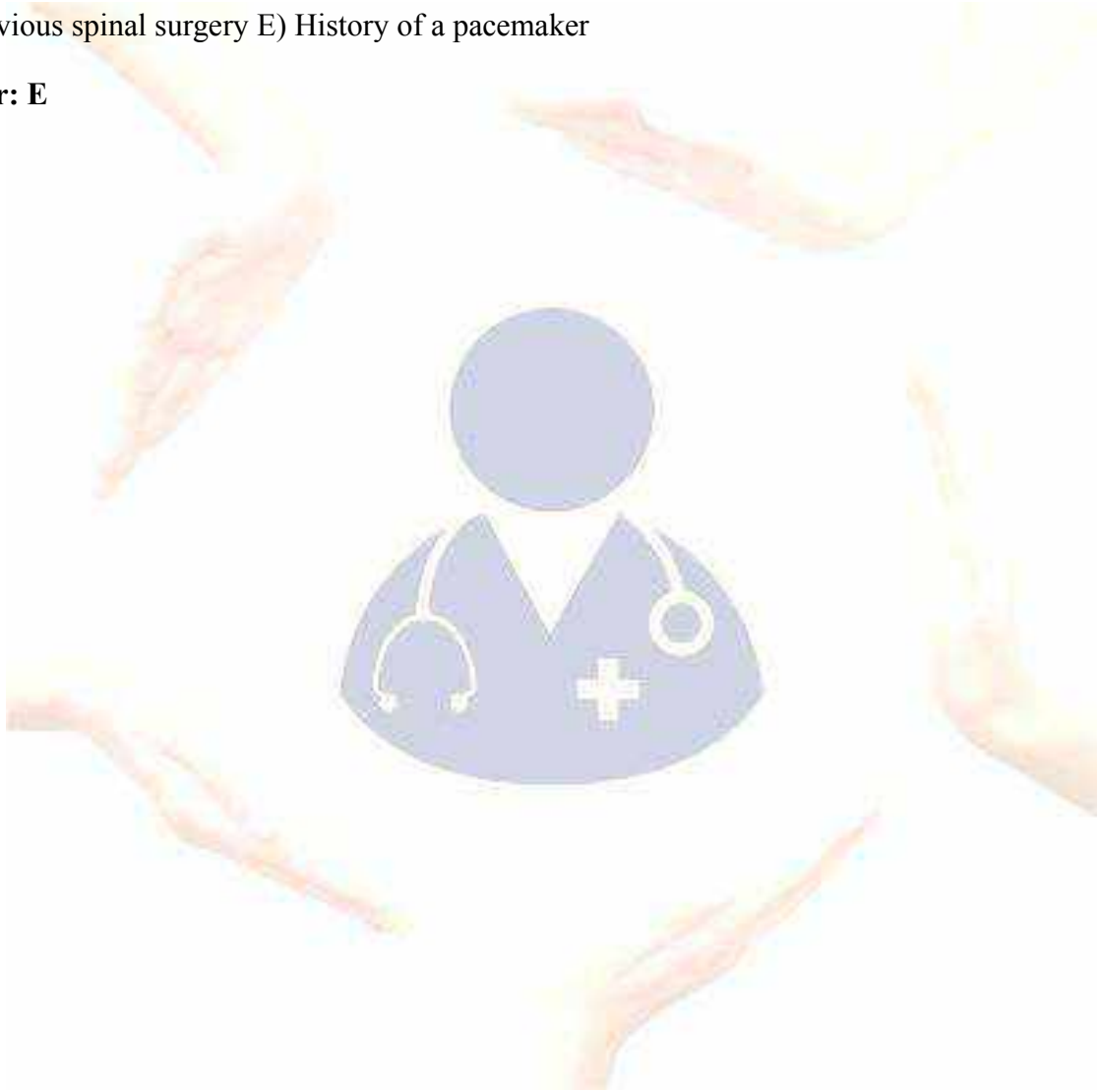
A) Total hip replacement

B) History of previous allergic reaction to iodinated contrast agents

C) Sterilization clips

D) Previous spinal surgery E) History of a pacemaker

answer: E



14. You are a foundation doctor on a respiratory ward and you admit a 67 year old woman for a CT guided lung biopsy to confirm suspected lung cancer. You are asked to obtain the patient's consent for the procedure but are unsure of the complications when asked by the patient. What is the most appropriate next action?

A) Tell her that verbal consent is all that is needed

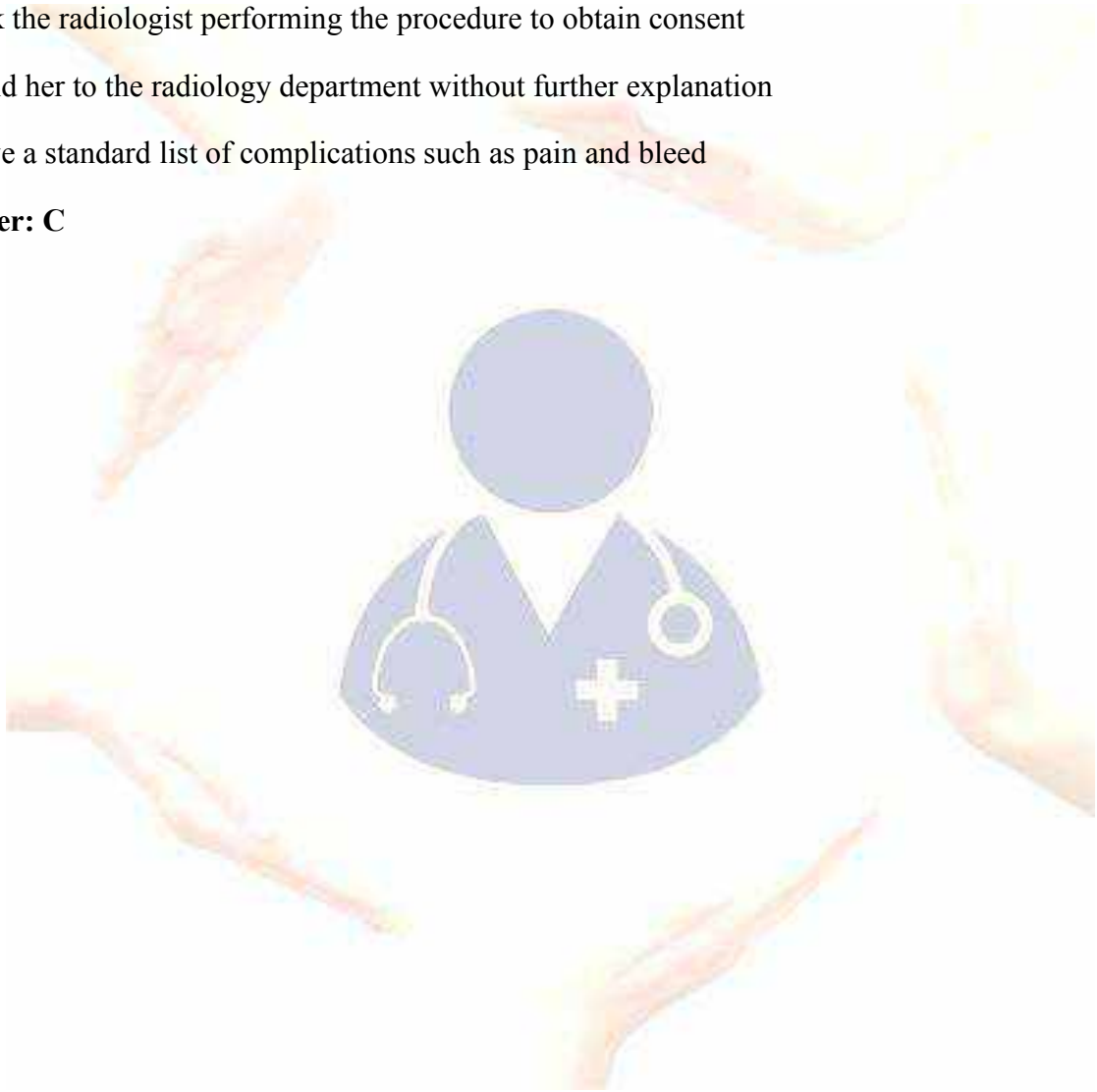
B) Ask her to sign the form but leave the complications as blank

C) Ask the radiologist performing the procedure to obtain consent

D) Send her to the radiology department without further explanation

E) Give a standard list of complications such as pain and bleed

answer: C



FMGE CLINICAL VIGNETTES

Extended Matching Question 1

There are 5 clinical scenarios .From the options given below you must select one option as the most likely diagnosis. Each diagnosis can be used once, more than once or not at all.

Scenario Answer

1. A 4 day old child with bile stained vomiting and gastric dilatation**- A**

2. A 65 year old man who presents with rectal bleeding and large bowel dilatation **-C 3**.

A 65 year old woman presents with abdominal pain and small bowel dilatation 20 years after a appendectomy**. - B**

4. A 49 year old woman with rheumatoid arthritis presents with acute abdominal pain and free air is observed under the diaphragm on a CXR . **- F**

5. A 49 year old woman presents with abdominal pain. An abdominal radiograph shows small bowel dilatation and air in the biliary tree. **- E**

Diagnoses available for EMQ 1:

A) Volvulus

B) Adhesions

C) Colonic carcinoma

D) Haemorrhoids

E)Gallstone ileus

F)Perforated peptic ulcer

G) Meckel's diverticulum

H) Inguinal hernia

Extended Matching Question 2

From the clinical scenarios given below, please select the most appropriate test to confirm the diagnosis. Each option can be used once, more than once or not at all.

Scenario Answer

1. A 72 year man who becomes acutely short of breath after a total hip replacement.5

Pulmonary embolism is suspected.

E

2. A 65 year old woman who becomes short of breath and is suspected of having acute left ventricular failure.

A

3. A 42 year old woman with rheumatoid arthritis who develops acute abdominal pain. A perforated peptic ulcer is suspected.

A

4. A 22 year old woman develops acute colicky abdominal pain in the right upper quadrant and is suspected to have gallstones.

C

5. A 15 year old boy develops abdominal pain 6 days after a appendicectomy. Small bowel obstruction is suspected.

D

Tests available for EMQ 2:

A) Erect PA chest radiograph

B) Supine AP chest radiograph

C) Abdominal ultrasound scan

D) Supine abdominal radiograph

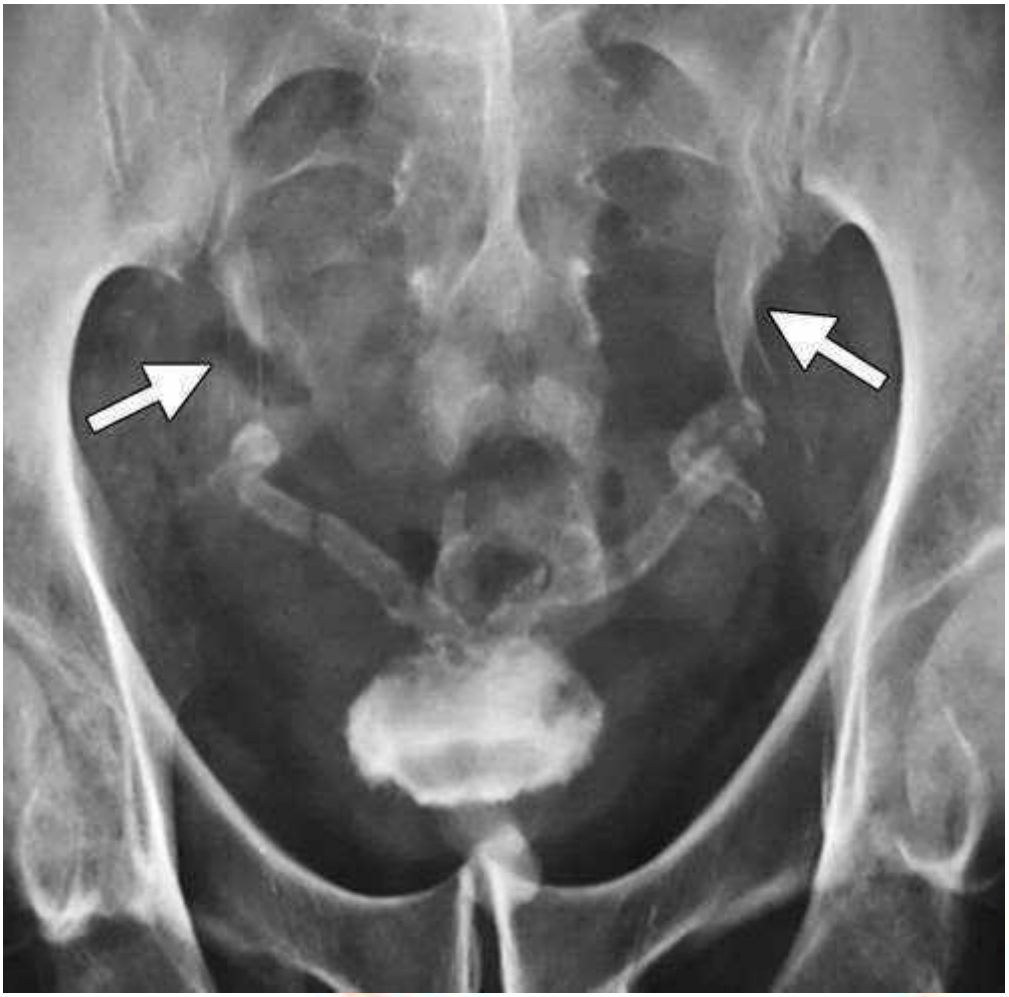
E) CT of thorax with IV contrast
F) CT of abdomen with IV contrast

G) CT of thorax without IV contrast

H) CT of abdomen without IV contrast

UROLOGY

15. Which of the following diseases will show urinary bladder calcification which resembles fetal head in pelvis ?



a. tuberculosis

b. schistosomiasis

c. chronic cystitis

d. malignancy answer - B . schistosomiasis

reasoning : a plain film of the abdomen may show areas of grayness in the flank (enlarged hydronephrotic kidney) or in the bladder area (large tumor). opacification(stones) may be noted in the kidney ,ureter,bladder

Punctate calcification of the ureter (ureteritis calcinosa) and a honeycombed calcification of the seminal vesicle .

The classic presentation of a calcified bladder ,which looks like a fetal head in the pelvis is pathognomonic of chronic urinary schistosomiasis.

16. A 50 year old female is admitted with abdominal pain and anuria. radiological studies revealed bilateral impacted ureteral stones with hydronephrosis . urinalysis showed RBC with pus cells in urine. serum creatinine level was 16mg/dl and urea was 200mml/1. Which of the following should be the immediate treatment?

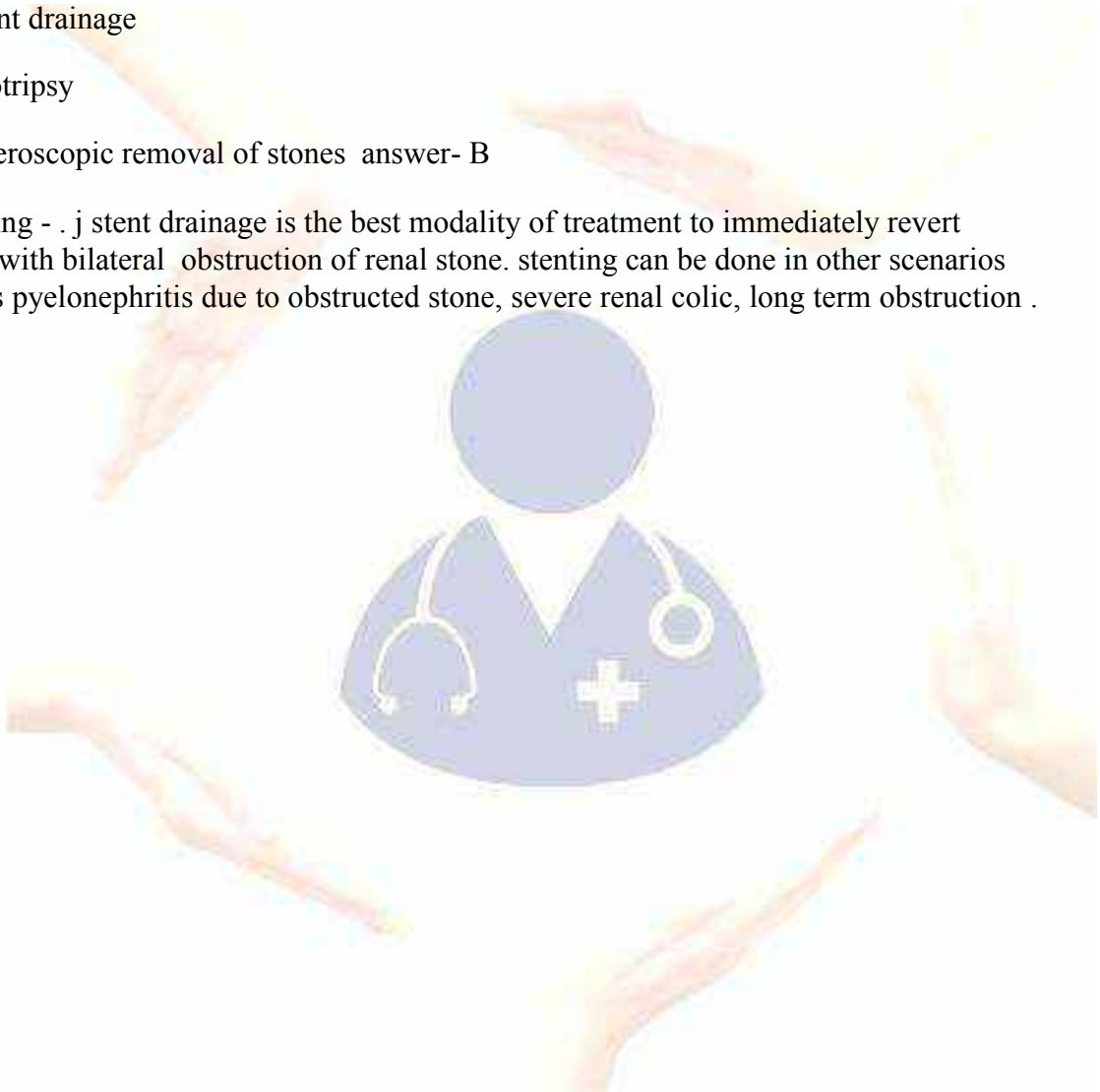
a. hemodialysis

b. j stent drainage

c. lithotripsy

d. ureteroscopic removal of stones answer- B

reasoning - . j stent drainage is the best modality of treatment to immediately revert anuria with bilateral obstruction of renal stone. stenting can be done in other scenarios such as pyelonephritis due to obstructed stone, severe renal colic, long term obstruction .



17. Shenton's line is a radiological line used to determine the

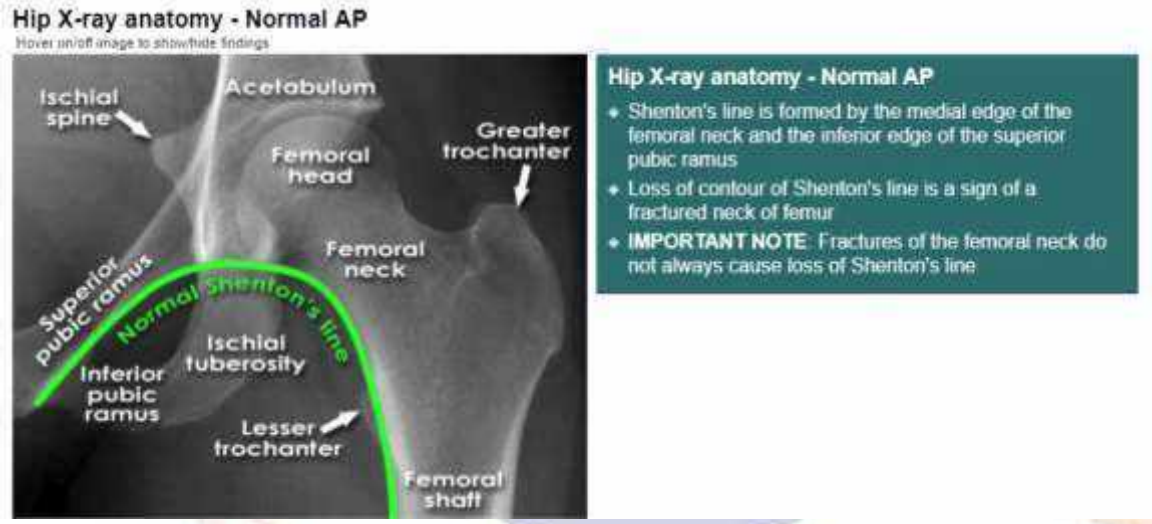
pathology of : a. hip

b. ankle

c. elbow

d. shoulder answer - A hip

reasoning : shenton's line is an imaginary semi circular line joining the medial cortex of the femoral neck to the lower border of the superior pubic ramus. shenton's line is broken in posterior dislocation of the hip.



18. Which radiological procedure is used for studying vesico-ureteric reflux ?

a. ascending pyelogram

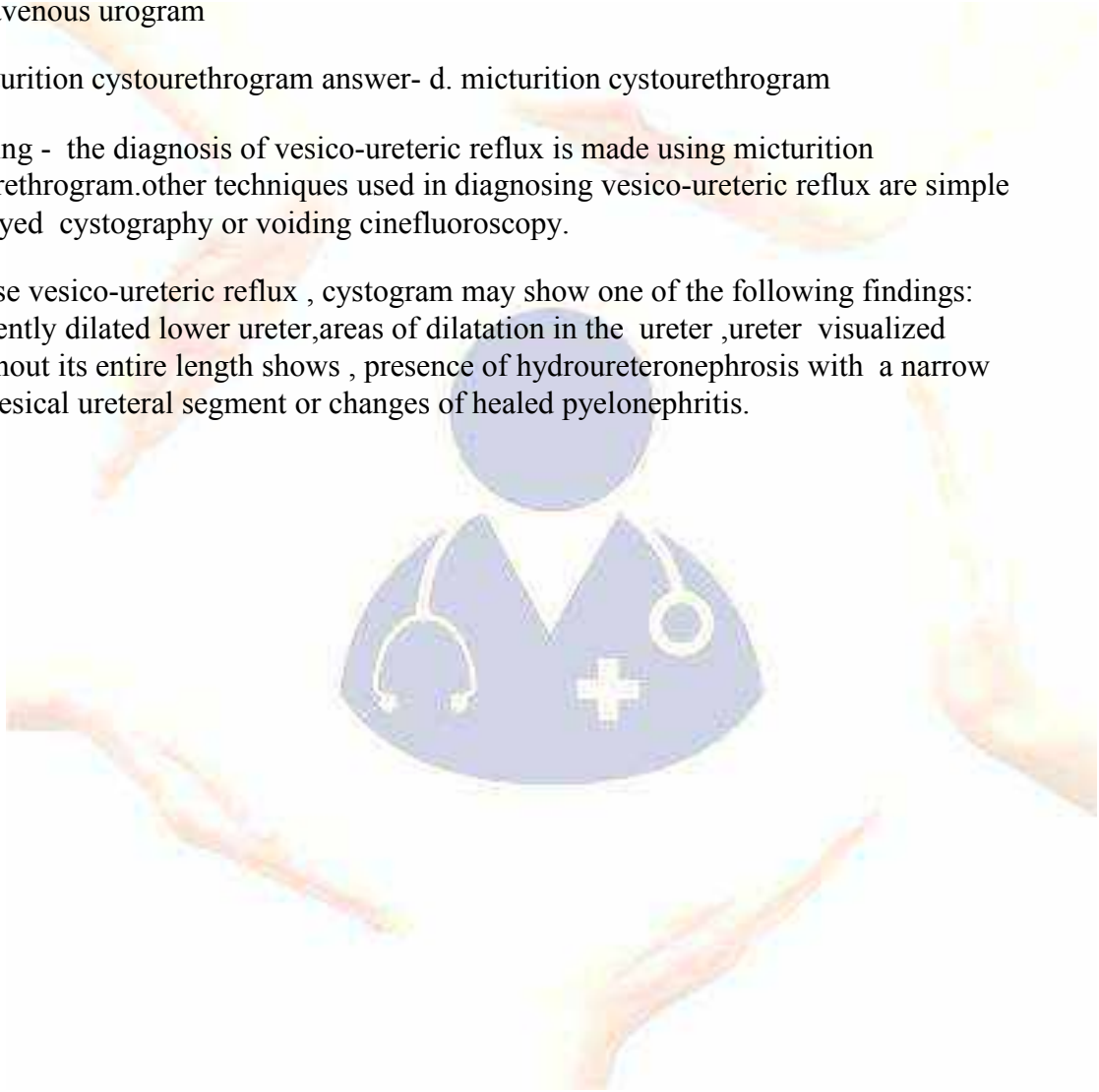
b. cystogram

c. intravenous urogram

d. micturition cystourethrogram answer- d. micturition cystourethrogram

reasoning - the diagnosis of vesico-ureteric reflux is made using micturition cystourethrogram.other techniques used in diagnosing vesico-ureteric reflux are simple or delayed cystography or voiding cinefluoroscopy.

In a case vesico-ureteric reflux , cystogram may show one of the following findings: persistently dilated lower ureter,areas of dilatation in the ureter ,ureter visualized throughout its entire length shows , presence of hydroureteronephrosis with a narrow juxta vesical ureteral segment or changes of healed pyelonephritis.



19. Radiological appearance of thimble bladder is seen in the following

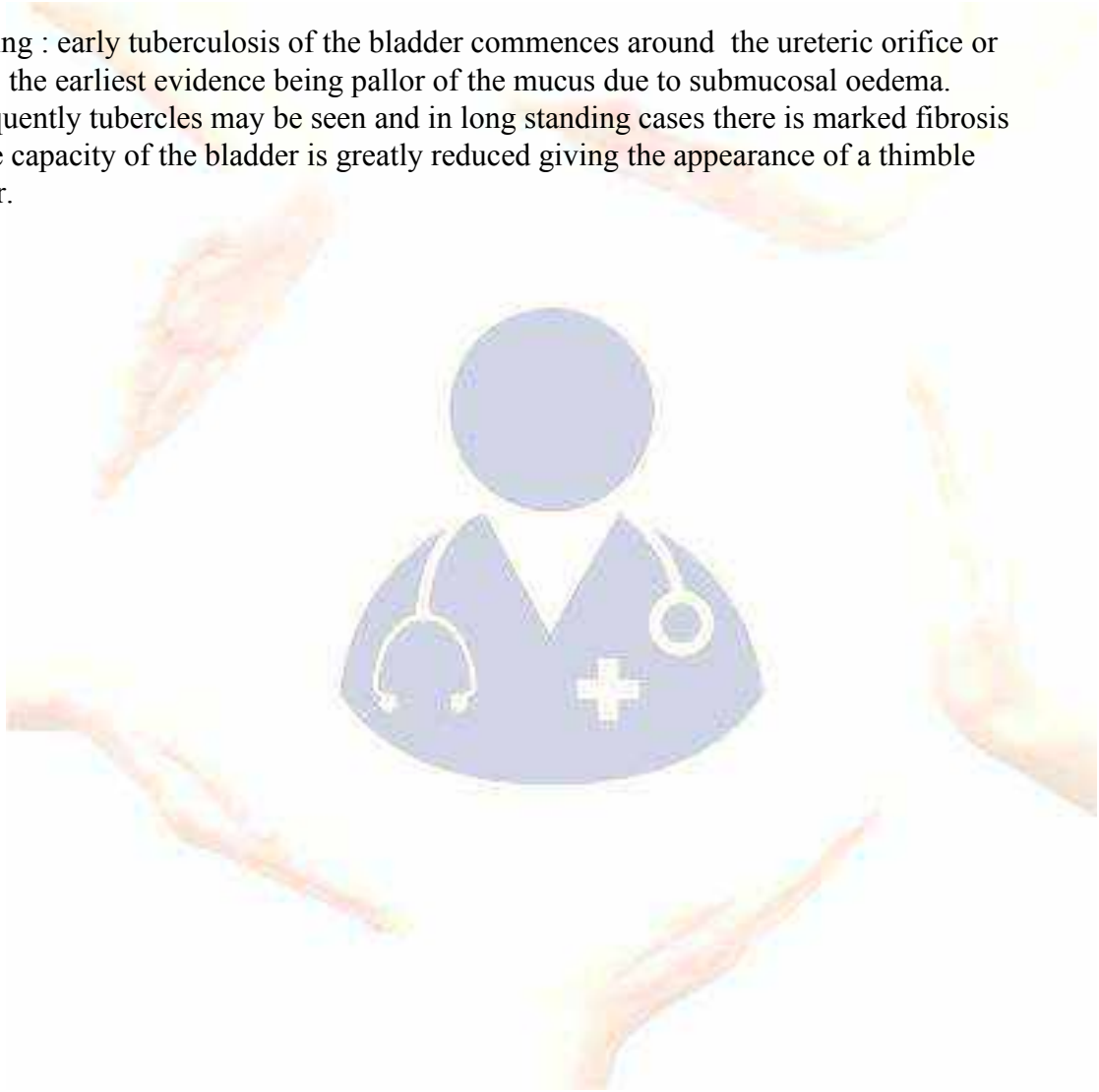
conditions : a. cystitis cystica

b. chronic tuberculosis cystitis

c. neurogenic bladder

d. acute tuberculous cystitis answer: b. chronic tuberculosis cystitis

reasoning : early tuberculosis of the bladder commences around the ureteric orifice or trigone the earliest evidence being pallor of the mucus due to submucosal oedema. Subsequently tubercles may be seen and in long standing cases there is marked fibrosis and the capacity of the bladder is greatly reduced giving the appearance of a thimble bladder.



20. Routine radiological examination of a middle aged man shows "spongy appearance " with central sunburst calcification .This is seen in :

a. pancreatic adenocarcinoma

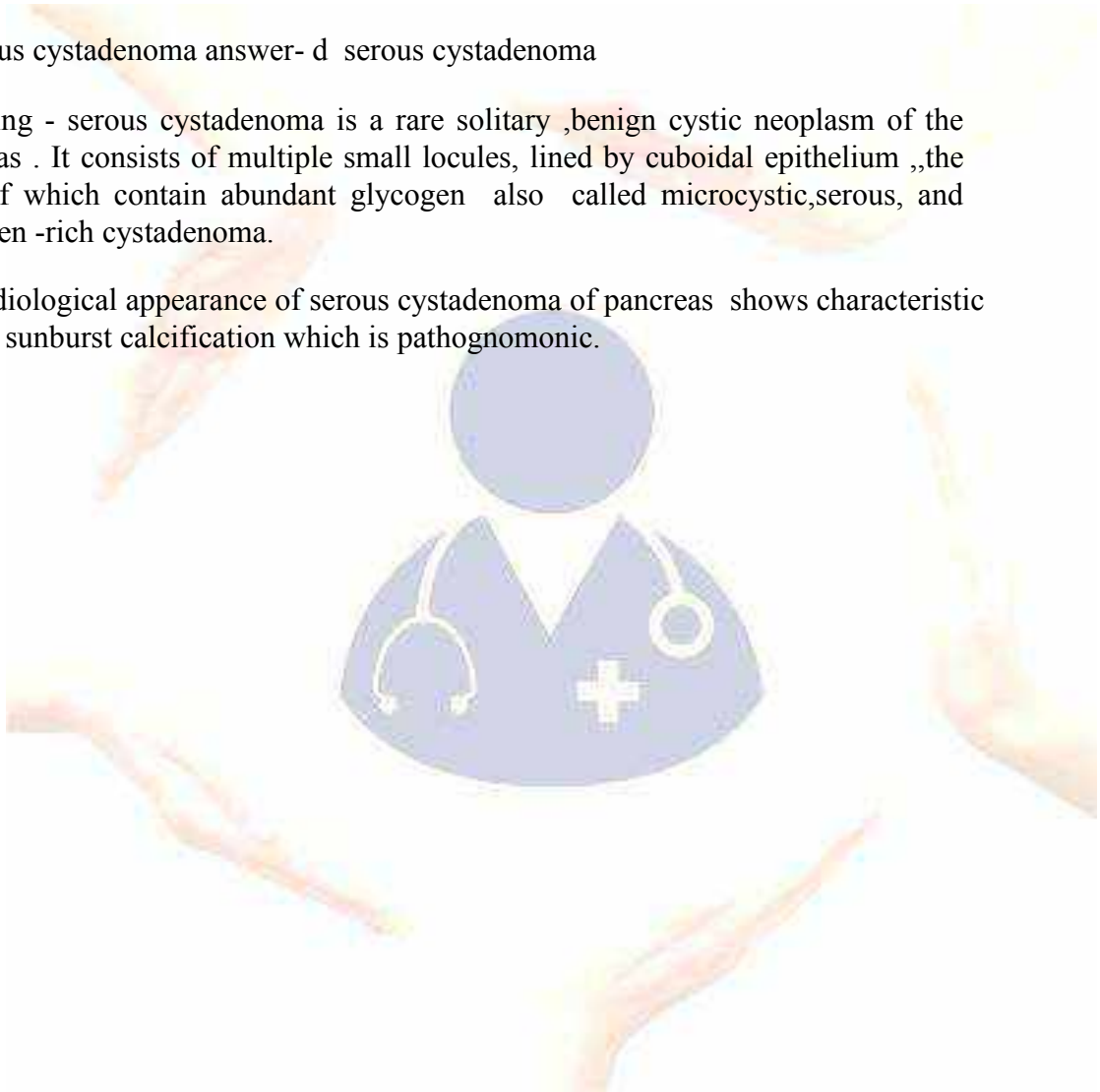
b. mucinous cystadenocarcinoma

c. somatostatinoma

d. serous cystadenoma answer- d serous cystadenoma

reasoning - serous cystadenoma is a rare solitary ,benign cystic neoplasm of the pancreas . It consists of multiple small locules, lined by cuboidal epithelium ,,the cells of which contain abundant glycogen also called microcystic,serous, and glycogen -rich cystadenoma.

The radiological appearance of serous cystadenoma of pancreas shows characteristic central sunburst calcification which is pathognomonic.



21. Which of the following conditions is associated with radiological

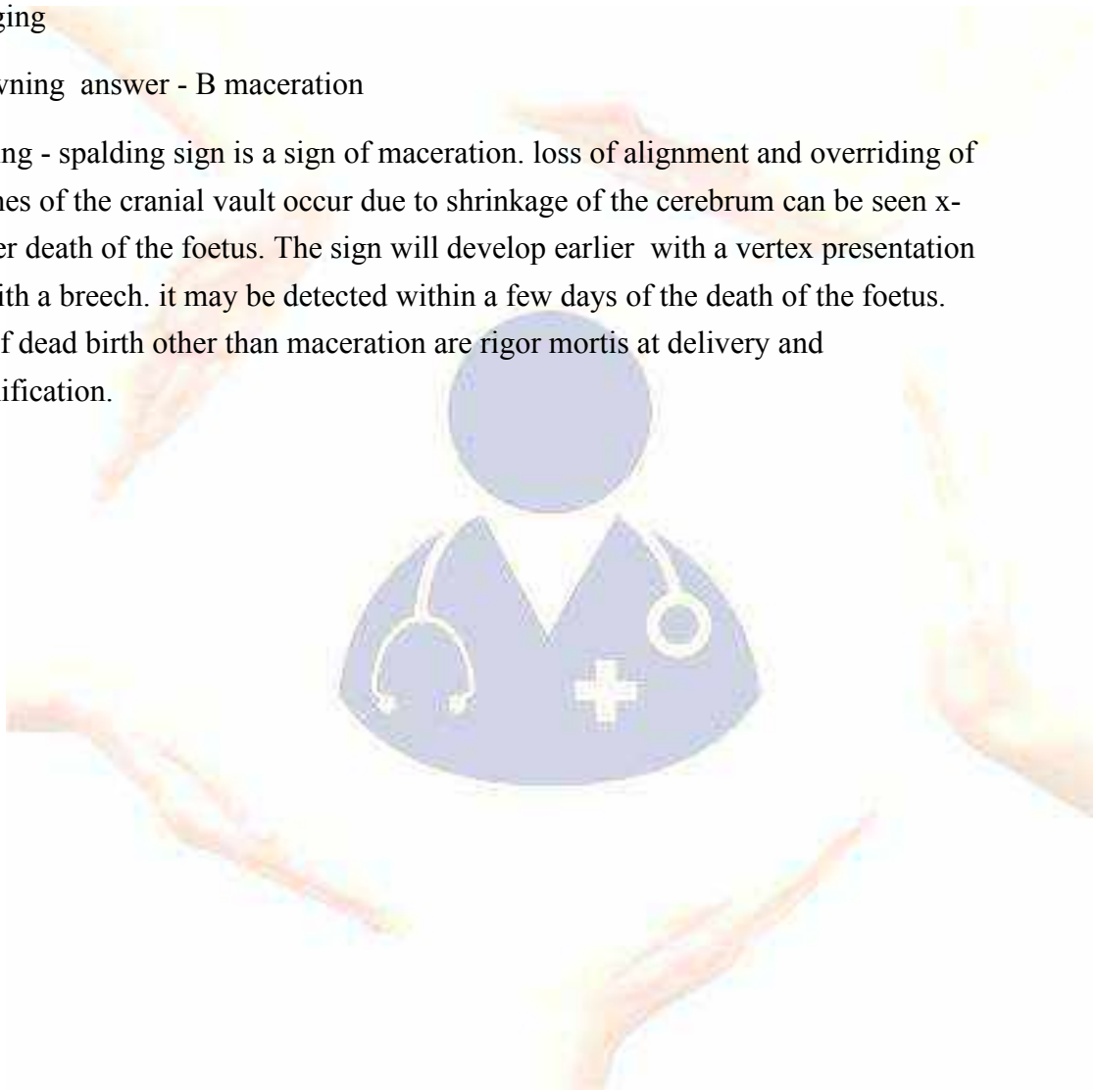
'Spalding sign'? a. mummification

b. maceration

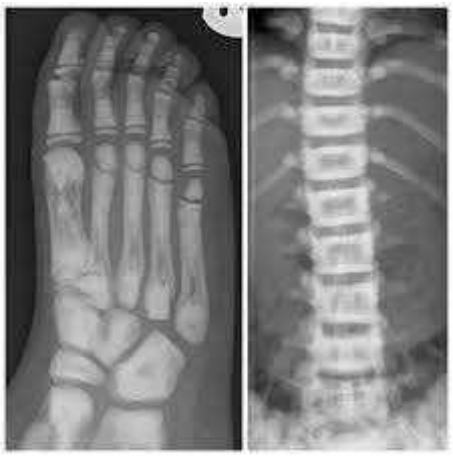
c. hanging

d. drowning answer - B maceration

reasoning - spalding sign is a sign of maceration. loss of alignment and overriding of the bones of the cranial vault occur due to shrinkage of the cerebrum can be seen x-ray after death of the foetus. The sign will develop earlier with a vertex presentation than with a breech. it may be detected within a few days of the death of the foetus. signs of dead birth other than maceration are rigor mortis at delivery and mummification.



22. Which of the following conditions gives the characteristics radiological finding "bone within a bone appearance ?



a. osteogenesis imperfecta

b. osteopetrosis

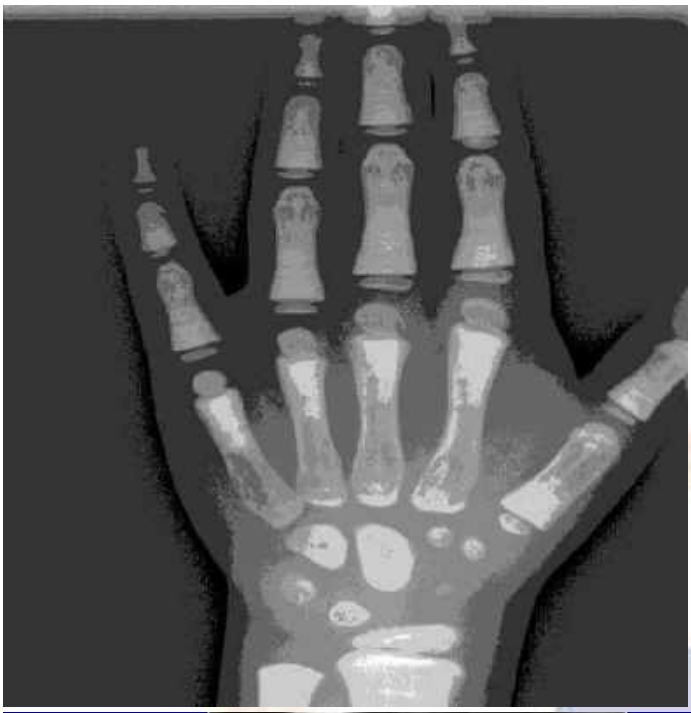
c. scurvy

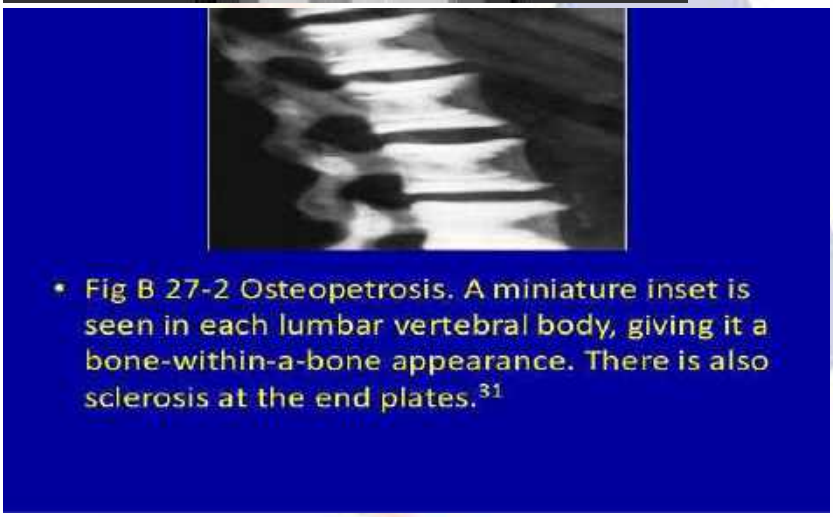
d. rickets

answer- b osteopetrosis

reasoning - radiological examination of osteopetrosis shows increased bone density and transverse bands in the shafts , clubbing of ends and vertical striations of long bones.thickening about the cranial foramina is present , and heterotopic calcification of soft tissues is possible .

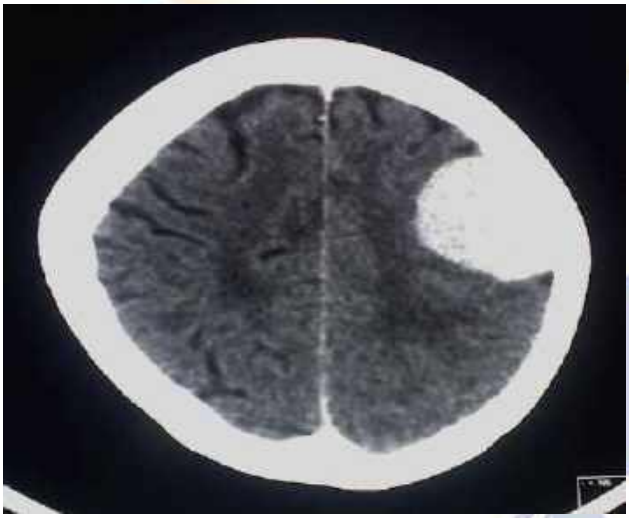
Other characteristics found include a miniature bone inset within each vertebral body (bone within a bone appearance) and increased density at the end plates (sandwich vertebrae).





- Fig B 27-2 Osteopetrosis. A miniature inset is seen in each lumbar vertebral body, giving it a bone-within-a-bone appearance. There is also sclerosis at the end plates.[31]

23. A female patient aged 40 years presented with spasticity of lower limb and bladder dysfunction had a ct scan brain ,which showed the following tumor with calcification .your diagnosis ?



a. astrocytoma

b. medulloblastoma

c. craniopharyngioma

d. meningioma answer - d. meningioma

reasoning -meningioma is a tumor that arises from the meninges — the membranes that surround your brain and spinal cord.

Most meningiomas grow very slowly, often over many years without causing symptoms. But sometimes, their effects on nearby brain tissue, nerves or vessels may cause serious disability.

key point -Meningiomas occur more commonly in women and are often discovered at older ages, but may occur at any age + calcification .

Signs and symptoms of a meningioma typically begin gradually and may be very subtle at first. Depending on where in the brain or, rarely, spine the tumor is situated, signs and symptoms may include:

-Changes in vision, such as seeing double or blurriness

-Headaches, especially those that are worse in the morning

FMGE CLINICAL VIGNETTES

-Hearing loss or ringing in the ears

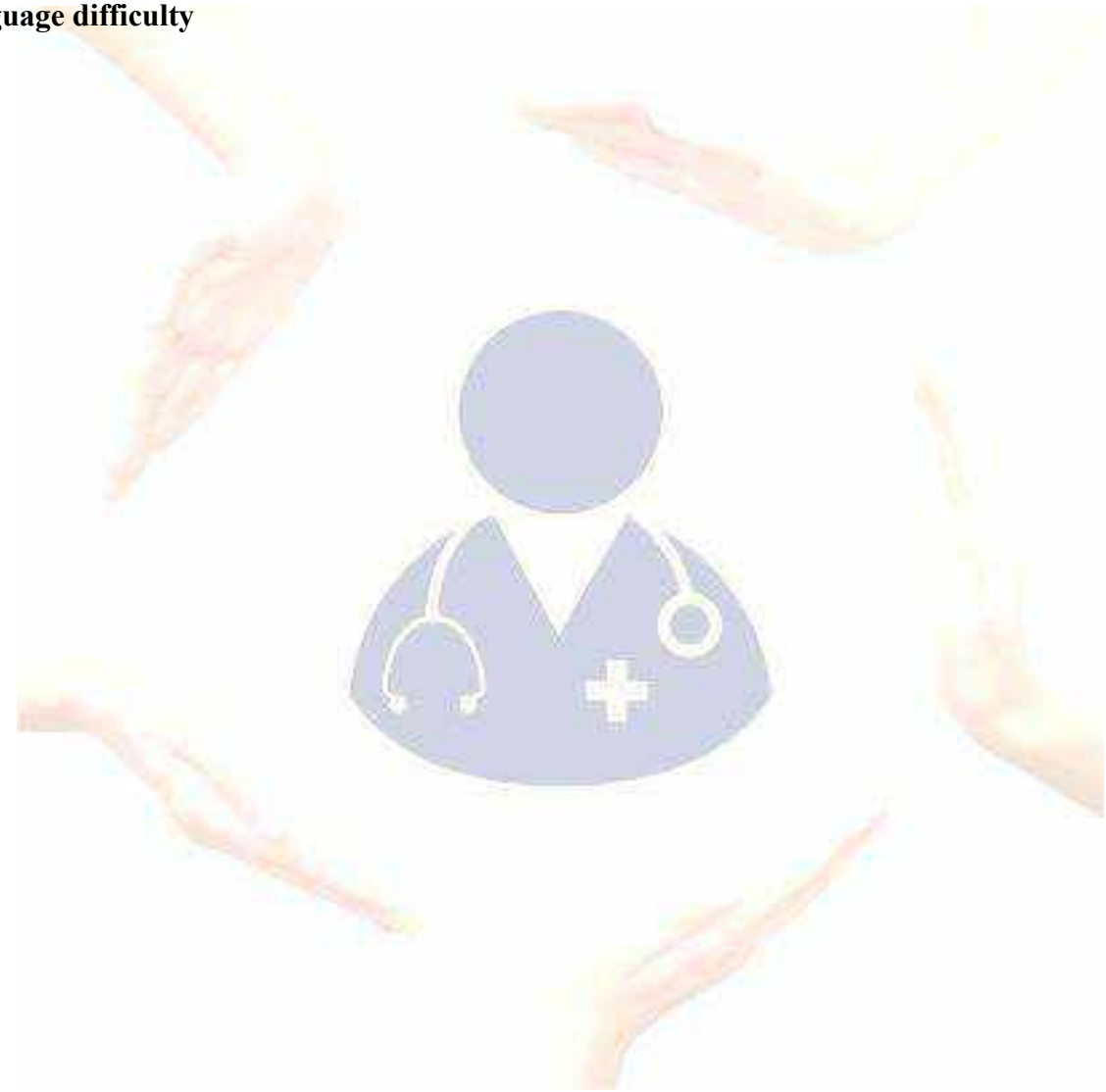
-Memory loss

-Loss of smell

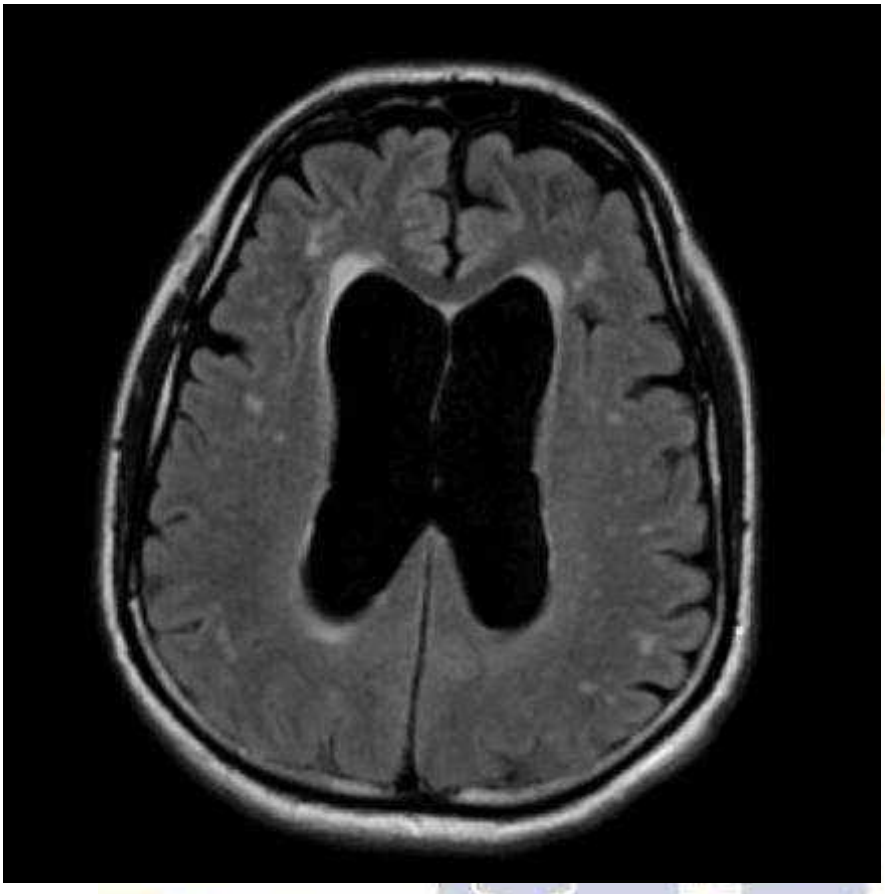
-Seizures

-Weakness in your arms or legs

-Language difficulty



24. a patient presented with abnormal gait(ataxia) ,loss of memory which interferes with his daily routine and is socially inactive ,he also complains of urinary incontinence ,your diagnosis ?



a. parkinson's disease

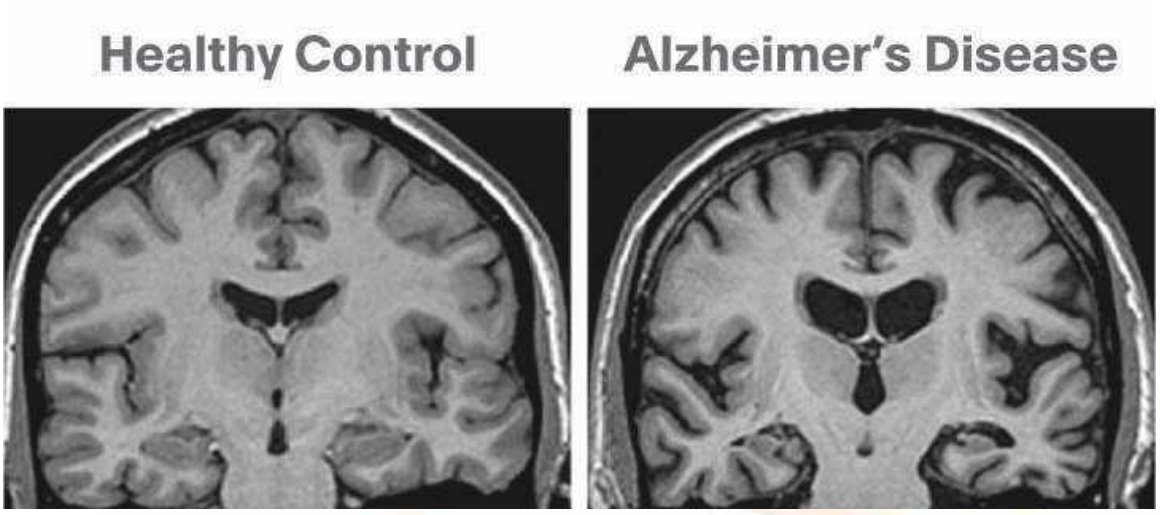
b. alzheimer disease

c. N.P.H

d. huntington's chorea **answer - c. N.P.H**

reasoning - Normal pressure hydrocephalus (NPH) is an accumulation of cerebrospinal fluid (CSF) that causes the ventricles in the brain to become enlarged, sometimes with little or no increase in intracranial pressure (ICP). In most cases of NPH, the cause of blockage to the CSF absorptive pathways is unclear. **key points- abnormal gait +dementia +urinary incontinence .**

radio- enlarged ventricles -hydrocephalus
It is also seen in alzheimer gyri-narrow , sulcus - wide


Healthy Control
Alzheimer's Disease

25. Dawson's fingers a feature of ?

a.parkinsonism

b.multiple sclerosis

c. progressive supra nuclear palsy

d. CJD

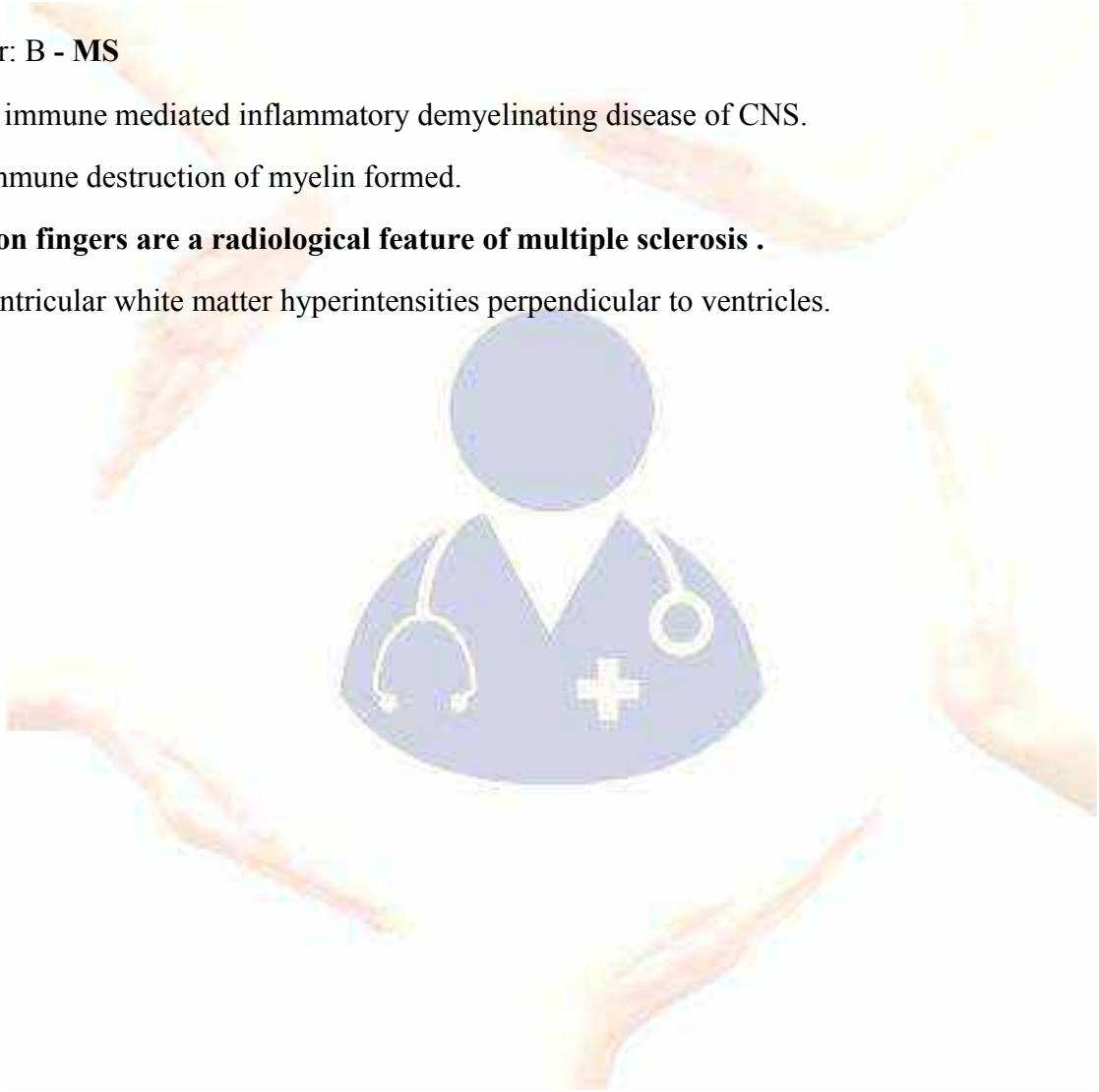
Answer: B **- MS**

- is mc immune mediated inflammatory demyelinating disease of CNS.

-autoimmune destruction of myelin formed.

-Dawson fingers are a radiological feature of multiple sclerosis .

-periventricular white matter hyperintensities perpendicular to ventricles.



THANK YOU AND WISHING YOU ALL THE VERY BEST !