

**PLAB 1  
REVISION  
AL-KHAIR**

Al-Khair

Ectopic ACTH – pigmentation and hypokalaemia and metabolic alkalosis  
 Achalasia – bird beak (smooth narrowing) – manometry gold standard/ rat tail appearance  
 Smooth muscle AB – autoimmune hep and sle  
 Sweat test – CF  
 Endomysial Antibodies – Coeliac disease  
 Chicken pox complication – encephalitis  
 Villous adenoma – hypokalaemia  
 Pain inner thigh – obturator nerve  
 Nicotinic acid + = gilbert syndrome (jaundice/increased liver bilirubin)  
 Cholangitis – triad (RUQ pain/fever/Jaundice) = ERCP  
 Takayasu – pulseless/weakness  
 Buerger – young smoker  
 Raynaud phenomenon – ccb tx  
 De quervain – dx finkelstein test, tx – analgesic  
 Pneumothorax – young tall thing man  
 Trigeminal neuralgia – carbamazepine  
 Carotid Artery occlusion – ipsilateral visual loss + contralateral limb weakness  
 MCA – contralateral weakness + contralateral homonymous hemianopia  
 1 alpha hydroxylation of Vit D – CRF  
 25 alpha hydroxylation of Vit D – Liver Disease  
 Biliary Colic – US – hypochondriac pain colicky nature nausea  
 Pharyngeal pouch – halitosis  
 Placental abruption – DIC  
 Lorazepam – s/e = APNEA / Amnesia / respiratory depression  
 Maarfan – tall/refractory error/cardiac abnormality, facies, THYMIC aplasia HYPOCALCEMIA  
 Abdominal Leak – CT  
 Paralytic ileus – Abd X-ray / tx = NBM / NGT  
 Midbrain – weber syndrome (ptosis + mydriasis) -> CN3 palsy  
 Tonic clonic seizure – initial = blood glucose  
 Tricuspid Regurg – raised JVP, pulsatile liver --> abd pain and pedal oedema  
 Di George – Ca low, absent thymic shadow CXR  
 Down syndrome – double bubble, flat occiput  
 PCKD – autosomal dominant/ painless haematuria/young/htn/tx-US/Tx-Dialysis/Transplant  
 ALL  
 AML  
 CLL- lymphadenopathy/excess mature lymphocytes/elderly  
 CML  
 Mammary duct fistula – past infection + discharge various place  
 Ulcer LABIA majorum – Sup Inguinal LN  
 Neural tube defect – FOLIC acid deficiency  
 Bronchiolitis – child/cxr – hyperinflation/ tx – O2  
 Drooling – epiglottitis – intubate – anaesthetologist  
 Haemosiderosis – accumulation iron granules in kupffer cells and more central  
 Haemochromatosis – pearl stain periportal hepatocytes  
 Carotid Artery (internal) – ipsilateral visual loss + contralateral limb weakness  
 MCA – contralateral weakness + contralateral homonymous hemianopia  
 Branchial cyst – ant triangular lump

Pharyngeal pouch – posterior

Thyroglossal cyst – midline

Thyroid swelling – moves on swallowing

Coeliac disease – jejunal villous atrophy

Whipple disease – severe diarrhoea/IDA/Folic Acid low/tx – IV penicillin & cotrimaxole 1year

Cellulitis – Flucloxacillin + penicillin (strep/staph) use erythromycin if c/i

Meningitis – gp – benzyl penicillin/hospital <55 –ceftriaxone >55 ceftriaxone + ampicillin

TOF – cyanosis/systolic ejection/boot shaped heart

ASD – fixed splitting/ejection systolic murmur

VSD – harsh pansystolic murmur

PDA – machinery murmur

CoA – radiofemoral delay

Thiazide – cause GOUT – tx = NSAID (acute)/Allopurinol (chronic)

HUS –

HSP –

IgA Nephropathy – child/post 1-2 urti/proteinuria/haematuria

Minimal Change GN – child/proteinuria/peripheral oedema

Membranous GN –

Post Strep GN –

TTP –

ITP –

Haemophilia –

VW –

IM adrenaline - <6 years = 0.15ml / 6-12 = 0.3ml / >12 years = 0.5ml (1:1000) -> anaphylactic

Chlorpheniramine (oral) – allergic reaction (anti-histamine)

Mitral valve stenosis – IE

Mitral valve prolapse –

Pulmonary stenosis –

Aortic regurgitation – water hammer pulse

Ischemic Mitral Regurgitation –

Macrocytes – no koilonychias / angular stomatitis <- b12/folate deficiency

Microcytes – IDA / koilonychias

Osteosarcoma – bone pain

Wernicke Encephalopathy – Thiamine

Alcohol Craving decrease – Acamprosate

Alcohol Deterrent – Disulfiram

Peptic ulcer – cause inc NSAIDS

Hoarseness of voice – unilateral recurrent laryngeal nerve injury

Unable to pitch – external laryngeal nerve

Rupture Uterus – abdomen tenderness

Anal fissure – severe ano-rectal pain/examination impossible

Cardiac Tamponade – globular heart shape on CXR

Midbrain – Weber Syndrome (mydriasis + ptosis) -> CN3 palsy

Hereditary Angio-Oedema – C1 esterase def -> fam hx/recurrent swelling/laryngeal edema/abd pain

Endometriosis – manual removal of retained placenta risk factor

Proctalgia Fugax – shooting pain severe

Al-Khair

Pre-proliferative retinopathy – cotton wool spots+hard exudates+venous beading (ischaemia) -> Non-urgent referral

Proliferative retinopathy – neovascularisation -> Urgent referral

COPD - >6 ribs above diaphragm (cxr) (emphysema)

Tracheomalacia – prolonged intubation

Cervical/Vaginal Trauma – big baby delivered ->PPH (cause)

Atelectasis – chest physiotherapy – chest x-ray – CT (better)

Posterior part of testis – epididymis (common site)

Duodenal Atresia – Double Bubble sign (down syndrome)

Jejunal Atresia – triple bubble

Oesophageal atresia – absence of gastric/double bubble

Morning After Pill – 72 hours' post intercourse may be used

DiGeorge – Absent Thymic shadow/hypocalcemia

Sarcoidosis – bilateral hilar lymphadenopathy/erythema nodosum/rash/dry eyes/joint aches & pain

IUCD – risk factor -> PID/ECTOPIC pregnancy

Post menopause bleeding – Endometrial cancer

Extradural Haemorrhage – Lucid interval (comatose)

NPH – wet/wacky/wobbly



- Foul smelling discharge ----- GARDENELLA only
- Chest pain for 40 minutes + GTN given + ECG-ST elevation } next step ----- ASPIRIN  
not PCI
- Repeated UTI, now developing haematuria + loin pain ----- ACUTE PYELONEPHRITIS
- Boy having long standing asthma comes in breathless + O<sub>2</sub> < 90% } Best investigation  
----- ABG/CBG
- Diabetic with central crushing chest pain radiating to neck ----- MI
- Eye problems + glasses change + scotoma ----- Pilocarpine drops = OPEN ANGLE  
GLAUCOMA
- TIA = already on 75mg aspirin ----- Add statin only
- Eye outwards + diplopia-looking right-----Right Oculomotor
- RBC's + WBC's > 10 in urine-----CYSTITIS
- Right sided headache + loss of vision-----ESR (TEMPORAL ARTERITIS)
- QRS >140 + HR >220 bpm-----VT (broad complex)
- Removal of pancreatic CA comes with heartburn + rigid abdomen ----- X-ray  
abdomen
- Perimenopause-----Serum FSH or FSH-LH
- Boy fell on the ground + comes with sub-conjunctival haemorrhage ----- CT BRAIN  
NOT FACIAL X-RAY
- Altered bowel habits + bleeding PR + isolated ulcer on sigmoidoscopy-----  
COLORECTAL CA
- Squamous cell carcinoma of lung ----- Hypercalcemia (PTH)
- Small cell carcinoma of lung ----- Hyponatremia (ACTH)

# Al-Khair

ABG

pH: 7.35 – 7.45

paO<sub>2</sub>: >10 (10.5 – 13.5)

paCO<sub>2</sub>: 4.5 – 6 (<-ALKALINE – N – ACIDIC->)

HCO<sub>3</sub>: 22 – 28

CO<sub>2</sub> => **ACID** – **LUNG** RESPONSIBLE => **RESPIRATORY PROBLEM**

HCO<sub>3</sub> => **ALAKALI** or **BASE** – **KIDNEY** RESPONSIBLE => **METABOLIC PROBLEM**

Low pH = ACIDOSIS -> Increase CO<sub>2</sub> & Decreased HCO<sub>3</sub>

High pH = ALKALOSIS -> Decreased CO<sub>2</sub> & Increased HCO<sub>3</sub>

## COMMON ACID BASE BALANCES

- 1) **VOMITING** – stomach = acidic = HCL = Loss = **METABOLIC ALKALOSIS** + **HYPOKALAEMIA**
- 2) **DIARRHEA** – bicarbonate loss = HCO<sub>3</sub> decrease = **METABOLIC ACIDOSIS**  
(**HYPOKALEMIA** + **HYPONATREMIA**)
- 3) **VILLOUS ADENOMA** – K<sup>+</sup> loss = **HYPOKALEMIA**
- 4) **DIABETIC ACIDOSIS** = **METABOLIC ACIDOSIS**
- 5) **SALICYCLATES** overdose (**ASPIRIN**) = **METABOLIC ACIDOSIS**
- 6) **ALCOHOL** = **METABOLIC ACIDOSIS**
- 7) **ECTOPIC ACTH** – **METABOLIC ALKALOSIS** + **HYPOKALEMIA**
- 8) **PANIC ATTACK PAIN ANXIETY HYPOXIA PE PNEUMOTHORAX** – **RESPIRATORY ALKALOSIS**
- 9) **ASTHMA/COPD/OPIATES** = **RESPIRATORY ACIDOSIS**

ABG

pH – acidosis < 7.35 alkalosis > 7.45

pH : 7.35 – 7.45

p<sub>a</sub>CO<sub>2</sub> : 35 – 45 ← Respiratory

HCO<sub>3</sub> : 22 – 28 ← Metabolic

R Respiratory	pH ↑ PCO <sub>2</sub> ↓ Alkalosis
O Opposite	pH ↓ PCO <sub>2</sub> ↑ Acidosis
M Metabolic	pH ↑ PCO <sub>2</sub> ↑ Alkalosis
E Equal	pH ↓ PCO <sub>2</sub> ↓ Acidosis

Uncompensated : CO<sub>2</sub> or HCO<sub>3</sub> Normal

Partially Compensated : Noting normal

Compensated : pH is normal (7.4 baseline/neutral)

Metabolic Direct

↓ pH ↓ CO <sub>2</sub>	M Acidosis
↑ pH ↑ CO <sub>2</sub>	M Alkalosis
↓ pH ↑ CO <sub>2</sub>	R Acidosis
↑ pH ↓ CO <sub>2</sub>	R Alkalosis

same ME = MEtabolic

REverse = REspiratory

Al-Khair

## Acute Otitis Externa

Al-Khair

\*extremely **tender** to examine

- Common infection in ENT

Signs and Symptoms:

- Discharge
- **Redness**
- **Swelling of ear**
- Painful ear
- TM is NORMAL

Risk Factors:

- Swimming
- Trauma (scratching finger nails)
- Hearing aids
- Narrow canal
- Absence of wax
- Diabetics
- **Psoriasis**

Cause:

- Pseudomonas (chief)
- Staph Aureus

Investigation:

- **Swab of discharge**

Treatment:

- Aural toilet
- **Gentamicin eardrops and Hydrocortisone drops**

A 4yo has earache and fever. Has taken paracetamol several times. Now it's noticed that he increases the TV volume. His preschool hearing test shows symmetric loss of 40db. What is the most likely dx?

- a. OM with effusion
- b. Otitis externa**
- c. Cholesteatoma
- d. CSOM
- e. Tonsillitis

## Carcinoma of the Oesophagus

Risk factors:

- Diet
- Alcohol excess
- Smoking
- Achalasia
- Plummer Wilson Syndrome (IDA → treat by IRON)
- Reflux Oesophagitis
- Barret's oesophagus

Site:

- Middle of oesophagus

Presentation:

- Progressive dysphagia (solids then liquids)
- Old age
- Anaemia (pallor, fatigue, palpitations, anorexia)
- Weight loss
- Retrosternal chest pain
- Hoarseness
- Cough

Investigation:

- Barium swallow (initial)
- Endoscopy
- Oesophagostomy with biopsy (definitive)

Treatment:

- Radical curative oesophagectomy
- Surgery
- Chemoradiotherapy may be better if surgery contraindicated

A patient presents with longstanding gastric reflux, dysphagia and chest pain. On barium enema, dilation of oesophagus with tapering end is noted. He was found with Barret's oesophagus. He had progressive dysphagia to solids and then liquids. What is the single most appropriate dx?

- Achalasia
- Oesophageal spasm
- GERD
- Barrett's oesophagus
- Oesophageal carcinoma**

Ans. The key is E. Oesophageal carcinoma. [there is dilatation in oesophagus which is seen both in achalasia and carcinoma. Dysphagia to solid initially is very much suggestive of carcinoma and also Barrett's change is a clue to carcinoma]

A 40yo woman complains of dysphagia for both solids and liquids. She sometimes suffers from severe retrosternal chest pain. Barium swallow reveals a dilated oesophagus which tapers to a fine distal end. What is the best management strategy?

- a. Reassurance
- b. Antispasmodics
- c. Dilatation of the LES**
- d. Endoscopic diverticulectomy
- e. Barium swallow

Ans. The key is C. Dilatation of LES. [Dysphagia for both solids and liquids suggest neuromuscular dysphagia while dysphagia only for solid suggests mechanical obstruction. Here features are consistent with achalasia]

A 55yo female presented with anaemia and dysphagia. There is a feeling of something stuck in the throat. The oesophagus can't be negotiated beyond the crico-pharynx. What is the most probable dx?

- a. Foreign body
- b. Plummer vinson syndrome**
- c. Pharyngeal carcinoma
- d. Barret's oesophagus
- e. Oesophageal carcinoma**

Ans. The key is B. Plummer Vinson syndrome. [The picture fits two D/D. 1. Plummer Vinson syndrome 2. Oesophageal carcinoma. Lower oesophageal stricture is more common for Ca. So, presenting case is likely a case of Plummer Vinson syndrome. It can be differentiated by the type of anaemia. If it is IDA dx is Plummer Vinson syndrome].

\*no fever in effusion

# Al-Khair

A young girl returns from holidays in Spain. She complains of discharge from her ear and complains of tragal tenderness. Exam: tympanic membrane normal. Aural toilet has been done. What is the next appropriate med?

- a. Antibiotic PO
- b. Antibiotic IV
- c. Steroid PO
- d. Steroid drop
- e. Antibiotic drop with steroid**

Ans. The key is E. Antibiotic drop with steroid. [Discharge from ear and tragal tenderness are features of otitis externa. Key treatment is aural toileting. Drop advised is Sofradex (Framycetin + dexamethasone) OHCS, 9th edition, page 542].

A 20yo woman with no previous hx of ear complains, presents with 1d hx of severe pain in the right ear which is extremely tender to examine. What is the single most likely dx?

- a. Chondromalacia
- b. Furuncle
- c. Myringitis
- d. OE**
- e. OM

Ans. The key is D. OE. [Extreme tenderness to examine indicate otitis externa].

A 38yo man has just returned from a holiday where he went swimming every day. For the last few days he has had irritation in both ears. Now his right ear is hot, red, swollen and acutely painful. What is the single most likely dx?

- a. Foreign body
- b. Impacted earwax
- c. OE**
- d. OM
- e. Perforation of eardrum

Key: Otitis Externa

Reason: The swimming history, irritation in both ears and ear being hot, red, swollen and painful indicates inflammation of the external acoustic meatus called Otitis Externa. It isn't otitis media because of the lack of Tympanic membrane signs, perforated eardrum would present with just pain and deafness, impacted earwax would also present with pain and conductive deafness. Foreign body would have history of something being used near or inside the ear and would be seen on examination of the ear canal. Mainly Pseudomonas /staph aureus.

# Al-Khair

# Al-Khair

## Alzheimer

**\*Alzheimer patient does not have insight on the problem benign age related forgetfulness patient has an insight and they recognize they have a memory problem.**

(age of ONSET = 40 years)

(most likely risk factor is **DOWN SYNDROME**)

Alzheimer starts with **DEMENTIA** and ends with **GRAND MAL SEIZURE**

- **Commonest** cause of dementia in the UK
- **Gradual** onset
- **Visuo-spatial dysfunction** → getting lost when taking a walk in the park or when driving.
- **Progressive memory loss** and cognition
- Normally in **old age**
- **Pathologically: Neurofibrillary tangles and senile plaques**
- Patient may be previously fit and well
- There are **behaviour changes**: *aggressive, emotionally liable, depression*
- May have seizures in the late phase

**Investigations:** Rule out the following reversible causes (dementia screen)

- B12/Folate deficiency
- TSH (hypothyroidism)
- HIV test
- Thiamine deficiency
- Syphilis serology

**CT scan:** to rule out **vascular dementia**, **subdural haematoma** or **brain tumour**

**Diagnosis** made by **mini-mental state** examination or **mental state examination**

**Treatment:** Donepezil

Microcytic	Macrocytic
<p><i>Iron Deficiency</i></p> <ul style="list-style-type: none"> <li>• Fe ↓</li> <li>• Ferritin ↓</li> <li>• TIBC ↑</li> </ul> <p><i>Thalassemia</i></p> <ul style="list-style-type: none"> <li>• Normal iron studies</li> <li>• Electrophoresis to see type</li> </ul> <p><i>Anaemia of chronic disease</i></p> <ul style="list-style-type: none"> <li>• Fe ↓</li> <li>• Ferritin ↑</li> <li>• TIBC ↓</li> </ul> <p><i>Sideroblastic anaemia</i></p> <ul style="list-style-type: none"> <li>• Fe ↑</li> <li>• Ferritin ↑</li> <li>• In sideroblastic anaemia, the body has iron available but cannot incorporate it into haemoglobin</li> </ul>	<p><b>Megaloblastic</b> → Hypersegmented neutrophils</p> <p><i>B12 deficiency</i></p> <ul style="list-style-type: none"> <li>• Neurological problems</li> <li>• Subacute combined degeneration of the cord</li> <li>• Serum B12 ↓</li> </ul> <p><i>Folate deficiency</i></p> <ul style="list-style-type: none"> <li>• Serum folate ↓</li> </ul> <p><b>Normoblastic (Non megaloblastic)</b></p> <ul style="list-style-type: none"> <li>• Alcohol</li> <li>• Liver disease</li> <li>• Hypothyroidism</li> <li>• Pregnancy</li> <li>• Reticulocytosis</li> <li>• Myelodysplasia</li> <li>• Drugs: cytotoxics</li> </ul>

Normocytic (normal MCV)
<ul style="list-style-type: none"> <li>• Haemolytic anaemias: Bloods in general show ↑ LDH, ↑ unconjugated bilirubin, ↓ Haptoglobin, ↑ Reticulocytes</li> </ul> <p><i>Sickle Cell</i></p> <ul style="list-style-type: none"> <li>• Blood smear → Sickle cells</li> <li>• Sickle solubility test → This test detects the presence of haemoglobin S but does not distinguish between sickle cell disease and trait</li> <li>• Hb Electrophoresis → For asymptomatic patients to see if patient has trait</li> <li>• Treatment: Acute → IV fluids, morphine, O2, antibiotics</li> <li>• Prophylaxis → Hydroxyurea. Also needs pneumococcal vaccines</li> </ul> <p><i>Autoimmune haemolysis</i></p> <ul style="list-style-type: none"> <li>• COOMBS test</li> <li>• Treat with steroids</li> </ul> <p><i>Hereditary spherocytosis</i></p> <ul style="list-style-type: none"> <li>• Blood film → spherocytes</li> <li>• Osmotic fragility test</li> <li>• Treatment: Splenectomy</li> </ul> <p><i>G6PD deficiency</i></p> <ul style="list-style-type: none"> <li>• Blood film → Heinz bodies</li> <li>• Check G6PD levels</li> <li>• Treatment: stop offending drugs</li> </ul>



Antirheumatic Agents			
Name	Mechanism of Action	Key Indication	Key Toxicity
TNFα Inhibitors			
Infliximab	<ul style="list-style-type: none"><li>Monoclonal antibody against TNF-alpha (infliximab, adalimumab, certolizumab)</li><li>Decoy receptor for TNF-alpha (etanercept)</li></ul>	<ul style="list-style-type: none"><li>Disease modifying drug for Crohn's, psoriasis, rheumatoid arthritis, ankylosing spondylitis</li></ul>	<ul style="list-style-type: none"><li>Opportunistic infection, in particular mycobacterial infection due to TNF destabilization of granulomas</li></ul>
Adalimumab			
Etanercept			
Gold Preparations			
Auranofin	<ul style="list-style-type: none"><li>Gold complex</li></ul>	<ul style="list-style-type: none"><li>Not commonly used</li></ul>	<ul style="list-style-type: none"><li>Gold toxicity</li><li>Myelosuppression</li></ul>
Aurothioglucose			
Other Antirheumatics			
Cyclophosphamide	<ul style="list-style-type: none"><li>Alkylating agent - nitrogen mustard type</li></ul>	<ul style="list-style-type: none"><li>Hodgkin lymphoma</li><li>Leukemia</li><li>RA</li></ul>	<ul style="list-style-type: none"><li>Alkylating agent</li><li>Hemorrhagic cystitis (treat with mesna)</li><li>Myelosuppression</li></ul>
Azathioprine	<ul style="list-style-type: none"><li>Purine synthesis inhibitor</li></ul>	<ul style="list-style-type: none"><li>Renal transplant immunosuppression</li><li>Autoimmune disease</li></ul>	<ul style="list-style-type: none"><li>PTLPD</li><li>Myelosuppression</li></ul>
Hydroxychloroquine	<ul style="list-style-type: none"><li>Lysosomal accumulation/inhibition</li></ul>	<ul style="list-style-type: none"><li>Malaria prophylaxis</li><li>SLE</li><li>RA</li></ul>	<ul style="list-style-type: none"><li>Can exacerbate G6PD deficiency</li></ul>
Methotrexate	<ul style="list-style-type: none"><li>Dihydrofolate reductase competitive inhibitor</li></ul>	<ul style="list-style-type: none"><li>RA</li><li>Psoriasis</li><li>Anti-folate chemotherapy</li><li>Ectopic pregnancy</li></ul>	<ul style="list-style-type: none"><li>Must monitor pregnancy status, extremely toxic to fetus including neural tube defects</li></ul>

Muscle Relaxants				
Carbamic Acid Esters				
Methocarbamol	<ul style="list-style-type: none"><li>Mechanism unknown</li><li>Potential carbonic anhydrase inhibition</li></ul>	<ul style="list-style-type: none"><li>Adjunct for tetanus, muscle spasms</li></ul>	<ul style="list-style-type: none"><li>Ataxia</li><li>Seizures</li></ul>	
Carisoprodol	<ul style="list-style-type: none"><li>Mechanism unknown</li><li>Central skeletal muscle relaxant</li></ul>	<ul style="list-style-type: none"><li>Muscle spasms</li><li>Musculoskeletal pain</li></ul>		
Other				
Baclofen	<ul style="list-style-type: none"><li>GABA<sub>B</sub> receptor activation</li></ul>	<ul style="list-style-type: none"><li>Spasticity</li></ul>	<ul style="list-style-type: none"><li>CNS depression</li><li>Respiratory depression</li></ul>	
Cyclobenzaprine	<ul style="list-style-type: none"><li>Mechanism unknown</li><li>Muscle relaxant</li></ul>	<ul style="list-style-type: none"><li>Muscle spasms</li></ul>	<ul style="list-style-type: none"><li>Contraindicated with MAOIs</li><li>Heart block</li></ul>	
Dantrolene	<ul style="list-style-type: none"><li>Binds ryanodine receptor</li><li>Decreases calcium release from the sarcoplasmic reticulum</li></ul>	<ul style="list-style-type: none"><li>Neuroleptic malignant syndrome</li><li>Malignant hyperthermia</li></ul>	<ul style="list-style-type: none"><li>Hepatotoxicity</li><li>CNS depression</li></ul>	
Metaxalone	<ul style="list-style-type: none"><li>Mechanism unknown</li><li>CNS depression</li></ul>	<ul style="list-style-type: none"><li>Musculoskeletal pain</li></ul>	<ul style="list-style-type: none"><li>CNS depression</li></ul>	
Orphenadrine	<ul style="list-style-type: none"><li>Ach receptor antagonism</li><li>H<sub>1</sub> receptor blocker (antihistamine)</li><li>NMDA receptor antagonist</li><li>Norepinephrine reuptake inhibitor</li><li>Na<sup>+</sup> channel blocker</li><li>K<sup>+</sup> channel blocker</li></ul>	<ul style="list-style-type: none"><li>Discontinued in the U.S.</li></ul>	<ul style="list-style-type: none"><li>Anticholinergic effects</li></ul>	

Tizanidine	<ul style="list-style-type: none"> <li>Central <math>\alpha_2</math> agonist (<math>G_i</math> coupled)</li> </ul>	<ul style="list-style-type: none"> <li>Spasticity</li> </ul>	<ul style="list-style-type: none"> <li>Hypotension (<math>\alpha_2</math> agonist)</li> </ul>
Diazepam	<ul style="list-style-type: none"> <li>GABA type A positive modulator</li> </ul>	<ul style="list-style-type: none"> <li>Anxiety</li> <li>Status epilepticus</li> <li>Alcohol withdrawal</li> <li>Seizures</li> </ul>	<ul style="list-style-type: none"> <li>Dependency</li> <li>Abuse potential</li> </ul>
		<ul style="list-style-type: none"> <li>Sedative</li> <li>Muscle relaxant</li> </ul>	
<b>Narcotic Agonists</b>			
Alfentanil	<ul style="list-style-type: none"> <li>Opioid analgesic (short acting)</li> </ul>	<ul style="list-style-type: none"> <li>Induction agent for general anesthesia</li> </ul>	<ul style="list-style-type: none"> <li>Respiratory depression</li> <li>Dependency</li> <li>Abuse potential</li> </ul>
Codeine	<ul style="list-style-type: none"> <li>Opioid (<math>\mu</math> agonist)</li> </ul>	<ul style="list-style-type: none"> <li>Acute pain</li> </ul>	
Levorphanol			
Oxymorphone			
Hydromorphone			
Morphine			
Oxycodone			
Meperidine		<ul style="list-style-type: none"> <li>Acute pain</li> <li>Sedation</li> </ul>	
Dextropropoxyphene		<ul style="list-style-type: none"> <li>Antitussive</li> <li>Mild pain</li> <li>Restless leg syndrome</li> </ul>	
Methadone	<ul style="list-style-type: none"> <li>Very long acting opioid (<math>\mu</math>agonist)</li> </ul>	<ul style="list-style-type: none"> <li>Opioid dependence</li> <li>Chronic pain</li> </ul>	
Fentanyl	<ul style="list-style-type: none"> <li>Very potent opioid (<math>\mu</math>agonist)</li> </ul>	<ul style="list-style-type: none"> <li>Induction agent</li> <li>Chronic pain</li> </ul>	
<b>Narcotic Agonists-Antagonists</b>			
Buprenorphine	<ul style="list-style-type: none"> <li>Partial opioid receptor (<math>\mu</math>) modulator</li> </ul>	<ul style="list-style-type: none"> <li>Moderate pain</li> <li>Opioid dependence</li> </ul>	<ul style="list-style-type: none"> <li>Respiratory depression</li> <li>Seizures</li> </ul>

				• Bradycardia
Butorphanol		• Partial agonist/antagonist activity of $\mu$ receptors	• Anesthesia induction	• Seizures
Nalbuphine		• Competitive antagonists of $\kappa$ opioid receptors		• CNS depression
				• Anticholinergic effects
Pentozocine	• Agonist-antagonist at opioid ( $\mu$ ) receptor	• Mild pain	• Hypertension	
		• Opioid dependence	• Tachycardia	
Buprenorphine/naloxone	• Partial opioid receptor ( $\mu$ ) modulator (buprenorphine)	• Opioid dependence maintenance therapy	• Seizures	• CNS depression
	• $\mu$ receptor antagonist (naloxone)		• Anticholinergic effects	• Opioid withdrawal if abused
<b>Narcotic Antagonists</b>				
Naloxone	• $\mu$ receptor antagonist	• Acute opioid toxicity	• Opioid withdrawal	
<b>Narcotic Analgesic Combo</b>				
Acetaminophen/oxycodone	• $\mu$ agonist + unknown mechanism of acetaminophen	• Acute pain moderate	• Respiratory depression	• Dependency
Acetaminophen/hydrocodone			• Abuse potential	
<b>NSAIDS</b>				
<b>Salicylates</b>				
Aspirin	• Irreversible inhibitor of COX-1	• Antiplatelet therapy for CAD	• Reye's Syndrome in children	• Tinnitus
		• Pain	• Mixed metabolic acidosis and respiratory alkalosis	
		• Antipyretic		
<b>Propionic Acids</b>				
Ibuprofen	• COX inhibitor	• Mild pain	• Gastritis	• NSAID nephropathy
Naproxen			• GI bleeding	
<b>Acetic Acids</b>				

Ketorolac	<ul style="list-style-type: none"> <li>• COX inhibitor (competitive)</li> </ul>	<ul style="list-style-type: none"> <li>• Mild pain</li> </ul>	<ul style="list-style-type: none"> <li>• Gastritis</li> <li>• NSAID nephropathy</li> <li>• GI bleeding</li> </ul>
Indomethicin	<ul style="list-style-type: none"> <li>• COX inhibitor</li> </ul>	<ul style="list-style-type: none"> <li>• Patent ductus arteriosus</li> <li>• Pain</li> </ul>	
<b>COX-2 Selective Inhibitors</b>			
Celecoxib	<ul style="list-style-type: none"> <li>• COX-2 inhibition</li> </ul>	<ul style="list-style-type: none"> <li>• Osteoarthritis</li> </ul>	<ul style="list-style-type: none"> <li>• Increased risk of MI, thrombosis in at-risk individuals</li> </ul>
<b>Other Analgesics</b>			
Acetaminophen	<ul style="list-style-type: none"> <li>• Not well characterized</li> </ul>	<ul style="list-style-type: none"> <li>• Antipyretic</li> <li>• Mild pain</li> </ul>	<ul style="list-style-type: none"> <li>• Hepatotoxicity</li> </ul>
Tramadol	<ul style="list-style-type: none"> <li>• Opioid agonist (<math>\mu</math>)</li> </ul>	<ul style="list-style-type: none"> <li>• Chronic, moderate-severe pain</li> </ul>	<ul style="list-style-type: none"> <li>• Hepatotoxicity</li> <li>• Seizures</li> <li>• Withdrawal symptoms</li> </ul>

## ASTHMA

Tests:

- 1) Spirometry is **DIAGNOSTIC**
- 2) PEFR is to **MONITOR** asthma
- 3) RAST for **TESTING ALLERGY**

## ACUTE EXACERBATION

- Inability to finish sentences/grasping between words
- Tachypnoea / Tachycardia
- PEFR 33-50% of predicted

## LIFE THREATENING

- **Silent chest**
- **Cyanosis**
- **Bradycardia**
- Exhaustion
- PEFR <33%
- Confused
- Reduced respiratory effort

## MANAGEMENT OF ACUTE EXACERBATION OF ASTHMA

1) 100% O<sub>2</sub> by Non-Breathing Mask -> 2) Salbutamol/Ipratropium Bromide x3 20 mins apart [Hydrocortisone IV (oral prednisolone 40mg)] -> 3) Mg SO<sub>4</sub> (1.2 – 2g over 20 mins) -> (not responding ??) -> 4) Aminophylline

## MANAGEMENT of CHRONIC ASTHMA

### Step 1:

Occasional **INHALED SABA** (if use >once daily or night time symptoms)-> go to step 2

### Step 2:

**Step 1 + Short acting ICS** (Beclomethasone 200mg – 800mg)

\*(not improving)

- check technique
- for children = use facemask
- if child <2 years -> refer to paediatrics
- if child 2-5 years -> STEP 3 -> Add Leukotrienes

### Step 3:

→ 2-5 years --> Add Leukotrienes

→ 5 years + --> LABA (Salmeterol)

### Step 4:

**Step 3 + increase the dose of ICS** (Budesonide 200mg)

### Step 5:

**Step 4 + Add Oral Steroids** (Prednisolone 20-40mg)

\*Intermittent Asthma -> **MONTELUKAST**

\*Exercise Induced Asthma -> **SODIUM CROMOGLYCATE**

\*Night Cough & Exercise -> **MONTELUKAST**

\*Steroid induced oral candidiasis -> **Topical Nystatin**

# Al-Khair Asthma

## **Chronic Asthma**

### Step 1:

- occasional inhaled SHORT ACTING BETA AGONIST (SABA)  
\*If used >once daily or if night symptoms then go to STEP 2

### Step 2:

- Add SHORT ACTING INHALED STEROIDS (BECLAMETHASONE in low doses)
- If no relief then STEP 3

### STEP 3:

- STEP 2 + LONG ACTING BETA AGONIST (SALMETEROL)

### STEP 4:

- STEP 3 + LONGER ACTING INHALED CORTICOSTEROID (BUDESONIDE high dose)

### STEP 5:

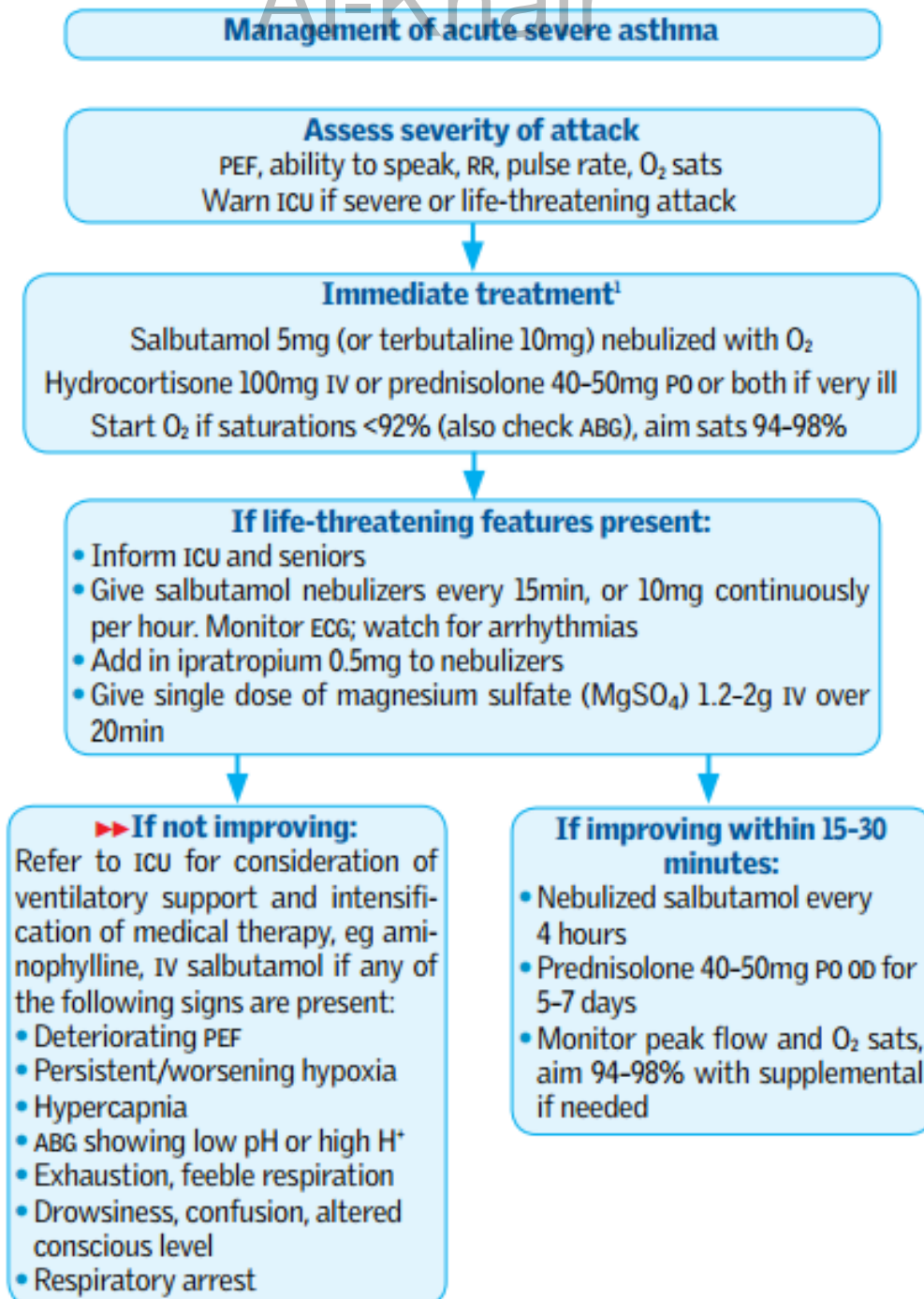
- STEP 4 + ORAL PREDNISOLONE (start with low dose)  
\*STOP inhaled STEROIDS

Adjuvant therapies – MONETLUKAST, THEOPHYLLINE

Exercise induced ASTHMA – SODIUM CHROMOGLYCATE



# Al-Khair



**Fig 1.** Management of acute severe asthma.

**Treatment** • Avoid triggers • Check inhaler technique: metered dose inhaler (MDI)<sup>1</sup> + Spacer<sup>2</sup> below the age of ~8. Then powders which need high inspiratory flow ( $\geq 60\text{L/min}$ ) in the starting phase; or propellant systems (need constant flow, 40–90L/min) with long duration; ► *teaching both at once doesn't work!*<sup>467</sup>

• Address fears • Have a self-management plan • Check compliance • Give a peak flow meter • Rescue prednisolone may be needed at any time, 1–2mg/kg/day po for  $\geq 48\text{h}$ . Step up when needed, and back down as symptoms allow, to avoid over-treatment.

1 Occasional  $\beta$ -agonists via pMDI.<sup>1</sup> If needed  $\geq 3\times/\text{week}$ , add step 2 (also if  $>5\text{ yrs}$  and many exacerbations, or asthma wakes from sleep  $>\text{once/wk}$ ).

2 Add inhaled steroid,<sup>2</sup> eg beclometasone: specify brand<sup>468</sup> as potencies vary: Clenil Modulite® 50 $\mu\text{g}$  is a lower-potency cfc-free inhaler; Qvar® 50 $\mu\text{g}$  (cfc free) is high-potency. Use up to 200 $\mu\text{g}$  of Clenil®/12h.<sup>469</sup>

3 Review diagnosis; check inhaler use/concordance; eliminate triggers; monitor height. *If  $<5\text{yrs}$ :* Add 1 evening dose of montelukast 4mg as a mouth-dissolving capsule. *If  $>5\text{yrs}$ :* Add inhaled salmeterol 50 $\mu\text{g}/12\text{h}$  (long-acting  $\beta$ -agonist); monitor closely; stop if of no help. If symptomatic  $\uparrow$  inhaled steroid and try montelukast 5mg or theophylline, eg Slo-Phyllin® 125–250mg/12h po if 6–12yrs. If problems remain, add in step 4.

4 Refer to specialist ( $\pm$  cxr).<sup>470</sup>  $\uparrow$  Inhaled steroid (Clenil® 400 $\mu\text{g}/12\text{h}$ ).

5 Add prednisolone (if  $>5\text{yrs}$ ) at lowest dose that works; check: growth.

**Treating severe asthma** Calmness helps. ★ Give these treatments if the above life-threatening signs are present, or if not improving 15–30min after R<sub>x</sub> starts.

- |   |   |
|---|---|
| 1 Sit up; high-flow 100% O <sub>2</sub> if S <sub>p</sub> O <sub>2</sub> $<92\%$ in air   | 6 Consider 1 iv dose of magnesium sulfate, 40mg/kg over 20min ( $\leq 2\text{g}$ ); intracellular Mg <sup>2+</sup> is $\downarrow$ <sup>471</sup> |
| 2 Salbutamol: 5mg O <sub>2</sub> -nebulized in 4mL saline (2.5mg if $<5\text{y}$ ) $\pm 15\mu\text{g/kg}$ slow iv (monitor ECG) | 7 Peak flow before & after each nebulizer; normal values, see box   |
| 3 Prednisolone soluble tabs, 1–2mg/kg to max 40mg (60mg if already on steroids & $<12\text{yr}$ ), 50mg $>12\text{y}$           | 8 Nebulizers as needed, eg at 30 min, 1h, 2h, 3h & 4h with ipratropium 0.25mg mixed in if needed  |
| 4 Oxygen nebulised ipratropium 250 $\mu\text{g}$ if $<12\text{y}$ , 500 $\mu\text{g}$ if $>12\text{y}$                          | 9 Take to ITU if exhausted, confused, coma, or refractory to R <sub>x</sub> and needing iv salbutamol (2 $\mu\text{g/kg/min}$ )                   |
| 5 ★ Aminophylline 5mg/kg iv over 20min (not if already on a xanthine); then IVI aminophylline (box)                             |   |

# Al-Khair

## Management of acute COPD

### Nebulized bronchodilators

Salbutamol 5mg/4h and ipratropium 500µg/6h

Investigate: CXR, ABG

### Controlled oxygen therapy if $S_aO_2 < 88\%$ or $P_aO_2 < 7$ kPa

Start at 24-28%, aim sats 88-92% (94-98% if no hypercapnia on ABG)  
Adjust according to ABG, aim  $P_aO_2 > 8.0$  kPa with a rise in  $P_aCO_2 < 1.5$  kPa<sup>25</sup>

### Steroids

IV hydrocortisone 200mg and oral prednisolone 30mg OD (continue for 7-14d)

### Antibiotics

Use if evidence of infection, eg amoxicillin 500mg/8h PO, alternatively clarithromycin or doxycycline (p381)

Physiotherapy to aid sputum expectoration

### If no response to nebulizers and steroids:

Consider IV aminophylline<sup>1</sup>

### If no response

**1** Consider non-invasive positive pressure ventilation<sup>2</sup> (NIPPV) if respiratory rate  $> 30$  or pH  $< 7.35$ , or  $P_aCO_2$  rising despite best medical treatment

**2** Consider intubation and ventilation if pH  $< 7.26$  and  $P_aCO_2$  is rising despite non-invasive ventilation

**3** Consider a respiratory stimulant drug, eg doxapram 1.5-4mg/min IV. SE: agitation, confusion, tachycardia, nausea. In patients who are not suitable for mechanical ventilation. It is a short-term measure, used only if NIV is not available

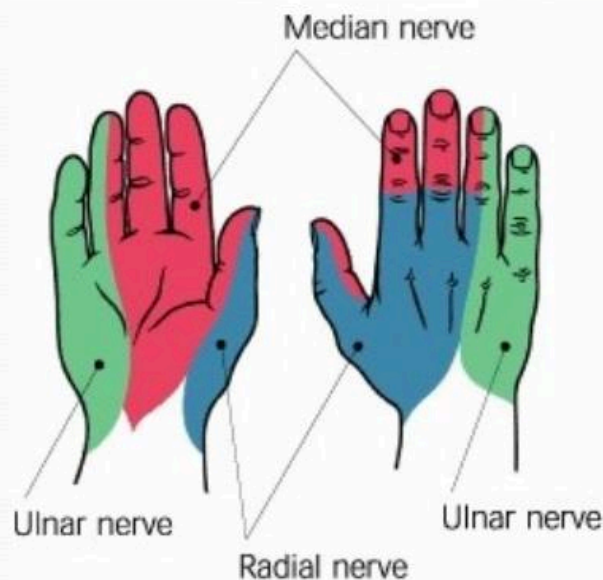
Al-Khair

Al-Khair

## Bones/Nerves Deformity

<b>Ulnar</b>	<ul style="list-style-type: none"> <li>- <b>Claw Hand</b></li> <li>- Little and Ring (half) finger (abduct and adduct)</li> <li>- Ligament damage =&gt; game keeper thumb/skiing</li> </ul>
<b>Radial</b>	<ul style="list-style-type: none"> <li>- Wrist drop</li> </ul>
<b>Medial</b>	<ul style="list-style-type: none"> <li>- Thenar muscles</li> <li>- Hand of benediction (ape hand)</li> </ul>
<b>Dinner Fork (Colles)</b>	<ul style="list-style-type: none"> <li>- Backward angulation</li> <li>- Median nerve</li> </ul>
<b>Garden Spade (Smith)</b>	<ul style="list-style-type: none"> <li>- Median nerve</li> <li>- Forward angulation</li> </ul>
<b>Gun Stock deformity (Cubitus Varus)</b>	<ul style="list-style-type: none"> <li>- Due to supracondylar fx of humerus</li> <li>- Ulnar nerve associated</li> </ul>
<b>Humerus Neck fx</b>	- Axillary nerve
<b>Humerus Shaft fx</b>	- Radial nerve
<b>Femur Neck fx</b>	- Sciatic (can't move or lift leg)
<b>Femur Shaft fx</b>	- Femoral nerve
<b>Fibula Neck fx</b>	- Peroneal nerve
<b>Inner side of thigh</b>	- Obturator nerve

## Hand Dermatomes



## Carcinoma of the Oesophagus

Risk factors:

- Diet
- Alcohol excess
- Smoking
- Achalasia
- Plummer Wilson Syndrome (IDA → treat by IRON)
- Reflux Oesophagitis
- Barret's oesophagus

Site:

- Middle of oesophagus

Presentation:

- Progressive dysphagia (solids then liquids)
- Old age
- Anaemia (pallor, fatigue, palpitations, anorexia)
- Weight loss
- Retrosternal chest pain
- Hoarseness
- Cough

Investigation:

- Barium swallow (initial)
- Endoscopy
- Oesophagostomy with biopsy (definitive)

Treatment:

- Radical curative oesophagectomy
- Surgery
- Chemoradiotherapy may be better if surgery contraindicated

A patient presents with longstanding gastric reflux, dysphagia and chest pain. On barium enema, dilation of oesophagus with tapering end is noted. He was found with Barret's oesophagus. He had progressive dysphagia to solids and then liquids. What is the single most appropriate dx?

- Achalasia
- Oesophageal spasm
- GERD
- Barrett's oesophagus
- Oesophageal carcinoma**

Ans. The key is E. Oesophageal carcinoma. [there is dilatation in oesophagus which is seen both in achalasia and carcinoma. Dysphagia to solid initially is very much suggestive of carcinoma and also Barrett's change is a clue to carcinoma]

A 40yo woman complains of dysphagia for both solids and liquids. She sometimes suffers from severe retrosternal chest pain. Barium swallow reveals a dilated oesophagus which tapers to a fine distal end. What is the best management strategy?

- a. Reassurance
- b. Antispasmodics
- c. Dilatation of the LES**
- d. Endoscopic diverticulectomy
- e. Barium swallow

Ans. The key is C. Dilatation of LES. [Dysphagia for both solids and liquids suggest neuromuscular dysphagia while dysphagia only for solid suggests mechanical obstruction. Here features are consistent with achalasia]

A 55yo female presented with anaemia and dysphagia. There is a feeling of something stuck in the throat. The oesophagus can't be negotiated beyond the crico-pharynx. What is the most probable dx?

- a. Foreign body
- b. Plummer vinson syndrome**
- c. Pharyngeal carcinoma
- d. Barret's oesophagus
- e. Oesophageal carcinoma**

Ans. The key is B. Plummer Vinson syndrome. [The picture fits two D/D. 1. Plummer Vinson syndrome 2. Oesophageal carcinoma. Lower oesophageal stricture is more common for Ca. So, presenting case is likely a case of Plummer Vinson syndrome. It can be differentiated by the type of anaemia. If it is IDA dx is Plummer Vinson syndrome].



## Carcinoma of the Oesophagus

Risk factors:

- Diet
- Alcohol excess
- Smoking
- Achalasia
- Plummer Wilson Syndrome (IDA → treat by IRON)
- Reflux Oesophagitis
- Barret's oesophagus

Site:

- Middle of oesophagus

Presentation:

- Progressive dysphagia (solids then liquids)
- Old age
- Anaemia (pallor, fatigue, palpitations, anorexia)
- Weight loss
- Retrosternal chest pain
- Hoarseness
- Cough

Investigation:

- Barium swallow (initial)
- Endoscopy
- Oesophagostomy with biopsy (definitive)

Treatment:

- Radical curative oesophagectomy
- Surgery
- Chemoradiotherapy may be better if surgery contraindicated

A patient presents with longstanding gastric reflux, dysphagia and chest pain. On barium enema, dilation of oesophagus with tapering end is noted. He was found with Barret's oesophagus. He had progressive dysphagia to solids and then liquids. What is the single most appropriate dx?

- Achalasia
- Oesophageal spasm
- GERD
- Barrett's oesophagus
- Oesophageal carcinoma**



Ans. The key is E. Oesophageal carcinoma. [there is dilatation in oesophagus which is seen both in achalasia and carcinoma. Dysphagia to solid initially is very much suggestive of carcinoma and also Barrett's change is a clue to carcinoma]

A 40yo woman complains of dysphagia for both solids and liquids. She sometimes suffers from severe retrosternal chest pain. Barium swallow reveals a dilated oesophagus which tapers to a fine distal end. What is the best management strategy?

- a. Reassurance
- b. Antispasmodics
- c. Dilatation of the LES**
- d. Endoscopic diverticulectomy
- e. Barium swallow

Ans. The key is C. Dilatation of LES. [Dysphagia for both solids and liquids suggest neuromuscular dysphagia while dysphagia only for solid suggests mechanical obstruction. Here features are consistent with achalasia]

A 55yo female presented with anaemia and dysphagia. There is a feeling of something stuck in the throat. The oesophagus can't be negotiated beyond the crico-pharynx. What is the most probable dx?

- a. Foreign body
- b. Plummer vinson syndrome**
- c. Pharyngeal carcinoma
- d. Barret's oesophagus
- e. Oesophageal carcinoma**

Ans. The key is B. Plummer Vinson syndrome. [The picture fits two D/D. 1. Plummer Vinson syndrome 2. Oesophageal carcinoma. Lower oesophageal stricture is more common for Ca. So, presenting case is likely a case of Plummer Vinson syndrome. It can be differentiated by the type of anaemia. If it is IDA dx is Plummer Vinson syndrome].

177. An 8 month old child had a congenital heart murmur which disappeared at the age of one. What is the most likely diagnosis?

- A. Ventricular Septal Defect
- B. Atrial Septal Defect
- C. Patent Ductus Arteriosus
- D. Innocent Murmur
- E. Mitral Regurgitation

158. A child suddenly squats while playing. He is on 70% O<sub>2</sub>. What is the most probable diagnosis?

- A. Tetralogy of Fallot
- B. Patent Ductus Arteriosus (PDA)
- C. Pulmonary stenosis
- D. Aortic stenosis
- E. Mitral regurgitation

78. A 30 year old man who is an IV drug abuser presents with shortness of breath on exercise. What is the most likely location of his lesion.

- A. Lungs
- B. Aortic valve
- C. Mitral valve
- D. Tricuspid valve

198. A 68 year old man gets repeated attacks of loss of consciousness and TIA. What is the most likely cause for this?

- A. Carotid artery stenosis
- B. Aortic stenosis
- C. Mitral stenosis
- D. Tricuspid stenosis

21. A 75 year old lady who had mitral valve replacement 13 years ago has developed recurrent breathlessness. Her husband has noticed prominent pulsation in her neck. She complains of abdominal pain and ankle swelling. What is the most probable diagnosis?

- A. Aortic Regurgitation
- B. Mitral Regurgitation
- C. Mitral Stenosis
- D. Tricuspid Regurgitation
- E. Pulmonary Stenosis

79. A 60 year old lady who had stroke three years ago now reports having increased dyspnea on

exertion, she has atrial fibrillation. On the chest X-ray there is a straight left border on the cardiac silhouette. What is the most probable diagnosis?

- A. Aortic Regurgitation
- B. Ischemic Mitral Regurgitation
- C. Mitral Valve Prolapse
- D. Pulmonary Stenosis
- E. Rheumatic Mitral Valve Stenosis

69. A 72 year old man has been advised for some year to have antibiotic prophylaxis before dental treatment. He has never experienced chest pain. Three weeks ago he noticed breathlessness on exertion and for one week. He had orthopnea. His pulse character is normal. What is the most probable diagnosis?

- A. Aortic Regurgitation
- B. Ischemic Mitral Regurgitation
- C. Mitral Valve Prolapse
- D. Pulmonary Stenosis
- E. Rheumatic Mitral Valve Stenosis

76. A 43 year old lady is admitted with pyrexia, arthropathy, breathlessness and syncope. She was recently diagnosed as having Pulmonary Emboli. There is early diastolic sound and a mid-diastolic rumble. Her jugular venous pressure (JVP) is elevated with prominent a waves. What is the most likely cause from below options?

- A. Mitral regurgitation
- B. Ventricular ectopics
- C. Pulmonary regurgitation
- D. Atrial Myxoma
- E. Complete heart block

89. A 67 year old man had successful thrombolysis for an inferior myocardial infarction one month ago, and he was discharged after 5 days. He is now readmitted having pulmonary oedema. What is the most probable diagnosis?

- A. Aortic Regurgitation
- B. Ischemic Mitral Regurgitation
- C. Mitral Valve Prolapse
- D. Pulmonary Stenosis
- E. Rheumatic Mitral Valve Stenosis

# Al-Khair

## CLINCHERS

1. Man with excruciating pain + loss of pulses + irregular pulse + pan systolic murmur -----  
Embolus
2. One week hx of bloody diarrhoea + lower abdominal pain ----- **GASTROENTERITIS** not UC
3. Pulmonary embolism lady contraception ----- IUS
4. Young man with discomfort in groin area + scrotal swelling ----- OPD referral
5. Skiing ----- Game keeper thumb
6. 48yr old + HTN + LIF pain + haematuria ----- USG (diverticulosis)
7. 18yr old girl with menorrhagia + dysmenorrhea wants contraception ----- Mirena
8. Otitis media associated with meningitis (complication)
9. Injury while playing football + condylar fracture of tibia ----- **Genu Valgus**
10. Yellow ulcer which turns red when dangling ----- Arterial Ischemic Ulcer
11. Lady returned from Egypt comes with cough + purulent sputum + chest pain + blood streaks -----  
--- **PNEUMONIA**
12. Ulcer on malleolus ----- Venous stasis ulcer
13. Flail chest ----- Analgesia first
14. Loss of distal pulses + unwell prior to disease + paraesthesia ----- Takayasu arteritis
15. Herniorraphy in adults----- Herniotomy in children
16. G6PD ----- x linked recessive
17. Haemorrhagic Telangiectasia ----- Autosomal dominant
18. Infant with hypothermia + palpable liver ----- **SEPSIS**
19. IgM is acute + IgG is past infection
20. Red lesion on posterior lip of cervix ----- Do punch biopsy
21. Old man with pain + claudication + having A-fib ----- Acute limb ischemia

22. Anti-centromere in CREST/Limited SS
23. Drug with lack of autonomic S/E ----- Diazepam in violent patient
24. Old woman + chest infection + verbally abusive + perceptual abnormalities ----- Delirium (not dementia)
25. Absent bowel sounds ----- X ray abdomen erect
26. Anastomotic leak ----- CT
27. Post-cholecystectomy pain ----- ERCP (choledocholithiasis)
28. Pancreatitis ----- Amylase + CT (gold standard)
29. Cholecystitis ----- USG/CT (RUQ pain radiating to scapula=murphy's sign)
30. Cholangitis ----- ERCP (**TRIAD** = fever + pain + jaundice)
31. PBS ----- ERCP/USG initial
32. Hematemesis ----- GI endoscopy
33. College student + GCS 12/15 ----- Blood glucose first
34. Absent distal pulses + murmur ----- Embolus
35. Smoker + claudication + orthopnoea ----- Atherosclerosis
36. TIA ----- Initial (Doppler USG)
- Definitive (arteriography/angiography)
37. Young man + SOB chest pain + no pmh ----- Pneumothorax

Trigeminal neuralgia: shooting /electrical /striking pain on face

Hypoglossal lesion : deviation of the tongue the same side .

Anterior resection : ca rectum .

Broad spectrum antibiotics before anesthesia .

Type 1 : Mobitz

Prolongation PR interval .

Type 2 : fixed PR and then drop .

\*

Echo : any structural abnormality : murmur

Stokes Adam : 24 hour ECG ambulatory

\* Distal radius -- Dorsal displacement -- Coole's fracture (dinner fork)

Distal radius -- ventral displacement -- smith's fracture

(Garden spade )

Punch biopsy : Paget's disease ( hearing plus bone issues )

Raised alkaline phosphatase

Trabecular pattern .

Huntington's / PKD : autosomal dominant

Pyoderma gangrenosum : IBD

Erythema marginatum : rheumatic fever

Erythema nodosum : sarcoidosis

Erythema multiforme : antibiotics

Asthma : danger signs

Silent chest : cyanosis : pefr less than 33 percent .

Barrett's esophagus : columnar metaplasia

Traveller's diarrhoea

2-3 days : E. coli

2 weeks : giardiasis

Male , cluster headache : lacrimation eye ☹

Exercise induced :

Sodium cromoglycate

Intermittent asthma :

Montelukast

Contraception :

Sickle cell : depot provera

Screwdrivers : biceps involved

Usage

Stoetatic biopsy ( breast lump not seem : microcalcification )

Asbestos workers : mesothelioma/ bronchial ca

Teetotal lady / 2-3days / Hosp state : insects etc : drug toxicity

(As they don't drink alcohol)

Hot flushes --- clonidine

Alpha tripsin -- lungs and liver issues

NGT curled : diaphragmatic rupture .

Young male -- paracetamol intake leads to jaundice -- Gilbert's syndrome .

Ulcerative colitis : colonoscopy plus biopsy

Celiac disease : jejunal biopsy

Harsh pansystolic murmur : VSD

Post MI : pink frothy / edema -- left vent failure  
Post MI : during Hosp stay (2/3 days ) pericarditis  
Treat with nsoids

\*\*

Tall , thin male collapse :

Basketball player ~~19~~

-- increasing SOB--pneumothorax (spontaneous )

Chest X-ray .

\*\* vaginal discharge : acidic : trichomonas

Treat with metro .

Alkaline ph: pv discharge : bact vaginosis (gardenella)

Multiple ulcer/ painful lymphadenopathy : hemophilus Ducreyia (take swab )

Red beefy ulcer --- granuloma inguinale

Head of humerus : axillary nerve

Shaft : radial nerve : wrist drop

Ulnar nerve : claw hand

Median nerve : carpal tunnel syndrom

Risperidone/haloperidol cause erectile dysfunction (antipsychotics )

Cocaine: dilated pupils plus nasal septal involvement

Paraquat--- weed killer -- farmers --

Professional athlete -- amenorrhea-- hypothalamic failure

Atrial flutter -- saw tooth on ecg .

Partial seizure : carbamazepine

Myoclonic seizure - sodium valproate

Absence seizure ; ethosuximide

Grandmal seizure : sodium valproate

I/m benzodiazepines can cause cold abscess

UC : goblet cell depletion

\*African caribbean -- sarcoidosis --

If female , fibroids \*

Hypertension with hypokalemia: conn's syndrome

Rockerbottom feet-- Edwards syndrome 18

Stop coxibs : 4 weeks prior to surgical procedure

lucd contraindication : fibroids distorting uterine cavity

..

\*Implants preferred \*

Course tremors : caused by lithium .

POP for those concerned about cervical cancer And fam hx present .

Squamous cell ca: everted edges , bleed on touch .

Sun exposed areas

Medial malleus ulcer : Venous

Uphill walking issues : popliteal cyst rupture

Loss of dorsiflexion : common peroneal nerve .

Pearly umbilicated ulcer : molluscum contagiosum

Kaposi sarcoma : HHP and HIV

Acne rosacea: red flushing of face after spicy food & n alcohol .

Al-Khair

Herald patch : hhv8 (self limiting )  
wPrince William and Princess Diana. Bill Clinton. Renee Zellweger. Cameron Diaz  
Are the victims .  
;) )  
Uterine atony : prolonged labour  
Treat with oxytocin  
Punched out ulcer -- dangling out of bed -- arterial ulcer  
Long flight -- anxiety -- diazepam  
Before interview -- anxiety -- propranolol  
Down syndrome : 21 : Alzheimer's  
bed wetting  
ALL  
Pepper pot skull ☒ : esr raised : multiple myeloma : bench john proteins -- old age plus  
backache .  
Old age plus spontaneous rectal bleeding -- angiodysplasia  
Pancreatic cancer -- ca 199  
Breast cancer -- ca 153  
Forest - Lyme disease-- erythema migrans -- tick -- doxycycline  
Acute migraine - 900mg aspirin  
Prophylactically -- sumatriptan n propranolol  
CIN2--- colposcopy  
Bed ridden patient --- percutaneous gastrostomy  
Transudate -- protein less than 30 -- ccf/ liver cirrhosis  
Hard pallet like stools -- anal fissure .  
Long standing constipation n pain ..  
Refuses PR .  
VUR-- MCU  
Surgery required .  
Migraine plus phobia : depot progesterone  
MI / depression : citalopram/sertraline  
Hoarseness of voice with HH : ENT surgeon  
Cocaine user : MI :  
Young male .  
DVT plus pulmonary embolism : mirena should be given  
Patchy consolidation : legionella : posh holidays !!  
Pneumonia .  
Pregnancy : otosclerosis



## Contraception

Al-Khair

268. A 20yo young lady comes to the GP for advice regarding cervical ca. she is worried as her mother past away because of this. She would like to know what is the best method of contraception in her case?

- a. POP
- b. Barrier method
- c. IUCD
- d. COCP
- e. IUS

Ans. The key is A. POP. Probably wrong key! Correct key should be B. Barrier method! [spermatozoa itself acts as a carcinogen !!! So, barrier method is the best protection from the given option!!].

273. A 24yo woman presents with deep dyspareunia and severe pain in every cycle. What is the initial inv?

- a. Laparoscopy
- b. Pelvic US
- c. Hysteroscopy
- d. Vaginal Swab

Q. 1. What is the key?

Q. 2. What is the likely diagnosis?

Q. 3 What is the treatment?

Ans. 1. The key is B. Pelvic US.

Ans. 2. The likely diagnosis is endometriosis.

Ans. 3. Treatment: There is no cure for endometriosis, but a number of treatments may improve symptoms. This may include pain medication [NSAIDs such as naproxen], hormonal treatments [COCP, or mirena], or surgery [Surgical removal of endometriosis when other measures fail].

279. Which method of contraception can cause the risk of ectopic pregnancy?

- a. COCP
- b. IUCD
- c. Mirena
- d. POP

Ans. The key is B. IUCD.

296. A 24yo girl comes to the woman sexual clinic and seeks advice for contraception. She is on sodium valproate.

- a. She can't use COCP
- b. She can use COCP with extra precaution
- c. She can use COCP if anticonvulsant is changed to carbamazepin.
- d. She can use COCP with estrogen 50ug and progesterone higher dose
- e. She can use COCP

Ans. The key is E. She can use COCP. [sodium valproate has no effect on cocp]

313. A 45yo lady came to family planning clinic for contraception advice. She is not keen to be pregnant for the next 3yrs. Her recent US showed multiple small submucosal fibroid. What is the best method of contraception for her?

- a. Etonogestrol
- b. COCP
- c. IUS
- d. POP
- e. IUCD

Ans. The key is C. IUS. [IUS gives 3-5 yrs long contraception. It also helps to shrink the fibroid].

Al-Khair

674. A 42yo overweight smoker comes with heavy periods. A scan reveals a normal uterus. She would like a long term tx with minimal side effects that would offer tx for the menorrhagia and provide contraception. She is unsure whether she would like more children. She is adamant that she doesn't want surgery as she is terrified of the prospect. Select the best management for her menorrhagia?

- a. COCP
- b. GrH analogues
- c. IU/systemic progesterone
- d. NSAIDs
- e. Copper containing IUCD

Ans. The key is C. IU/systemic progesterone. [As patient is smoker, COCP should be avoided. In the given case option C. i.e. mirena is most suitable].

962. A 53yo lady presents with hot flash and night sweats. Her LMP was last year. She had MI recently. What is the most appropriate management for her?

- a. Raloxifene
- b. Estrogen
- c. COCP
- d. Evening primrose
- e. Clonidine

Ans. The key is C. COCP. [COCP has very little effect in stroke or MI and hence can be used to treat post menopausal symptoms in those patients].

985. A 28yo lady presents with dyspareunia and dysmenorrhea. She is very obese. She now wants reversible contraceptive method. Which of the following will be most suitable for her?

- a. Mirena
- b. COCP
- c. POP
- d. Copper T
- e. Barrier method

Ans. The key is A. Mirena.

988. A 32yo woman wants reversible form of contraception. She has one child delivered by emergency C-section. She also suffers from migraine and heavy periods. What is the most suitable form of contraception for this lady?

- a. COCP
- b. Mini pill
- c. IUCD
- d. Barrier method
- e. Abstinence

Ans. The key is C. IUCD. [In migraine can not give COCP. In menorrhagia mirena is effective. So the answer is IUCD (mirena coil)].

1103. A 40yo female was on COCP which she stopped 6m ago. But she has not had her periods since then. Labs: FSH=22, LH=24, prolactin=700, estradiol=80. What is the most appropriate dx?

- a. Hypothalamic amenorrhea
- b. Post pill amenorrhea
- c. Prolactinoma
- d. Pregnancy
- e. Premature ovarian failure

Ans. The key is E. Premature ovarian failure. [FSH and LH are raised in ovarian failure; an FSH level  $\geq 20$  IU/l in a woman aged under 40 with secondary amenorrhoea indicates ovarian failure].

\*1105. A 37yo lady stopped taking COCP 18m ago and she had amenorrhea for 12m duration. Labs: FSH=8, LH=7, prolactin=400, estradiol=500. What is the cause?

- a. Hypothalamic amenorrhea
- b. PCOS
- c. Prolactinoma

- d. Post pill amenorrhea
- e. POF

Al-Khair

Ans. The key is D. Post pill amenorrhea. [Post pill amenorrhea= failure to resume menses within 6 months but here initial 6 months there was menses!! again in post pill amenorrhea LH and FSH low also Oestrogen should be low but here oestrogen is high!! In post pill amenorrhea prolactin raised but in hypothalamic amenorrhea prolactin normal and oestrogen low. Actually the given picture does not fit to any condition given in options and probably a bad recall or erroneous question!!!].

1116. A lady presents with hot flashes and other symptoms of menopause. What is the tx option?

- a. Raloxifen
- b. HRT
- c. Bisphosphonate
- d. COCP
- e. Topical estrogen

Ans. The key is B. HRT

1119. A 30yo lady who already has one child through a prv C-section demands a reversible contraception. She presently experiences heavy and painful periods. What is the most appropriate contraceptive you will recommend for her?

- a. COCP
- b. POP
- c. Implanon
- d. Danazol
- e. Mirena
- f. IUCD

Ans. The key is E. Mirena.

1132. A 42yo woman who smokes 20 cigarettes/d presents with complains of heavy bleeding and prolonged menstrual period. What is the most appropriate tx for her?

- a. Tranexemic acid
- b. COCP
- c. Mefenemic acid
- d. IUCD
- e. Norethisterone

Ans. The key is D. IUCD [IUCD = copper-T + IIUS. Here it is IUS which should be given]. [In regular menstruation with menorrhagia: - i) LNG-IUS ii) tranexamic acid or NSAIDs or COCP iii) Norethisterone or injectable long acting progestogen NICE].

1133. A 17yo senior school girl with complain of prolonged irregular menstrual period and heavy blood losses. What is the most appropriate tx for her?

- a. Mefenemic acid
- b. COCP
- c. POP
- d. IUCD
- e. Mirena

Ans. The key is B. COCP. [In irregular period: COCP except the contraindications for it and in that case POP should be used].

1134. A 32yo presents with heavy blood loss, US: uterine thickness>14mm. What is the most appropriate tx for her?

- a. Mefenemic acid
- b. COCP
- c. POP
- d. IUCD
- e. IU system (mirena)

Ans. The key is E. IU system (mirena). [Simple endometrial hyperplasia without atypia responds to high-dose progestogens, with repeat histology after three months. This can be effectively delivered by the levonorgestrel intrauterine system (IUS). Source: patient.info].

Al-Khair

# Al-Khair

1136. A woman with sickle cell disease complains of heavy menstrual blood loss. What is the most appropriate tx?

- a. COCP
- b. Mirena
- c. Depot provera
- d. Copper IUS
- e. Transdermal patch

Ans. The key is C. Depot provera. [Hormone and barrier methods are all acceptable choices but intrauterine devices are not recommended, as they may be associated with uterine bleeding and infection. Depot contraceptive (Depo-Provera®)]

1227. A 16yo girl who is normally fit and well attends her GP complaining of heavy and painful periods. She is requesting tx for these complaints. She denies being sexually active. Select the most appropriate management for her menorrhagia?

- a. Antifibrinolytics (tranexamic acid)
- b. COCP
- c. Endometrial ablation
- d. IUS progestogens (mirena)
- e. NSAIDs (mefenamic acid)

Ans. The key is A. Antifibrinolytics (tranexamic acid). It is a wrong key. Correct answer is E. NSAIDs (mefenamic acid)

1284. A 65yo lady presents with dyspareunia. What will you give her for her condition?

- a. HRT
- b. COCP
- c. Estrogen gel
- d. Testosterone gel

Ans. No key is given. Likely key is C. Estrogen gel. [Seems to be atrophic vaginitis for which estrogen gel can be given].

1286. A 32yo presents with heavy blood loss, US: uterine thickness>14mm. What is the best possible management for her?

- a. COCP
- b. UAE
- c. Hysteroscopy myomectomy
- d. Abdominal myomectomy
- e. Endometrial ablation

Ans. B. UAE. [COCP will not resolve the case. There is no fibroid so no myomectomy. Endometrial ablation may render the young lady non fertile. So UAE is the only suitable option here].

1508. A girl with sickle cell anemia has painful bleeding and vaso-occlusive crisis during her periods. What is the best possible management for this pt?

- a. COCP
- b. Tranexamic acid
- c. Copper IUS
- d. UAE
- e. Depot provera

Ans. The key is E. Depot provera. [Hormone and barrier methods are all acceptable choices but intrauterine devices are not recommended, as they may be associated with uterine bleeding and infection. Depot contraceptive]

1517. An 18yo girl has menorrhagia and dysmenorrhea and requires contraception. What drug will you give her?

- a. COCP
- b. Mirena coil
- c. Copper T
- d. UAE
- e. Depo provera

# Al-Khair

Ans. The key is A. COCP.

# Al-Khair

1537. An obese woman with hx of migraine presented with heavy bleeding during menstruation which is painful and needs contraception too. What is the best possible management for this pt?

- a. COCP
- b. Mirena coil
- c. Copper T
- d. UAE
- e. Depo provera

Ans. The key is B. Mirena coil.

1631. A 28yo woman who has had a prv pulmonary embolism in pregnancy wishes to discuss contraception. She has menorrhagia but is otherwise well. What is the SINGLE most suitable contraceptive method for this patient?

- a. COCP
  - b. Copper IUCD
  - c. Levonorgestrel intra-uterine system
  - d. Progestogen implant
  - e. POP
- Key: Levonorgestrel Intra-Uterine System (C)

Reason: The woman has a history of thromboembolic disease, which essentially rules out COCP. LNG-IUS (Mirena) is the hormone

# Al-Khair

CONTRACEPTIVES					
NAME	MOA	DOA	CONTRA INDICATIONS	ADVANTAGE	DISADVANTAGE
IUCD	Prevents fertilisation. Prevents ovulation.		Post-partum, Puerperal Sepsis, gestational trophoblastic disease, cervical cancer, endometrial cancer, unexplained vaginal bleeding, STI, Fibroids, HIV, SLE.	Very safe. Very effective. <b>Long term.</b>	Pain after insertion. Check regularly. <b>More risk of ectopic.</b> Moe risk of perforation. <b>Risk factor for PID</b>
COCp	Inhibits ovulation		Breast feeding, breast cancer, <b>Obesity bmi &gt;35, smoker (but if smoker and less than 35 yr of age COCP can be given if benefits outweigh the risks, migraine, htn, thrombophilia, Enzyme Inducers, Cirrhosis.</b>	Less menorrhagia. Less risk of ovarian cancer, uterine cancer, colon cancer. Normal fertility immediately after stopping. Less risk of osteoporosis. <b>Treatment for PCOS</b>	<b>Nausea, headaches, mood changes,</b> increase bp, less effective than IUCD, IUS, progesterone implants/injectable.
TRANSDERMAL CONTRACEPTIVE PATCH (COMBINED)	Inhibits ovulation		<b>Breast feeding, migraine, enzyme inducers, htn, sle.</b>	Place and forget	Irritates skin
PROGESTERONE ONLY PILL (POP)	Suppress ovulation		Breast cancer, stroke, cardiovascular disease.	Very effective, replacement of COCP, decrease risk of Endometrial cancer, fertility returns after stopping.	Same time each day, menstrual irregularities, less effective in obese, high risk of functional ovarian cyst, requires a minor surgical procedure, mood change and decrease libido, acne and <b>weight gain.</b>
PROGESTERONE ONLY INPLANT	Inhibits ovulation		Breast cancer, stroke, cvd.	Very effective, used when breastfeeding, decreased risk of endometrial cancer, no serious s/e.	
PROGESTERONE ONLY INJECTIBLES			Breast cancer, risk of osteoporosis.	Very effective, used in <b>migraine</b> , used with liver enzyme inducers, obese.	Menstrual irregularities, <b>decrease bone mineral density</b> , not rapidly reversible,

INTRAUTERINE SYSTEM	Prevents implantation of fertilised ovum	<b>3 - 5 years</b>	Pregnancy, puerperal sepsis, breast, cervical, endometrial cancer, PID, STI, TB, unexplained vaginal bleeding.	Very safe and effective, <b>useful for menorrhagia</b> , can be used in breastfeeding. Used for regular heavy bleeding. <b>Useful for SMALL FIBROIDS.</b>	<b>Unacceptable vaginal bleeding</b> (breakthrough bleeding)
<b>EMERGENCY CONTRACEPTIVES</b>					
LEVONOGESTREL (LEVONELLE)	Progesterone <b>effective within 72 hrs</b> Inhibits Ovulation		Hypersensitive to Levonogestrel Acute Porphyria Severe Liver Disease	Ready available without prescription. <b>Can be used in Migraine &amp; if hx of thromboembolism.</b> Can be taken in breastfeeding.	Repeated dose needed. Less effective than IUCD. Less effective with enzyme inducers
ULIPRISTAL ACETATE (ELLAONE)	Inhibition/delay of ovulation. <b>Effective within 120 hrs (5days)</b>		Severe liver disease Repeated dose within same menstrual cycle	Readily available	Less effective than IUCD. Less effective with PPI & Enzyme inducers.
COPPER IUCD	<b>120 hrs (5 days)</b>		Puerperal Sepsis, PID, Wilson diseases, Fibroids, Cervical Cancer Endometrial Cancer, STI	Most effective	Less readily available. Discomfort after insertion

**\*\*IMPLANON** = for extensive FIBROIDS ... under the arm – 3 years

**A 35yo lady who has been using IUCD for one year now complains of pelvic pain and heavy painful periods. Select the most likely cause leading to her symptoms?**

- PID
- Endometriosis
- Adenomyosis
- Fibroids
- Asherman syndrome

The given picture may have D/D of PID or fibroid. As IUCD is a risk factor for PID, it is the most likely diagnosis of given picture. Menorrhagia for fibroids are usually painless].

**Which method of contraception can cause the risk of ectopic pregnancy?**

- a. COCP
- b. IUCD
- c. Mirena
- d. POP

Ans. The key is B. IUCD.

**A 45yo lady came to family planning clinic for contraception advice. She is not keen to be pregnant for the next 3yrs. Her recent US showed multiple small submucosal fibroid. What is the best method of contraception for her?**

- a. Etonogestrol
- b. COCP
- c. IUS
- d. POP
- e. IUCD

Ans. The key is C. IUS. [IUS gives 3-5 yrs long contraception. It also helps to shrink the fibroid].

**A 42yo overweight smoker comes with heavy periods. A scan reveals a normal uterus. She would like a long term tx with minimal side effects that would offer tx for the menorrhagia and provide contraception. She is unsure whether she would like more children. She is adamant that she doesn't want surgery as she is terrified of the prospect. Select the best management for her menorrhagia?**

- a. COCP
- b. GrH analogues
- c. IU/systemic progesterone
- d. NSAIDs
- e. Copper containing IUCD



Ans. The key is C. IU/systemic progesterone. [As patient is smoker, COCP should be avoided. In the given case option C. i.e. mirena is most suitable].

**A 32yo woman wants reversible form of contraception. She has one child delivered by emergency C-section. She also suffers from migraine and heavy periods. What is the most suitable form of contraception for this lady?**

- a. COCP
- b. Mini pill
- c. IUCD
- d. Barrier method
- e. Abstinence

Ans. The key is C. IUCD. [In migraine cannot give COCP. In menorrhagia mirena is effective. So, the answer is IUCD (mirena coil)].

**A 28yo lady presents with dyspareunia and dysmenorrhea. She is very obese. She now wants reversible contraceptive method. Which of the following will be most suitable for her?**

- a. Mirena
- b. COCP
- c. POP
- d. Copper T
- e. Barrier method

Ans. The key is A. Mirena.

**A 30yo lady who already has one child through a prv C-section demands a reversible contraception. She presently experiences heavy and painful periods. What is the most appropriate contraceptive you will recommend for her?**

- a. COCP

- b. POP
- c. Implanon
- d. Danazol
- e. Mirena
- f. IUCD

Ans. The key is E. Mirena.

**A 20yo young lady comes to the GP for advice regarding cervical ca. she is worried as her mother past away because of this. She would like to know what is the best method of contraception in her case?**

- a. POP
- b. Barrier method
- c. IUCD
- d. COCP
- e. IUS

key should be B. Barrier method! [spermatozoa itself acts as a carcinogen!! So, barrier method is the best protection from the given option!].

**A 53yo lady presents with hot flash and night sweats. Her LMP was last year. She had MI recently. What is the most appropriate management for her?**

- a. Raloxifene
- b. Estrogen
- c. COCP
- d. Evening primrose
- e. Clonidine

Ans. The key is C. COCP. [COCP has very little effect in stroke or MI and hence can be used to treat post menopausal symptoms in those patients].

**A 32yo presents with heavy blood loss, US: uterine thickness>14mm. What is the most appropriate tx for her?**

- a. Mefenemic acid
- b. COCP
- c. POP
- d. IUCD
- e. IU system (mirena)

Ans. The key is E. IU system (mirena). [Simple endometrial hyperplasia without atypia responds to highdose progestogens, with repeat histology after three months. This can be effectively delivered by the levonorgestrel intrauterine system (IUS). Source: patient.info].

**A 17yo senior school girl with complain of prolonged irregular menstrual period and heavy blood losses. What is the most appropriate tx for her?**

- a. Mefenemic acid
- b. COCP
- c. POP
- d. IUCD
- e. Mirena

Ans. The key is B. COCP. [In irregular period: COCP except the contraindications for it and in that case POP should be used].

**A 28yo woman who has had a prv pulmonary embolism in pregnancy wishes to discuss contraception. She has menorrhagia but is otherwise well. What is the SINGLE most suitable contraceptive method for this patient?**

- a. COCP
- b. Copper IUCD
- c. Levonorgestrel intra-uterine system
- d. Progestogen implant
- e. POP

Key: Levonorgestrel Intra-Uterine System (C)  
Reason: The woman has a history of thromboembolic disease, which essentially rules out COCP. LNG-IUS (Mirena) is the hormone releasing device that is most suitable in this patient with thrombophilia and menorrhagia.

Al-Khair

Al-Khair

## CURB-65

Al-Khair

1 point for each

**C** – confusion

**U** – urea > 7mmol/ L (normal 2.5 – 6.7 mmol/L)

**R** – respiration rate >30/m (normal 12-16)

**B** – BP <90 systolic and/or 60mmhf diastolic

**65** – age 65 or above

To check for the **severity of pneumonia** to see whether they need to be hospitalised

- 1) 0-1 → Home treatment
- 2) 2 → Hospital therapy
- 3) 3 or more → severe pneumonia → consider ITU

Al-Khair

1.	<p>Ankle swelling + Orthopnoea = HF</p> <p>Alcoholic = Alcoholic cardiomyopathy</p> <p>Atrial Fibrillation</p> <p><i>Holiday heart syndrome = acute alcohol intake</i></p>
2.	<p>Post MI mx = <b>CAB</b> → Clopidogrel (12 Months), Aspirin (Life), <b>BB</b></p> <p><b>BAS</b> → <b>BB</b> (12 Months without HF, Life with HF), <b>ACE/ARB</b>, <b>Statin</b></p>
3.	<p>Atrial Myxoma – A- Waves mimics MS (mid diastolic rumble)</p> <p>Fever/Malaise/Tachycardia/Tachypnea</p> <p><i>Mitral Valve obstruction</i></p>
4.	Dressler (Post MI four weeks) – pleural pain/ pneumonitis/pericarditis → tx= NSAIDS
5.	<p>Pericarditis – relieve pain sitting forward</p> <p>Pericarditis → SADDLE SHAPE ST Elevation, PR segment decrease</p> <p><b>Tx: NSAIDS</b></p>
6.	<p>SVT – Light headedness/ tachycardia/ palpitations</p> <ol style="list-style-type: none"> <li>1. Valsalva manoeuvre / carotid massage</li> <li>2. Adenosine IV</li> <li>3. Electrical Cardioversion</li> </ol> <p>Prevention: BB, Radio frequency ablation</p> <p><i>Rate: 130 - 220</i></p>
7.	<p>ARF – Hyperkalaemia:</p> <ul style="list-style-type: none"> <li>- tall tented T waves</li> <li>- wide QRS complexes</li> </ul>
8.	HF → Pulmo edema → X-RAY
9.	<p>Mitral valve stenosis (RVF) : straight left heart border (x-ray) left atrium enlarged</p> <p>Due to rheumatic fever (secondary to RF)</p> <p>Loud S1</p>
10.	<p>Cardiac tamponade (triad) → echocardiogram</p> <p>Chest X-ray = globular shaped heart</p>

## CVS

	Pericardiocentesis
11.	Syncope (collapse) common aortic stenosis → echo
12.	A Fib – BB (Metoprolol)
13.	Stroke – discharged → give warfarin to avoid A fib (high risk of another stroke)
14.	Thin septal wall thickness in <i>dilated cardiomyopathy</i>
15.	Common complication after repair of fallots tetralogy → pulmonary regurgitation
16.	CHF: <ul style="list-style-type: none"> <li>• ACE inhibitor + BB (carvedilol) → 1<sup>st</sup> line</li> <li>• Spironolactone → 2<sup>nd</sup> line</li> <li>• Digoxin → only if heart failure in comb with AF</li> </ul> ACE – If DM/ or sign of fluid retention BB – if person has angina
17.	Short PR interval + slurred upstroke + wide QRS complexes = WPW <- accessory pathway ablation Associated: <ul style="list-style-type: none"> <li>- <i>HOCM = BB prophylaxis</i></li> <li>- <i>Mitral valve prolapse</i></li> <li>- <i>Epstein anomaly</i></li> <li>- <i>Thyrotoxicosis</i></li> <li>- <i>Secundum ASD</i></li> </ul> Tx: <ul style="list-style-type: none"> <li>- Ablation accessory pathway</li> <li>- Medical therapy: <ol style="list-style-type: none"> <li><i>Sotalol – avoid if Atrial Fibrillation</i></li> <li><i>Amiodarone</i></li> <li><i>Flecainide</i></li> </ol> </li> </ul>
18.	Atrial Fibrillation: Rate Control – BB preferable to Digoxin <ol style="list-style-type: none"> <li>1) BB</li> <li>2) CCB</li> </ol>
19.	BB targets for clinic BP + Ambulatory: - Age < 80 years <b>Clinical</b> 140/90mmHG, <b>ABPM</b> 135/85mmHG Age > 80 years <b>Clinical</b> 150/90mmHg, <b>ABPM</b> 145/85mmHG

	LV Failure	RV Failure
Volume Overload (increase preload)	AR MR PDA	ASD TR
Pressure overload	Systemic HTN	Pulmonary HTN
Myocardial Disease	IHD Dilated Cardiomyopathy Restrictive Cardiomyopathy	Secondary to LHF

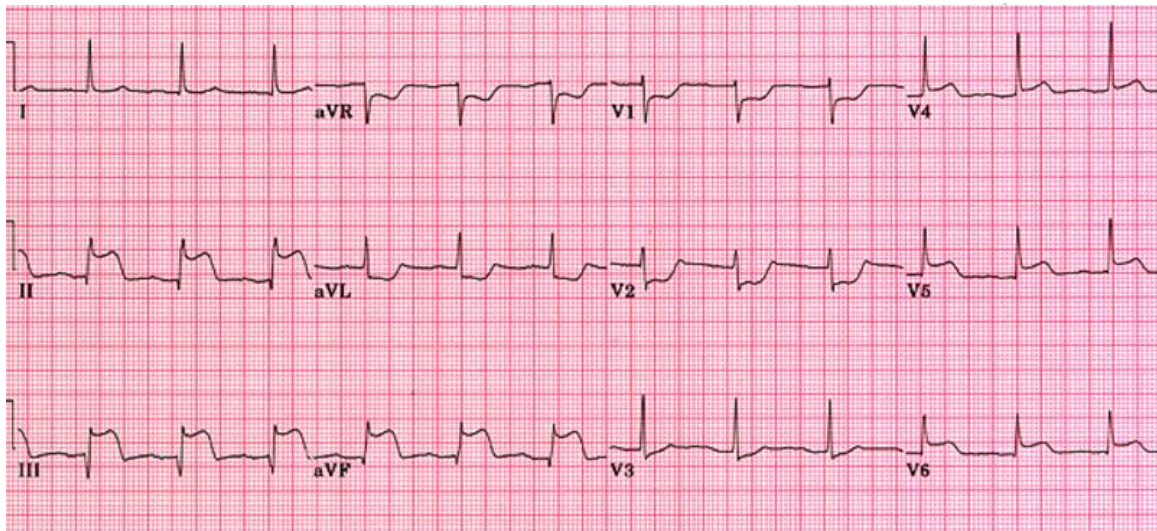
# Al-Khair

ECG ABNORMALITY	CLINICAL INTERPRETATION
<i>ST Elevation</i>	Acute MI / Pericarditis (saddle shaped)
<i>St Depression</i>	<ul style="list-style-type: none"><li>• Digoxin Toxicity</li><li>• Ischemia</li></ul>
<i>T Wave Inversion</i>	Acute Ischemia / Old MI
<i>Tall Tented T Wave</i>	Hyperkalaemia
<i>Short QT</i>	Hypercalcemia
<i>Prolonged QT</i>	Hypocalcaemia
<i>Widened QRS &gt; 0.12s</i>	Bundle Branch Block
<i>PR Interval Prolongation &gt; 200ms</i>	1 <sup>st</sup> Degree Heart Block
<i>PR Interval Shortened</i>	WPW Syndrome



## ECG QUESTIONS

Q. A 72 year old woman presents to the emergency department with chest pain. The following ECG was taken.

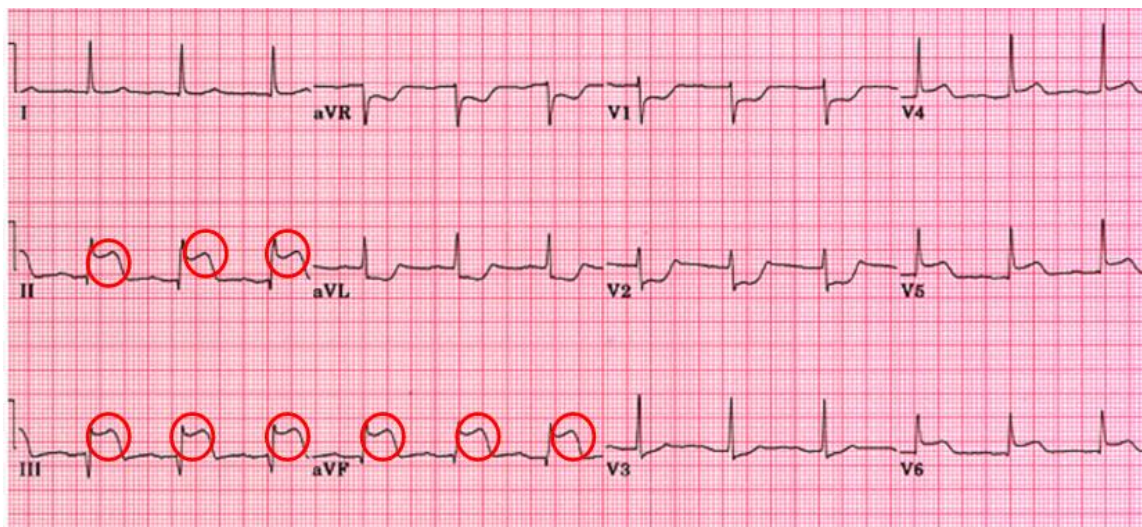


What is the SINGLE most likely diagnosis?

- A. Anteroseptal myocardial infarction
- B. Inferior myocardial infarction**
- C. Lateral myocardial infarction
- D. Posterior myocardial infarction
- E. Non-ST-elevation myocardial infarction

## EXPLANATION:

# Al-Khair



There are obvious ST elevation in leads II, III and aVF.

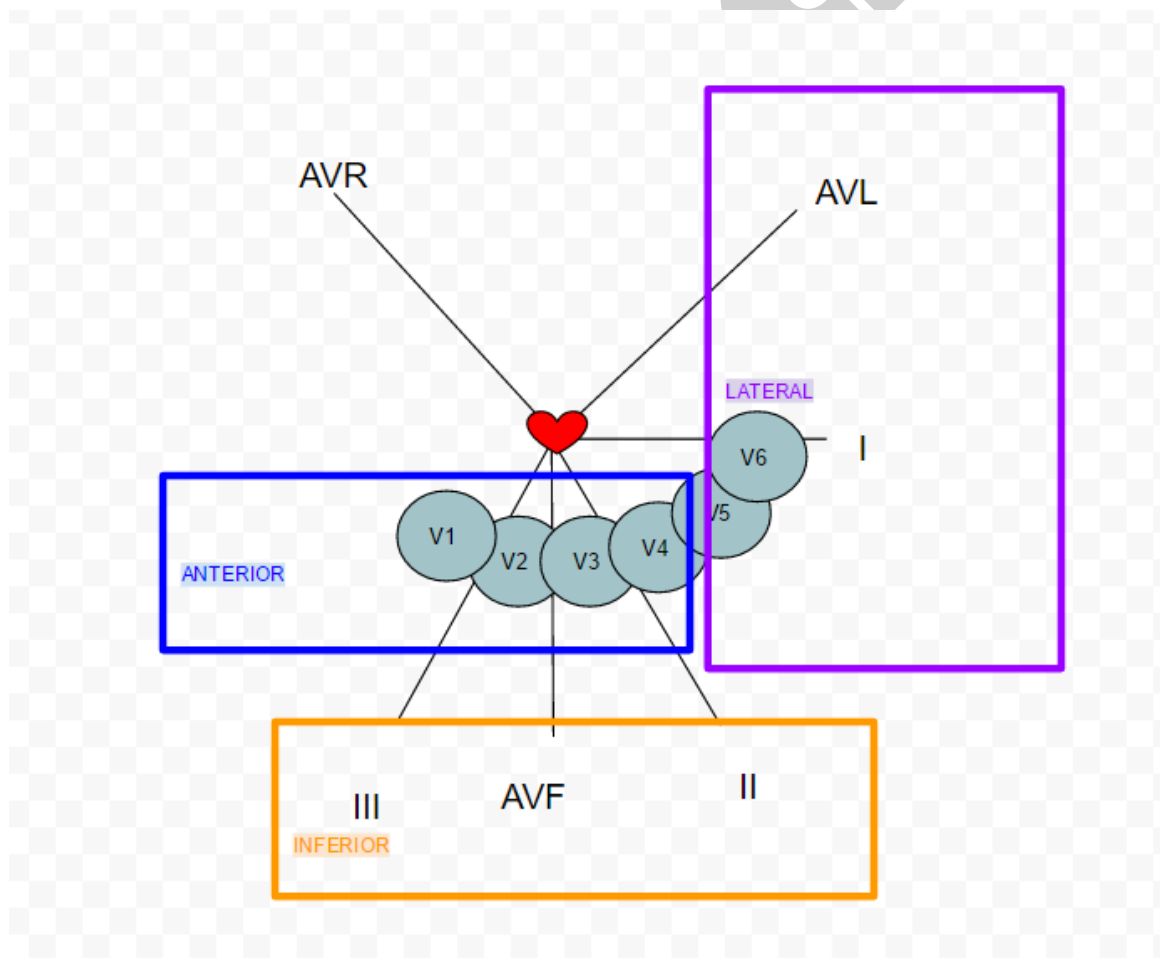
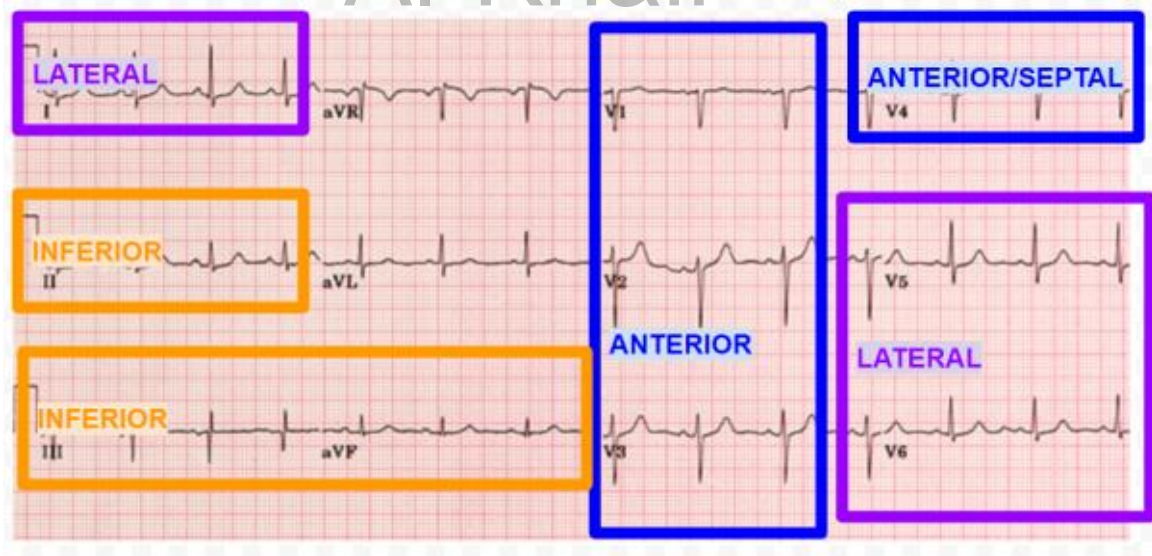
### ECG changes in myocardial infarction and coronary territories

	Area of infarct	ECG changes	Coronary artery
<b>Most commonly asked</b>	Anteroseptal	V1-V4	Left anterior descending (LAD)
	Inferior	II, III, aVF	Right coronary (RCA)
	Lateral	I, aVL +/- V5-6	Left circumflex
<b>Less commonly asked</b>	Anterolateral	I, aVL, V4-6	Left anterior descending (LAD) or left circumflex
	Posterior	Tall R waves V1-2  Also note the reciprocal ST-segment depression in the anterior chest leads	Usually left circumflex, also right coronary

# Al-Khair

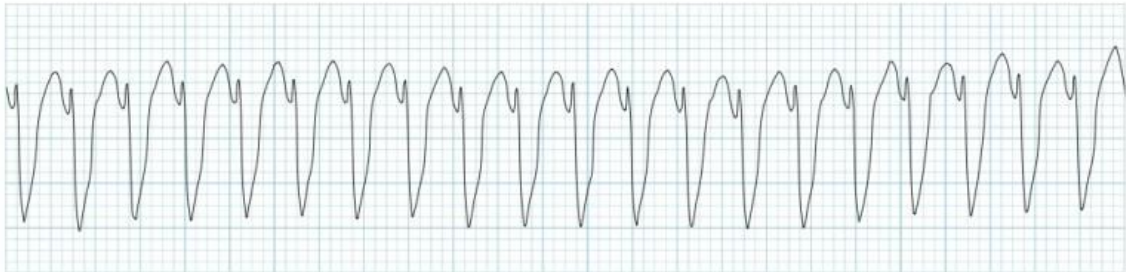
Area of infarct seen on ECG

Al-Khair



Al-Khair

**Q. A 74 year old man started having chest pain. He has a blood pressure of 70/50 mmHg. He is conscious and a radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE most likely diagnosis?**



A. Supraventricular tachycardia

**B. Ventricular tachycardia**

C. Ventricular fibrillation

D. Atrial fibrillation

E. Atrial flutter

**EXPLANATION:**

For junior doctors, the ECG pattern between ventricular tachycardia and ventricular fibrillation can be rather hard to distinguish. But here as the patient is still conscious, it cannot be ventricular fibrillation as v. fib would present without a pulse and the patient would not be conscious. Thus, ventricular tachycardia is the answer here.

**Ventricular tachycardia**

Ventricular tachycardia may impair cardiac output with consequent hypotension, collapse, and acute cardiac failure. This is due to extreme heart rates and lack of coordinated atrial contraction (loss of “atrial kick”).

The rate of V. Tach is from about 100-250 bpm. P Waves may be present or absent. P waves are usually not seen if the rate is increased. If present, the P Waves have no relation to the QRS complexes of the V. Tach.

**V. tach can present in two ways.**

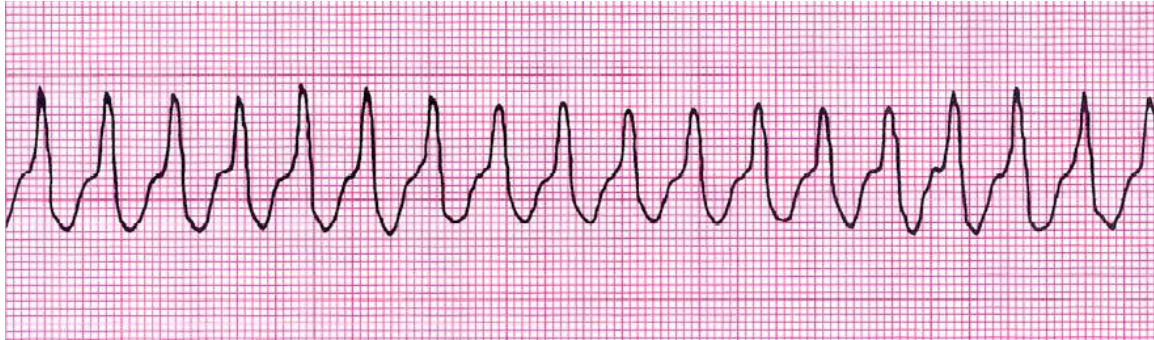
1. *With Pulse*
  - a) Haemodynamically stable or
  - b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level.
2. *Without Pulse*

**Management depends on how the patient presents:**

1. *With Pulse*
  - a) Haemodynamically stable → antiarrhythmics e.g. amiodarone, lidocaine, procainamide
  - b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level. → immediate electrical cardioversion is indicated
2. *Without Pulse* → immediate electrical cardioversion is indicated



Q. A 74 year old man started having chest pain. He has a blood pressure of 70/50 mmHg. His level of consciousness is decreased. A radial pulse is felt. An ECG shows the following rhythm. What is the SINGLE most appropriate management?



**A. Cardioversion**

B. Carotid sinus massage

C. Adenosine

D. Amiodarone

E. Lidocaine

**EXPLANATION:**

For junior doctors, the ECG pattern between ventricular tachycardia and ventricular fibrillation can be rather hard to distinguish. But here as the patient is still conscious, it can not be ventricular fibrillation as v. fib would present without a pulse and the patient would not be conscious. Thus, ventricular tachycardia is the answer here.

Since the patient is hemodynamically unstable, cardioversion would be the answer.

**Ventricular tachycardia**

Ventricular tachycardia may impair cardiac output with consequent hypotension, collapse, and acute cardiac failure. This is due to extreme heart rates and lack of coordinated atrial contraction (loss of “atrial kick”).

The rate of V. Tach is from about 100-250 bpm. P Waves may be present or absent. P waves are usually not seen if the rate is increased. If present, the P Waves have no relation to the QRS complexes of the V. Tach.

**V. tach can present in two ways.**

1. *With Pulse*
  - a) Haemodynamically stable or
  - b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level.
2. *Without Pulse*

**Management depends on how the patient presents:**

1. *With Pulse*
  - a) Haemodynamically stable → antiarrhythmics e.g. amiodarone, lidocaine, procainamide
  - b) Haemodynamically unstable — e.g hypotension, chest pain, cardiac failure, decreased conscious level. → immediate electrical cardioversion is indicated

# Al-Khair

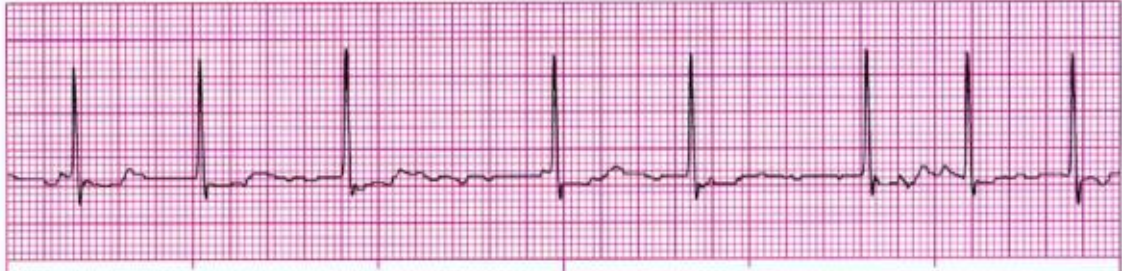
2. *Without Pulse* → immediate electrical cardioversion is indicated

Al-Khair

Al-Khair



Q. A 69 year old man has the following ECG. What is the SINGLE most appropriate next step in management?



- A. Metoprolol
- B. Digoxin
- C. Carotid sinus massage
- D. Adenosine
- E. Amiodarone

**EXPLANATION:**

The diagnosis here is atrial fibrillation. This man is an elderly man and thus rate control should be the first option (beta blockers, calcium channel blockers or digoxin). Digoxin should be reserved for when patient is having atrial fibrillation and heart failure together thus it is not the first option here.

**These are the general rules for atrial fibrillation**

**Rate control:** BB or CCB or Digoxin

**Rhythm control:** Amiodarone OR electrical

Rate control: BB or CCB or Digoxin ---> if symptoms are not well controlled ---> use combination therapy: BB, CCB (diltiazem), Digoxin

Rhythm control is preferred in paroxysmal atrial fibrillation, young patients, symptomatic, younger patients presenting for first time.

If new onset atrial fibrillation + haemodynamic unstable → Emergency Electrical Cardioversion

Q. A 56 year old man presents to the emergency department with chest pain.  
The following ECG was taken.

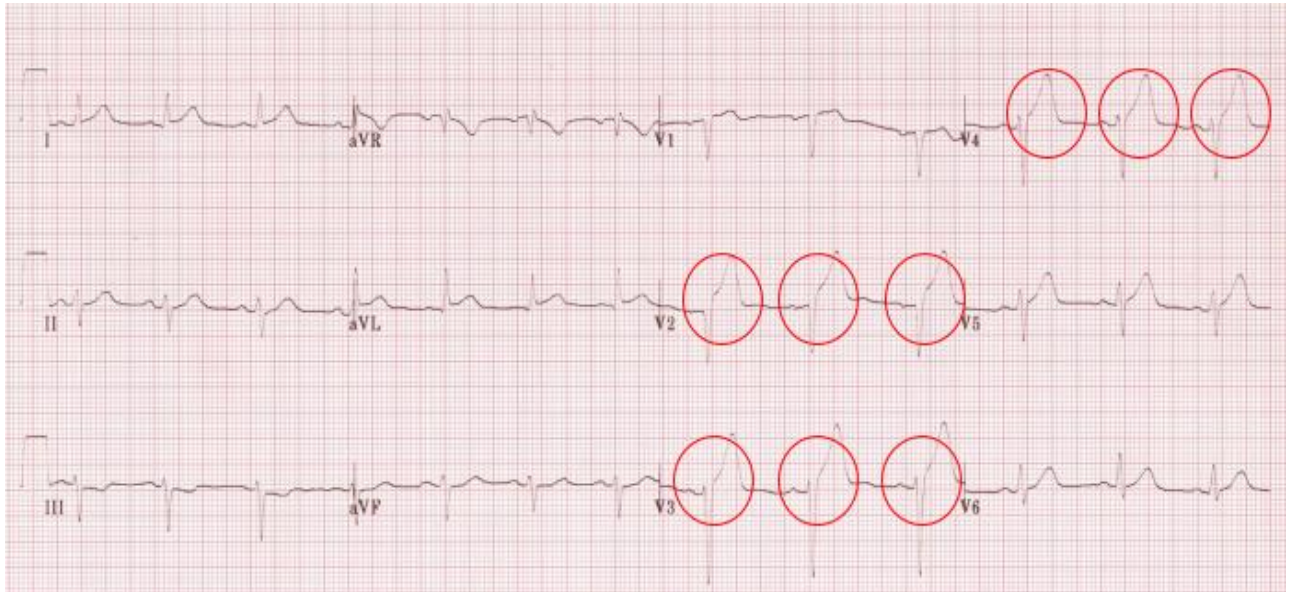


What is the SINGLE most likely diagnosis?

- A. Anteroseptal myocardial infarction**
- B. Inferior myocardial infarction
- C. Lateral myocardial infarction
- D. Posterior myocardial infarction
- E. Non-ST-elevation myocardial infarction

**EXPLANATION:**

Al-Khair



We can note that there is ST elevation in lead V2, V3, V4 (circled in red). This ECG shows a classical example of an anterior myocardial infarction.

Those ECG findings are more than enough to answer the questions in the exam and it is highly unlikely that you would need to know more than that.

For those who want to go into more details (probably not needed for the exam), one can notice the following on this ECG:

- Q waves are present in the septal leads (V1-2)
- Note the subtle ST elevation in I, aVL and V5, with reciprocal ST depression in lead III
- There are hyperacute (peaked) T waves in V2, V3 and V4

These features indicate an anteroseptal STEMI

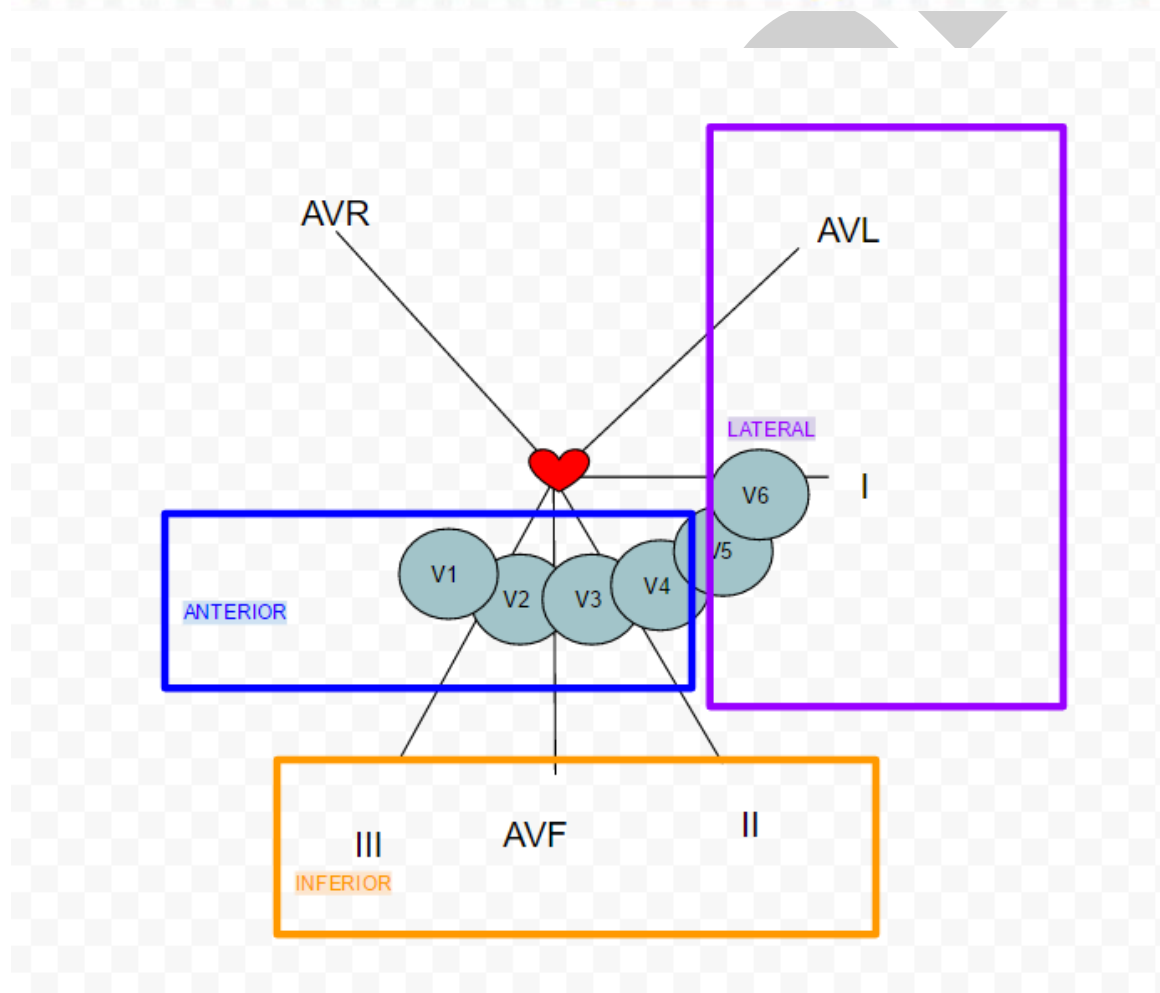
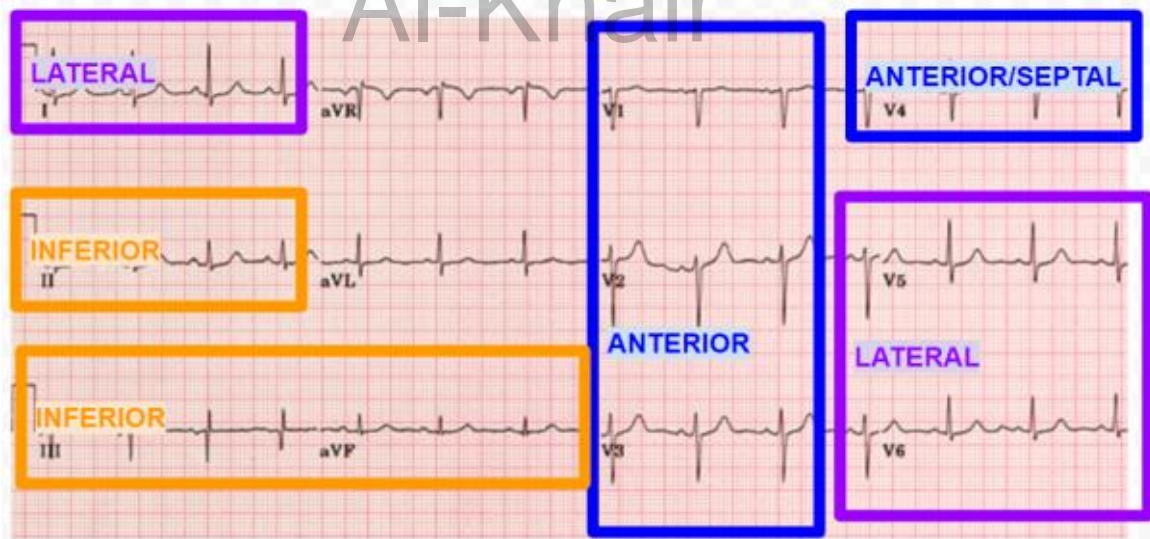
Al-Khair

# Al-Khair

## ECG changes in myocardial infarction and coronary territories

	Area of infarct	ECG changes	Coronary artery
<b>Most commonly asked</b>	Anteroseptal	V1-V4	Left anterior descending (LAD)
	Inferior	II, III, aVF	Right coronary (RCA)
	Lateral	I, aVL +/- V5-6	Left circumflex
<b>Less commonly asked</b>	Anterolateral	I, aVL, V4-6	Left anterior descending (LAD) or left circumflex
	Posterior	Tall R waves V1-2  Also note the reciprocal ST-segment depression in the anterior chest leads	Usually left circumflex, also right coronary

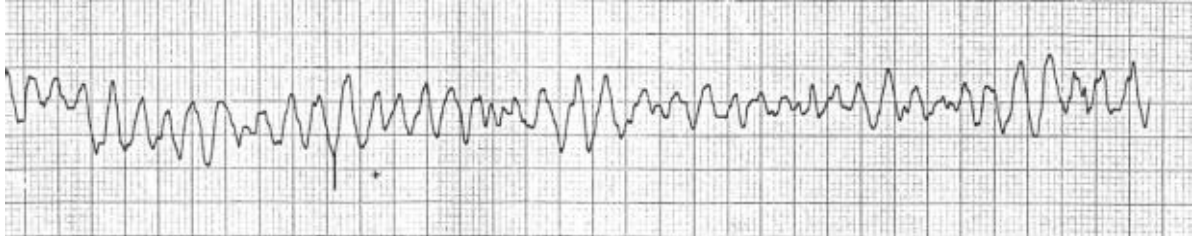
Area of infarct seen on ECG



Al-Khair



**Q. A 72 year old man is found not breathing in the CCU with the following rhythm. His pulse can not be felt. What is the SINGLE most likely diagnosis?**



A. Supraventricular tachycardia

**B. Ventricular tachycardia**

C. Ventricular fibrillation

D. Atrial fibrillation

E. Atrial flutter

**EXPLANATION:**

**Ventricular fibrillation (VF)**

Ventricular Fibrillation means “sudden death”. The blood pressure drops immediately to zero and so does the cardiac output. Ventricular fibrillation (VF) is the the most important shockable cardiac arrest rhythm. The ventricles suddenly attempt to contract at rates of up to 500 bpm. This rapid and irregular electrical activity renders the ventricles unable to contract in a synchronised manner, resulting in immediate loss of cardiac output. Unless advanced life support is rapidly instituted, this rhythm is invariably fatal. Prolonged ventricular fibrillation results in decreasing waveform amplitude, from initial coarse VF to fine VF and ultimately moving on to asystole due to progressive depletion of myocardial energy stores.

**ECG Findings for V. Fib**

- Chaotic irregular deflections of varying amplitude
- No identifiable P waves, QRS complexes, or T waves

Al-Khair

- Rate 150 to 500 per minute
- There is no specific pattern to the discharge. There are different types of wavering baseline patterns



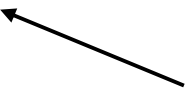
# ECG

Normal

60 – 100 BMP

Bradycardia

<60

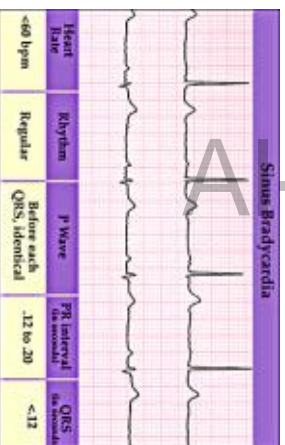


HEART BLOCK

SINUS BRADYCARDIA

ALL waves PRESENT

No PR interval prolongation



Tx = Atropine

Tachycardia

>100

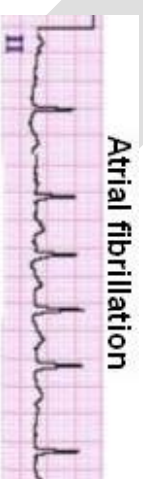
NARROW COMPLEX

→ Atrial Fibrillation

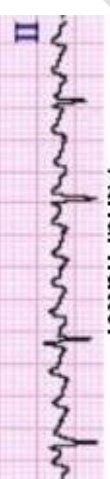
→ Atrial Flutter

→ Supra Ventricular tachycardia

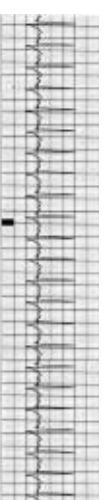
Atrial fibrillation



Atrial flutter



Supra ventricular Tachycardia

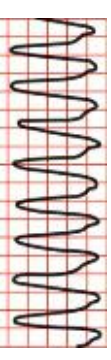


BROAD COMPLEX

VF



VT



\*LOOK AT THE RHYTHM

\*YOU LOOK AT THE HEIGHT

AB

# ECG

## BROAD COMPLEX

- VT** – DC CARDIOVERSION – SEMI CONSCIOUS --- if conscious then O2 – Unstable = DC then AMIADARONE, Stable (regular) = AMIADARONE
- VF** – UNCONCIOUS = DC CARDIOVERSION

## NARROW COMPLEX

**Irregular** – Atrial Fibrillation -> **Stable? Unstable?**

- Unstable** = **DC SHOCK**
- Stable** = **Control rate** = BB, CCB, DIGOXIN + WARFARIN if HF
- Rhythm** = SOTALOL / CCB
- Paroxysmal** – SOTALOL / FLECANIDE

## Regular – SVT or WPW

- **Carotid Massage** = if **response = WPW**
- Adenosine 6mg bolus (alternative verapamil), 12mg, 12mg

## UNSTABLE

- **Adverse signs?** -> DC CARDIOVERSION -> AMIADARONE

## STABLE

- Choose from **BB/DIGOXIN/AMIADARONE**

**Atrial Flutter – HR = 150**

**Atrial Fibrillation = 300-400 palpitations**

# ECG

## Management:

### 1) Acute AF:

*\*less than or equal to 48-hour duration*

#### Rate Control

- a) CCB
- b) BB
- c) Digoxin

unstable/haemodynamically unstable -> **electrical cardioversion** = **Rhythm control** -> Amiodarone or Flecainide

### 2) Chronic AF:

#### Rate Control

- a) BB (metoprolol/bisoprolol)
- b) CCB (diltiazem/verapamil)
- c) Digoxin (AF + HF)
- d) Anticoagulants for AF:

- i) Warfarin (maintain INR 2-3 = prevention of EMBOLISM)
- ii) Aspirin if <65 age & *a) no HTN, b) no DM, c) no LV dysfunction, d) no valvular heart disease, e) no MI/TIA*

### 3) Paroxysmal AF

- a) Flecainide
- b) Sotalol
- c) Anticoagulation is needed also

Al-Khair

Angina

ECG

AB

Al-Khair

## Endocrinology

Thyroid adenoma → USG: solid → FNAC: Cyst → Surgical excision

Thyrotoxicosis → Tx: Carbimazole, Drug induced (amiodarone) → night glare and sees shining particles

Diabetes → Dx = Fasting Blood Glucose

Insulinoma → check insulin levels, (see age) in type 1 → absolute deficiency of insulin, in type 2 → absolute excess (if low glucose), in relative deficiency → high blood sugar

Hyperthyroidism → anti-thyroid peroxidase

DKA → dipstick +ve and ketones → Type 1 DM

DM type 2 → metformin (bmi high)

Cushing → increased glucocorticoid (raised blood glucose concentration + moon face + obesity)

Pheochromocytomatous → increased catecholamine secretion, catecholamine = adrenaline/noradrenaline

Anaplastic carcinoma of the thyroid gland → rapidly enlarging mass in neck

Phytotoxic goitre → thyroid swelling with bruit

Hashimoto → sensitivity cold, bradycardia

Parathyroid hormone → increase calcium

## Pharmacology

A type 2 diabetic presents with BP 140/90mmHg, raised creatinine and ankle oedema. Which is the single most appropriate hypertensive drug would you prescribe for this patient?

- A. Thiazide diuretics
- B. Potassium sparing diuretic
- C. Beta blockers**
- D. Calcium channel blockers

Patient presents with hirsutism. She is on the following drugs. Which is the single most likely drug that does not cause hirsutism from the given list of drugs of the patient?

- A. Minoxidil

- B. Cyclosporine
- C. Steroids
- D. Sodium valproate**
- E. Phenytoin

Al-Khair

Al-Khair

ENT

**AOM + effusion = glue ear** → tx = *grommet*

AOM → **precedes URTI**, *progressive bilateral hearing loss in children = AOM*, **tx = Co-amoxiclav or Amoxicillin**, if **VIRAL = analgesia** ... Ix depends on TM red (fever) /pink (viral). For Chronic Infection – Broad spectrum ab = **Ciprofloxacin**

Complications of OM → Tympanic membrane perforation, Mastoiditis, Meningitis (rare but serious), Encephalitis, Otitic hydrocephalus.

Myringitis – Pain, fever, pus.

Pinna infection → tx = **co-amoxiclav**

**Cellulitis** → *cefuroxime + metronidazole*

(Conditioned response audiometry 2-4 years, pure tone audio gram for greater than 5 years, less than 6 months oto-acoustic emission or brainstem evoked response, distraction test for 6-18 months, OHCS ENT).

**Cholesteatoma** – pearly white appearance, **foul discharge**, headache, vertigo, facial pain. (not a tumour), perforation at the attic.

**Otosclerosis** – young people, female more so, accelerated during preg, conductive deafness (hearing often better with background noise), family hx (autosomal dominant). Audiometry ix. Surgery - tx

**Presbycusis**- snhl, hearing effected in noisy background, old age related >40y. ix – otoscopy, pure tone audiogram.

**Acoustic trauma** – rifle shooting/slapped on the ear strongly – *bleeding* may occur.

**Ototoxicity** – *gentamicin which is used in tx of OE* hence tx should be <2weeks.

**Acoustic Neuroma** – **DVT + 8<sup>th</sup> Nerve** (Tumor itself compresses 8th cranial nerve palsy causing features like hearing loss, tinnitus which leads to the raised ICP causing headache, vomiting, papilloedema all points towards the diagnosis) Ix – MRI ... Tx – surgery ... *family hx*

**Vertigo** → **Vertebrobasilar insufficiency** – *putting curtains*

**BPPV** – ix – dix hall pike manoeuvre **tx** – **epley manoeuvre** (drugs – **betahistine, prochlorperazine**)

**Meniere Disease** – **1) Buccal prochlorperazine** 2) Cyclizine – *hallmark = episodic attacks*

**Labyrinthitis** – post urti

**Epiglottitis** – cherry red swollen epiglottis, blood culture, cefotaxime. H. Influenza cause.

**Bell's Palsy** – 7<sup>th</sup> nerve palsy. Cause - virus. Tx – prednisolone + acyclovir

**Ramsay Hunt** – 7<sup>th</sup> nerve palsy due to herpes zoster. Tx – valaciclovir po + prednisolone

**Tonsillitis** – avoid amoxicillin – due to risk of IM (ebv) → rash may develop if cause is ebv.

**Inf Mono** – monospot / paul bunnell test → is **positive = cause is EBV**, if *negative – cause is CMV*

**Foreign body in the nose** – child with malodorous green nasal discharge

Discharge post fight – CSF (due to fracture base of skull)

Acute Sinusitis – pain over the sinus, fever, headache.

GCA – headache, jaw pain and vision problem.

Oval Mastocytes – b12 and folic acid deficiency → angular stomatitis

Hypopharynx – Deep Cervical LN

Naso/Oropharynx – Upper Cervical LN

Oropharyngeal Ca – smoker with sore throat, sensation of lump, otalgia.

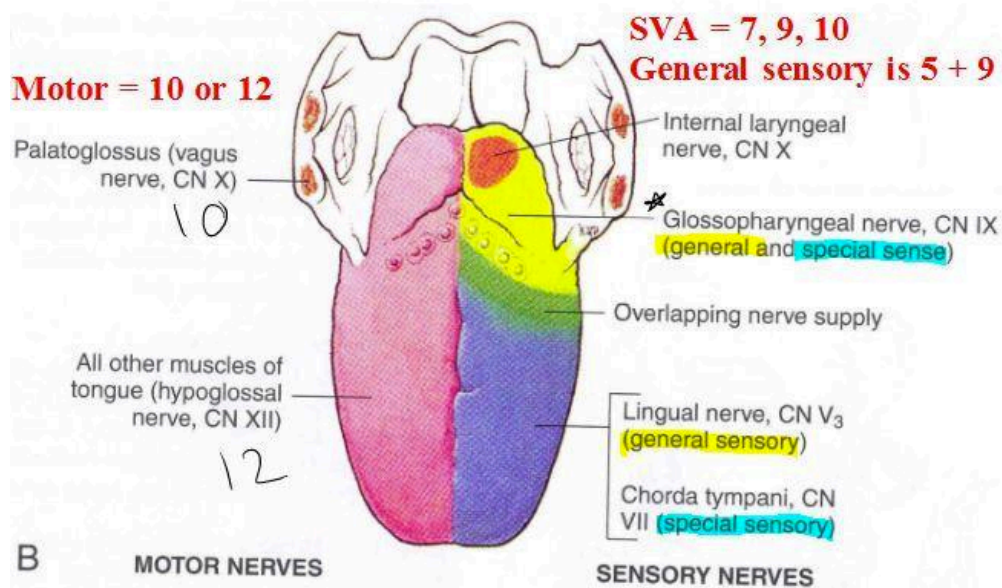
Squamous cell laryngeal Ca – smoker with progressive hoarseness, stridor, dysphagia.

Ethmoid sinus ... it is more common in children

Septal hematoma ... collection of blood within the septum of the nose, it doesn't cause facial pain

Septal abscess ... a serious condition that is caused by bacteria. Trauma to the nose, or even nasal surgery, can leave the patient prone to develop a nasal abscess, which is basically a pocket filled with blood (haematoma) which has become affected by bacteria. Symptoms include nasal blockage, pain, redness over the nasal bridge, difficulty in breathing and fever.

Allergic rhinitis ... doesn't cause facial pain





Hoarseness of voice → unilateral recurrent laryngeal nerve

Pitching problem → external laryngeal nerve

- a child presenting wd FB fully obstructing -- removal under GA
- a child with FB partially obstructing, child not agitated, and FB is not round (plastic) bead.... Try removal with forceps, suction for the round mentally handicapped of any age with any presentation..... Under GA always
- Any live insect/object .... Kill first
- Never put water/liquid for organic objects e.g seeds; they will swell up n get stuck.
- remove batteries intact, as damage inside releases corrosives.
- hooks are to be used for irregular/cylindrical objects, causing partial obstruction in an otherwise calm patient.

## FSH LH Oestradiol Prolactin table

	FSH	LH	Oestradiol	Prolactin
<b>Polycystic ovarian syndrome (PCOS)</b>	Normal	Increased  Note: LH:FSH more than 2	Normal to mildly increased	Normal to mildly increased
<b>Premature ovarian insufficiency (POI)</b>	Increased  Diagnostic criteria: An elevated FSH level > 25 IU/l on two occasions > 4 weeks apart	Increased	Decreased	
<b>Prolactinoma</b>	Decreased	Decreased	Decreased	Extremely increased (>5000 mU/L)
<b>Absent uterus</b>	Normal	Normal	Normal	Normal
<b>Anorexia nervosa</b>	Decreased to normal		Decreased	Normal
<b>Sheehan's syndrome</b>	Decreased	Decreased	Decreased	Decreased
<b>Congenital adrenal hyperplasia (non-classic)</b>	Normal	Normal	Normal to increased	Normal

## Polycystic ovary syndrome

Slowly progressive symptoms, hirsutism, acne, oligomenorrhoea or amenorrhoea, weight gain, reduced fertility

- Serum FSH: Normal
- Serum Oestradiol: Normal to mildly increased
- Serum AMH: Increased
- Serum TSH: Normal
- Serum Prolactin: Normal to mildly increased
- Serum Dehydroepiandrosterone sulfate (DHEAS): Increased
- Total Serum Testosterone: Increased
- Pelvic Ultrasound: Polycystic ovaries

### Premature ovarian insufficiency (Premature ovarian failure)

Menopausal symptoms and elevated gonadotropin levels before the age of 40 years

- Serum FSH: Increased → Diagnostic criteria: An elevated FSH level > 25 IU/l on two occasions > 4 weeks apart
- Serum LH: Increased
- Serum Oestradiol: Decreased

### Prolactinoma

Galactorrhoea, amenorrhoea or oligomenorrhoea, headache or visual disturbances → Bitemporal hemianopsia (due to pressure on the optic chiasm)

- MRI brain: Pituitary tumour
- Serum Prolactin: Extremely increased (>5000 mU/L) is highly suggestive of prolactinoma
- Serum FSH: Decreased
- Serum LH: Decreased
- Serum Oestradiol: Decreased

### **Anorexia nervosa**

Low BMI, pathological desire for thinness, normal secondary sexual characteristics, normal external and internal genitalia

- Serum FSH: Decreased to normal
- Serum Oestradiol: Decreased
- Serum AMH: Decreased to normal
- Serum TSH: Normal
- Serum Prolactin: Normal
- Pelvic Ultrasound: Thin endometrial stripe

### **Sheehan's syndrome**

Severe obstetric haemorrhage, hypotension, and shock with postnatal panhypopituitarism caused by necrosis of pituitary gland. Nausea, vomiting, lethargy, failure to breastfeed (agalactorrhoea), postural hypotension. Late features: Hypothyroidism features, adrenal crisis (with skin depigmentation)

- Serum FSH: Decreased
- Serum Oestradiol: Decreased
- Serum TSH: Decreased
- Serum T4: Decreased
- Serum Prolactin: Decreased
- Serum Growth hormone: Decreased
- Serum ACTH: Decreased
- Serum Sodium: Decreased
- Serum Cortisol: Decreased
- MRI Brain: Sella empty or filled with CSF, pituitary gland may be small

### **Congenital adrenal hyperplasia (non-classic)**

Presents with hyperandrogenism in late childhood to early adult life. Obesity, hirsutism, acne, weight gain, history of premature pubarche, oligomenorrhoea or amenorrhoea, infertility

Al-Khair

- Serum 17-hydroxyprogesterone (17-OHP) fasting levels >200 nanograms/dL (>6.06 nanomol/L)
- Total Serum Testosterone: Increased
- Serum DHEAS: Increased
- Serum FSH: Normal
- Serum LH: Normal
- Serum TSH: Normal
- Serum Prolactin: Normal
- Serum Oestradiol: Normal to increased

Al-Khair

GIT

Malabsorption – travel hx, diarrhoea, Fe decrease, Folic acid deficiency, anaemia (IDA). Tx- tetra + folic acid

Coeliac – diarrhoea + wt loss or anaemia (iron/b12), villous atrophy, failure to thrive, smelly stool, abd pain tx gluten free diet. Ix- duodenal biopsy (definitive) ... IgA antibody also Ix. Anti Endomysial ab

Gastric ulcer – collection in Lesser Sac

Anal Fissure – severe rectal pain on defecation, rectal exam impossible. Tx – fluid intake, fiber diet, LIDOCAINE ointment, chronic tx – topical GTN

CF – Sweat chloride test

Choledocolithiasis – Right upper quadrant pain – gall stones .... OBSTRUCTIVE PICTURE = ALP raised → ERCP

Sjogren – autoimmune -> immune sys attack gland secreting fluids such as tears and saliva. s/s – dry mouth/eyes.

Mikulicz – swelling of lacrimal and parotid glands.

Virchow node – left supraclavicular LN is dx for gastric carcinoma.

Krukenberg – stomach ca spread to ovaries

Loin to groin pain – ureteric colic dx spiral non-contrast CT

Whipples disease – PAS (periodic acid-schiff)

UC – smoking protective but make CD worse

Perforated Diverticulum – sudden onset, severe abd pain, rigidity, Left illac fossa pain and pyrexia.

Cryptosporidium – persistent watery diarrhea in HIV → cow -> water -> man

Exudate – high protein >25 causes → inflammation such infection/cancer (aggressive)

Transudate – protein <25 → indicate organ failure eg HF, cirrhosis, nephrotic syndrome, hepatic venous occlusion (BUDD CHIARI)

Mallory Weiss tear → Binge drinking, repeated vomiting and retching

Oesophageal Varices → chronic liver disease > portal hypertension → oesophageal varices ... scenario tend to include spider naevi on chest and bleeding upper GI

Primary biliary cirrhosis – young female + pruritis ... ix – anti-mitochondrial antibodies present

Gall stones (Cholelithiasis) – 5 F's → US abdomen

Al-Khair

Al-Khair

	HYPOGLYCAEMIA	HYPERGLYCAEMIA
ONSET	Minutes	Hours to days
EVENTS	Missed meal or increased activity	Omission of insulin
SYMPTOMS	Hunger, perspiration, confusion, stupor, headache, tremors, fatigue, nervousness, seizures	Headache, nausea, abdominal pain, vomiting, polyphagia, polydipsia, acetone breath
PHYSICAL FINDINGS	Tachycardia, normal to fast respiration rate	Kussmaul respirations, dehydration, tachycardia
URINE	Negative for glucose and ketones	Positive for glucose and ketones
BLOOD GLUCOSE	< 3.0 mmol/L	>7.0 mmol/L when fasting or >11.1 mmol/L 2 hours after meal  Note symptoms usually only occur if has marked hyperglycaemia (30 mmol/L or more)
RESPONSE TO GLUCOSE	Dramatic	None
TREATMENT	Fast acting glucose given orally or IV	Regular insulin, fluids, electrolyte replacement

Remember the bone profile differences:

	Osteoporosis	Paget's disease	Osteomalacia
Serum calcium	Normal	Normal	Low
Serum phosphate	Normal	Normal	Low
Alkaline phosphatase	Normal	High	High

Normal patient	Diabetes insipidus				
Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased				
	<table><tr><td>Central Diabetes insipidus</td><td>Nephrogenic Diabetes insipidus</td></tr><tr><td>Urine volume decreases and urine osmolality increases after administering desmopressin</td><td>There is no change after administering desmopressin</td></tr></table>	Central Diabetes insipidus	Nephrogenic Diabetes insipidus	Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin
Central Diabetes insipidus	Nephrogenic Diabetes insipidus				
Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin				



325. In 85% of the population this artery is **dominant**. What is the single most appropriate option?

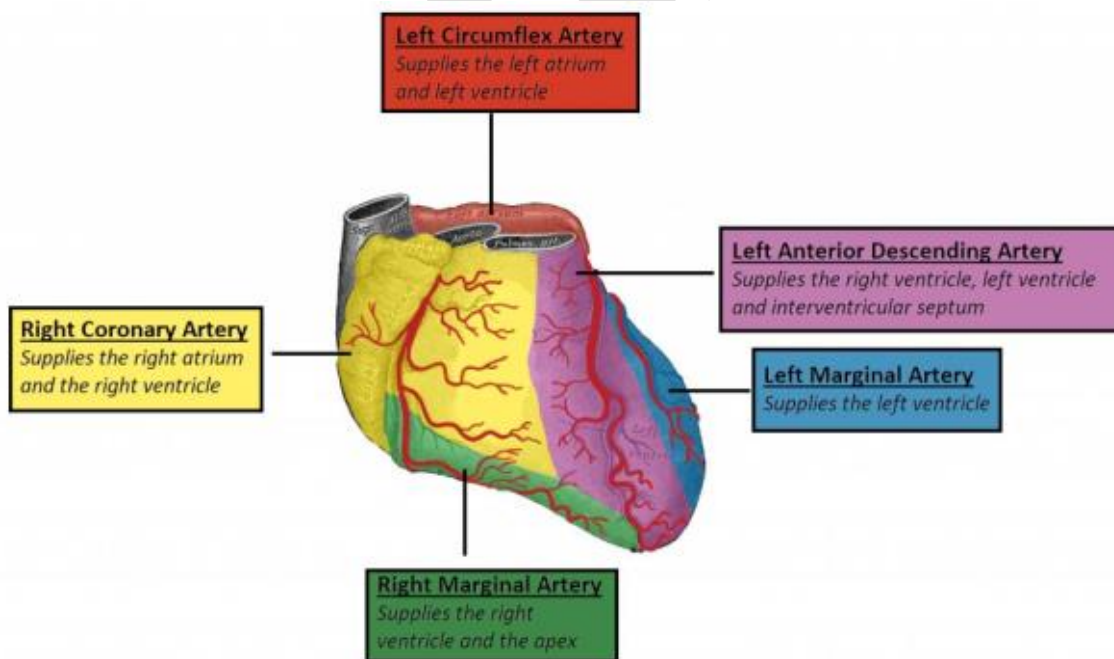
- a. Left ant descending artery
- b. Coronary sinus
- c. Circumflex artery
- d. Left main stem, post descending artery
- e. Right coronary artery**

600. Which artery runs in the **anterior inter-ventricular groove**?

- a. Acute marginal branch
- b. Left ant descending artery**
- c. Septal branches
- d. Circumflex artery
- e. Right coronary artery

1229. A branch of the dominant coronary artery that supplies *the inferior portion of the septum*. What is the single most appropriate option?

- a. Septal branches
- b. Obtuse marginal branches
- c. Circumflex artery
- d. Left main stem, post descending artery**
- e. Diagonal branch



1239. The artery that supplies the **ant right ventricular wall**. What is the single most appropriate option?

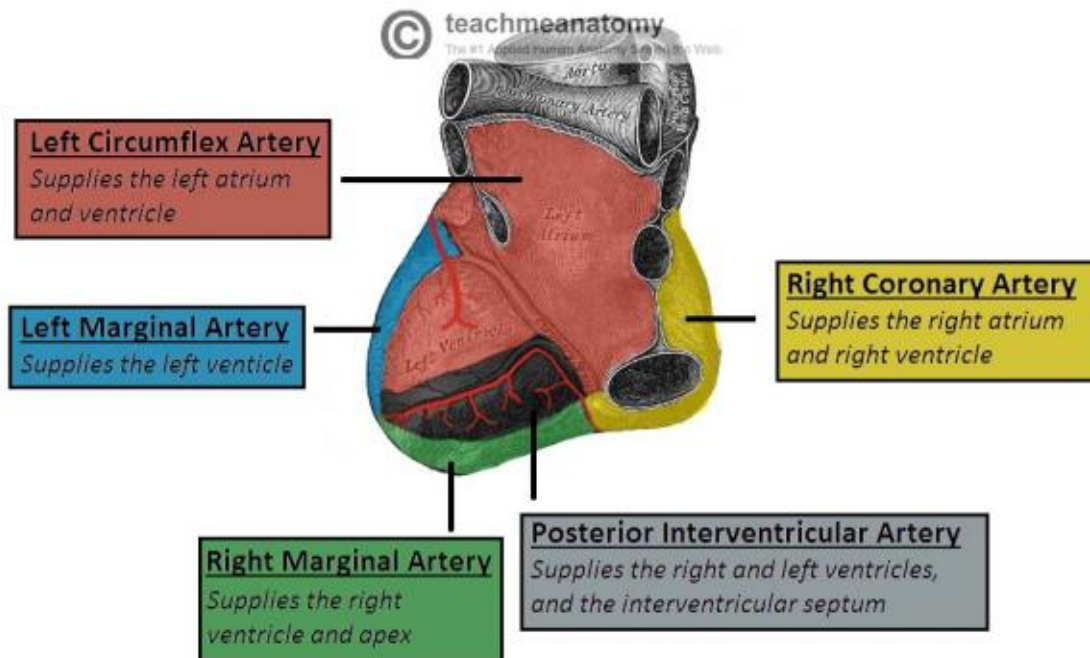
- a. **Acute marginal branch**
- b. Left ant descending artery
- c. Coronary sinus
- d. Circumflex artery
- e. Right coronary artery

1255. The artery that runs along the **left AV groove**. What is the single most appropriate option?

- a. Left internal mammary artery
- b. Left anterior descending artery
- c. **Circumflex artery**
- d. Left main stem (LMS) post descending artery
- e. Diagonal branch

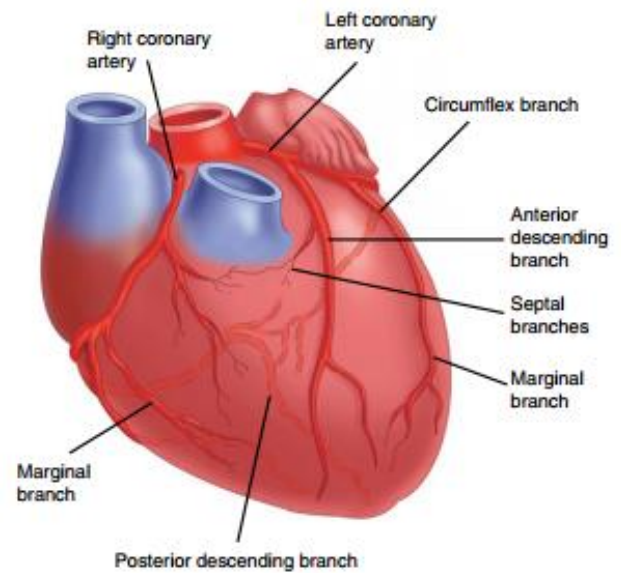
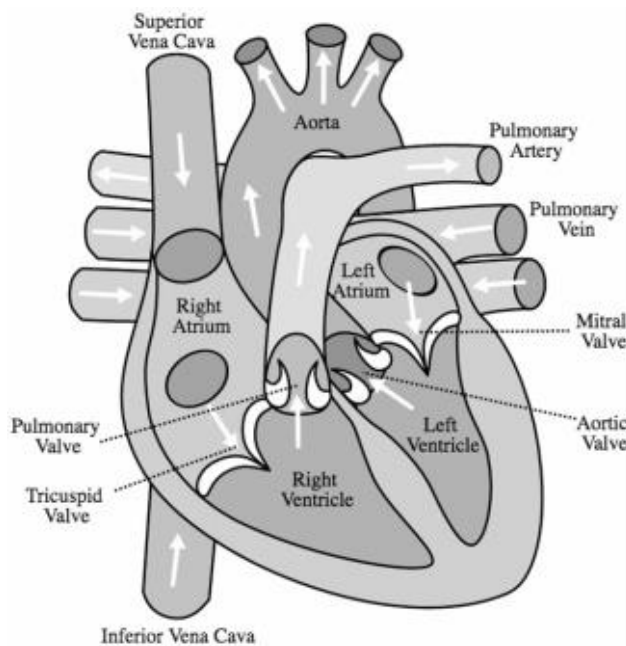
1448. The artery that runs in the **ant inter-ventricular groove**. What is the single most appropriate option?

- a. Acute marginal branch
- b. **Left ant descending artery**
- c. Coronary sinus
- d. Circumflex artery
- e. Right coronary artery



# Al-Khair

## Heart Murmurs



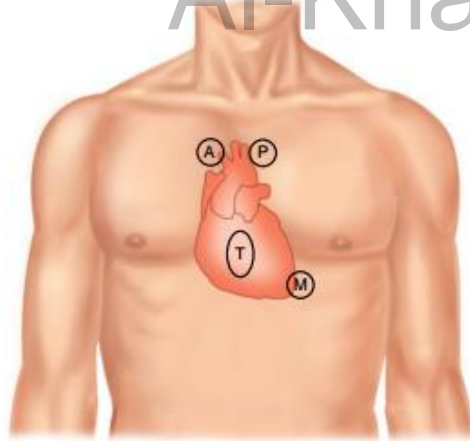
**TABLE 1-4. Arterial Supply of the Heart in Right-Dominant Coronary Circulation**

LAD	LEFT CIRCUMFLEX	RCA
Apex	Lateral wall of LV	Lateral wall of RV
Anterior wall of LV	Posterior wall of LV (20%)	Posterior wall of LV (80%)
Anterior two-thirds of IV septum	Posterior one-third of IV septum (20%)	Posterior one-third of IV septum (80%) SA node AV node

**TABLE 1-5. ECG Findings with MI**

AREA OF INFARCT	CORONARY ARTERY INVOLVED	LEADS WITH ST ELEVATION
Inferior wall (RV)	RCA	II, III, aVF
Septum	LAD	V <sub>2</sub> , V <sub>3</sub>
Lateral wall (LV)	Left circumflex	I, aVL, V <sub>5</sub> , V <sub>6</sub>

All–Aortic  
Patients–Pulmonic  
Take–Tricuspid  
Meds–Mitral



**FIGURE 1-12. Sites of cardiac auscultation.** A = aortic valve; P = pulmonic valve; T = tricuspid valve; M = mitral valve.

## PULMONARY VALVE

- 1) **STENOSIS** = **SYSTOLIC**
- 2) **REGURGITATION** = **DIASTOLIC**

## MITRAL VALVE

- 1) **STENOSIS** – **DIASTOLIC**
- 2) **REGURGITATION** – **SYSTOLIC**

**R – HF:** Tricuspid / Pulmonary

**L – HF:** Mitral / Aortic

## MR. P.V. TRAPSS

MR. P. - Mitral Regurgitation or Prolapse

V. - VSD

TR - tricuspid regurgitation

APS - Aortic or Pulmonary Stenosis

**S - Systolic**

## MS. PAID

MS - Mitral Stenosis

PAI - Pulmonary or Aortic Insufficiency

**D - Diastolic**

MITRAL REGURGITATION → **PANSYSTOLIC** murmur (**HOLOSYSTOLIC**)

- Radiates to the **AXILLA**
- Apex beat **DISPLACED**

Symptoms

Dyspnoea

Fatigue

Palpitations

Causes

- Papillary muscle dysfunction (post-MI)
- Dilated cardiomyopathy
- Rheumatic
- Infective endocarditis
- Congenital
- Connective tissue disorders (e.g. Marfan's)

AORTIC STENOSIS → **EJECTION SYSTOLIC** murmur

- Radiates to the **NECK** (carotid)
- **SLOW** rising **PULSE**

Symptoms

- Exertional dyspnoea
- Syncope
- Angina (coronary perfusion impaired)

Causes

- Senile calcification (most)
- Congenital
- Bicuspid aortic valve (e.g. Turners syndrome)
- Rheumatic

TRICUSPID REGURGITATION → **HOLOSYSTOLIC** murmur in radiation to **LEFT upper STERNAL BORDER** (murmur increases in **INSPIRATION**)

Symptoms

Fatigue

Hepatic pain on exertion  
Ascites, oedema

Al-Khair

#### Causes

- RV dilation in pulmonary hypertension (most; e.g. due to chronic lung disease or left heart/valve disease)
- Rheumatic
- Infective endocarditis (**IV drug user**)
- Ebstein's anomaly (if split S1 and S2)

VENTRICULAR SEPTAL DEFECT → **HARSH PANSYSTOLIC** murmur at **LEFT lower STERNAL BORDER**

#### Symptoms

- Palpable thrill

#### Causes

- Congenital
- Common in Adult's post MI

ATRIAL SEPTAL DEFECT → **SYSTOLIC** murmur at **RIGHT ventricular HEAVE**

#### DIASTOLIC

AORTIC REGURGITATION → **DIASTOLIC** murmur **bounding carotid** and **peripheral pulse**

#### Symptoms

- Fatigue
- SOB
- Palpitations

#### Causes

##### Acute causes

- Infective endocarditis
- Aortic dissection

##### Chronic causes

- Connective tissue disorders (e.g. Marfan's, ankylosing spondylitis)
- Rheumatic
- Luetic heart disease (syphilis)

Al-Khair

- Congenital
- Long standing hypertension

**MITRAL STENOSIS** → **MID DIASTOLIC** murmur **at apex (tapping APEX beat)**

#### Symptoms

- Dyspnoea
- Fatigue
- Haemoptysis
- Chest pain

#### Causes

- AF
- Pulmonary Oedema

**TRICUSPID STENOSIS** → **DIASTOLIC** murmur

#### Symptoms

- Fatigue
- Ascites
- Oedema

#### Causes

- Rheumatic (most)
- Congenital atresia
- Carcinoid

**PULMONARY REGURGITATION** → **DIASTOLIC** palpable S2 at **LEFT 2<sup>nd</sup> Intercostal space**

<b>Cyanotic</b>	Transportation of great vessels	
	Tetralogy of Fallot	<ul style="list-style-type: none"> <li>- Right Ventricular Hypertrophy</li> <li>- Pulmonary Stenosis</li> <li>- VSD → Overriding Aorta</li> <li>- CXR: boot shaped heart</li> </ul>
	Pulmonary / Tricuspid atresia	
<b>Non-Cyanotic</b>	ASD	<ul style="list-style-type: none"> <li>- widely split, fixed split S2 &amp; systolic ejection murmur</li> </ul>
	VSD	<ul style="list-style-type: none"> <li>- harsh holosystolic murmur</li> </ul>
	PDA	<ul style="list-style-type: none"> <li>- machinery murmur</li> <li>- continuous murmur radiating to the back</li> </ul>
	Coarctation of Aorta	<ul style="list-style-type: none"> <li>- systolic murmur loudest below left scapula</li> </ul>
	Aortic Stenosis <ul style="list-style-type: none"> <li>- ejection systolic murmur</li> <li>- slow rising pulse</li> </ul>	<ul style="list-style-type: none"> <li>- radio femoral delay</li> <li>- different BP in upper &amp; lower extremities</li> </ul>



## HEART MURMURS

### MITRAL STENOSIS

- Commonly in **RHEUMATIC FEVER**
- Apex beat **TAPPING**
- Commonly causes **AF & PULMONARY OEDEMA -> LEFT VENTRICULAR FAILURE**
- CXR -> straight left border of **CARDIAC SILHOUTTE** due to left atrial enlargement

### MITRAL REGURGITATION

- **PANSYSTOLIC** murmur at the apex (can be HARSH)
- Radiates to the **AXILLA**
- Apex beat is **DISPLACED**
- Also causes **LVF & PULMONARY OEDEMA**

### VENTRICULAR SEPTAL DEFECT

- **HARSH PANSYSTOLIC MURMUR** at the **LEFT STERNAL EDGE**
- Has **LEFT PARASTERNAL HEAVE** and **SYSTOLIC THRILL**
- If it's a child -> **CONGENITAL** (or even a young adult without MI)
- In an ADULT, its usually common after MI
- Does **NOT** radiate to AXILLA (MR radiates to AXILLA)

### TRICUSPID REGURGITATION

- **SOFT PANCYSTOLIC** murmur at left sternal edge or 4<sup>th</sup> rib
- common in **IV DRUG ABUSERS**
- causes **RVF** (*high JVP, Peripheral Oedema, Enlarged Liver*)

### AORTIC REGURGITATION

- early **DIASTOLIC** murmur in the right second intercostal space
- **COLLAPSING PULSE** or **WATERHAMMER** pulse or **POUNDING PULSE**

### AORSTIC STENOSIS

- **EJECTION SYSTOLIC** murmur in the right intercostal space
- radiates to **CAROTIDS**
- presents with dizziness or syncope on exercise (drop attacks during exercises causes ventricular hypertrophy – dizziness on exercise is AS until proven otherwise)
- **SLOW RIDING** pulse

### HYPERTROPHIC OBSTRUCTIVE CARDIOMYOPATHY (HOCM)

- History of sudden death (family history)
  - **JERKY** pulse (**PULSES BISFERIENS**)
  - **MID-SYSTOLIC** murmur
  - Loudest at left sternal edge
  - Common in **YOUNG SPORTSMEN** especially footballers
- Treatment (prophylaxis) **Beta Blockers**

### PATENT DUCTUS ARTERIOSUS

- Goes away spontaneously
- **MACHINERY** like murmur
- Throughout systole and diastole

### ATRIAL SEPTAL DEFECT

- Congenital abnormalities
- **PULMONARY EJECTION** systolic murmur
- **SYSTOLIC** murmur in upper left sternal edge (could involve the valves ie tricuspid)
- Usually in **YOUNG CHILDREN**, it causes **CYANOSIS**

### COARCTATION OF AORTA

- **RADIOFEMORAL DELAY**
- Weak femoral pulse
- **Hypertension**
- *Scapular bruit*

## Hiatus Hernia

2 types: most common is sliding hernia (80%)

### Sliding hernia:

- 1) junction in the chest (slides up)
- 2) acid reflux occurs due to LES incompetent

### Rolling hernia:

\*treated prophylactically → may lead to **strangulate** which needs prompt surgical repair

- 1) junctions remain in abdomen
- 2) part of stomach bulges into the chest alongside the oesophagus
- 3) acid reflux is uncommon

### Clinical feature (for both)

- occurs in age >50 mainly obese women
- 50% have symptomatic gastro-oesophageal reflux

### Investigation

- barium swallow (best diagnostic)

### Treatment

- weight reduction
- treat reflux treatment (**antacids – PPI**)
- surgery if conservative therapy not effective

## Hypercalcaemia

Calcium: 2.12 – 2.65

Albumin: 35-50g/L

Al-Khair

### 'Bones, stones, groans, and psychic moans' ← PAIN

Bones → hyperparathyroidism, ectopic calcification

Stones → abdominal pain (constipation and vomiting), renal stones – made by calcium +urate → RF and Loin pain

Groans → Weakness, Weight loss, tiredness

Moans (psychic) → depression, anorexia, constipation, confusion, hypertension, thirst, polydipsia

### Causes

Thyrotoxicosis, Sarcoidosis, Milk-Alkali Syndrome, Hyperparathyroidism, Lithium, Immobilisation

### Investigation

Malignancy → Decreased albumin, Increased Alkaline Phosphatase

Hyperparathyroidism → increased PTH

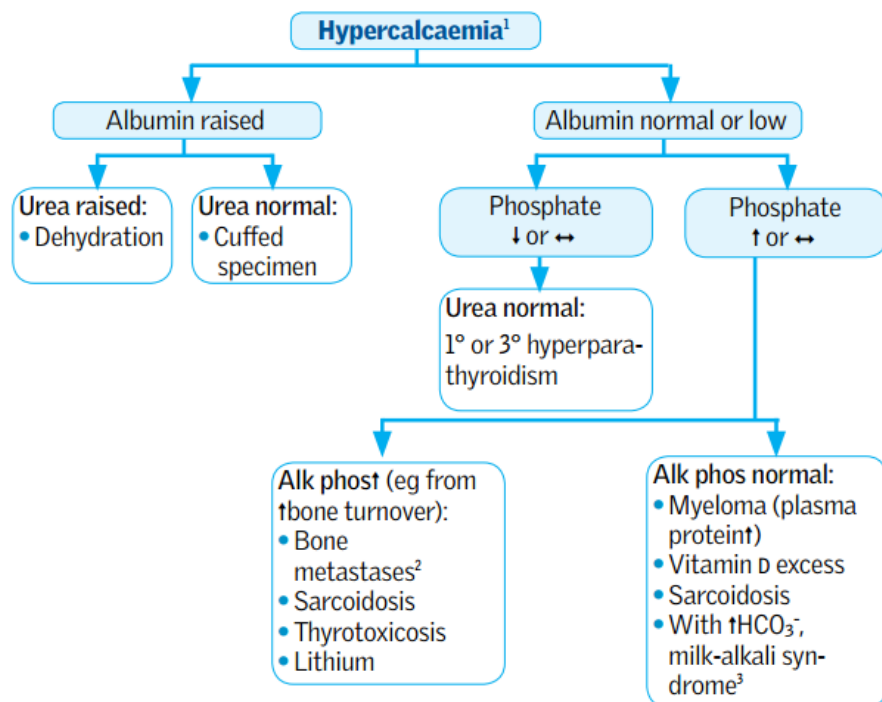


Fig 1. Hypercalcaemia.

691

Clinical chemistry

Al-Khair

## Treatment

- 1) Correct dehydration → Iv fluid → IV 0.9% Saline
- 2) Bisphosphonates → prevent bone resorption by inhibiting osteoclast activity. Can give Pamidronate
- 3) Further Management → Steroids for SARCOIDOSIS

\*avoid thiazides → hyperGLUT (glucose, lipids, uric acid, calcium)

\*hypercalcemia → may cause cardiac arrest by narrowing QT interval

## Hypocalcaemia

Signs/ Symptoms:

- 1) MILD → perioral numbness/paraesthesia
- 2) SEVERE → carpopedal spasm (check by TROUSSEAU'S sign), Neuromuscular excitability by tapping over parotid (facial nerve) causing muscles to twitch (CHVOSTEK'S sign)

\*Cataract if CHRONIC hypocalcaemia

ECG → LONG QT interval

### **Causes**

*With ↑  $PO_4^{3-}$*

- chronic kidney disease (p300)
- hypoparathyroidism (incl thyroid or parathyroid surgery, p214)
- pseudohypoparathyroidism (p214)
- acute rhabdomyolysis
- vitamin D deficiency
- hypomagnesaemia

*With ↔ or ↓  $PO_4^{3-}$*

- osteomalacia (talk phos)
- acute pancreatitis
- over-hydration
- respiratory alkalosis (total  $Ca^{2+}$  is normal, but ↓ ionized  $Ca^{2+}$  due to ↑ pH ∴ symptomatic)

### **Treatment**

- *Mild symptoms:* give calcium 5mmol/6h po, with daily plasma  $Ca^{2+}$  levels.
- *In chronic kidney disease:* see p300. May require alfacalcidol, eg 0.5-1µg/24h po.
- *Severe symptoms:* give 10mL of 10% calcium gluconate (2.25mmol) IV over 30min, and repeat as necessary. If due to respiratory alkalosis, correct the alkalosis.



**Fig 1.** Trousseau's sign: on inflating the cuff, the wrist and fingers flex and draw together (carpal spasm).



**Fig 2.** Chvostek's sign: the corner of the mouth twitches when the facial nerve is tapped over the parotid.

Which one of the following electrocardiographic changes is found in hypercalcaemia?

- a. Increased QRS interval
- b. Prolonged Q-T interval
- c. Short P-R interval
- d. Short Q-T interval

key) D-- Short Q-T interval secondary to a shortened ST segment

A 34yo African-Caribbean man with a hx of sarcoidosis has presented with bilateral kidney stones. What is the most likely cause for this pt's stones?

- a. Hypercalcemia
- b. Hyperuricemia
- c. Diet
- d. Recurrent UTIs
- e. Hyperparathyroidism

key is A. Hypercalcemia.

A 50 yo woman who was treated for breast cancer 3 yrs ago now presents with increase thirst and confusion. She has become drowsy now. What is the most likely metabolic abnormality?

- a. Hypercalcemia
- b. Hyperkalemia
- c. Hypoglycemia
- d. Hyperglycemia
- e. Hypocalcemia

The key is A. Hypercalcemia.

## Impetigo

Al-Khair

Infection due to Staph Aureus

### Location:

- face with **HONEY** coloured fluid in an erythematous base
- usually around mouth and nose

Common in children and can develop on affected and unaffected skin (**example – on top of eczematous skin**)

### Treatment:

- **initially topical antibiotics** (Fusidic acid, Mupirocin)
- **Oral antibiotics eg Flucloxacillin** 125mg/6h PO in a child if more severe

\*Children should be kept off school or nursery until there is no more blistering or crusting, or until 48 hours after antibiotic treatment has been started.



Al-Khair



### Internal/Deep Inguinal Ring:

- +ve cough impulse = DIRECT
- -ve cough impulse = INDIRECT

### Superficial/External Ring:

- +ve cough impulse INDIRECT
- -ve cough impulse DIRECT

indirect also passes through the deep ring first, and then enters the scrotum through the superficial ring. So, occlusion test +ve at superficial ring.

Indirect lateral to inferior epigastric vessels.  
Direct is medial to inferior epigastric vessels.

1324. A 79yo man has a swelling of the right groin which was clinically dx to be **indirect inguinal hernia**. What is the single feature of the hernia sac that would confirm the dx?

- a. Comes through femoral ring
- b. Doesn't pass through the deep inguinal ring
- c. Lies below and lateral to the pubic tubercle
- d. Only passes through the superficial inguinal ring
- e. Passes through the deep inguinal ring**

Ans. The key is E. Passes through the deep inguinal ring. [Inguinal hernia lies mostly above and medial (occasionally lateral particularly when small) to pubic tubercle. It first **enters the inguinal canal through deep inguinal ring** and then **enters the scrotum through the superficial inguinal ring**].

1580. A 25yo man present with a mass in the groin after heavy lifting. Exam: mass is found just above and medial to the pubic tubercle. It is reducible. On **applying pressure on the internal ring, cough impulse is still present**. What is the most likely dx?

- a. Direct inguinal hernia**
- b. Indirect inguinal hernia
- c. Femoral hernia
- d. Strangulated hernia
- e. Femoral aneurysm

Ans. The key is A. Direct inguinal hernia. [On occlusion of deep inguinal ring if cough impulse still palpable (actually more appropriate is visible) on medial to occluded ring it is direct inguinal hernia]. {Cough impulse negative means after occluding deep ring there will be no visible cough impulse and positive means there will be visible cough impulse. **Negative cough impulse=indirect hernia; positive cough impulse=direct inguinal hernia**].

1006. A 40yo manual worker presents with a swelling in the groin. Exam: mass is found to be just above and lateral to the pubic tubercle. It is reducible. On **applying pressure on the internal ring there is no cough impulse seen**. What is the most probable dx?

- a. Direct inguinal hernia
- b. Indirect inguinal hernia**
- c. Femoral hernia
- d. Strangulated hernia
- e. Femoral aneurysm

Ans. The key is B. Indirect inguinal hernia. [Swelling in the groin; mass just above and lateral to the pubic tubercle means inguinal hernia. It is reducible. On applying pressure on the internal ring there is no visible cough impulse; it means the hernia enters through deep ring, and enters scrotum passing through the superficial ring. That means it is indirect inguinal hernia].

358. A 35yo construction worker is dx with **indirect inguinal hernia**. Which statement below best describes it?

- a. Passes through the superficial inguinal ring only
- b. Lies above and lateral to the pubic tubercle
- c. Does not pass through the superficial inguinal ring
- d. Passes through the deep inguinal ring**

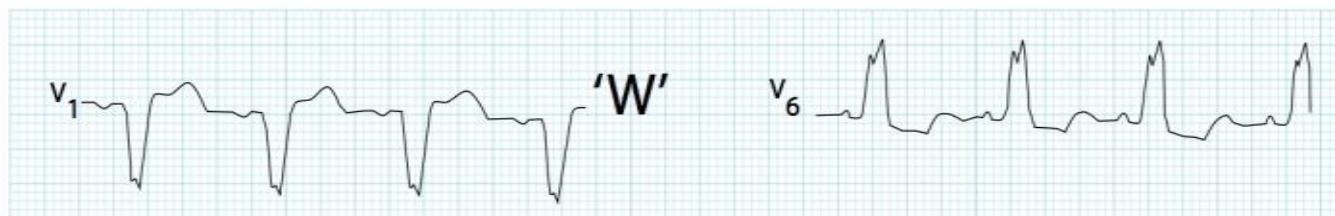
Ans. The key is D. Passes through the deep inguinal ring.

## LAST MINUTE CLINCHERS

- Foul smelling discharge ----- GARDENELLA only
- Chest pain for 40 minutes + GTN given + ECG-ST elevation } next step ----- ASPIRIN  
not PCI
- Repeated UTI, now developing haematuria + loin pain ----- ACUTE PYELONEPHRITIS
- Boy having long standing asthma comes in breathless +  $O_2 < 90\%$  } Best investigation  
----- ABG/CBG
- Diabetic with central crushing chest pain radiating to neck ----- MI
- Eye problems + glasses change + scotoma ----- Pilocarpine drops = OPEN ANGLE  
GLAUCOMA
- TIA = already on 75mg aspirin ----- Add statin only
- Eye outwards + diplopia-looking right-----Right Oculomotor
- RBC's + WBC's > 10 in urine-----CYSTITIS
- Right sided headache + loss of vision-----ESR (TEMPORAL ARTERITIS)
- QRS >140 + HR >220 bpm-----VT (broad complex)
- Removal of pancreatic CA comes with heartburn + rigid abdomen ----- X-ray  
abdomen
- Perimenopause-----Serum FSH or FSH-LH
- Boy fell on the ground + comes with sub-conjunctival haemorrhage ----- FACIAL X-  
RAY
- Altered bowel habits + bleeding PR + isolated ulcer on sigmoidoscopy-----  
COLORECTAL CA
- Squamous cell carcinoma of lung ----- Hypercalcemia (PTH)
- Small cell carcinoma of lung ----- Hyponatremia (ACTH)

## Left Bundle Branch Block LBBB Overview

- Normally the septum is activated from left to right, producing small Q waves in the lateral leads.
- In LBBB, the normal direction of septal depolarisation is reversed (becomes right to left), as the impulse spreads first to the RV via the right bundle branch and then to the LV via the septum.
- This sequence of activation extends the QRS duration to  $> 120$  ms and eliminates the normal septal Q waves in the lateral leads.
- The overall direction of depolarisation (from right to left) produces tall R waves in the lateral leads (I, V5-6) and deep S waves in the right precordial leads (V1-3), and usually leads to left axis deviation.
- As the ventricles are activated sequentially (right, then left) rather than simultaneously, this produces a broad or notched ('M'-shaped) R wave in the lateral leads.



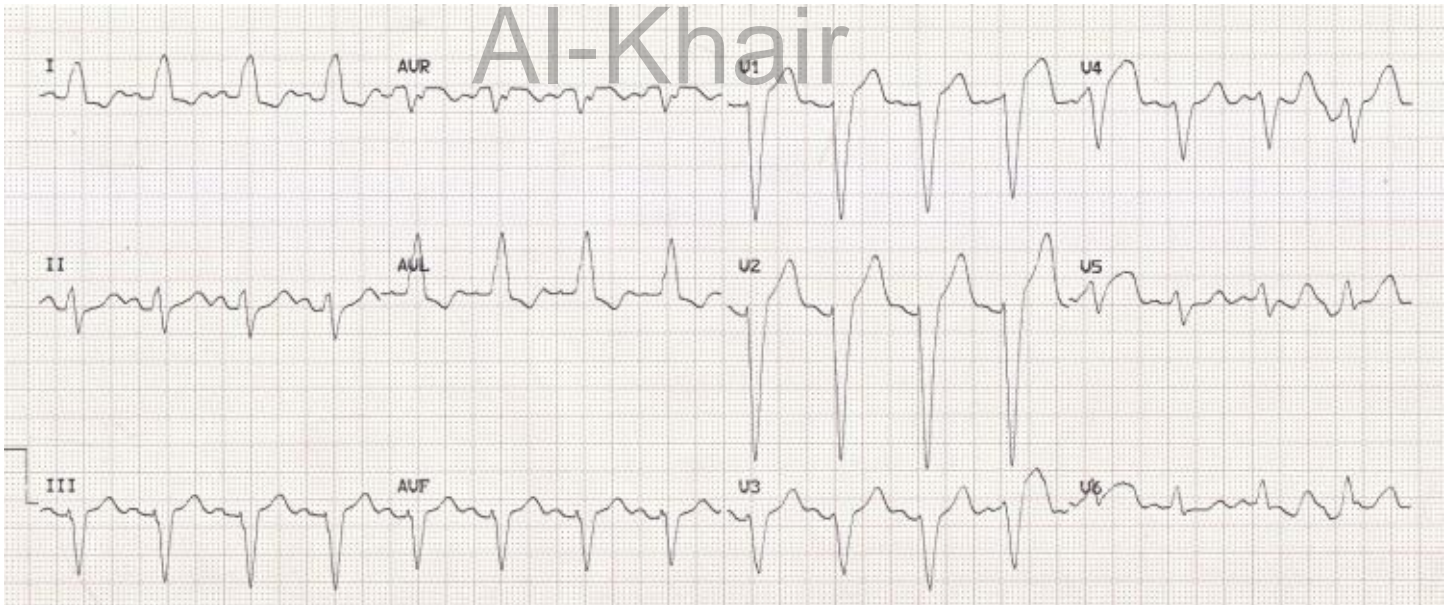
**Dominant S wave in V1 with broad, notched ('M'-shaped) R wave in V6**

## ECG Diagnostic Criteria

- QRS duration of  $> 120$  ms
- Dominant S wave in V1
- Broad monophasic R wave in lateral leads (I, aVL, V5-V6)
- Absence of Q waves in lateral leads (I, V5-V6; small Q waves are still allowed in aVL)
- Prolonged R wave peak time  $> 60$ ms in left precordial leads (V5-6)

## Associated Features

- Appropriate discordance: the ST segments and T waves always go in the opposite direction to the main vector of the QRS complex
- Poor R wave progression in the chest leads
- Left axis deviation



## ECG QRS Morphology

### QRS Morphology in the Lateral Leads

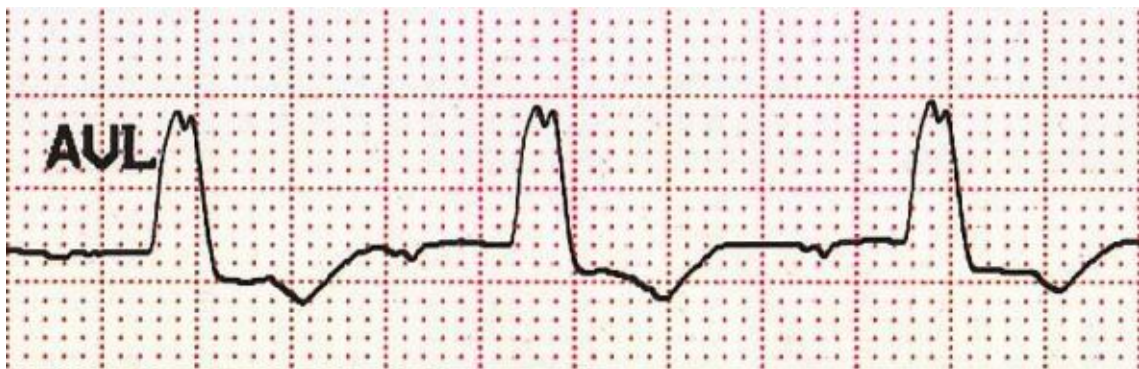
The R wave in the lateral leads may be either:

- 'M'-shaped
- Notched
- Monophasic
- RS complex

### QRS Morphology in V1

The QRS complex in V1 may be either:

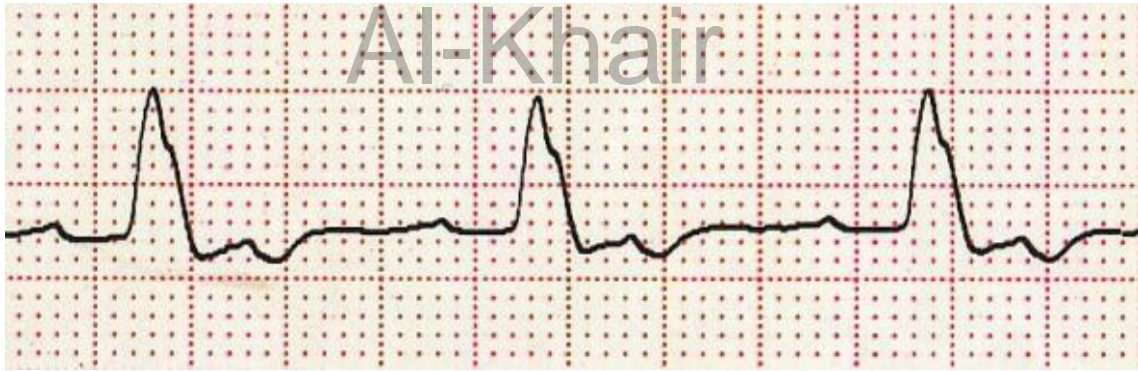
- rS complex (small R wave, deep S wave)
- QS complex (deep Q/S wave with no preceding R wave)



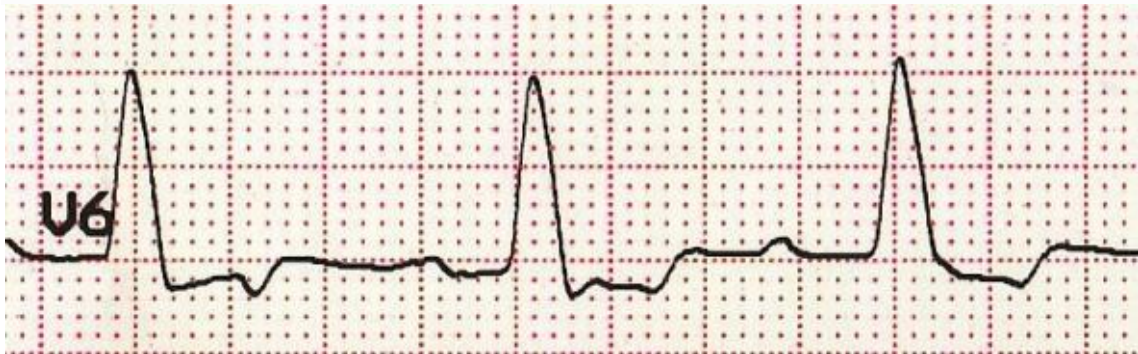
'M'-shaped QRS complex



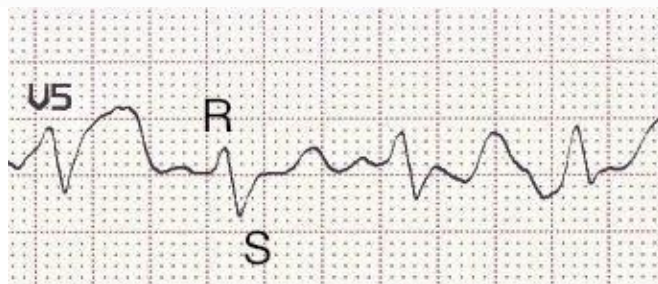
Al-Khair



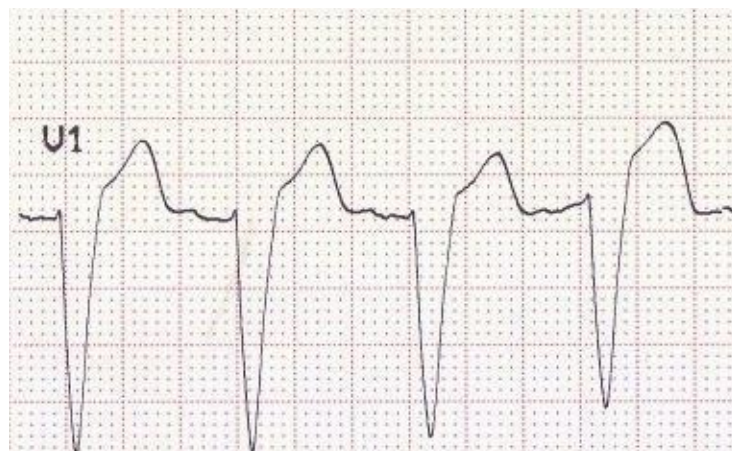
Notched R wave



Monophasic R wave



RS complex



Al-Khair

Typical appearance of LBBB in V1 with rS complex (tiny R wave, deep S wave) and appropriate discordance (ST elevation and upright T wave)

#### Causes of LBBB

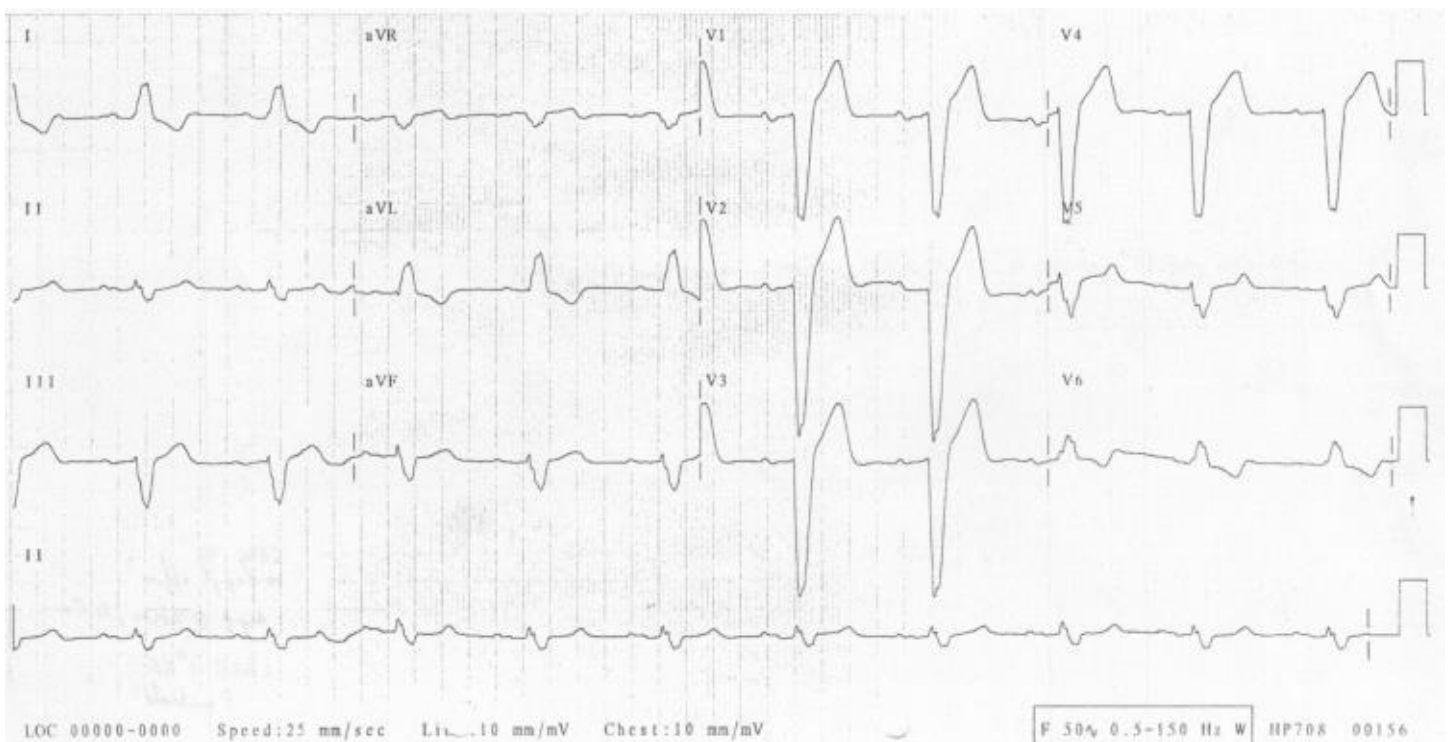
- Aortic stenosis
- Ischaemic heart disease
- Hypertension
- Dilated cardiomyopathy
- Anterior MI
- Primary degenerative disease (fibrosis) of the conducting system (Lenegre disease)
- Hyperkalaemia
- Digoxin toxicity

NB. It is unusual for left bundle branch block to exist in the absence of organic disease.

New LBBB in the context of chest pain is traditionally considered part of the criteria for thrombolysis. However, more recent data suggests that chest pain patients with new LBBB have little increased risk of acute myocardial infarction at the time of presentation.

#### ECG Examples of LBBB

##### Example 1

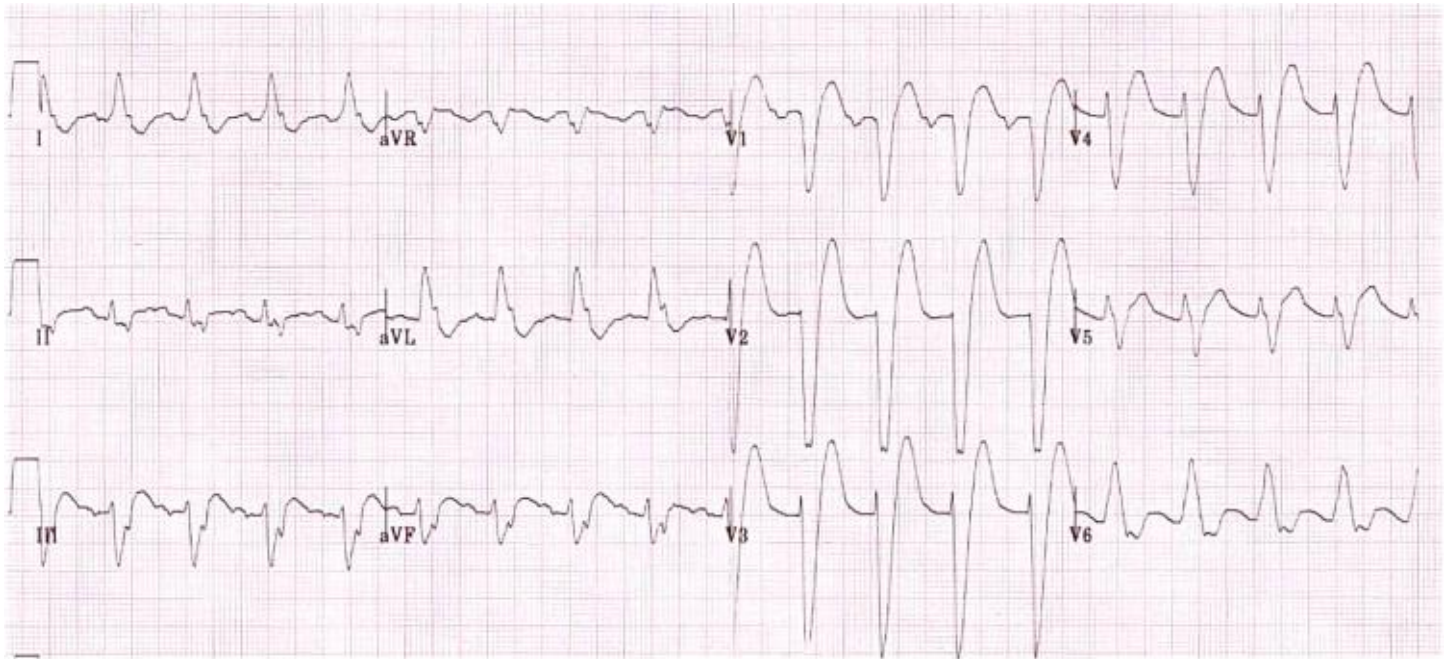


Left Bundle Branch Block



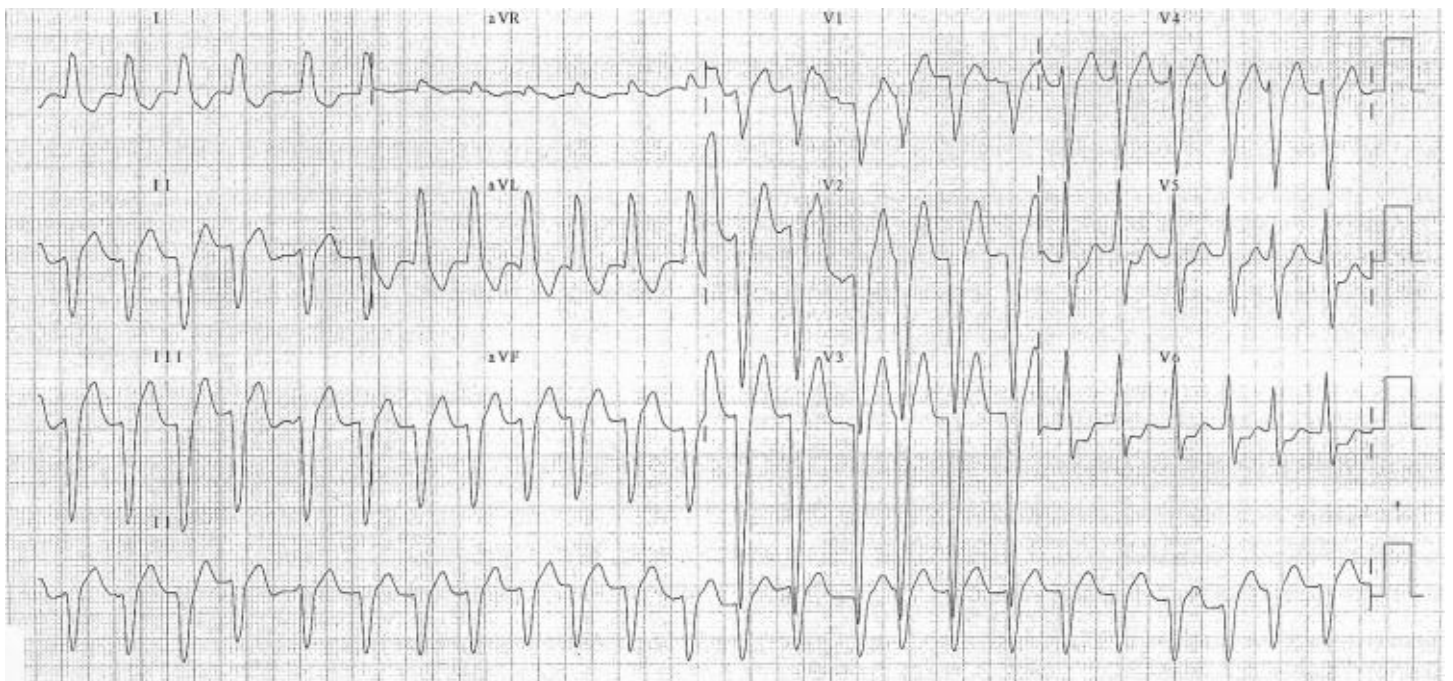
Example 2

Al-Khair



Left Bundle Branch Block

Example 3



AF with LBBB

Al-Khair



## Lumps

**Fibroadenoma** - <30, non-tender, **mobile, soft**. smooth surface.

**Fibroadenosis** – middle aged, lumpy breast in upper outer quadrant, painful (cyclical) (may present with green brownish discharge).

**Carcinoma** – **non-mobile, hard**, in axilla means metastasis.

## Assessments

1<sup>st</sup> – clinical examination including axillary lymph nodes

2<sup>nd</sup> – <35 = US, >35 Mammography 1<sup>st</sup> & then US

3<sup>rd</sup> – Cytology

**CYST** – **FNAC**

If clear = aspirate and reassure

If bloody = aspirate and send for cytology

If clear but mass = core biopsy

**SOLID** – **CORE BIOPSY**

*\*fam hx – asymptomatic and presents to clinic = genetic testing and counselling*

## Skin Changes

**Paget's** – **eczema** (itchy) nipple skin and areola. Investigation = open biopsy / **punch biopsy**

**Ulcer** – means **CANCER**

## Discharge

**Blood** stained:

- 1) **Paget's disease** (eczema/itchy)
- 2) **Duct papilloma** (single duct)
  - Investigation – ductography / ductogram
- 3) **Breast cancer**

**Clear discharge** – **intraduct papilloma**

Investigation – ductography / ductogram

**Orange Yellow Creamy Green discharge** – **duct ectasia** (multiple ducts)

Investigation – Ductogram

**Purulent discharge** – breast abscess

\*common with breast feeding mothers.

\*organism = staph aureus

\***treatment = flucloxacillin**

**Milky discharge** – **galactorrhoea**

\*causes = prolactinoma, s/e of antipsychotics, physiological lactation

Al-Khair

Al-Khair

AREA	LYMPHATIC DRAINAGE
<b>TONGUE</b>	i. <b>Posterior 1/3<sup>rd</sup></b> → Deep Cervical ii. <b>Anterior 1/3<sup>rd</sup></b> → Submandibular iii. <b>Lip Frenulum</b> → Submental
<b>BREAST</b>	i. Nipple, Areola → Sub-Areolar → Axillary LN ii. Lateral Breast → Axillary LN iii. Medial Breast → Parasternal LN
<b>SCROTUM</b>	Superficial Inguinal L.N.
<b>OVARIES/TESTES</b>	Para-Aortic Lymph Nodes
<b>RECTAL</b>	<b>Upper</b> → Para Rectal → Internal Iliac <b>Lower</b> → Sacral → Internal Iliac
<b>ANAL CANAL</b>	➤ <u>Above Pectinate Line</u> → Internal Iliac ➤ <u>Below Pectinate Line</u> → Superficial Inguinal
<b>VULVA</b>	Superficial Inguinal
<b>VAGINA</b>	<b>Upper 1/3<sup>rd</sup></b> → External Iliac <b>Middle 1/3<sup>rd</sup></b> → Internal Iliac <b>Lower 1/3<sup>rd</sup></b> → Superficial Inguinal
<b>CERVIX</b>	
<b>UTERUS</b>	Fundus + Ovary + Tube → Para-Aortic
<b>BLADDER</b>	External Iliac
<b>PROSTATE</b>	Internal Iliac

# LYMPH DRAINAGE

## Breast:

- 1) Lateral Quadrants -> AXILLARY LN (ant group initially)
- 2) Medial Quadrants -> PARASTERNAL LN
- 3) Nipple, Areola -> Sub areolar Lymphatic plexus

## Rectum:

- 1) Upper half -> Para-rectal LN -> Inferior Mesenteric LN
- 2) Lower half -> Sacral LN

## Anus:

- 1) Above pectinate line -> Internal Iliac LN
- 2) Below pectinate line -> Superficial Inguinal LN

## Vulva:

- 1) Drain into -> Superficial Inguinal LN

## Vagina:

- 1) Upper 1/3 -> External Iliac LN
- 2) Middle 1/3 -> Internal Iliac LN
- 3) Lower 1/3 -> Superficial Inguinal LN

## Cervix:

- 1) Drain into -> External and Internal Iliac LN

## Uterus:

- 1) Fundus, Ovary and Fallopian tubes -> Para aortic LN
- 2) Body -> External Iliac LN

## Skin of Scrotum:

- 1) Drain into -> Superficial Inguinal LN

## Testis:

- 1) Drain into -> Para aortic

## Tongue:

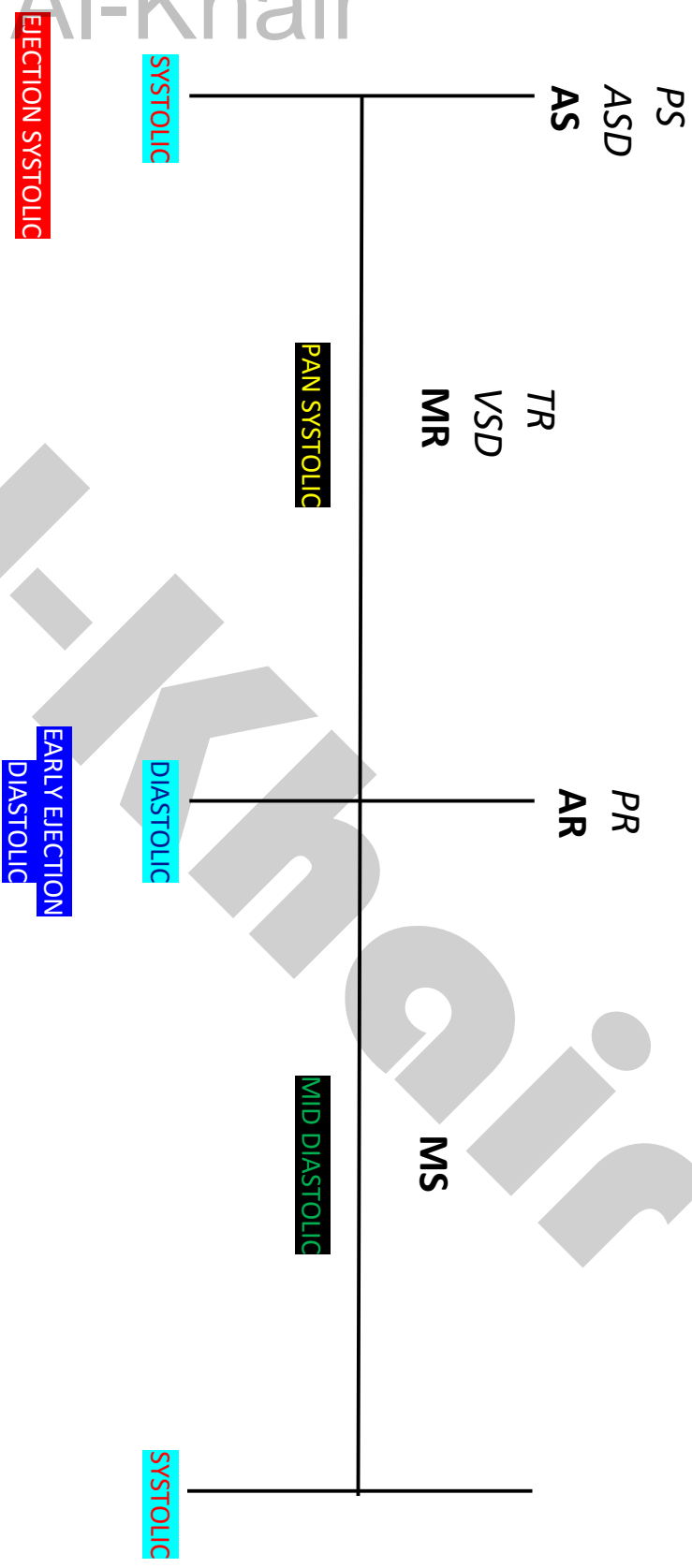
- 1) Post 1/3 -> Superficial Deep Cervical LN
- 2) Lateral Part of ant 2/3 -> Submandibular LN
- 3) Apex & Frenulum -> Submental LN

## Auricle:

- 1) Lateral Surface of upper half -> Superficial Parotid LN
- 2) Cranial surface of upper half -> Mastoid LN & Deep Cervical LN
- 3) Remainder of the auricle -> Superficial Cervical LN

<b>UPPER</b>			
	<b>Head</b>	Sudden pain + vomit	CT
		+ Cerebellar signs	MRI
	<b>Ear</b>		MRI (brain) Internal
	<b>Neck</b>	Swelling	US
			Biopsy (definitive)
<b>CHEST</b>			
	<b>Asthma</b>	For diagnose	Spirometry
		Monitoring	Peak flow
	<b>OSAS</b>		Polysomnography
			Pulse Oximetry
	<b>Pneumonia</b>		CXR
	<b>Aneurism</b>		CT
			Trans Oesophageal Echo
	<b>Arrhythmia</b>		ECG
	<b>Murmurs</b>		ECHO
<b>ABDOMEN</b>			
	<b>APH</b>		TVS
	<b>Abortion</b>		TVS
	<b>PID</b>	Initial	High Vaginal Swab
		Definitive	TVS
	<b>Ectopic</b>	Initial	BHCG
		Definitive	TVS
	<b>Endometrial Ca</b>	Initial	Sampling
		Definitive	Biopsy/Hysterectomy
	<b>Urinary Tract</b>	Initial	Urine Analysis
			C/S of Urine
			US
	<b>Renal Stones</b>		KUB XR
			US

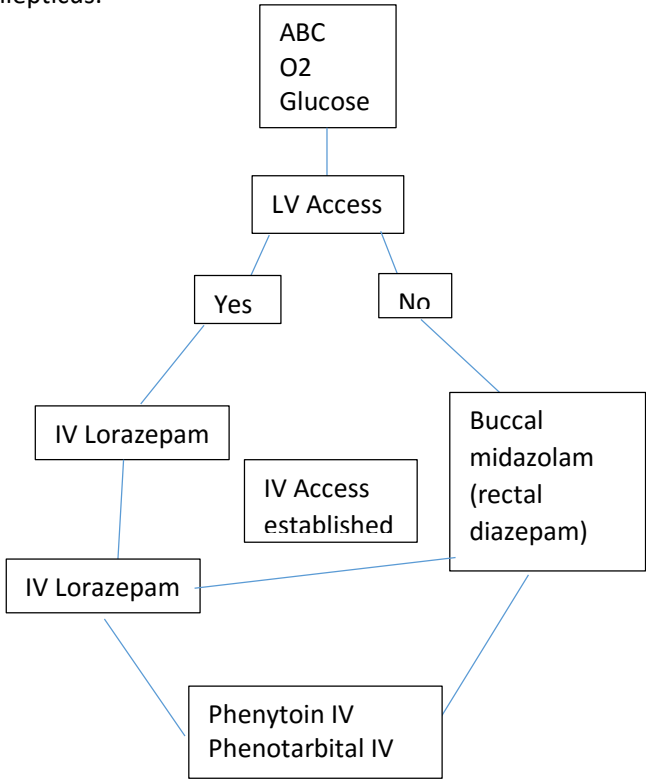
	<b>Painless Haematuria</b>		Cystoscopy
	<b>Prostate Ca</b>		PSA
<b>BACK</b>			
	<b>AS</b>		XR
	<b>TB</b>		MRI spine
	<b>Bone Density</b>		DEXA
	<b>Metastasis</b>		Radionuclide



**PDA** – Continuous Machinery  
Murmur  
**TA** – Holosystolic Murmur

\*Tricuspid Valve - IVDA

## Neurology clinchers

1.	Flu like illness → slurred speech = VII Palsy
2.	<p>Status Epilepticus:</p>  <pre> graph TD     A["ABC O2 Glucose"] --&gt; B["LV Access"]     B --&gt; C["Yes"]     B --&gt; D["No"]     C --&gt; E["IV Lorazepam"]     E --&gt; F["IV Lorazepam"]     D --&gt; G["Buccal midazolam (rectal diazepam)"]     F --&gt; H["Phenytoin IV Phenobarbital IV"]     G --&gt; H     I["IV Access established"] -.-&gt; F           </pre>
3.	Stroke – lateral medulla Vertebrobasilar circulation → brainstem/cerebellum <i>Cerebellar vermis</i>
4.	Perineal memory loss → Cauda equine syndrome
5.	MS – Methylprednisolone, interferon Ix: MRI
6.	Haemorrhagic stroke : INR > 1.5 → Vitamin K ↓ Bring BP down Ischaemic we don't bring BP down drastically
7.	ACA – Frontal + Medial cerebrum MCA – Lat part hemisphere PCA – Occipital lobe Basilar A – Cerebellum/Brainstem/Occipital Contralateral paralysis Contralateral sensory loss Homonymous hemianopia
8.	Guillem barre – preceded by infection
9.	Chemotherapy drugs such as Vincristine Neurotoxicity – peripheral neuropathy
10.	OSAS – Pulse Oximetry ( Initial) Polysomnography (Gold standard)



Corticospinal Tract (MOTOR)

MND – Mixed

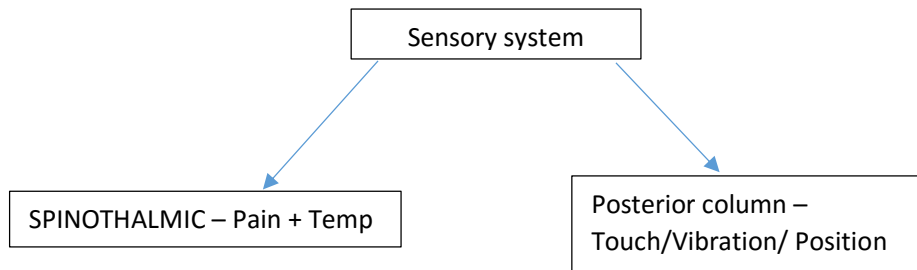
UMN:

- HYPERREFLEXIA
- HYPERTONIA
- Up going plantar reflex (BABINSKI)

LMN:

- HYPOTONIA
- HYPOREFLEXIA

Muscle fasciculation's



Brown Sequard = Sensory Same, P.T = Contralateral

Cord lesion = Syringomyelia → causes pain and temp loss

SCOTOMA = RETINA

MS = OPTIC NEURITIS → MONOCULAR

OPTIC CHIASMA – pituitary tumour → Bi-temporal hemianopia

Optic tract – stroke tumour → non congruous homonymous hemianopia

## NEUROLOGY

1)	Fasciculation 's – Motor Neuron Disease
2)	Idiopathic Intracranial Hypertension: Tetracycline's Antibiotics, OCP, Steroids, Vitamin A, Lithium <ul style="list-style-type: none"><li>- <i>Headache</i></li><li>- <i>Blurred vision</i></li><li>- <i>Papilledema</i></li></ul>
3)	Neuroleptic Malignant Syndrome: Bromocriptine/ Dantrolene (Dantrolene sodium is a postsynaptic muscle relaxant that lessens excitation-contraction coupling in muscle cells.) <ul style="list-style-type: none"><li>- <i>Young male patient</i></li><li>- <i>Pyrexia</i></li><li>- <i>Present first 10 days or after increase dose</i></li><li>- <i>Tachycardia</i></li></ul>
4)	Phonophobia – most common with headaches <ul style="list-style-type: none"><li>- <i>Photophobia</i></li><li>- <i>Nausea</i></li><li>- <i>Vomiting</i></li></ul>
5)	Musculocutaneous nerve – elbow flexion (biceps brachii) <ul style="list-style-type: none"><li>- <i>Axillary nerve C5,6 – shoulder abduction – humeral neck fx</i></li><li>- <i>Median nerve C6,8 and T1 – Carpal tunnel syndrome</i></li><li>- <i>Ulnar nerve C8, T1 – Claw hand</i></li></ul>
6)	Parkinson's tx – Benzhexol/Cabergoline/Pergoline  Adverse effects: <ul style="list-style-type: none"><li>- <i>Pulmonary Fibrosis</i></li><li>- <i>Cardiac Fibrosis</i></li><li>- <i>Retroperitoneal fibrosis</i></li></ul>
7)	Extradural (Epidural) haematoma – Lucid Interval
8)	Cluster headache – Young male, Positive Fam Hx  Treatment: <ul style="list-style-type: none"><li>- <i>Acute: O2, SC/Nasal triptan – Horner Syndrome</i></li><li>- <i>Prophylaxis: Verapamil/Prednisolone</i></li></ul>
9)	Lacunar infarcts: <ul style="list-style-type: none"><li>- <i>involves arteries around external capsule, thalamus + basal ganglia</i></li><li>- <i>Presents with 1 of the following:</i><ol style="list-style-type: none"><li>1. <i>unilateral weakness of the face + arm, arm + leg or all 3</i></li><li>2. <i>pure sensory stroke</i></li><li>3. <i>ataxic hemiparesis</i></li></ol></li></ul>
10)	Epilepsy: <ol style="list-style-type: none"><li>1. <i>generalised + partial → may progress → general</i></li><li>2. <i>myoclonic/ atypical absence/ atonic + conic → childhood</i></li></ol>

## NEUROLOGY

	<p>Generalised: <b>no focal feature/ conscious lost immediately</b></p> <ul style="list-style-type: none"> <li>- <i>grand mal (tonic clonic),</i></li> <li>- <i>petit mal (absence seizure),</i></li> <li>- <i>myoclonic – brief rapid muscle jerks.</i></li> </ul> <p>Partial: focal features depend on location:</p> <ul style="list-style-type: none"> <li>- <i>simple: no disturbance of consciousness/ awareness</i></li> <li>- <i>complex: consciousness disturbed</i></li> <li>- <i>temporal lobe: aura/ de ja vu</i></li> </ul>
11)	<p>Parkinsonism + plus other features = Progressive Supranuclear Palsy.</p> <p>Drugs cause:</p> <ul style="list-style-type: none"> <li>- <i>Chlorpromazine, Prochlorperazine (Phenothiazine's)</i></li> <li>- <i>Haloperidol, Metoclopramide</i></li> </ul>
12)	<p>ROSIER: acute setting stroke</p> <p>FRAX: risk of fracture</p> <p>ABCD2: assess stroke risk after TIA</p> <p>FAST: general public teaching (not acute)</p> <p>CHADS2-VASc: risk of stroke in patients with AF</p>
13)	Lambert Eaton Syndrome: Paraneoplastic, underlying malignancy notably small cell lung cancer
14)	Triptans: not to be used in patients with Ischaemic Heart Disease or Cerebrovascular disease
15)	Neurocutaneous Syndrome: Neurofibromatosis or Tuberous Sclerosis (hypopigmentation + sublingual fibromas)
16)	Meningitis: Photophobia + <i>Phonophobia</i> + <i>Fever</i> (not acute glaucoma)
17)	<p>Cataplexy: sudden, transient loss of muscular tone caused by strong emotion</p> <p>E.g. Laughter, Fear</p> <p>2/3 narcolepsy have cataplexy</p>
18)	Height stepping gait ( <i>compensating for foot drop</i> ): peripheral Neuropathy
19)	Syringomyelia: wasting & weakness of small muscles of hands. Loss of pain & temperature sensation of trunks and arms
20)	<p>Bilateral facial palsy:</p> <ul style="list-style-type: none"> <li>- <i>Sarcoidosis</i></li> <li>- <i>Guillain barre syndrome</i></li> <li>- <i>Polio, Lyme disease</i></li> </ul> <p>Unilateral facial palsy:</p> <ul style="list-style-type: none"> <li>- <i>Above + bell's palsy</i></li> <li>- <i>Acoustic neuroma</i></li> <li>- <i>Ramsay hunt syndrome</i></li> <li>- <i>Multiple sclerosis</i></li> <li>- <i>Diabetes mellitus</i></li> </ul>

## NEUROLOGY

	<ul style="list-style-type: none"><li>- HIV</li><li>- Parotid tumours</li></ul>
21)	<p>Antiepileptic 1<sup>st</sup> line: Sodium Valproate</p> <p>Side Effects:</p> <ul style="list-style-type: none"><li>- GI -&gt; Nausea</li><li>- Weight gain</li><li>- Alopecia</li><li>- Ataxia</li><li>- Hepatitis</li><li>- Hyponatremia</li><li>- Pancreatitis</li><li>- Teratogenic</li><li>- Thrombocytopenia</li></ul>
22)	<p>Normal Pressure Hydrocephalus:</p> <ul style="list-style-type: none"><li>- Wet -&gt; urinary incontinence</li><li>- Wacky -&gt; dementia -&gt; declining cognitive</li><li>- Wobbly -&gt; falls</li></ul>
23)	<p>Metoclopramide: causes -&gt; extra pyramidal effects</p>
24)	<p>Multiple System Atrophy:</p> <p>Shy Drager Syndrome: -</p> <ul style="list-style-type: none"><li>- Parkinsonism</li><li>- Autonomic disturbance</li><li>- Cerebellar signs</li></ul>
25)	<p>Epilepsy:</p> <ul style="list-style-type: none"><li>- Sodium Valproate -&gt; 1<sup>st</sup> line tx (generalised seizure)</li><li>- Carbamazepine -&gt; partial seizures</li></ul> <p>Generalised tonic clonic:</p> <ul style="list-style-type: none"><li>- Sodium valproate (1<sup>st</sup> line)</li><li>- Lamotrigine, Carbamazepine</li></ul> <p>Absence:</p> <ul style="list-style-type: none"><li>- Sod Valproate</li><li>- Ethosuximide</li></ul> <p>Myoclonic:</p> <ul style="list-style-type: none"><li>- Sod Valproate</li><li>- Lamotrigine or Clonazepam</li></ul> <p>Partial seizures:</p> <ul style="list-style-type: none"><li>- Carbamazepine or Lamotrigine</li><li>- Sod Valproate</li></ul>
26)	<p>Levodopa: not associated with galactorrhoea</p>

## NEUROLOGY

27)	SAH: causes -> A) PCKD B) Ehlers-Danlos Syndrome C) CoA
28)	Motor Neuron Disease: 1) Amyotrophic Lateral Sclerosis (50%) 2) Primary Lateral Sclerosis 3) Progressive Muscular Atrophy 4) Progressive Bulbar Palsy
29)	Status Epilepticus: - IV Lorazepam 4mg - Diazepam Per Rectal
30)	Neuropsychiatric Symptoms, Kayser Fleischer rings + Fam hx of liver disease = <b>Wilson Disease -&gt; Copper Deposition</b>  Effects Liver: - Hepatitis/Cirrhosis - Chorea - Kayser Fleischer Rings
31)	SAH: people may suffer VASOSPASM -> give NIMODIPINE
32)	Brown Sequerd Syndrome: injury to 1 side of spinal cord resulting in hemi section of cord
33)	Recurrent headaches in children associated with GI Disturbance
34)	Idiopathic Intracranial Hypertension: Obese young female with headaches/blurred vision

# Al-Khair

## Ophthalmology

AS – iritis (uveitis) → painful red eye

Chronic Glaucoma → headache, visual loss acute, cupping of the disk, tunnel → Pilocarpine, Beta blocker

Steroid – cataract, changes glasses, night vision decrease → surgery

Proliferative retinopathy → urgent referral → laser photocoagulation

Macular degeneration → age related → no intervention effective

Transient loss of vision → carotid Doppler

Q 8- A 70-year-old man presents with reduced vision in both eyes. on visual field testing, there is an upper quadrant hemianopia. What is the most appropriate next step in his management?

- A. Magnetic resonance imaging(MRI) of occipital lobes
- B. Magnetic resonance imaging (MRI) of temporal Lobes**
- C. Magnetic resonance imaging (MRI) of parietal Lobes
- D. Visual evoked responses
- E. Isotope brain scan

Q 9- A 30-year-old man presents with sweating increasing shoe size and bitemporal hemianopia. What is the most appropriate next step in his management?

- A. Magnetic resonance imaging(MRI) of occipital lobes
- B. Magnetic resonance imaging (MRI) of temporal Lobes
- C. Magnetic resonance imaging (MRI) of parietal Lobes**
- D. Visual evoked responses
- E. Isotope brain scan

GCA/Trigeminal Neuralgia → 1) ESR 2) Biopsy

Retinal Detachment → curtain coming down → scleral buckling

Q 13- An 84-year-old woman notices sudden decrease in visual impairment. She is found to have homonymous hemianopia. What is the most likely diagnosis?

- A. Cerebral haemorrhage**
- B. Chronic (simple) glaucoma
- C. Cerebral embolism**
- D. Central retinal artery occlusion
- E. Acute glaucoma

Cherry Retinal Artery Occlusion → cherry red spot, bruit

Foreign Body → metal worker → blurring vision and discomfort

Dendritic Ulcer → herpes simplex → no steroid given, fluconazole

Corneal Abrasion → superficial → baby's finger nail scratch

Retro bulbar neuritis → painful

Conjunctiva bacterial → sticky discharge → antibiotic drops

Amaurosis Fugax → If the plaque is small and vision spontaneously returns with passage of the clot, it is termed amaurosis fugax

MS → mono-ocular field loss (no consensual light)

**CRVO** → red swollen disk → dots and blots → **tomato splash** → **sunset stormy**

**CRAO** → pale disk → cherry red spot

CMV retinitis → pizza

Glaucoma → tunnel vision (chronic) → ICP increased → hazy, haloes, fixed dilated pupils

Sjogren → Anti RO & Anti La Antibodies → dry mouth, dry eyes (MRNK – mikulicz syndrome, RA, NHL, Keratoconjunctiva Sicca)

Optic disk → effected → papilloedema (in stroke it is NORMAL)

Optic Nerve → pallor of disk (MS)

Q 32- A 35-year-old woman presents with visual problem. CT scan of the brain reveals **Pituitary tumor**. What is the single most likely defect?

- A. Homonymous hemianopia
- B. Homonymous upper quadrantanopia
- C. Bitemporal hemianopia**
- D. Cortical blindness
- E. Homonymous lower quadrantanopia

pressure on optic chiasma → hence bitemporal hemianopia

Q 33- A patient with DM Type 1, fundus shows **micro-aneurysm and hard exudate**. What is the single most likely diagnosis?

- A. Macular Degeneration
- B. Hypertensive retinopathy
- C. Multiple Sclerosis
- D. Diabetic background retinopathy**

E. Proliferative Diabetic retinopathy

Hypertensive retinopathy → progressive vision loss

Macular degeneration → age → drusen and yellow spots in centre of retina

Conjunctivitis → sticky eyes bacterial → antibiotics drops



		S/S	Ix/Tx	Others
CRAO	Elderly pt	Sudden loss of vision A/w HTN Carotid bruit – carotid plaques CHERRY RED SPOT ON MACULA	Slit lamp exam fundoscopy carotid dopler (if bruit)  Ocular massage I/V acetazolamide – ICP raised	A 76-year-old man presents with sudden vision loss in his right eye. He described the onset as if a curtain came down over his eye. He has a medical history of hypertension and coronary artery disease. On physical exam a carotid bruit is heard. A retinal exam is performed.
CRVO	Obese men	NO CAROTID bruit optic disc swelling A/w HTN & DM gradual onset/sudden  Risk F → Polycythemia Rubra Vera Lung cancer → venous thrombosis  Painless vision loss	Slit lamp exam  Fundo: flamed shaped haemorrhages hard exudate tomato splash appearance stormy sunset  Reduce Risk Factors ICP raise → Acetazolamide 500mg IV	A 65-year-old man with polycythemia rubra vera presents with sudden onset, painless, vision loss. On retinal exam, widespread retinal hemorrhages are noted.

## PARACETAMOL POISONING: (High yield topic)

---

**PLAB CASE 1:** A patient presented within one hour of ingestion of paracetamol fatal dose (150 mg/kg or 12g). What is the management plan?

- 1- General measures.
  - 2- Give activated charcoal immediately.
  - 3- Serum blood glucose, BUE, LFT, INR, FBC, HCO<sub>3</sub>.
  - 4- Wait for 4h, then send blood for paracetamol level.
  - 5- Please remember maximum paracetamol absorption occurs in the small intestine due to larger surface area, rather than in stomach. Thus, activated charcoal is preferred over gastric lavage as treatment of choice.
- 

**PLAB CASE 2:** A patient presented within 4 hour of ingestion of paracetamol fatal dose (150mg/ 12g). What is the management plan?

- 1- General measures.
  - 2- Give activated charcoal immediately.
  - 3- Serum blood glucose, BUE, LFT, INR, FBC, HCO<sub>3</sub>.
  - 4- Wait for 4h, then send blood for paracetamol level.
- 

**PLAB CASE 3:** A patient presented after 4 hour of ingestion of paracetamol fatal dose (150mg/ 12g). What is the management plan?

1. General measures.
2. Serum blood glucose, BUE, LFT, INR, FBC, HCO<sub>3</sub>.

3. send blood for paracetamol level. Check blood levels if it is on or above treatment line (100mg/l) start N-acetyl cysteine.
4. Please note same treatment plan applies to all cases of acute paracetamol poisoning having ingestion history of less than 10-12 hour. For example, if a patient presents within the same window period starting from 4 hour to 12 hour after ingestion of fatal dose, please wait for serum paracetamol level before starting NAC. There is no role of initiating treatment immediately.
- 

**PLAB CASE 4:** A patient presented with a history paracetamol ingestion of unknown dosages. However, he is telling that he has taken this medicine for suicidal attempt. What will be your management plan?

1. After all general measures, the treatment choice for this patient is N-acetyl cysteine immediately.
  2. Send blood for paracetamol levels, if the it falls below treatment line i.e 100mg/l and INR/ALT are normal. Then only stop the NAC infusion. Otherwise, Continue NAC infusion if the levels fall on or above treatment line.
- 

**PLAB CASE 5:** A patient presented with a history of paracetamol poisoning but he does not remember the time. What is the treatment plan?

Treatment plan is the same as for case 4. However, it is better to seek an expert opinion. This guideline also applies on patient with multiple fatal dose ingestion or presentation more than 15 hour.

---

**PLAB CASE 6:** A patient with a history of paracetamol poisoning is under medical management. However, his condition is deteriorating on 2<sup>nd</sup> day of admission despite of all emergency medication as well as NAC. His blood labs as follows:

INR 4.1

pH 7.0 after early fluid resuscitation

Serum lactate >3.5 mg

Phosphate >1.2mmol/l

Serum creatinine level >300umol/l

He is in grade 3 or 4 hepatic encephalopathy. What will be the most appropriate management?

This patient needs immediate consultation with liver unit for consideration regarding liver transplantation. All the findings are suggestive for king's criteria for referral to specialist liver unit.

**Reference:**

- Paracetamol poisoning. Oxford handbook of clinical medicine. 9<sup>th</sup> edition. 856-857.
- BNF 70. 2015-16. Emergency treatment of paracetamol poisoning and N-acetyl cysteine.

## Pharyngeal pouch

# Al-Khair

Causes → **dysphagia**

Occurs in middle or old age

### Signs and symptoms:

- 1) Regurgitation of undigested food on lying down
- 2) Sensation of lump in the throat
- 3) **Halitosis**
- 4) Aspiration into the lungs (aspiration pneumonia)
- 5) Bulging of neck on drinking
- 6) Gurgling lumps

### Investigations:

- 1) **Barium swallow**
- 2) **US if neck presents a mass**

### Treatment:

- 1) Surgical excision

# PLAUSIBLE MISTAKES

## CARDIOLOGY

**Q. A 55 year old man who suffered a myocardial infarction a few days ago is now ready for discharge. His medical history remains insignificant other than the myocardial infarction he had. He has no drug allergies. He has already been put on aspirin and clopidogrel. What is the SINGLE most appropriate medication(s) to be given to him on discharge?**

- A. Statin only
- B. Statin and Warfarin
- C. Statin and ACE inhibitor**
- D. Warfarin only
- E. Heparin only

### EXPLANATION:

**ALL patients with MI on discharge:**

- **Dual antiplatelet therapy: Aspirin + Clopidogrel**

Note: Aspirin is continued life long

Clopidogrel for 12 months

- **Beta Blockers**

Offer BB to people who present acutely with MI as soon as they are hemodynamically stable

Continue a beta-blocker for at least 12 months after an MI in people without heart failure.

Continue a beta-blocker indefinitely in people with HF

- **ACEi**

Offer ACEi to people who present acutely with MI as soon as they are hemodynamically stable

If intolerant to ACEi → use ARB

- **STATINS**

*Mnemonic: Once the patient is discharged, he can take the **CAB** or **BAS (BUS)** home.*

**C** - Clopidogrel

**A** - Aspirin

**B** - Beta Blockers

**A** - ACEi

**S** - Statin

**Q. A 69 year old man was successfully thrombolysed for an inferior myocardial infarction 15 days ago and was discharged 5 days after the thrombolysis. He is now re-admitted as he is hypotensive, tachycardic and with pulmonary oedema. What is the most SINGLE most likely diagnosis?**

A. Aortic regurgitation

**B. Acute mitral regurgitation**

C. Mitral valve prolapse

D. Pulmonary stenosis

E. Rheumatic mitral valve stenosis

**EXPLANATION:**

## Acute mitral regurgitation post-MI

Al-Khair

This is a mitral regurgitation due to ischaemic papillary muscle dysfunction or partial rupture. It is usually seen 2-10 days post myocardial infarction. It is more commonly associated with inferior myocardial infarction than anterior myocardial infarction.

'Silent MR' is quite frequent and must be suspected in any post-MI patient with unexplained haemodynamic deterioration.

### Diagnosis

Echocardiogram

### Treatment

This is unlikely to be asked in PLAB but for your own knowledge:

Acute MR is treated with vasodilator therapy but often require emergency surgical repair.

**Q. A 6 week old baby has a pansystolic murmur at sternal border. He feeds poorly and has poor weight gain. The baby is acyanotic. What is the SINGLE most likely diagnosis?**

- A. Tetralogy of Fallot
- B. Atrial septal defect
- C. Ventricular septal defect**
- D. Patent ductus arteriosus
- E. Transposition of the great arteries

Al-Khair



### **EXPLANATION:**

A key mnemonic that can help you get through PLAB part 1 cardio questions is:

*Pan-systolic → MR, TR, VSD*

Hence, when you see the words pan-systolic murmur in the question, straight away, you can cut out any options that ARE NOT mitral regurgitation, tricuspid regurgitation and ventricular septal defect.

In this question, the phrase pan-systolic murmur already gives you the answer which is VSD.

### **Ventricular septal defect**

- Basically a hole connecting the ventricles

### **Causes:**

- Congenital
- Acquired (post-MI)

### **Symptoms:**

- May present with severe heart failure in infancy, or remain asymptomatic and be detected incidentally in later life.

### **Signs:**

These depend on size and site:

# Al-Khair

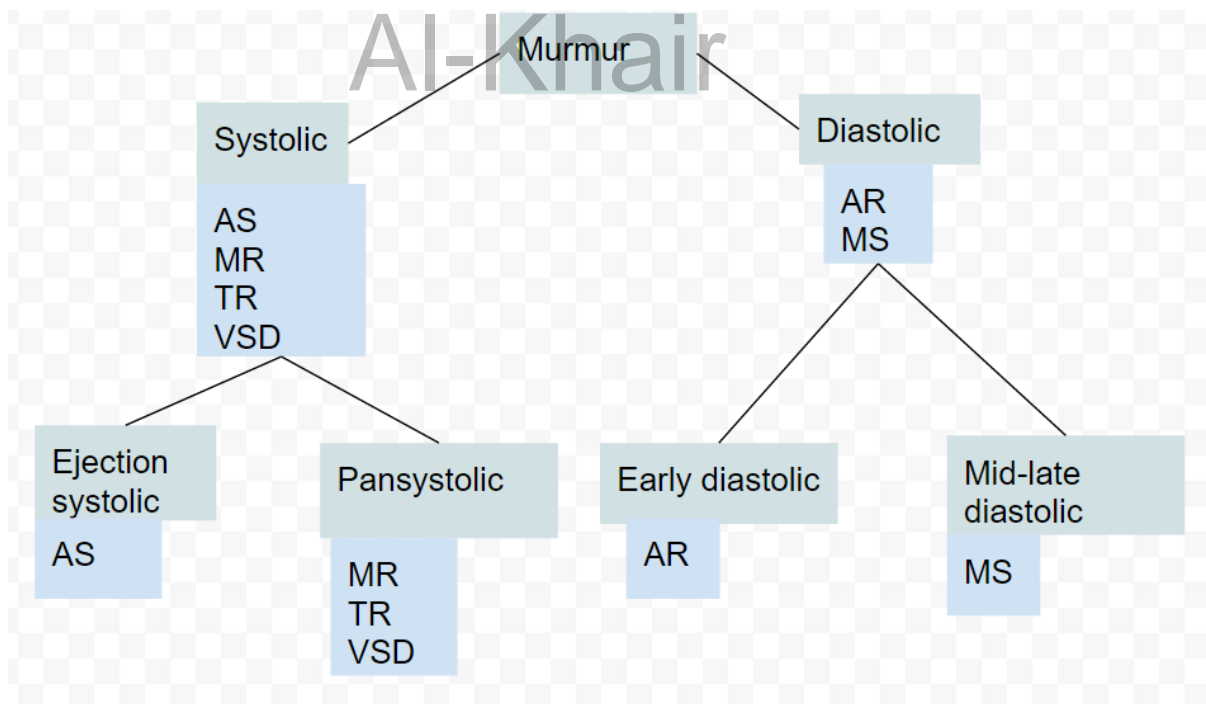
- *Small holes*
  - Infant or child is asymptomatic with normal feeding and weight gain
  - May be detected when a murmur is heard on routine examination
  - Give louder murmurs
  - Classically, a harsh pan-systolic murmur heard at the left sternal edge, with a systolic thrill, and a left parasternal heave

*Most importantly is to remember the term “pan-systolic murmur” as often that alone can give you the answer provided mitral regurgitation and tricuspid regurgitation are not one of the options.*

- *Large holes*
  - Associated with signs of pulmonary hypertension
  - These babies may develop a right to left shunt with cyanosis or Eisenmenger's syndrome

**The diagnosis and management** → *Not so important for the exam*

*A memory flow chart to help you easily differentiate murmurs*



**Q. A 62 year old women who had stroke a year ago now reports having increased dyspnoea on exertion. An ECG was performed which showed an atrial fibrillation. Chest X-ray shows a straight left heart border. What is the SINGLE most likely diagnosis?**

- A. Aortic regurgitation
- B. Acute mitral regurgitation
- C. Mitral valve prolapse
- D. Pulmonary stenosis
- E. Mitral valve stenosis**

## **EXPLANATION:**

The clincher here is the chest X-ray that shows a straight left heart border. This is classic for mitral stenosis where the left atrium enlarges. The rest of the symptoms also match the diagnosis of mitral stenosis. The history of stroke given in this question is a clue that she has had atrial fibrillation for a while and had a systemic embolism (due to stagnation of blood in an enlarged left atrium).

### **Mitral Valve Stenosis**

- Most commonly due to rheumatic fever
- Results in right ventricular failure

### **Etiology**

- Most cases are secondary to rheumatic fever → *This is extremely important to remember for the exam*

### **Pathogenesis**

- Mitral valve stenosis impedes left ventricular filling
- Increased left atrial pressure is referred to the lungs, causing pulmonary congestion
- Forward cardiac output becomes reduced, secondary pulmonary vasoconstriction occurs, and eventually right ventricular failure results

### **Clinical symptoms**

Usually manifest slowly over years

- Dyspnea
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Right-sided heart failure
- Hepatomegaly
- Ascites
- Peripheral edema

*The following are presentations which are rare and unlikely to be asked*

- Haemoptysis (due to rupture of pulmonary vessels due to raised atrial pressure)
- Systemic embolism (due to stagnation of blood in an enlarged left atrium)

### **Physical signs**

- Malar flush on the cheeks
- Atrial fibrillation
- Pulmonary rales
- Loud S1 → *This is particularly important to note for the exam*
- Diastolic rumble (low-pitched apical murmur)

### **Diagnosis**

#### **ECG**

- May show signs of right ventricular hypertrophy

- Atrial fibrillation may be seen
- P mitrale → bifid P wave

#### Chest x-ray

- Large left atrium → straightening of the left heart border
- Pulmonary hypertension, including Kerley B lines and increased vascular markings

#### Echocardiography

- Thickening of mitral valve leaflets

**Q. A 44 year old woman in the postnatal ward develops sudden onset chest pain and shortness of breath. She had an emergency C-section for fetal distress two days ago. She feels the breathlessness worsen when she lies down. She has a respiratory rate of 32 breaths/minute and a blood pressure of 100/60 mmHg. Her oxygen saturation is 89% on room air and temperature is 36.9°C. On examination, she looks pale and sweaty. Auscultation reveals widespread crepitations over both lung fields. An ECG was performed which shows sinus tachycardia. Oxygen by face mask was commenced. A chest X-ray confirms the diagnosis. Which SINGLE medication is used as part of the management?**

- A. Co-amoxiclav
- B. Aspirin
- C. Furosemide**
- D. Low molecular weight heparin
- E. Alteplase

### **EXPLANATION:**

This patient is suffering from acute pulmonary oedema brought upon by heart failure. It is worth noting that this stem is a little tricky as there were no risk factors of heart failure mentioned and the information that the women had a recent C-section makes physicians (especially if you have worked in an obstetric unit), think of a pulmonary embolism. However, it is important to be aware that cardiac causes of breathlessness do occur in pregnancy and post delivery as well. This stem gives the history of orthopnoea which clearly points towards heart failure as the reason for the shortness of breath.

In terms of management of acute pulmonary oedema, 4 important steps need to be done:

1. Sit patient up, and give oxygen - aim for saturations  $\geq 95\%$  ( $>90\%$  in those with COPD)
2. Glyceryl trinitrate (GTN) spray two puffs sublingual
3. Furosemide 40 mg intravenously (slowly) produces transient venodilation and subsequent diuresis
4. Diamorphine 2.5-5 mg intravenously slowly (or morphine 5-10 mg intravenously slowly) can be used to relieve anxiety, pain and distress

Q. A 46 year old man was brought into the A&E after being stabbed in the chest with a knife. His chest is bilaterally clear. He has muffled heart sounds and his neck veins look distended. His blood pressure is 84/40 mmHg and pulse is 110 bpm. What is the SINGLE most appropriate investigation that can lead to a diagnosis?

**A. Echocardiogram**

B. Chest X-ray

C. CTPA

D. Spirometry

E. Blood cultures

**EXPLANATION:**

This question clearly points towards cardiac tamponade. His chest is bilaterally clear thus we can therefore exclude pneumothorax or pleural effusion. Muffled heart sounds, distended neck veins, hypotension are called Beck's triad and it is a classical finding in cardiac tamponade. This is diagnosed with an echocardiogram

**Cardiac tamponade**

- A life-threatening condition in which a pericardial effusion has developed so rapidly or has become so large that it compresses the heart.

**Etiology**

- Usually penetrating or blunt chest trauma

**Features**

- Dyspnoea



- Raised JVP - seen by having neck veins which are distended
- Tachycardia
- Hypotension
- Muffled heart sounds
- Pulsus paradoxus

Remember → Beck's triad: Muffled heart sounds, distended neck veins, and hypotension

#### Diagnosis

- Echocardiography

#### Treatment

- Pericardiocentesis

#### Comparing common features of Acute Pericarditis, Pericardial Effusion, Cardiac Tamponade

	Acute Pericarditis	Pericardial Effusion	Cardiac Tamponade
<b>Cause</b>	e.g. Viruses (Coxsackie) Uraemia Myocardial infarction, Dressler's	Any cause of pericarditis (see left)	Any cause of pericarditis  Trauma

<b>Clinical Features</b>	<p>Central chest pain worse on inspiration or lying flat ± relief by sitting forward.</p> <p>Pericardial friction rub</p>	Dyspnoea, raised JVP	<p>Pulse ↑</p> <p>BP ↓</p> <p>muffled heart sounds</p> <p>↑ JVP</p> <p>Beck's triad:</p> <ul style="list-style-type: none"> <li>• Falling BP</li> <li>• Rising JVP</li> <li>• Muffled heart sounds</li> </ul>
<b>Test</b>	<p>ECG classically shows concave (saddle-shaped) ST segment elevation,</p> <p>(NB: troponin may be raised),</p>	<p>CXR shows enlarged, globular heart</p> <p>ECG shows low-voltage QRS complexes and alternating</p>	Echo is diagnostic
<b>Treatment</b>	NSAIDS	Pericardiocentesis	Urgent Pericardiocentesis

Q. A 52 year old man underwent a hemicolectomy. A few days after his operation he develops chest pain and a temperature of 38.8°C. He is having rigors and night sweats. On auscultation, a systolic murmur is heard. What is the next SINGLE most appropriate investigation?

- A. Computed tomography scan of the chest
- B. Abdominal ultrasound
- C. Chest X-ray
- D. Blood culture**
- E. Liver function test

**EXPLANATION:**

This is a case of infective endocarditis. The most appropriate investigation is blood cultures or echocardiogram. Since echocardiogram is not one of the options, blood cultures should be picked.

**Infective endocarditis**

Fever + new murmur = endocarditis until proven otherwise

**Diagnosis**

Infective endocarditis is diagnosed if

- 2 major criteria present, or
- 1 major and 3 minor criteria present, or
- 5 minor criteria present

#### Major criteria

- Positive blood cultures
- Positive echocardiogram - showing abscess formation, new valvular regurgitation

#### Minor criteria

- IV Drug user, predisposing heart condition
- Fever  $>38^{\circ}\text{C}$
- Vascular phenomena: e.g. major emboli, clubbing, splinter haemorrhages, Janeway lesions
- Immunological phenomena: glomerulonephritis, Osler's nodes, Roth spots
- Microbiological evidence does not meet major criteria

**Q. A 55 year old woman was found collapsed at home. The paramedics revived her but in the ambulance she had a cardiac arrest and could not be saved. The paramedic's report states that the woman was immobile lately due to hip pain and that they found ulcers on the medial side of ankle. She has a history of diabetes mellitus and was on anti-diabetics. What is the likely cause of her death?**

**A. Acute Myocardial infarction**

B. Diabetic ketoacidosis

C. Pulmonary embolism

D. Acute pericarditis

E. Cardiac tamponade

# Al-Khair

## **EXPLANATION:**

This is a very debatable question. The two top choices here are acute myocardial infarction (a silent MI) or pulmonary embolism due to immobilization which may result in deep vein thrombosis. Acute myocardial infarction fits well because a silent myocardial infarction is seen in diabetics. It can be painless as the patient can develop autonomic neuropathy. If one does not feel pain, she might not call for help. As this progresses, she collapses and dies. We call this a “silent MI”. Given the history of immobilization, pulmonary embolism can be suspected as well. However, given the two choices, a silent MI (acute myocardial infarction) is more likely the answer, as if she were to develop PE, she would have shortness of breath and would have called the ambulance instead.

**Q. A 72 year old man is found to be unresponsive. The ward doctor is called to the patient's bedside. He is not breathing and has no detectable pulse. Which is the SINGLE most appropriate next step?**

- A. Get a defibrillator
- B. Give two rescue breaths immediately
- C. Call resuscitation team**
- D. Insert two wide-bore cannulas into each antecubital fossa
- E. Start chest compressions at a rate of 30:2

## **EXPLANATION:**

This man has had a cardiac arrest. The resuscitation guidelines state that if there are no signs of life, call the resuscitation team.

Basic life support is an important topic for PLAB part 1. Be sure to know the sequence of management's. Resus.org.uk have very good simplified algorithms. Memorize those.

# Al-Khair

The other choices in this question are less appropriate

**Get a defibrillator** → The guidelines mention start CPR and send for a defibrillator as soon as possible. But given the choice, calling the resuscitation team would come first.

**Give two rescue breaths immediately** → will always be the wrong answer as it was part of the old guidelines.

**Insert two wide-bore cannulas into each antecubital fossa** → The man has no cardiac output and, although inserting wide-bore cannulas into each antecubital fossa is indicated, this should not be the first thing to do.

**Start chest compressions at a rate of 30:2** → Would be started immediately once the resuscitation team has been called

**Q. A 66 year old man has presented to the emergency department with a stroke. CT shows no haemorrhage. ECG shows atrial fibrillation. He has been thrombolysed and he is awaiting discharge. He has no other medical conditions. What is the SINGLE best prophylactic regimen for him?**

**A. Warfarin**

B. Heparin

C. Aspirin

D. Statins

E. Beta blockers

## **EXPLANATION:**

Warfarin would be the best choice in this case given that he has atrial fibrillation which could cause another stroke. If atrial fibrillation was not included in this question, then the answer would be aspirin for 2 weeks and clopidogrel long term for stroke prevention.

NICE updated their guidelines on the management of atrial fibrillation (AF) in 2014. They suggest using the CHA2DS2-VASc score to determine the most appropriate anticoagulation strategy. This scoring system superseded the CHADS2 score.

As this patient has had a stroke and his age is between 65-74 years, this gives him a CHA2DS2-VASc score of 3. In general, we offer anticoagulation if the CHA2DS2-VASc score is 2 or more.

**Q. A 6 week old baby presents with the following features of progressive cyanosis, poor feeding, tachypnoea during the first two weeks of life. A holosystolic murmur is heard. What is the SINGLE most likely diagnosis?**

- A. Atrial septal defect
- B. Ventricular septal defect
- C. Tricuspid atresia**
- D. Patent ductus arteriosus
- E. Tetralogy of Fallot

## **EXPLANATION:**

The most common cyanotic heart conditions presenting in the neonatal period are referred to as “The five T’s”

- Al-Khair
1. Tetralogy of Fallot (TOF)
  2. Transposition of the Great Arteries (TGA)
  3. Truncus Arteriosus
  4. Tricuspid Atresia
  5. Total Anomalous Pulmonary Venous Connection (TAPVC)

By using the above mnemonic, we are down to 2 options: Tricuspid atresia or Tetralogy of Fallot.

**Tricuspid atresia** → manifests early in life with severe cyanosis. Holosystolic murmurs is found along the left sternal border (Most have VSD)

**Tetralogy of Fallot** → Can also happen at birth but the symptoms depends on the severity. Ejection systolic murmur due to pulmonary stenosis is the common murmur to be heard.

**Q. A 42 year old lady had corrective surgery for cyanotic congenital heart disease at the age of 3 after having a palliative operation during infancy. On examination, a parasternal heave and a diastolic murmur at the left upper sternal edge is noted. What is the SINGLE most likely diagnosis?**

- A. Aortic regurgitation
- B. Mitral regurgitation
- C. Aortic stenosis
- D. Pulmonary stenosis
- E. Pulmonary regurgitation**

Al-Khair

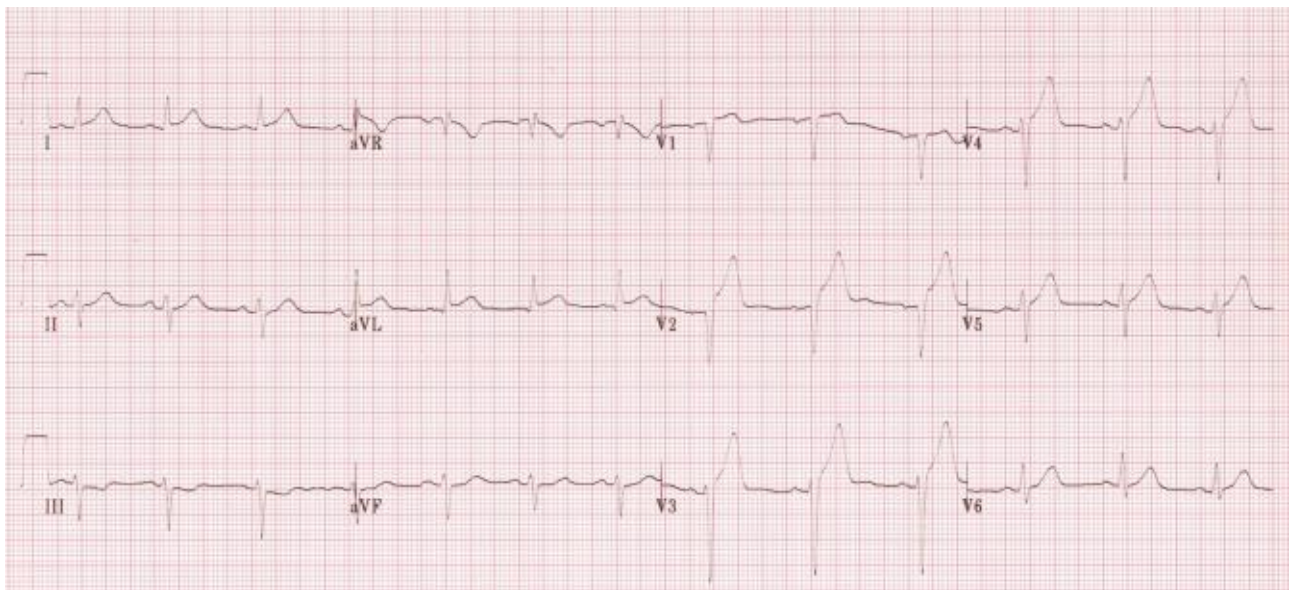


# Al-Khair

## **EXPLANATION:**

Pulmonary regurgitation is a common complication after surgical or percutaneous relief of pulmonary stenosis and following repair of Fallot's tetralogy. Pulmonary regurgitation is usually asymptomatic unless severe, when it may lead to signs of right heart failure. It is possible for patients to live for many decades following surgical repair of tetralogy of Fallot but a major problem encountered is the development of pulmonary regurgitation which may require pulmonary valve replacement.

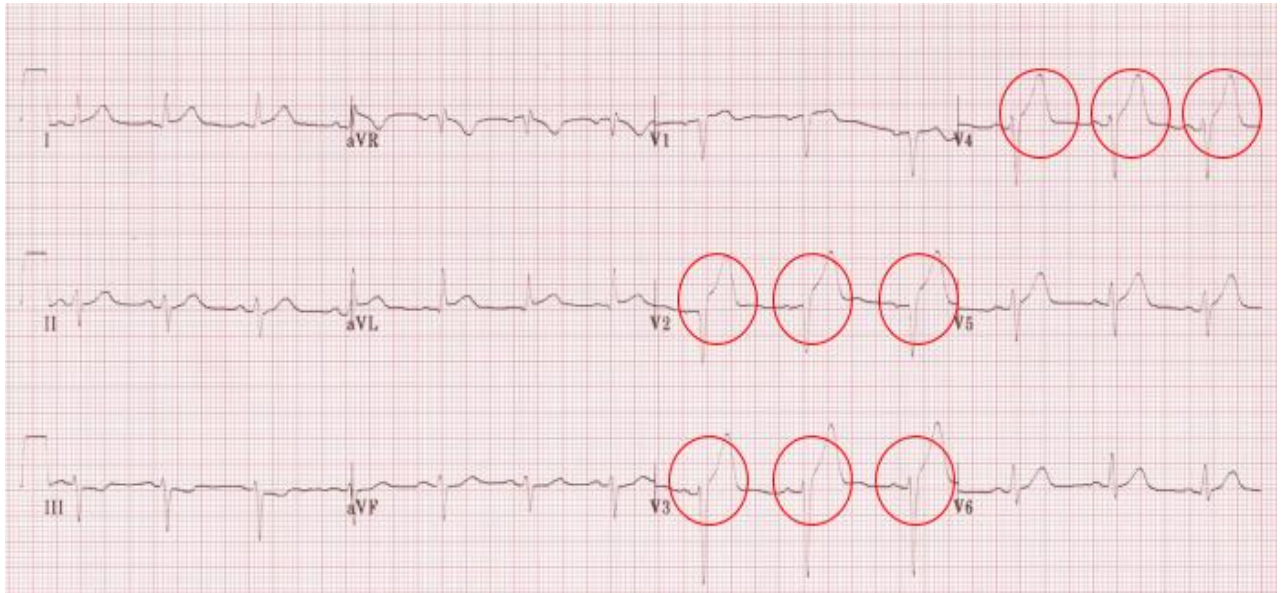
**Q. A 56 year old man presents to the emergency department with chest pain. The following ECG was taken.**



- A. Anteroseptal myocardial infarction**
- B. Inferior myocardial infarction
- C. Lateral myocardial infarction
- D. Posterior myocardial infarction
- E. Non-ST-elevation myocardial infarction

# Al-Khair

## EXPLANATION:



We can note that there is ST elevation in lead V2, V3, V4 (circled in red). This ECG shows a classical example of an anterior myocardial infarction.

Those ECG findings are more than enough to answer the questions in the exam and it is highly unlikely that you would need to know more than that.

For those who want to go into more details (probably not needed for the exam), one can notice the following on this ECG:

- Q waves are present in the septal leads (V1-2)
- Note the subtle ST elevation in I, aVL and V5, with reciprocal ST depression in lead III
- There are hyperacute (peaked) T waves in V2, V3 and V4

These features indicate an anteroseptal STEMI

Al-Khair

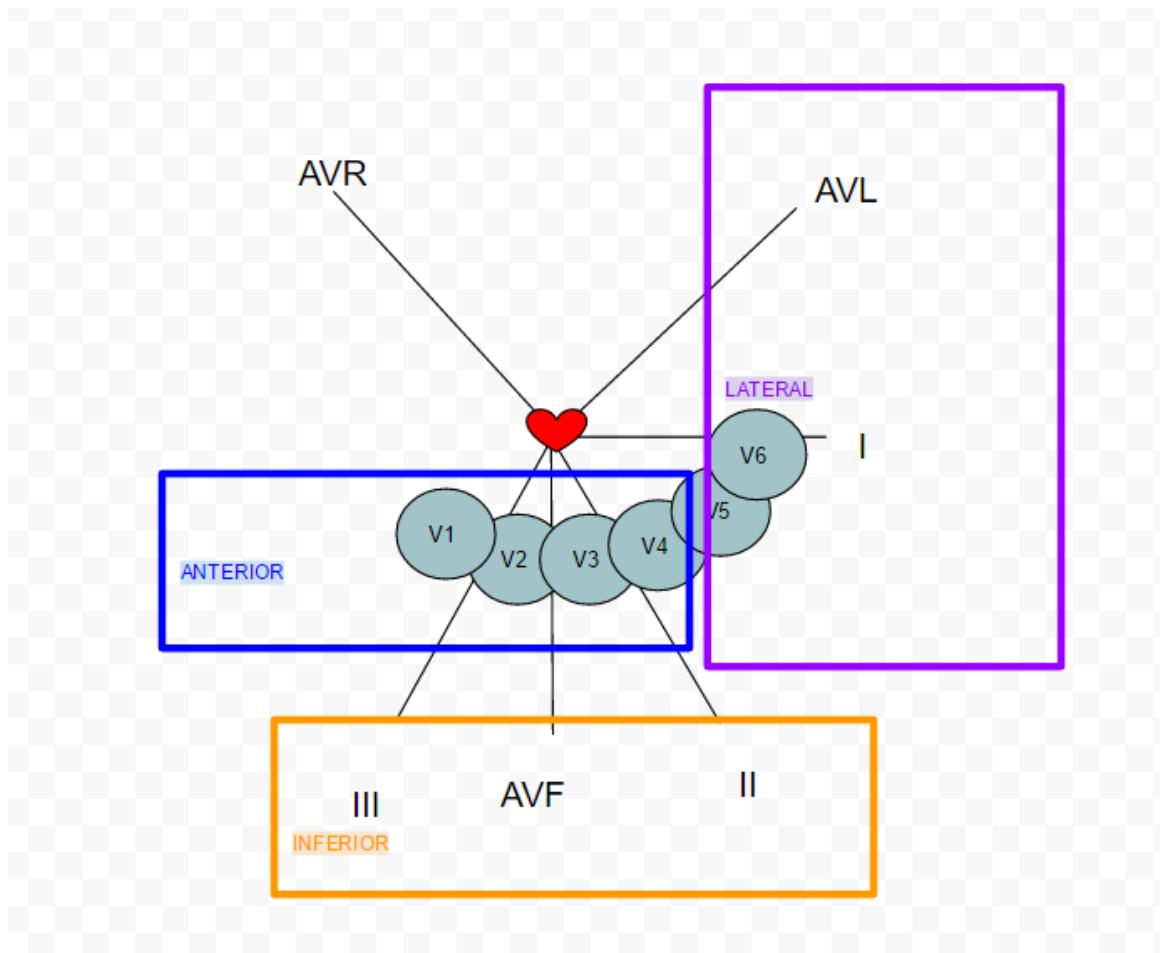
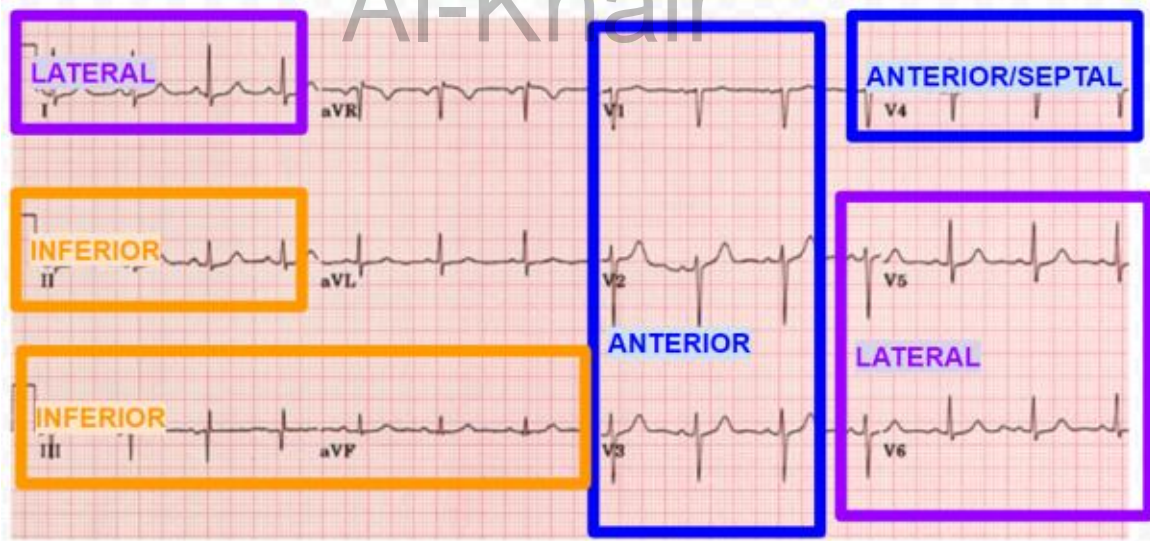
---

**ECG changes in myocardial infarction and coronary territories**

	Area of infarct	ECG changes	Coronary artery
<b>Most commonly asked</b>	Anteroseptal	V1-V4	Left anterior descending (LAD)
	Inferior	II, III, aVF	Right coronary (RCA)
	Lateral	I, aVL +/- V5-6	Left circumflex
<b>Less commonly asked</b>	Anterolateral	I, aVL, V4-6	Left anterior descending (LAD) or left circumflex
	Posterior	Tall R waves V1-2  Also note the reciprocal ST-segment depression in the anterior chest leads	Usually left circumflex, also right coronary

Al-Khair

Area of infarct seen on ECG



Al-Khair

Q. A 28 year old man presents with a 2 hours history of rapid palpitations. He feels light headed but is otherwise well. On examination he has a pulse of 170 beats/minute, regular. His blood pressure is 100/68 mmHg. He had 2 similar episodes of feeling palpitations in the past 3 months. What is the SINGLE most likely rhythm disturbance?

**A. Supraventricular tachycardia**

B. Ventricular fibrillation

C. Ventricular tachycardia

D. Ectopic beats

E. Atrial fibrillation

**Explanation:**

The given history of palpitation, lightheadedness with tachycardia plus a history that this has occurred before, gives the likely diagnosis of supraventricular tachycardia

**Supraventricular tachycardia**

- Paroxysmal supraventricular tachycardia is manifested as an absolutely regular rhythm at a rate between 130 and 220 beats/min.

Q. 52 year old man presents with increased breathlessness at rest. He is currently taking furosemide which he finds gives him some relief. His medical history is significant for diabetes mellitus. On

examination, bilateral pedal oedema and bibasal crepitations are noted. What is the SINGLE most appropriate next step in management?

**A. Ramipril**

B. Bendroflumethiazide

C. Atenolol

D. Amlodipine

E. Carvedilol

**EXPLANATION:**

This patient is suffering from chronic heart failure. Given that this patient has diabetes mellitus, an ACE-inhibitor like ramipril would be more appropriate when compared to a beta blocker.

**Management of chronic heart failure**

The general management of chronic heart failure can be summarized below:

- ACE-inhibitor and a beta-blocker (e.g. Carvedilol) → 1st line
- Spironolactone → 2nd line
- Digoxin → Only if heart failure is in combination with atrial fibrillation

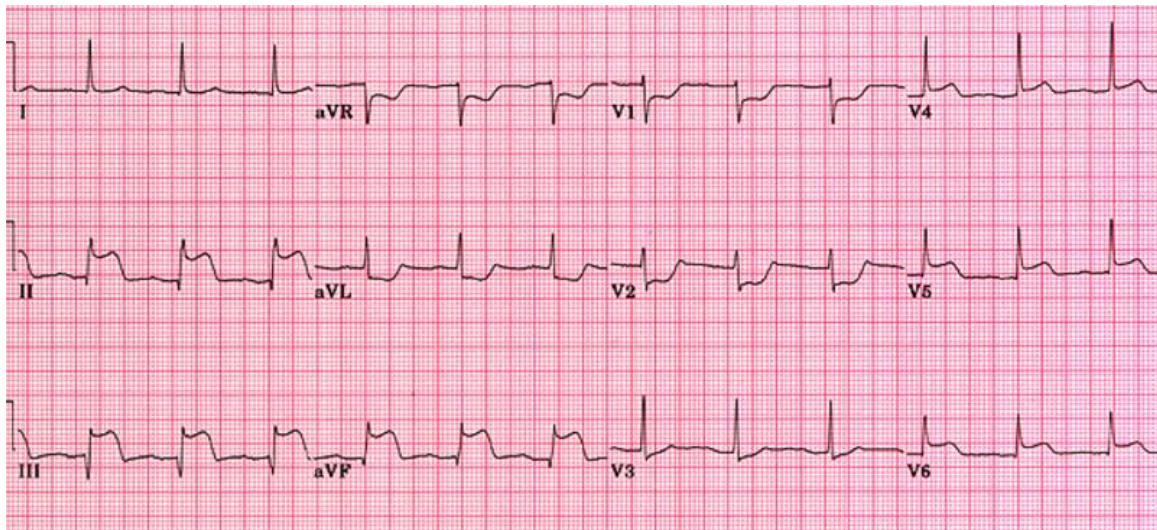


Both an angiotensin-converting enzyme (ACE) inhibitor and a beta-blocker licensed to treat heart failure but it is good practice to only start one drug at a time.

Clinical judgement is used when deciding which drug to start first. For example, the preferred initial treatment might be:

- An ACE-inhibitor if the person has diabetes mellitus or has signs of fluid overload
- A beta-blocker , if the person has angina

**Q. A 72 year old woman presents to the emergency department with chest pain. The following ECG was taken.**

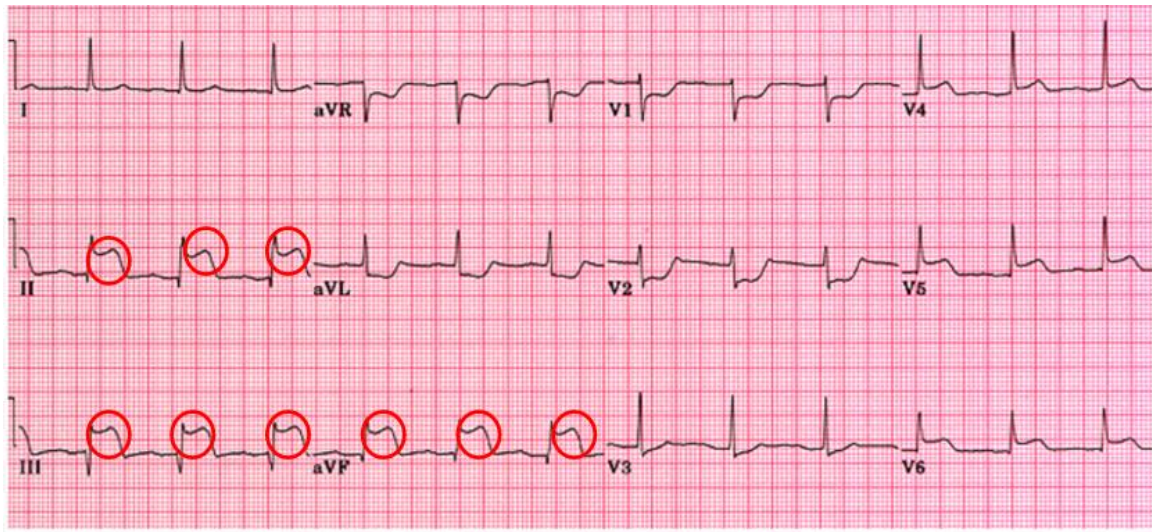


What is the SINGLE most likely diagnosis?

- A. Anteroseptal myocardial infarction
- B. Inferior myocardial infarction**
- C. Lateral myocardial infarction
- D. Posterior myocardial infarction
- E. Non-ST-elevation myocardial infarction

**EXPLANATION:**

Al-Khair



There are obvious ST elevation in leads II, III and aVF.

**ECG changes in myocardial infarction and coronary territories**

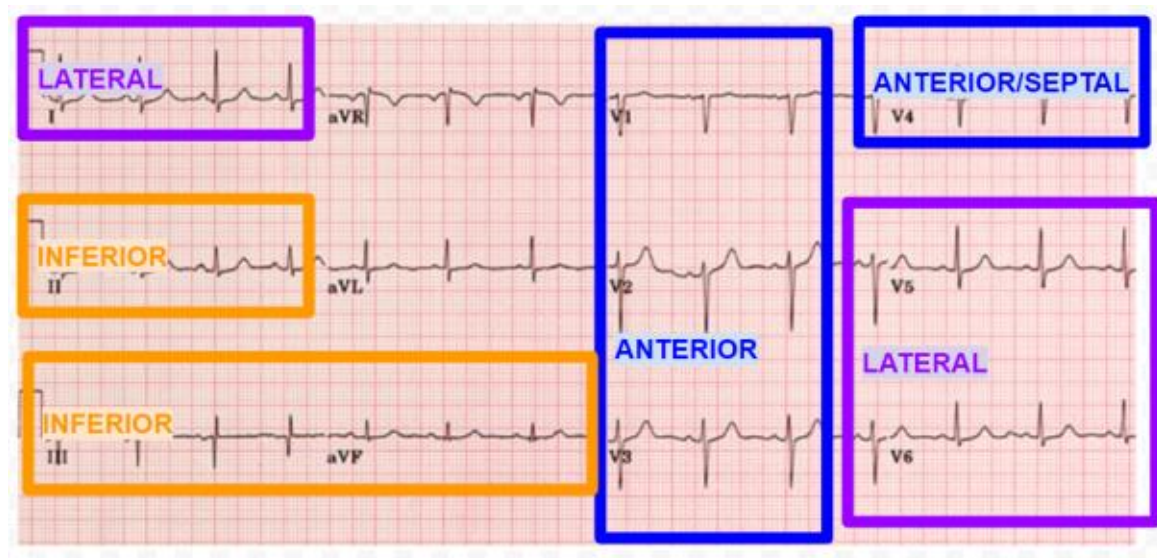
	Area of infarct	ECG changes	Coronary artery
<b>Most commonly asked</b>	Anteroseptal	V1-V4	Left anterior descending (LAD)
	Inferior	II, III, aVF	Right coronary (RCA)
	Lateral	I, aVL +/- V5-6	Left circumflex
<b>Less commonly asked</b>	Anterolateral	I, aVL, V4-6	Left anterior descending (LAD) or left circumflex

Al-Khair

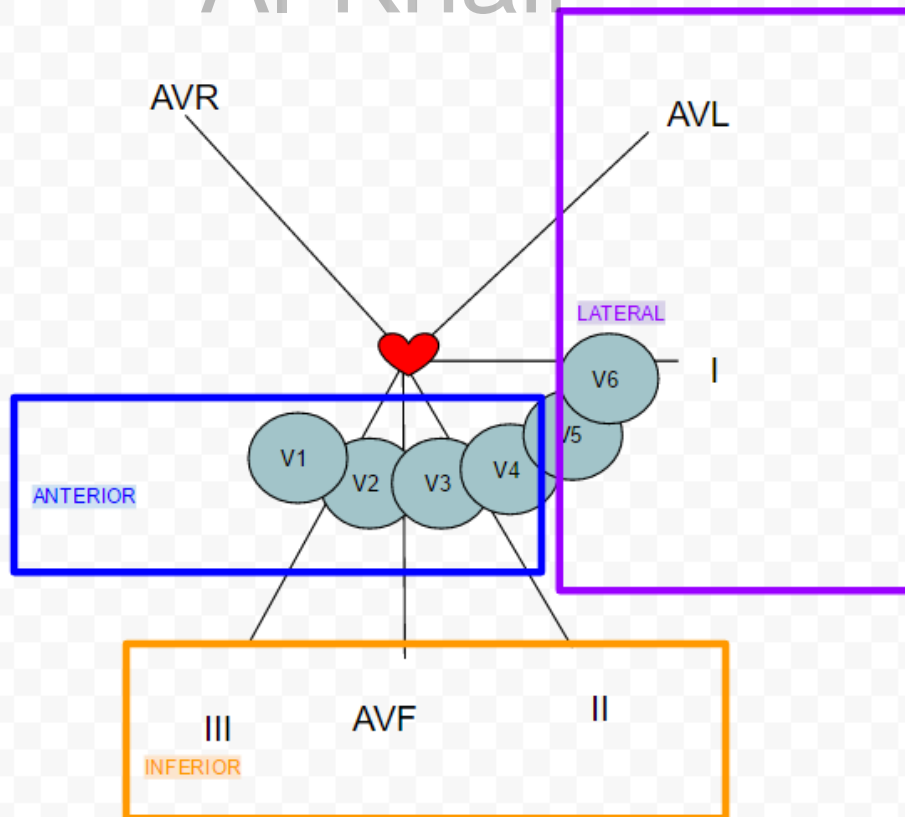


	Posterior	<p>Tall R waves V1-2</p> <p>Also note the reciprocal ST-segment depression in the anterior chest leads</p>	Usually left circumflex, also right coronary
--	-----------	--	--

Area of infarct seen on ECG



Al-Khair



Al-Khair

## EMERGENCY MEDICINE

**Q. A 25 year old man has been stabbed in the right-hand side of his abdomen with a small knife. He presents with severe pain in his right upper quadrant with guarding. IV fluids are being administered. He is very anxious and agitated. His temperature is 36.5°C, heart rate 120 bpm, BP 85/55 mmHg, SaO2 97% on 10L oxygen. The A&E doctor thinks his liver might have been damaged in the attack and calls the surgeons to assess him. Which is the SINGLE most appropriate initial management?**

**A. Cross-match for packed red cells**

B. Fresh frozen plasma

C. Liver enzymes

D. Immediate laparotomy

E. Urgent CT scan of the abdomen

### **EXPLANATION:**

Cross-match is the most appropriate as he may need a blood transfusion. If IV fluids have not been started and the option for IV fluids is given in this question, then pick IV fluids. This would be the first initial step together with oxygen.

**The other options given in this question are less likely:**

**Fresh Frozen plasma** → are used in replacement of isolated factor deficiency, reversal of warfarin effect, massive blood transfusion (>1 blood volume within several hours), treatment of thrombotic thrombocytopenic purpura and are not indicated here in this question

**Liver enzymes** → Have no role in the acute management

**Immediate laparotomy** → This may well be the last step after all investigations are carried out.

**Urgent CT scan of the abdomen** → The patient must be resuscitated and stabilized before sending to the CT scanner.

**Q. A 24 year old woman has been brought to the emergency department having taken 36 tablets of paracetamol following an argument with her partner. She weighs 60 kg. She has no previous psychiatric history and is physically well. What is the SINGLE most appropriate management?**

- A. Refer to social worker
- B. Admit to psychiatric ward
- C. Discharge home with advice
- D. Refer to clinical psychologist

**E. Admit to medical ward**

**EXPLANATION:**

36 tablets of paracetamol is 18g. Remember, 1 tablet is 500mg. Generally, if one takes more than 24 tablets (12g), we admit.

Paracetamol poisoning is always dealt in the medical ward (not psychiatry ward). Only once treated and stable can they move to a psychiatric ward for evaluation.

## **Paracetamol (acetaminophen) poisoning**

Initial features → Nausea, vomiting, pallor

After 24 hours → Hepatic enzymes rise

After 48 hours → Jaundice, an enlarged, tender liver

Hypoglycaemia, hypotension, encephalopathy, coagulopathy, coma may also occur.

### **When to discharge home?**

- If ingestion of paracetamol is  $< 150\text{mg/kg}$  in a child/adult with no hepatic risk factors

### **When to admit?**

- Admit those presenting within 8h of ingesting  $>150\text{mg/kg}$  (or an unknown amount)  
*(For the exam, it can be quite time consuming to multiply 150mg with the weight of the patient. So we would advise you to use the number 24 as a benchmark whereby if the patient consumes more than 24 tablets (12 g) of paracetamol, then you admit him/her)*

### **When to do a serum paracetamol concentration?**

- At  $\geq 4\text{h}$  post ingestion if consumed  $>150\text{mg/kg}$  (or an unknown amount)

### **When to give activated charcoal?**

- If presenting  $< 1\text{h}$ , and  $>150\text{mg/kg}$  of tablets ingested

### **When to give N-acetylcysteine?**

- If there is a staggered overdose (Note: a staggered overdose is if all the tablets were not taken within 1 hour); or
- If there is doubt over the time of paracetamol ingestion, regardless of the plasma paracetamol concentration; or
- If plasma paracetamol concentration (taken 4 hours post ingestion) is above the appropriate line
- If patients presents late (>8h) and ingested dose is >150mg/kg, (or dose is unknown)

**Q. A 35 year old man with a known peanut allergy presents to Accident & Emergency after having unknowingly ingested a cupcake with nuts. He has widespread wheezes bilaterally on auscultation and he is experiencing stridor and dyspnoea. His lips have also started to swell. IV access has been established. What is the SINGLE most appropriate immediate treatment for him?**

**A. Intramuscular adrenaline 1:1000**

- B. Intravenous adrenaline 1:1000
- C. Intravenous hydrocortisone
- D. Intravenous diphenhydramine
- E. Intramuscular adrenaline 1:10000

Even though IV access has been established, the best treatment to resolve his hypersensitivity reaction is STILL intramuscular adrenaline.

**Anaphylaxis algorithm:**

1. ABC
2. Give high-flow oxygen
3. Lay the patient flat:

4. Adrenaline (epinephrine) intramuscularly (IM) in the anterolateral aspect of the middle third of the thigh (safe, easy, effective).

The recommended doses for adrenaline are as follows:

	Adrenaline
< 6 months	150 micrograms (0.15ml 1 in 1,000)
6 months - 6 years	150 micrograms (0.15ml 1 in 1,000)
6-12 years	300 micrograms (0.3ml 1 in 1,000)
Adult and child > 12 years	500 micrograms (0.5ml 1 in 1,000)

Adrenaline is the most important drug in anaphylaxis and should be given intramuscularly as soon as possible. Once adrenaline is administered, hydrocortisone and chlorpheniramine should follow.

**Q. A 60 year old woman with history of a urinary tract infection, hypertension and gallstones presents to the emergency department. She complains of upper right abdominal pain, rigors and feeling unwell. Her urine dipstick is negative for white cell and nitrates. She has a temperature of 38.9°C. Her blood pressure is 88/55 mmHg, oxygen saturation of 92% on room air, pulse rate of 130 beats/minute and respiratory rate of 24 breaths/minute. What is the SINGLE most likely diagnosis?**

**A. Sepsis**

B. Urinary tract infection

C. Pre-eclampsia

D. Septic shock

E. Cirrhosis

Al-Khair

**EXPLANATION:**

This elderly woman has biliary sepsis probably due to a bile duct obstruction hence the upper right abdominal pain. As the urine dipstick is negative, it is unlikely that she has a UTI.

As she was never given IV fluids, we are unable to say that she has septic shock given that the term “septic shock” is defined as persistently low blood pressure which has failed to respond to the administration of intravenous fluids.

The very important term to note in this stem is “rigors”. Rigors are episode of shaking or exaggerated shivering and is classically seen in 2 scenarios:

1. Bacteraemia such as seen in biliary sepsis or sepsis from pyelonephritis
2. Malaria

**Sepsis**

- A life-threatening organ dysfunction caused by a dysregulated host response to infection

**There are a few questions you need to ask when dealing with sepsis:**

1. Is the patient acutely unwell or is there any clinical concern?
2. Is the total NEWS score 5 or more?
3. Is there a single NEWS score indicator of 3?

Al-Khair



*Note: NEWS score stands for National Early Warning Score. It is a score introduced by the Royal College of Physicians in 2012 and it is used across the NHS to assess patient's vitals and observations.*

If any of the above questions were yes, then ask yourself, could this be an infection?

If yes, look for any RED FLAGS

#### **Evaluation for 'Red Flag' sepsis**

- Systolic blood pressure < 90 mmHg (or >40 mm Hg fall from baseline)
- Heart rate >130 beats/minute
- Oxygen saturations < 91% (< 88% in COPD)
- Respiratory rate >25 breaths/minute
- Responds only to voice or pain/unresponsive
- Lactate >2.0 mmol
- Urine output < 0.5 ml/kg/hr for  $\geq 2$  hours

If 1 or more RED FLAGS present → Complete the SEPSIS SIX within 60 minutes

#### **Sepsis Six → Take 3, Give 3**

- **Take 3**
  - Blood cultures
  - FBC, urea and electrolytes, clotting, lactate
  - Start monitoring urine output
- **Give 3**
  - High flow oxygen
  - Intravenous fluid challenge
  - Intravenous antibiotics

**Q. A 70 year old male presents with a 2 day history of productive cough and shortness of breath. He complains of chills and rigors. He is ill-looking. He has a temperature of 38.5°C, respiratory rate of 26 breaths/minute, and a pulse rate of 125 beats/min. His blood pressure is 88/45 mmHg and oxygen saturation is 90% on room air. On auscultation, bronchial breath sounds are heard in the periphery. He is given a fluid challenge of 1L normal saline. His blood pressure post fluid challenge is 90/40 mmHg. What is the SINGLE best term to use in his condition?**

- A. Sepsis
- B. Severe sepsis
- C. Septic shock**
- D. Systemic inflammatory response syndrome (SIRS)
- E. Infection

## **EXPLANATION:**

Although, infection, sepsis, severe sepsis and SIRS are correct terms to use, the best term in this case is septic shock.

Septic shock is defined as severe sepsis with persistently low blood pressure which has failed to respond to the administration of intravenous fluids.

Sepsis vs SIRS

<b>Sepsis</b>	<b>SIRS - Systemic inflammatory response syndrome</b>
Sepsis is defined as a life-threatening organ dysfunction caused by a dysregulated host response to infection	SIRS may occur as a result of an infection (bacterial, viral or fungal) or in response to a non-infective inflammatory cause, for example burns or pancreatitis

Septic shock is defined as:

- Persistently low blood pressure which has failed to respond to the administration of intravenous fluids

## Evaluation for 'Red Flag' sepsis

- Systolic blood pressure < 90 mmHg (or >40 mm Hg fall from baseline)
- Heart rate >130 beats/minute
- Oxygen saturations < 91% (< 88% in COPD)
- Respiratory rate >25 breaths/minute
- Responds only to voice or pain/unresponsive
- Lactate >2.0 mmol
- Urine output < 0.5 ml/kg/hr for ≥ 2 hours

## Sepsis Six → Take 3, Give 3

Take 3

- Blood cultures
- FBC, urea and electrolytes, clotting, lactate
- Start monitoring urine output

Give 3

- High flow oxygen

**Requires 2 of the following:**

- Body temperature less than 36°C or greater than 38.3°C
- Heart rate greater than 90 beats/minute
- Respiratory rate greater than 20 breaths/minute
- Blood glucose > 7.7mmol/L in the absence of known diabetes
- White cell count less than 4 or greater than 12

<ul style="list-style-type: none"> <li>• Intravenous fluid challenge</li> <li>• Intravenous antibiotics</li> </ul>	
--	--

Sepsis has always been hard to define and many diagnostic criterias has been proposed. There are a few terms of which definitions will help you understand the topic of sepsis.

### **How is organ dysfunction identified?**

At the bedside, organ dysfunction is identified by an increase in the Sequential (Sepsis-related) Organ Failure Assessment (SOFA) score of 2 points or more.

### **What is qSOFA?**

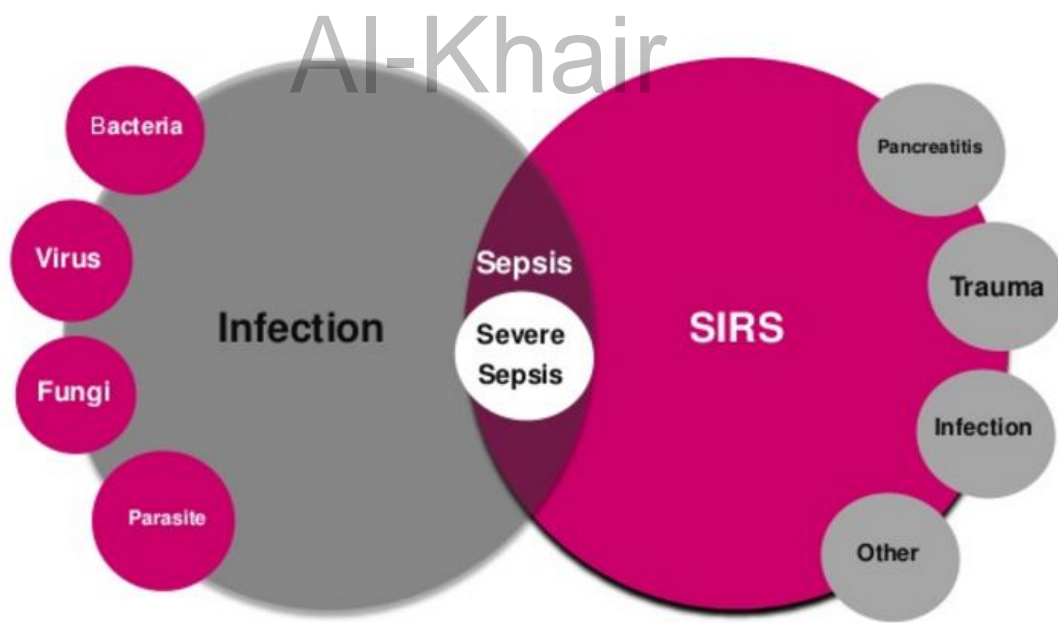
In emergency department, or general hospital ward settings, adult patients with suspected infection can be rapidly identified as being more likely to have poor outcomes typical of sepsis if they have at least 2 of the following clinical criteria that together constitute a new bedside clinical score termed quickSOFA (qSOFA):

- Respiratory rate of  $\geq 22/\text{min}$
- Altered mentation
- Systolic blood pressure  $< 100 \text{ mmHg}$

*qSOFA is becoming increasingly popular in UK hospitals to screen for sepsis and in future, may be more important than NEWS score.*

### **OLD TERMS**

- “Severe sepsis” are terms of the past that are no longer in use
- “SIRS” is also a term that is no longer used clinically



Q. A 21 year old lady after a heavy bout of drinking last night comes to the emergency department with vomiting blood, feeling dizzy, and having intense abdominal pain. On examination, her limbs feel cold. After initial resuscitation with oxygen and fluids, she still continues to bleed and continues to vomit blood. She has a pulse of 130 beats/minute and blood pressure of 85/58 mmHg. What is the SINGLE next best step?

- A. Clotting screen
- B. Ultrasound
- C. Computed tomography
- D. Endoscopy**
- E. Intravenous omeprazole

### EXPLANATION:

This is a classic presentation of Mallory-Weiss syndrome (MWS). It is characterised by upper gastrointestinal bleeding (UGIB) from mucosal lacerations in the upper gastrointestinal tract, usually at the gastro-oesophageal junction or gastric cardia. Excessive alcohol ingestion is one of the main causes as prolonged or forceful bout of vomiting can cause a tear in the upper gastrointestinal tract.

Light-headedness and dizziness and features associated with the initial cause of the vomiting - eg, abdominal pain may be seen and are seen in this stem.

Resuscitation is a priority - maintain airway, provide high-flow oxygen, correct fluid losses by giving IV fluids. Intravenous blood can also be given in severe cases.

Haemodynamically unstable patients like in this stem should have endoscopy immediately after resuscitation. It is the primary diagnostic investigation and can be used to stop the bleeding.

Note proton pump inhibitor (PPI) use is not recommended prior to diagnosis by endoscopy. A Cochrane review found PPI use at this stage was not associated with a reduction in re-bleeding, need for surgery or mortality

**Q. A 10 year old boy is rushed to Accident & Emergency after his parents found him unconscious on the kitchen floor. It is revealed that he ingested some medication belonging to his grandmother. His grandmother was unable to identify which medications are missing. On examination, the child is hypotensive with dilated pupils and dryness in the mouth. His ECG showed prolongation of the PR, QRS and QT intervals. Which SINGLE most likely medication has he taken in excess?**

**A. Amitriptyline**

B. Carbamazepine

C. Digoxin

D. Metoprolol

E. Thiazide

**EXPLANATION:**

The key to this question is trying to figure out what medication this child has taken and try to tie it in with his signs and symptoms

**Amitriptyline:** causes drowsiness, hypothermia, hypotension, tachycardia, dry mouth, ECG shows arrhythmias, particularly changes in the QRS width, dilated pupils

**Carbamazepine:** causes mydriasis and nystagmus, tachycardia, hypotension

**Digoxin:** The classic features of digoxin toxicity are nausea, vomiting, diarrhea, abdominal pain, headache, dizziness, confusion, delirium, vision disturbance (blurred or yellow vision). It is also associated with cardiac disturbances including irregular heartbeat, ventricular tachycardia, ventricular fibrillation, sinoatrial block and AV block

**Metoprolol:** bradycardia, hypotension, hypothermia, hypoglycemia (especially in children), and seizures. Myocardial conduction delays with decreased contractility typify the acute beta-blocker ingestion.

**Thiazide:** hypotension, fever, frequent urination, hypotension, muscle cramps and twitching

The two best contenders are amitriptyline and carbamazepine. However, the single best choice would be Amitriptyline because of the ECG changes.

**Q. A 30 year old patient is brought to the emergency department after a road traffic accident. He has multiple bruises on his chest and paradoxical breathing is observed. A chest X-ray shows a widened mediastinum and right-sided pulmonary contusion. He has a pulse of 129 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 38 breaths/minute. He has severe chest pain and is dyspnoeic. What is the SINGLE best management for his condition?**

A. 16-gauge needle into the 2nd intercostal space on the left

**B. Intercostal block anaesthesia**

C. Endotracheal intubation and positive-pressure ventilation

D. 16-gauge needle into the 4th intercostal space on the right

E. Consent the patient for surgery

### **EXPLANATION:**

To know the correct management, we first have to know what injury this patient is suffering from. This patient has a flail chest.

### **Flail Chest:**

A flail chest occurs as a result of a trauma to the chest, leading to at least 3 ribs becoming fractured or broken, close together, with pieces of bone detaching from the chest wall. These segments of bone start to move independently of the chest wall and in the opposite direction because of lung pressure. The result is a “paradoxical respiration”

### **Cause:**

- Fall (for example, off a bicycle or a horse)
- Blunt trauma to the chest
- Car accident
- Bone disease in the elderly.



# Al-Khair

Diagnosis:

Paradoxical respiration with shortness of breath and chest pain in a patient who has just had blunt chest trauma raises the suspicion of a flail chest. Diagnosis is made on chest X-ray

Management:

1. Humidified oxygen
2. Analgesia - paracetamol / NSAIDS / Opiates / intercostal block / thoracic epidural (up to T4) + splinting of injury
3. Intubation / mechanical ventilation - if worsening fatigue and RR

**Q. A 32 year old man rescued from a building on fire presents unconscious without any evidence of burns and external injury. What is the SINGLE most appropriate management?**

- A. Tight-fitting mask with 100% oxygen
- B. 24% oxygen by face mask
- C. Hyperbaric oxygen in a hyperbaric chamber
- D. Intubate and provide IPPV on 100% oxygen**
- E. Refer to specialist unit

**EXPLANATION:**

As this patient is unconscious, we need to intubate and provide IPPV on 100 % O<sub>2</sub>. For a conscious patient use a tight-fitting mask with an O<sub>2</sub> reservoir.

The decision for hyperbaric oxygen therapy (HBOT) is a difficult one and there are many debates about the added value provided by hyperbaric oxygen. As this patient is unconscious one might suggest a transfer to a hyperbaric chamber but even so, this will take time as you would need to call the Poisons Information Service and find the nearest locations of hyperbaric chambers. In the current NICE guidelines, treatment with hyperbaric oxygen is not currently recommended, because there is insufficient evidence that hyperbaric oxygen therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy. Thus, based on NICE guidelines, for any question with CO<sub>2</sub> poisoning, hyperbaric oxygen therapy will NOT be the answer.

If this question was rewritten and asked for “What is the SINGLE most appropriate **INITIAL** management?”, then mask with 100% oxygen would be a valid answer because one would give 100% oxygen by mask first while preparing for intubation.

### **Carbon monoxide poisoning**

Carbon monoxide (CO) is a tasteless and odourless gas produced by incomplete combustion. Poisoning may occur from car exhausts, fires and faulty gas heaters. CO is also produced by metabolism of methylene chloride (used in paint strippers and as an industrial solvent).

CO decreases the oxygen-carrying capacity of the blood by binding haemoglobin (Hb) to form carboxyhaemoglobin (COHb). This impairs O<sub>2</sub> delivery from blood to the tissues thus causing severe tissue hypoxia.

### **Clinical features**

Early features are:

- Headache
- Malaise
- Nausea and vomiting

In severe toxicity:

- 'Pink' skin and mucosae
- Hyperpyrexia
- Arrhythmias
- Coma with hyperventilation

## **Management**

Note: The elimination half-life of CO is about 4 hours on breathing air, 1 hour on 100% O<sub>2</sub>, and 23 minutes on O<sub>2</sub> at 3 atmospheres pressure.

- Clear the airway
- Maintain ventilation with high concentration of O<sub>2</sub>
- For a conscious patient use a tight-fitting mask with an O<sub>2</sub> reservoir, but if unconscious intubate and provide IPPV on 100% O<sub>2</sub>

## **Indications for hyperbaric oxygen therapy (HBOT)**

There is debate about the added value provided by hyperbaric oxygen. Hyperbaric O<sub>2</sub> therapy is logical, but of no proven benefit for CO poisoning. Transfer to a hyperbaric chamber and pressurization may take hours and so hyperbaric treatment may be no more effective than ventilation on 100 % normobaric O<sub>2</sub>. Caring for a critically ill patient in a small pressure chamber may be impracticable.

A COHb concentration of >20% should be an indication to CONSIDER hyperbaric oxygen and the decision should be taken on the basis of the indicators listed below:

- Loss of consciousness at any stage
- Neurological signs other than headache
- Myocardial ischaemia/arrhythmia diagnosed by ECG
- The patient is pregnant.

If there are any of the indications stated above, discuss with a Poisons Information Service and consider hyperbaric treatment. The Poisons Information Service can advise on the

location of hyperbaric chambers. But note currently, the treatment with hyperbaric oxygen is not currently recommended by NICE guidelines, because there is insufficient evidence that hyperbaric oxygen therapy improves long-term outcomes of people with severe carbon monoxide poisoning, compared with standard oxygen therapy.

**Q. A 31 year old man was involved in a road traffic accident and has severe pain at the right outer upper thigh and groin. There is clear deformity of the hip and shortening of the right leg. A femoral shaft fracture is suspected. His blood pressure is 100/70 mmHg. He has a heart rate of 90 beats/minute and a respiratory rate of 19 breaths/minute. He is saturating at 97% at room air. What is the SINGLE most appropriate next action?**

- A. Anteroposterior pelvic and lateral hip X-rays
- B. Intravenous fluids
- C. Thomas' splint**
- D. Full blood count and cross match
- E. Magnetic resonance imaging (MRI)

**EXPLANATION:**

In any trauma associated emergency, including fractures of the shaft of the femur, we should apply Advanced Trauma Life Support principles and attend to the femur only once we are happy with our ABCDEs. As this patient is clinically stable, we should move on to attend the femur by splinting it.

Intravenous fluids, full blood count and cross match would also be performed but since in this question, he is clinically stable, we should perform a Thomas' splint first. Putting a splint will improve alignment and reduce ongoing blood loss. Blood loss in a femur shaft fracture is alarming as blood loss is significant. In reality, you would have more than one doctor and health care professional in this scene, thus one would be putting an IV cannula and sending bloods while the others would be splinting the leg.

Imaging is important but can be done at a later time.

**Q. A 35 year old patient is brought to the emergency department after having a road traffic accident. He has bruises on his chest. A chest X-ray shows a widened mediastinum. He has a pulse of 129 beats/minute, a blood pressure of 80/40 mmHg and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?**

- A. Myocardial infarction
- B. Abdominal aortic aneurysm
- C. Thoracic aortic rupture**
- D. Flail chest
- E. Pleural effusion

**EXPLANATION:**

The condition is frequently fatal due to the profuse bleeding that results from the rupture. By far the most common site for tearing in traumatic aortic rupture is the proximal descending aorta.

The classical findings on a chest X-ray of a aortic rupture will be widened mediastinum and displacement of the trachea. A widened mediastinum occurs when a traumatic pseudoaneurysm changes the contour of the mediastinum or more commonly when mediastinal haemorrhage or haematoma occurs.

Q. A 14 year old boy fell and hit his head in the playground school. He did not lose consciousness but has swelling and tenderness of the right cheek with a subconjunctival haemorrhage on his right eye. What is the SINGLE most appropriate initial investigation?

- A. Head CT
- B. Electroencephalogram
- C. Head MRI
- D. Skull X-ray
- E. Facial X-ray**

**EXPLANATION:**

There is no feature of intracranial haemorrhage but the swelling and tenderness of right cheek are likely to indicate a facial injury. So the most appropriate initial investigation is a facial x-ray.

Q. A 78 year old woman presents to A&E with severe epigastric pain and vomiting. The pain is referred to her right shoulder. Generalised rigidity is noted when examining. She has a temperature of 37.2°C and a pulse of 102 beats/minute. Her medical history is significant for rheumatoid arthritis. What is the SINGLE most appropriate investigation?

- A. Ultrasound Abdomen
- B. Sigmoidoscopy
- C. Colonoscopy
- D. Erect chest X-ray**
- E. Upper GI endoscopy

**EXPLANATION:**

The history of rheumatoid arthritis tells you that she is more than likely to be taking NSAIDS to manage with the pain. This is a risk factor for peptic ulcer which if perforates gives the signs and symptoms that she is describing..

Perforation of a peptic ulcer causes an acute abdomen with epigastric pain that may progress to generalised rigidity. Shoulder tip pain suggest is seen in perforation.

A diagnosis is made by taking an erect abdominal/chest X-ray. Air under the diaphragm gives the diagnosis of a perforation.

**Q. A 4 year old child playing with toys unattended suddenly develops breathlessness and stridor and is rushed into the hospital by his father. The child is drooling and unable to swallow. What is the SINGLE best investigation likely to lead to a diagnosis?**

**A. Laryngoscopy**

B. Chest X-ray

C. Peak flow meter

D. Arterial blood gas

E. Pulse oximeter

**EXPLANATION:**

Breathlessness and stridor in a child playing with toys is most likely due to aspiration of a foreign body (e.g. a part of the toy) for which indirect laryngoscopy and/or fibre-optic examination of the pharynx would provide a diagnosis.

Remember, the ingestion of foreign bodies is most commonly a problem in young children aged 6 months to 5 years.

**Q. A 25 year old woman has been feeling anxious and nervous for the last few months. She also complains of palpitations and tremors. Her symptoms develop rapidly and last for a few minutes. She mentions that taking alcohol initially helped her relieve her symptoms but now this effect is wearing off and she has palpitations and tremors even after drinking alcohol. What is the SINGLE most likely diagnosis?**

**A. *Panic attacks***

- B. Depression
- C. Obsessive-compulsive disorder (OCD)
- D. Alcohol addiction
- E. Generalised Anxiety Disorder (GAD)

**EXPLANATION:**

There is a fine line between Generalised Anxiety Disorder (GAD) and Panic attacks. They both can present similarly. However, in this question, her symptoms develop rapidly and only last for a few minutes. This is the key phrase that you should look out for that tells you this is Panic attacks rather than GAD.

**Panic attacks**

Period of intense fear characterized by a constellation of symptoms that develop rapidly, reach a peak of intensity in about 10min, and generally do not last longer than 20–30min



(rarely over 1 hour). Attacks may be either spontaneous ('out of the blue') or situational (usually where attacks have occurred previously).

### **Symptoms/signs**

- Tremor
- Tachycardia
- Tachypnoea
- Sweating
- Concerns of death from cardiac or respiratory problems

They may complain of dizziness, circumoral paraesthesia, carpopedal spasm, and occasionally sharp or stabbing chest pain. Initial examination would reveal tachypnoea with equal air entry over both lung fields, and no wheeze or evidence of airway obstruction. It is important to consider secondary causes (such as PE or DKA). Therefore, perform the following investigations:

- SpO<sub>2</sub>
- ECG
- ABG if SpO<sub>2</sub> ↓ , or if symptoms do not completely settle in a few minutes.
- BMG

If symptoms do not completely settle in a few minutes, obtain:

- CXR
- U&E, blood glucose, FBC

### **Treatment**

Do not sedate a patient who is hyperventilating. Once serious diagnoses have been excluded, use this information to help reassure the patient with primary hyperventilation. Often this is all that is required, but it may be helpful to try simple breathing exercises (e.g. breathe in through nose)

# Al-Khair

**Q. A 49 year old woman presents to the Emergency Department with a productive cough of green sputum. She feels unwell, feverish and lethargic. On examination, bronchial breathing is heard at her right base. She has a respiratory rate of 27 breaths/minute, oxygen saturation of 90% on room air, pulse rate of 130 beats/minute and a blood pressure of 85/40 mmHg. What is the SINGLE next most appropriate action?**

**A. Intravenous fluids**

B. Oral antibiotics

C. Chest X-ray

D. Intramuscular adrenaline

E. Sputum culture

## **EXPLANATION:**

Her observations are extremely alarming and would raise red flags. She is clearly septic from a pneumonia. Sepsis six would need to be performed urgently within the hour. Among the sepsis six is to give intravenous fluids.

Oral antibiotics would be inappropriate. We need a broad spectrum antibiotic in the blood stream as soon as possible thus it needs to be given intravenously.

Chest X-ray would need to be performed but can be done after performing the sepsis six and stabilising the patient.

## **Sepsis**

- A life-threatening organ dysfunction caused by a dysregulated host response to infection

**There are a few questions you need to ask when dealing with sepsis:**

# Al-Khair

# Al-Khair

1. Is the patient acutely unwell or is there any clinical concern?
2. Is the total NEWS score 5 or more?
3. Is there a single NEWS score indicator of 3?

*Note: NEWS score stands for National Early Warning Score. It is a score introduced by the Royal College of Physicians in 2012 and it is used across the NHS to assess patient's vitals and observations.*

If any of the above questions were yes, then ask yourself, could this be an infection?

If yes, look for any RED FLAGS

## **Evaluation for 'Red Flag' sepsis**

- Systolic blood pressure < 90 mmHg (or >40 mm Hg fall from baseline)
- Heart rate >130 beats/minute
- Oxygen saturations < 91% (< 88% in COPD)
- Respiratory rate >25 breaths/minute
- Responds only to voice or pain/unresponsive
- Lactate >2.0 mmol
- Urine output < 0.5 ml/kg/hr for  $\geq 2$  hours

If 1 or more RED FLAGS present → Complete the SEPSIS SIX within 60 minutes

## **Sepsis Six → Take 3, Give 3**

- **Take 3**
  - Blood cultures

- FBC, urea and electrolytes, clotting, lactate
- Start monitoring urine output

- **Give 3**

- High flow oxygen
- Intravenous fluid challenge
- Intravenous antibiotics

**Q. A 16 year old female teenager was brought to the emergency department after being stabbed on the upper right side of his back 2 hours ago. An erect Chest X-ray revealed homogenous opacity on the lower right lung. The trachea is centrally placed. She has a blood pressure of 80/60 mmHg, a pulse of 122 beats/minute, and a respiratory rate of 34 breaths/minute. What is the SINGLE most likely diagnosis?**

A. Pneumothorax

**B. Haemothorax**

C. Pneumonia

D. Tension pneumothorax

E. Empyema

**EXPLANATION:**

**Haemothorax**

- Blood accumulates in the pleural cavity

**Clinical features**

Similar to that seen in traumatic pneumothorax, except the following

- Dullness to percussion over the affected lung
- Signs and symptoms of hypovolaemia if massive haemothorax

### **Investigations**

- Chest X-ray shows an increased shadowing on a supine X-ray, with no visible fluid level

### **Treatment**

- Oxygen
- Insert 2 large venous cannulae and send blood for cross matching
- Evacuation of blood may be necessary to prevent development of empyema, thus chest tube is needed and is often placed low. Usually the lung will expand and the bleeding will stop after a chest tube is inserted.
- Surgery to stop the bleeding is seldom required. The lung is the usual the source of bleeding. Since it is a low pressure system, the bleeding usually would stop by itself.

## **ENDOCRINOLOGY**

**Q. A 42 year old woman complains of tingling, numbness, paraesthesia, and involuntary spasm of the upper extremities. She has undergone a thyroidectomy for thyroid carcinoma a week ago. What is SINGLE most likely diagnosis?**

- A. Thyroid storm
- B. Hyperparathyroidism
- C. Unilateral recurrent laryngeal nerve injury
- D. Hypokalaemia

**E. Hypocalcaemia**

## **EXPLANATION:**

Hypoparathyroidism is one of the well known causes of hypocalcaemia. It is seen especially after thyroid surgeries where the surgeon has to work in close proximity to the parathyroid gland.

## **Hypocalcaemia**

### **Common causes**

- vitamin D deficiency (osteomalacia)
- chronic renal failure
- hypoparathyroidism (e.g. post thyroid/parathyroid surgery)
- Hyperphosphatemia
- Hypomagnesemia

The clinical history combined with parathyroid hormone levels will reveal the cause of hypocalcaemia in the majority of cases

### **Clinical Findings**

Hypocalcaemia results in increased neural hyperexcitability such as seizures, tetany, circumoral numbness, and tingling of the extremities. Arrhythmias may develop because of a prolonged QT.

A mnemonic to help is with clinical signs and symptoms is: **"SPASMODIC"**

S → Spasm (carpopedal spasms = Trousseau's sign)

P → Perioral paraesthesiae

A → Anxious, irritable, irrational

S → Seizures

M → Muscle tone increased in smooth muscles  
O → Orientation impaired (time, place and person) and confusion  
D → Dermatitis  
I → Impetigo herpetiformis (rare and serious)  
C → Chvostek's sign, Cardiomyopathy (long QT interval on ECG)

The examination findings that illustrate this deficit are:

1. Trousseau's sign in which the wrist flexes and the fingers are drawn together in response to occlusion of the brachial artery.
2. Chvostek's sign in which facial muscles twitch in response to tapping over the parotid, revealing neuromuscular excitability due to the low calcium.

### Management

- acute management of severe hypocalcaemia is with intravenous replacement. The preferred method is with intravenous calcium gluconate,
- intravenous calcium chloride is more likely to cause local irritation
- further management depends on the underlying cause

**Q. A 22 year old footballer collapses during a game and is brought into A&E by ambulance. During the initial evaluation, his respiratory rate is 14/min and pulse rate is 84 bpm, BP is 115/80 mmHg. He is sweating profusely and muttering incomprehensible words. What is the SINGLE most appropriate next course of action?**

- A. Computed tomography of head
- B. Magnetic resonance imaging of head
- C. Check blood glucose**
- D. Intravenous insulin
- E. Intravenous fluids

# Al-Khair

## **EXPLANATION:**

The collapse could be due to hypoglycaemia. Check venous or capillary blood with glucose oxidase strip would be an appropriate first step before taking him for a CT scan or any other investigation. It is fast, easy and if hypoglycaemia is the cause, it can be quickly reversible.

## **Hypoglycaemia**

Always exclude hypoglycaemia in any patient with coma, altered behaviour, neurological symptoms, or signs.

### **Causes**

- Commonest cause is a relative imbalance of administered versus required insulin or oral hypoglycaemic drug. This results from:
  - Exercise
  - Insufficient or delayed food intake
  - Excessive insulin administration

### **Other causes are:**

- Alcohol (in addition to alcohol directly causing hypoglycaemia, the features of hypoglycaemia may be mistaken for alcohol intoxication or withdrawal)
- Addison's disease
- Insulinomas
- Liver failure
- Malaria

### **Common features:**



Plasma glucose is normally maintained at 3.6-5.8mmol/L. Cognitive function deteriorates at levels  $< 3.0\text{mmol/L}$ , but symptoms are uncommon  $> 2.5\text{mmol/L}$ .

- Sweating
- Pallor
- Tachycardia
- Palpitations
- Hunger
- Trembling
- Altered or loss of consciousness
- Fitting
- Coma

**Diagnosis:**

- Venous or capillary blood with glucose oxidase strip (BMG)
- If  $< 3.0\text{mmol/L}$ , take a venous sample for a formal blood glucose level, but do not delay treatment

	HYPOGLYCAEMIA	HYPERGLYCAEMIA
ONSET	Minutes	Hours to days
EVENTS	Missed meal or increased activity	Omission of insulin
SYMPTOMS	Hunger, perspiration, confusion, stupor, headache, tremors, fatigue, nervousness, seizures	Headache, nausea, abdominal pain, vomiting, polyphagia, polydipsia, acetone breath
PHYSICAL FINDINGS	Tachycardia, normal to fast respiration rate	Kussmaul respirations, dehydration, tachycardia
URINE	Negative for glucose and ketones	Positive for glucose and ketones
BLOOD GLUCOSE	< 3.0 mmol/L	>7.0 mmol/L when fasting or >11.1 mmol/L 2 hours after meal  Note symptoms usually only occur if has marked hyperglycaemia (30 mmol/L or more)
RESPONSE TO GLUCOSE	Dramatic	None
TREATMENT	Fast acting glucose given orally or IV	Regular insulin, fluids, electrolyte replacement

Q. A 79 year old man has a diagnosis of lung cancer. He has a sodium level of 122 mmol/l but remains asymptomatic for hyponatraemia. What is the SINGLE most appropriate management?

- A. Demeclocycline
- B. Vasopressin
- C. Fluid restriction**
- D. Reassure
- E. Tolvaptan

**EXPLANATION:**

This man is suffering from effects of syndrome of inappropriate antidiuretic hormone secretion (SIADH) which is leading to his hyponatraemia. One of the causes of SIADH is small cell lung cancer.

Treat the cause of SIADH and restriction of fluid is the mainstay management for majority of cases of SIADH. Consider Tolvaptan or demeclocycline if poor response after fluid restriction.

Q. A 38 year old lady was admitted with severe abdominal pain and diarrhoea. On examination, hyperpigmentation is noticed at the palmar creases and buccal mucosa. She has muscle cramps and joint pain. Her blood pressure is 79/50 mmHg. What is the SINGLE most likely diagnosis?

**A. Addison's disease**

B. Cushing syndrome

C. Pheochromocytoma

D. Hyperthyroidism

E. Hypoparathyroidism

**EXPLANATION:**

The signs and symptoms are classic for Addison's disease. The hyperpigmentation alone should prompt you to pick Addison's disease. This is supported by the symptoms of abdominal pain and diarrhoea. Muscle pain, joint pain and hypotension is also seen in Addison's disease. Sometimes they would give you a history of postural hypotension instead of hypotension.

Note that hyperpigmentation is especially noticeable in buccal mucosa, lips, palmar creases.

**Adrenal Insufficiency**

**Primary insufficiency (Addison's disease)**

- An inability of the adrenal glands to produce enough steroid hormones. The most common cause for this in the developed world is autoimmune disease.

**Secondary insufficiency**

- Inadequate pituitary or hypothalamic stimulation of the adrenal glands.

## Features

# Al-Khair

- Nausea/vomiting
- Abdominal pain
- Diarrhoea/constipation
- Weakness
- Postural hypotension, dizzy
- Hyperpigmentation (only for Addison's disease)

Think of adrenal insufficiency in all with unexplained abdominal pain or vomiting

It is especially important to note for the exam that in secondary insufficiency, there is no hyperpigmentation of the skin as ACTH is decreased. Hyperpigmentation would only happen in primary insufficiency (Addison's disease) as the ACTH is extremely high.

**Q. A 33 year old woman has amenorrhoea and galactorrhoea. An MRI shows a 9mm tumour in the pituitary fossa. What is SINGLE most appropriate management?**

- A. Radiotherapy
- B. Cabergoline**
- C. Craniotomy
- D. Transsphenoidal surgery
- E. Chemotherapy

### **EXPLANATION:**

Drug treatment should always be tried first. Cabergoline is a dopamine agonist used in treatment of prolactinoma.

# Al-Khair

## Prolactinoma Management

### Drug therapy - dopamine agonists

- Suppresses prolactin in most patients, with secondary effects of normalization of gonadal function and terminates galactorrhoea
- Shrinks tumours → by shrinking the tumour, restoration of other hormonal axes may occur
- Corrects visual field defect by chiasmal decompression thus immediate surgical decompression is not necessary
- *Note: Cabergoline is more effective in normalization of prolactin in microprolactinoma compared to bromocriptine. It is also associated with fewer side effects than bromocriptine*

### Surgery

- Since the introduction of dopamine agonist treatment, transsphenoidal surgery is indicated only for patients who are resistant to, or intolerant of, dopamine agonist treatment

### Radiotherapy

- Reduce the chance of recurrence (rarely needed)

Q. A 44 year old man is extremely thirsty despite excessive drinking. Diabetes mellitus and renal failure has been ruled out and a diagnosis of diabetes insipidus is suspected. Fluid deprivation test and an assessment of response to vasopressin was done which was consistent with central diabetes insipidus. What is the SINGLE most likely laboratory finding that lead to the conclusion?

**A. An increase in urine osmolality after administration of vasopressin**

B. A decrease in urine osmolality after administration of vasopressin

C. An increase in plasma osmolality after administration of vasopressin

D. A decrease in plasma osmolality during fluid deprivation

E. An increase in urine osmolality during fluid deprivation

**EXPLANATION:**

In diabetes Insipidus, one can expect excess fluid loss with urine. Urine osmolality would be low and plasma osmolality would be high.

After administration of vasopressin (desmopressin), an increase in urine osmolality is diagnostic for central (cranial) diabetes insipidus.

**Diabetes Insipidus**

**Fluid deprivation test and assessment of response to vasopressin:**

1. Patient is then deprived of fluids
2. Plasma osmolality is measured 4 hourly and urine volume and osmolality every 2 hours
3. The patient is then given IM desmopressin with urine volume and urine and plasma osmolality measured over the next 4 hours.

**Understanding the results**

# Al-Khair

Normal patient	Diabetes insipidus	
Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased	
	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
	Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin

## Plasma osmolality (mOsm/kg)

After fluid deprivation, If plasma osmolality >305, the patient has diabetes insipidus

## Urine osmolality (mOsm/kg)

	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
<b>After fluid deprivation</b>	<300	<300
<b>After desmopressin</b>	>800	<300



# Al-Khair

**Q. A 45 year old lady presents with diarrhea, vomiting, and severe abdominal pain.**

**Examination reveals that her skin is hyperpigmented. Her blood pressure is 70/55 mmHg.**

**What is the SINGLE most likely electrolyte abnormality to be found?**

**A. Sodium 130 mmol/L, potassium 6.2 mmol/L**

B. Sodium 125 mmol/L, potassium 2.9 mmol/L

C. Sodium 140 mmol/L, potassium 4.5 mmol/L

D. Sodium 150 mmol/L, potassium 3.5 mmol/L

E. Sodium 150 mmol/L, potassium 5.6 mmol/L

## **EXPLANATION:**

Diarrhoea, vomiting, severe abdominal pain, tanned skin (hyperpigmentation) and hypotension points towards Addison's disease where hyponatraemia and hyperkalaemia are seen.

## **Addison's disease**

Associated electrolyte abnormalities:

- Hyperkalaemia
- Hyponatraemia
- Hypoglycaemia
- Metabolic acidosis

**It may be easier to think of the hormones that are involved:**

ACTH ↑ → hyperpigmentation

Al-Khair

Aldosterone ↓ → Na↓ → Hypotension

→ K↑

→ H↑ → Metabolic acidosis

Cortisol ↓ → Arterial hypotension

→ Hypoglycaemia

**Q. A 45 year old lady complains of galactorrhoea, decreased libido, amenorrhoea, weight gain, depression and fatigue. She also gives a history of constipation in the last 3 months. Her serum prolactin levels are 856 mU/L. What is the SINGLE most likely cause of her hyperprolactinaemia?**

**A. Hypothyroidism**

B. Stress

C. Pregnancy

D. Prolactin secreting pituitary tumor

E. Polycystic ovary syndrome

**EXPLANATION:**

Hypothyroidism can cause hyperprolactinaemia and would be the cause here as there are symptoms of weight gain, depression and constipation.

Al-Khair

Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.

Prolactin inhibits the LH surge that causes ovulation.

Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.

## **Etiology**

- hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress
- Pituitary tumours such as prolactinomas
- Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)
- Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)
- Hypothyroidism → TRH increases prolactin

## **Clinical of Hyperprolactinaemia**

- Galactorrhoea → usually in women. Men rarely get galactorrhoea
- Menstrual abnormalities → amenorrhoea or oligomenorrhoea,
- Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility

## **Clinical features of Mass effects (macroadenomas only)**

- Headaches and visual field defects (uni- or bitemporal field defects)
- Hypopituitarism

### Diagnosis

- Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia
- Serum prolactin  $<2,000\text{mU/L}$  is suggestive of a tumour  $\rightarrow$  either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk
- Serum prolactin  $>4,000\text{mU/L}$  is diagnostic of a macroprolactinoma.
- Imaging: MRI

*For the purpose of PLAB:*

*The normal level of prolactin is less than  $400\text{ mU/L}$ . A very high prolactin level ( $>5000\text{ mU/L}$ ) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes*

**Q. An 18 year old man has extreme thirst and polyuria. 6 months ago he had a significant head injury as the result of a road traffic accident. A diagnosis of diabetes insipidus is suspected. What is the SINGLE most likely laboratory findings after fluid deprivation before the administration of desmopressin?**

(normal plasma osmolality  $275\text{-}295\text{ mosmol/kg}$  and normal urine osmolality is  $300\text{-}900\text{ mosmol/kg}$ )

- A. Plasma osmolality of  $280\text{ mosmol/kg}$  and urine osmolality of  $250\text{ mosmol/kg}$
- B. Plasma osmolality of  $300\text{ mosmol/kg}$  and urine osmolality of  $350\text{ mosmol/kg}$
- C. Plasma osmolality of  $335\text{ mosmol/kg}$  and urine osmolality of  $700\text{ mosmol/kg}$

D. Plasma osmolality of 280 mosmol/kg and urine osmolality of 700 mosmol/kg

**E. Plasma osmolality of 335 mosmol/kg and urine osmolality of 200 mosmol/kg**

**EXPLANATION:**

In diabetes Insipidus, one can expect excess fluid loss with urine. Urine osmolality would be low and plasma osmolality would be high.

**Diabetes Insipidus**

**Fluid deprivation test and assessment of response to vasopressin:**

1. Patient is then deprived of fluids
2. Plasma osmolality is measured 4 hourly and urine volume and osmolality every 2 hours
3. The patient is then given IM desmopressin with urine volume and urine and plasma osmolality measured over the next 4 hours.

**Understanding the results**

Normal patient	Diabetes insipidus	
Fluid restriction causes a decrease in urine volume and an increase in urine osmolality	Despite fluid restriction, urine volume remains high and urine osmolality is decreased	
	<b>Central Diabetes insipidus</b>	<b>Nephrogenic Diabetes insipidus</b>
	Urine volume decreases and urine osmolality increases after administering desmopressin	There is no change after administering desmopressin

# Al-Khair

## Plasma osmolality (mOsm/kg)

After fluid deprivation, If plasma osmolality  $>305$ , the patient has diabetes insipidus

## Urine osmolality (mOsm/kg)

	Central Diabetes insipidus	Nephrogenic Diabetes insipidus
After fluid deprivation	$<300$	$<300$
After desmopressin	$>800$	$<300$

**Q. A 42 year old lady has unexplained milk secretion from her nipples. Her last menstrual period was 6 months ago. She says she has been experiencing a loss of libido. What is the SINGLE most likely diagnosis?**

**A. Hyperprolactinaemia**

B. Cushing's syndrome

C. Pheochromocytoma

D. Hyperthyroidism

E. Hypoparathyroidism

## **EXPLANATION:**

### **Hyperprolactinaemia**

Al-Khair

Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.

Prolactin inhibits the LH surge that causes ovulation.

Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.

### **Etiology**

- hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress
- Pituitary tumours such as prolactinomas
- Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)
- Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)
- Hypothyroidism → TRH increases prolactin

### **Clinical of Hyperprolactinaemia**

- Galactorrhoea → usually in women. Men rarely get galactorrhoea
- Menstrual abnormalities → amenorrhoea or oligomenorrhoea,
- Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility

Al-Khair

### Clinical features of Mass effects (macroadenomas only)

- Headaches and visual field defects (uni- or bitemporal field defects)
- Hypopituitarism

### Diagnosis

- Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia
- Serum prolactin  $<2,000\text{mU/L}$  is suggestive of a tumour  $\rightarrow$  either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk
- Serum prolactin  $>4,000\text{mU/L}$  is diagnostic of a macroprolactinoma.
- Imaging: MRI

*For the purpose of PLAB:*

*The normal level of prolactin is less than  $400\text{ mU/L}$ . A very high prolactin level ( $>5000\text{ mU/L}$ ) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes*

**Q. A 63 year old man who takes spironolactone and ramipril for hypertension and was found to have elevated potassium of  $5.8\text{mmol/L}$  on routine blood test while on a day ward. He is otherwise well and has no allergies. An ECG is carried out which is normal. What is the SINGLE best initial treatment in light of his potassium levels?**

Normal Lab values

Potassium  $3.5\text{--}5\text{ mmol/L}$



A. Calcium gluconate IV

B. Renal dialysis

**C. Stop spironolactone and ramipril**

D. Recheck potassium level

E. IV insulin and glucose

Al-Khair

**EXPLANATION:**

Spironolactone is a potassium sparing diuretics and ramipril is an ACEi. Both can cause hyperkalaemia.

The K<sup>+</sup> is only slightly elevated, so stopping medication would suffice. We can expect potassium levels to fall. It is important to check for symptoms and do an ECG, but at this levels it is unlikely that patient is symptomatic or an ECG is abnormal.

In this question, the patient has a normal ECG with no symptoms so calcium gluconate is not indicated. This man is certainly not a candidate for dialysis.

**Hyperkalaemia**

Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole

**Causes of hyperkalaemia that are important for PLAB:**

- Acute renal failure
- Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone
- Metabolic acidosis

Al-Khair

- Addison's

Al-Khair

## Management

1. Stop drugs that cause hyperkalaemia
2. If ECG changes of hyperkalaemia are seen → IV calcium gluconate
  - IV calcium gluconate is used to stabilise the cardiac membrane
  - Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K<sup>+</sup> levels
3. If severely hyperkalemic and short-term shift in K<sup>+</sup> from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion

Other methods to remove K<sup>+</sup> from the body

- Calcium resonium → lowers potassium very slowly by binding it in the gut
- Loop diuretics
- Dialysis

**Q. A 31 year old man has tremors, profuse sweating and palpitations. His blood pressure was measured at 160/115 mmHg but dropped to 139/92 on standing. What is the SINGLE most likely diagnosis?**

- A. Hyperthyroidism
- B. Panic attacks
- C. Essential hypertension

***D. Pheochromocytoma***

- E. Generalized anxiety disorder

Al-Khair

## **EXPLANATION:**

Postural hypotension is defined as a reduction in systolic blood pressure of 20mmHg or more after standing for at least one minute. Postural hypotension can be seen in phaeochromocytoma.

## **Phaeochromocytoma**

Phaeochromocytoma is a rare catecholamine secreting tumour.

### **Rule of 10**

- bilateral in 10%
- malignant in 10%
- extra-adrenal in 10% (most common site = organ of Zuckerkandl, adjacent to the bifurcation of the aorta)
- 10% are familial and may be associated with MEN type II, neurofibromatosis and von Hippel-Lindau syndrome
- 10% not associated with hypertension

### **Features are typically episodic**

- Hypertension (around 90% of cases and may be sustained)
- Headaches
- Palpitations
- Profuse sweating
- Anxiety
- Tremor

### **Mnemonic**

**PH**aeochromocytoma

P → Palpitations

H → Headaches

PH → PHlushings (flushing)

Al-Khair

### Tests

- 24 hr urinary collection of metanephrines (sensitivity 97%)  
Note: this has replaced a 24 hr urinary collection of catecholamines (sensitivity 86%)

### Management

Surgical resection of the tumour is the treatment of choice and usually results in cure of the hypertension. However, the patient must first be stabilized with medical management:

- alpha-blocker (e.g. phenoxybenzamine)
- beta-blocker (e.g. propranolol) *Note: Alpha blocker must be given before a beta blocker*

The reason behind medical management with alpha-blockers and beta-blockers is it is required to control blood pressure to prevent intraoperative hypertensive crises.

Alpha blockade with phenoxybenzamine is started at least 7 to 10 days before operation to allow for expansion of blood volume. Only once this is achieved is beta blockade considered. If beta blockade is started too soon, unopposed alpha stimulation can precipitate a hypertensive crisis.

Al-Khair

Q. A 68 year old woman was diagnosed with Type 2 Diabetes Mellitus. Diet and lifestyle modifications have failed to control his blood sugar over the last three months. She has no known allergies and takes Ramipril 5mg daily. She has a body mass index is 35 kg/m<sup>2</sup>. Her blood results are as follows:

Serum urea 13.2 mmol/L

Creatinine 390 mmol/L

eGFR 25 ml/min

What is the SINGLE most appropriate pharmacological management?

A. Biguanide

B. Sulfonylurea

**C. Insulin**

D. Glitazone

E. Sodium glucose co-transporter 2 (SGLT2) inhibitors

**EXPLANATION:**

NICE recommends biguanide (such as Metformin) as first line treatment for patients with type 2 diabetes unless this is contraindicated. This patient is obese and has poor renal function, hence biguanides, sulfonylurea and sodium glucose co-transporter 2 inhibitors are contraindicated. Pioglitazone causes weight gain so this is not an appropriate option as well.

Q. A 29 year old known diabetic man comes to A&E after falling down the stairs. While waiting in the waiting room, he becomes unconscious and collapses. What is the SINGLE most appropriate initial investigation?

A. Computed tomography scan

**B. Random blood sugar**

C. Magnetic resonance imaging

D. Electrocardiogram

E. Arterial blood gas

**EXPLANATION:**

A random blood sugar is the first investigation to do. In an unconsciousness patient especially a diabetic, ruling out hypoglycaemia has to be treated as priority. It is easy and fast to perform.

Q. A 44 year old woman has recently undergone surgery for a fractured left hip. Her blood tests show a low serum calcium level, low serum phosphate level and raised alkaline phosphatase. What is the SINGLE most likely diagnosis?

A. Paget's disease

B. Osteoporosis

C. Multiple myeloma

**D. Osteomalacia**

E. Rickets

**EXPLANATION:**

Remember the bone profile differences:

	<b>Osteoporosis</b>	<b>Paget's disease</b>	<b>Osteomalacia</b>
<b>Serum calcium</b>	Normal	Normal	Low
<b>Serum phosphate</b>	Normal	Normal	Low
<b>Alkaline phosphatase</b>	Normal	High	High

### **Osteomalacia**

- Normal bony tissue but decreased mineral content

We use the term rickets the epiphysis has not fused (in younger people)

### **Commonly asked causes**

- Vitamin D deficiency e.g. malabsorption, lack of sunlight, diet
- Renal failure
- Drug induced e.g. anticonvulsants

### **Presentation:**

- Bone pain
- Fractures
- Muscle tenderness

Q. A 56 year old man was recently started on antihypertensive medication. His recent blood results show:

Sodium 134 mmol/L

Potassium 5.9 mmol/L

Urea 7 mmol/L

Creatinine 111  $\mu$ mol/L

What is the SINGLE most likely medication responsible for the abnormal results?

- A. Amlodipine
- B. Bendroflumethiazide
- C. Doxazosin
- D. Atenolol
- E. Ramipril**

**EXPLANATION:**

Ramipril is an ACE inhibitor. ACE inhibitors are known for their effects of hyperkalaemia.

**Hyperkalaemia**



Untreated hyperkalaemia may cause life-threatening arrhythmias. ECG changes seen in hyperkalaemia include tall-tented T waves, small P waves, widened QRS leading to a sinusoidal pattern and asystole

**Causes of hyperkalaemia that are important for PLAB:**

- Acute renal failure
- Potassium sparing diuretics, ACE inhibitors, angiotensin 2 receptor blockers, spironolactone
- Metabolic acidosis
- Addison's

**Management**

1. Stop drugs that cause hyperkalaemia

2. If ECG changes of hyperkalaemia are seen → IV calcium gluconate

- IV calcium gluconate is used to stabilise the cardiac membrane
- Note that ECG changes are more accurate in identifying cardiac toxicity than plasma K<sup>+</sup> levels

3. If severely hyperkalemic and short-term shift in K<sup>+</sup> from extracellular to intracellular fluid compartment is needed → Insulin and dextrose infusion

Other methods to remove K<sup>+</sup> from the body

- Calcium resonium → lowers potassium very slowly by binding it in the gut
- Loop diuretics
- Dialysis

# Al-Khair

**Q. A 24 year old schizophrenic has been under antipsychotic treatment for the last year. He has been experiencing headaches and erectile dysfunction. Which medication is most likely to have caused this?**

- A. Fluoxetine
- B. Citalopram
- C. Clozapine
- D. Haloperidol**
- E. Risperidone

(not sure about this one)

**EXPLANATION:**

Haloperidol can raise prolactin levels causing hyperprolactinaemia which can cause erectile dysfunction.

**Hyperprolactinaemia**

Excess prolactin secretion is a common clinical problem in women and causes the syndrome of galactorrhoea-amenorrhoea. The amenorrhoea appears to be caused by inhibition of hypothalamic release of luteinizing hormone releasing hormone (LHRH) with a decrease in luteinizing hormone (LH) and follicle-stimulating hormone (FSH) secretion.

Prolactin inhibits the LH surge that causes ovulation.

# Al-Khair

Although hyperprolactinaemia is also seen in men, gynecomastia and especially galactorrhoea are very rare.

### **Etiology**

- hyperprolactinaemia can be seen in natural physiologic states such as pregnancy, nipple stimulation/suckling, stress
- Pituitary tumours such as prolactinomas
- Hypothalamic disease → mass compressing stalk (craniopharyngioma, meningioma)
- Hyperprolactinaemia can also occur with decreased inhibitory action of dopamine. (e.g. Antipsychotic agents)
- Hypothyroidism → TRH increases prolactin

### **Clinical of Hyperprolactinaemia**

- Galactorrhoea → usually in women. Men rarely get galactorrhoea
- Menstrual abnormalities → amenorrhoea or oligomenorrhoea,
- Disturbed gonadal function in men → erectile dysfunction, decreased libido, gynecomastia in men, reduced fertility

### **Clinical features of Mass effects (macroadenomas only)**

- Headaches and visual field defects (uni- or bitemporal field defects)
- Hypopituitarism

### **Diagnosis**

- Always exclude states such as pregnancy, lactation, hypothyroidism and medications before starting the work-up of hyperprolactinaemia
- Serum prolactin  $<2,000\text{mU/L}$  is suggestive of a tumour → either a microprolactinoma or a non-functioning macroadenoma compressing the pituitary stalk
- Serum prolactin  $>4,000\text{mU/L}$  is diagnostic of a macroprolactinoma.
- Imaging: MRI

# Al-Khair

*For the purpose of PLAB:*

*The normal level of prolactin is less than 400 mU/L. A very high prolactin level (>5000 mU/L) usually means that a prolactinoma is present. Levels in between may be due to a prolactinoma, or to other causes*

**Q. A 58 year old woman has tiredness and diarrhoea for the last few weeks. She has noticed that her skin looks tanned. She describes dizziness on standing up and recently started feeling nauseous. What is the SINGLE most likely electrolyte abnormality to be found?**

- A. Sodium 120 mmol/L, potassium 5.9 mmol/L**
- B. Sodium 125 mmol/L, potassium 2.9 mmol/L
- C. Sodium 140 mmol/L, potassium 4.5 mmol/L
- D. Sodium 150 mmol/L, potassium 3.5 mmol/L
- E. Sodium 150 mmol/L, potassium 5.6 mmol/L

## **EXPLANATION:**

Diarrhoea, nausea, tanned skin (hyperpigmentation) and postural hypotension in a tired women points towards Addison's disease where hyponatraemia and hyperkalaemia are seen.

## **Addison's disease**

Associated electrolyte abnormalities:

- Hyperkalaemia
- Hyponatraemia

- Hypoglycaemia
- Metabolic acidosis

Al-Khair

**It may be easier to think of the hormones that are involved:**

ACTH ↑ → hyperpigmentation

Aldosterone ↓ → Na↓ → Hypotension

→ K↑

→ H↑ → Metabolic acidosis

Cortisol ↓ → Arterial hypotension

→ Hypoglycaemia

Al-Khair

**Q. A 28 year old woman who is 8 weeks pregnant has central abdominal pain for the last 36 hours. The pain is now colicky. She reports no vaginal bleeding. She has vomited once and has had an episode of loose stools earlier in the day. She has a temperature of 37.9°C. On examination, she looks ill, and has rebound tenderness in the right iliac fossa. What is the SINGLE most likely diagnosis?**

A. Salpingitis

**B. Appendicitis**

C. Ectopic pregnancy

D. Ovarian torsion

E. Uterine fibroid

**EXPLANATION:**

The pain that has shifted towards the right iliac fossa and the fact there is a positive McBurney's sign and loose stools makes the diagnosis of appendicitis more likely. One cannot rule out ectopic pregnancy and so ideally an ultrasound scan would take place to confirm that the pregnancy is in utero. However, the clinical features in the above stem clearly show evidence of an acute appendicitis.

**Q. A 44 year old man has just had a hemi-colectomy for colorectal cancer. He is now post-op and has been put on 100% facemask oxygen. An arterial-blood gas analysis reveals:**

**pH is 7.54**

**PaO<sub>2</sub> = 28.8kPa**

**PaCO<sub>2</sub> = 3.8kPa**

**He is breathless and dyspneic. What is the SINGLE best management for this patient?**

- A. Physiotherapy
- B. Ventilate and intubate
- C. Immediate laparotomy
- D. IV antibiotics
- E. Reduce oxygen**

**EXPLANATION:**

Physiotherapy is the incorrect answer. If you chose this, you might be thinking of atelectasis as the diagnosis. Atelectasis presents with much of the same signs and symptoms EXCEPT it presents with hypoxia, and here we can see that the PaO<sub>2</sub> is greater than normal.

There was no mention of a fever so IV antibiotics is the incorrect answer as well.

The diagnosis here is hyperoxaemia or hyperoxia.

**Hyperoxaemia/Hyperoxia**

Hyperoxemia or hyperoxia is defined as a PaO<sub>2</sub> > 16kPa (120mmHg). This kind of hyperoxia can lead to [oxygen toxicity](#), caused from the harmful effects of breathing molecular oxygen at elevated partial pressures. Hyperoxia differs from [hypoxia](#) in that hyperoxia refers to a state in which oxygen supply is too much, whereas hypoxia refers to the state in which oxygen supply is insufficient.

## Atelectasis

Atelectasis is also known as alveolar collapse. This is caused when airways become obstructed, usually by bronchial secretions. Most cases are mild and may go unnoticed. Symptoms are slow recovery from operations, poor colour, mild tachypnoea and tachycardia. Prevention is by pre-operative and postoperative physiotherapy. In severe cases, positive pressure ventilation may be required.

**Q. A 31 year old woman has an injury to the right external branch of superior laryngeal nerve during a thyroid surgery. What is the SINGLE most likely symptom in this patient?**

- A. Stridor
- B. Hoarseness
- C. Aphonia
- D. Dysphonia**
- E. Aphasia

### **EXPLANATION:**

The two most important complications of nerve damages you would need to know during a thyroidectomy is:

- 1. Recurrent laryngeal nerve damage**
- 2. Superior laryngeal nerve damage**

A unilateral recurrent laryngeal nerve damage results in hoarseness and for bilateral damage symptoms include aphonia and airway obstruction.

The external branch of the superior laryngeal nerve is one of the nerves commonly injured in thyroid surgery. Injury to this nerve results in the inability to lengthen a vocal fold and,



thus, inability to create a high-pitched sound (dysphonia). They would have a mono toned voice. This would be detrimental to a person who is a professional singer. So in this stem, injury to the external branch of superior laryngeal nerve is likely to produce symptoms of dysphonia.

#### Thyroidectomy complications

##### **Hypocalcemia**

- Surgery can lead to trauma to the parathyroids, devascularization of the glands with resultant ischaemia, or removal of the glands during surgery. These would lead to decreased production of parathyroid hormones (hypoparathyroidism) which ultimately leads to decreased serum calcium.
- Acute hypocalcemia generally presents at 24-48 hours.
- Postoperative hypoparathyroidism, and the resulting hypocalcemia, may be permanent or transient.
- The first symptoms are usually tingling in the lips and fingertips. Additional findings may develop, including carpopedal spasm, tetany, laryngospasm, seizures, QT prolongation and cardiac arrest. Chvostek's sign is facial contractions elicited by tapping the facial nerve in the pre-auricular area. Trousseau's sign is carpal spasm on inflation of a blood pressure cuff.

##### **Airway obstruction (compressing haematoma, tracheomalacia)**

- Acute airway obstruction from haematoma may occur immediately postoperatively and is the most frequent cause of airway obstruction in the first 24 hours.
- Definitive therapy is opening the surgical incision to evacuate the haematoma.
- Re-intubation may be lifesaving for persistent airway obstruction.

##### **Recurrent laryngeal nerve injury**

- A unilateral recurrent laryngeal nerve damage results in hoarseness and for bilateral damage symptoms include aphonia and airway obstruction.

##### **Superior laryngeal nerve damage**

- The external branch of the superior laryngeal nerve is one of the nerves commonly injured in thyroid surgery.
- Injury to this nerve results in the inability to lengthen a vocal fold and, thus, inability to create a high-pitched sound (dysphonia). They would have a mono toned voice. This would be detrimental to a person who is a professional singer.

#### **Thyrotoxic storm**

- Unusual complication resulting from manipulation of thyroid gland during surgery in patients with hyperthyroidism.
- Symptoms include: Tachycardia, tremors, cardiac arrhythmias

#### **Wound infection**

- Incidence is around 1 to 2%

**Q. A 72 year old man presents with intermittent difficulty in swallowing with regurgitation of stale food materials. Lately, he has been having chronic cough. What is the SINGLE most likely diagnosis?**

- A. Benign stricture
- B. Oesophageal carcinoma
- C. Oesophageal spasm
- D. Pharyngeal pouch**
- E. Systemic sclerosis

#### **EXPLANATION:**

The stale food material can only point to one diagnosis which is pharyngeal pouch. The remaining options may have regurgitation but none with stale food.

Sometimes, question writers may also give a history of bad breath.

### **Pharyngeal pouch (Zenker's diverticulum)**

It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.

#### **Presentation**

- Dysphagia
- History of food sticking and regurgitation
- Aspiration (Aspiration pneumonia can also occur)
- Chronic cough
- Some may present with progressive weight loss
- Usually there are no clinical signs but there may be a lump in the neck that gurgles on palpation
- Halitosis (bad breath) from food decaying in the pouch.

#### **Investigations**

- Endoscopy should be avoided as an initial investigation for fear of perforating the lesion. A barium swallow may show a residual pool of contrast within the pouch.

**Q. A 60 year old man has difficulty in swallowing, regurgitation of food and bad breath. He has been coughing a lot lately. He has loss some weight recently in the last couple of months and is concerned about oesophageal cancer. What is the SINGLE most appropriate initial investigation?**

**A. Barium swallow**

- B. Computed tomography scan of chest
- C. Manometry
- D. Skeletal survey
- E. Endoscopy

**EXPLANATION:**

The bad breath and regurgitation of food points towards a pharyngeal pouch. Loss of weight can also occur in pharyngeal pouch. The first step in investigation would be a barium swallow and not an endoscopy. Performing an endoscopy in a patient with a pharyngeal pouch could lead to a perforation.

**Pharyngeal pouch (Zenker's diverticulum)**

It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.

**Presentation**

- Dysphagia
- History of food sticking and regurgitation
- Aspiration (Aspiration pneumonia can also occur)
- Chronic cough
- Some may present with progressive weight loss

- Usually there are no clinical signs but there may be a lump in the neck that gurgles on palpation
- Halitosis (bad breath) from food decaying in the pouch.

### Investigations

- Endoscopy should be avoided as an initial investigation for fear of perforating the lesion. A barium swallow may show a residual pool of contrast within the pouch.

**Q. A 35 year old day 1 post caesarean section complains of inability to void. She denies dysuria but complains of fullness. She was given an epidural for analgesia. What is the SINGLE most appropriate investigation?**

- A. Midstream specimen of urine
- B. Intravenous urogram (IVU)
- C. Ultrasound of the kidneys, ureters & bladder
- D. Serum calcium

**E. Bladder scan**

### **EXPLANATION:**

Bladder scan is the correct answer here.

Women would be catheterised during the C-section. Infection control and continence guidelines specify that newly inserted urinary catheters should be removed within 48 hours to reduce urinary sepsis and restore normal bladder function as quickly as possible. In a routine elective C-section, this would usually be on the same day or the next day. Most catheters can be removed promptly using a trial without catheter (TWOC) procedure.

Postoperative urinary retention occurs due to the effects of the epidural during a C-section. In practice, after taking out the catheter, doctors or nurses would ensure the patient is aware of symptoms of urinary retention such as passing small volumes, hesitancy or having the feeling of a full bladder that is unable to empty.

If postvoid residual volumes on bladder scan (PVRVs) are 300-500ml and patient unable to void or uncomfortable, or if PVRV >500ml the usual management would be to reinsert catheter. The actual postvoid residual volumes for catheterisation differ amongst hospitals in the UK but are around similar figures.

**Q. A 55 year old man has a history of weight loss and tenesmus. He is diagnosed with rectal carcinoma. Which SINGLE risk factor is not associated with rectal carcinoma?**

- A. Smoking
- B. Family history
- C. Polyposis syndromes
- D. Inflammatory bowel disease
- E. High fibre diet**

**EXPLANATION:**

It is quite the opposite. A low fibre diet is a risk factor for colorectal cancers.

**Risk factors of colorectal cancer**

- Family history of colorectal neoplasia: carcinoma; adenoma under the age of 60 years
- Past history of colorectal neoplasm: carcinoma, adenoma
- Inflammatory bowel disease: ulcerative colitis, Crohn's colitis

- Polyposis syndromes: familial adenomatous polyposis (Gardner's syndrome), Turcot's syndrome, attenuated adenomatous polyposis coli, flat adenoma syndrome, hamartomatous polyposis syndromes (Peutz-Jeghers syndrome, juvenile polyposis syndrome, Cowden's syndrome)
- Hereditary non-polyposis colorectal cancer (HNPCC)
- Diet: rich in meat and fat; poor in fibre, folate and calcium
- Sedentary lifestyle, obesity, smoking, high alcohol intake
- History of small bowel cancer, endometrial cancer, breast cancer or ovarian cancer

**Q. A 44 year old alcoholic presents with painless jaundice. He has lost 9 kg in the last 4 months. His stools are pale and he has dark urine. What is the SINGLE most likely diagnosis?**

**A. Cancer of the head of pancreas**

B. Cancer in the tail of pancreas

C. Chronic pancreatitis

D. Biliary colic

E. Common duct stone

**EXPLANATION:**

It is important to note that alcohol does not appear to be an independent risk factor but alcohol is a risk factor towards chronic pancreatitis which may lead to pancreatic cancer.

The obstructive jaundice is because the tumour on the head of pancreas blocks the biliary tract.

**Pancreatic cancer**

- 60% of pancreatic tumours are adenocarcinomas which typically occur at the head of the pancreas.

### **Associations**

- Smoking
- Diabetes
- Chronic pancreatitis

### **Features**

#### *Tumours in the head of pancreas*

- Classically painless jaundice (obstructive jaundice → dark urine, pale stools and pruritus)

#### *Tumours in body or tail of pancreas*

- Epigastric pain which radiates to the back and relieved by sitting forward

#### *Either tumour in head or body/tail may cause:*

- Anorexia, weight loss
- Atypical abdominal pain

### **Investigation**

- CA 19-9 is non specific but helps assess prognosis
- Ultrasound has a sensitivity of around 60-90%
- High resolution CT scanning is the investigation of choice



# Al-Khair

## **Management**

- Whipple's resection (pancreaticoduodenectomy) is considered in fit patients with no metastasis
- ERCP with stenting is often used for palliation

## **INFECTIOUS DISEASES:**

**Q. A 3 year old girl presents with a history of fever for 2 days. She is drowsy and had a seizure causing twitching of the right side of the body for 4 minutes. Her respiratory rate is 30 beats/minute, oxygen saturation is 90%, temperature is 38.9°C, and capillary refill time is 2 seconds. A urine dipstick was reported as negative. What is the SINGLE most appropriate investigation?**

- A. Blood culture
- B. Blood glucose
- C. Chest X-ray
- D. Urine culture and sensitivity
- E. CSF analysis**

### **EXPLANATION:**

The fever and drowsiness are nonspecific but given there is no history of a urinary tract infection, or cough indicating a respiratory infection, we should consider CNS involvement.

In meningitis, some children will present with mostly nonspecific symptoms or signs.

In meningitis, If the patient has got a rash, then perform blood culture as the diagnosis is most likely meningococcal septicaemia. The causative organism is *Neisseria meningitidis*.

If there is no rash then a lumbar puncture would be a better answer, but this can only be done if there are no signs of raised intracranial pressure.

Generally, treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.

**Q. A 40 year old man who recently traveled to Sudan 5 weeks ago presents with dark urine and fever. On examination, a tender hepatomegaly was noted. What is the SINGLE most likely diagnosis?**

**A. Malaria**

B. Brucellosis

C. Leptospirosis

D. Schistosomiasis

E. Infectious mononucleosis

**EXPLANATION:**

This is a very interesting question with a huge debate between Malaria and Schistosomiasis.

Initially, one may pick Schistosomiasis as Schistosomiasis is widely distributed in Sudan with more than 5 million people, mostly children, requiring treatment. 5 weeks here fits the timeline of schistosomiasis as symptoms usually takes from four to six weeks from the time of infection. They may feel generally unwell at this point however in majority of cases blood in the urine only occurs somewhere between 10 to 12 weeks after the infection. The blood in urine is due to the worms of *Schistosoma haematobium* migrating to the veins around the bladder and ureters.

Furthermore, one must remember that bladder involvement is caused by *Schistosoma haematobium* while *Schistosoma mansoni* is mainly responsible for intestinal forms of disease. Hepatomegaly is not a clinical feature of infection with *Schistosoma haematobium* (which causes the bloody urine). It can be seen in infections with *Schistosoma mansoni* but

again these are two different infections. Infections with *Schistosoma mansoni* does not cause bloody urine.

In short, a patient suffering from urinary schistosomiasis (caused by *Schistosoma haematobium*) will develop terminal haematuria, while another patient infected with *Schistosoma mansoni* may develop hepatomegaly but ultimately these symptoms are caused by different species.

Considering the clinical features, the best answer is Malaria. Blackwater fever is a complication of malaria infection in which red blood cells burst in the bloodstream (haemolysis), releasing hemoglobin directly into the blood vessels and into the urine. This accounts for the dark urine. Malaria is also known to cause hepatomegaly.

**Q. A 35 year old lady presents with recurrent extremely painful ulcers on her vulva. Viral culture and DNA detection using polymerase chain reaction (PCR) of a swab from the ulcer has come back as negative. What is the SINGLE most appropriate investigations which will lead to the diagnosis?**

**A. Anti-HSV antibodies**

- B. Dark ground microscopy of the ulcer
- C. Treponema pallidum antibody test
- D. Rapid plasma reagin test
- E. Venereal Disease Research Laboratory test (VDRL)

**EXPLANATION:**

The probable diagnosis here is Genital Herpes Simplex. Usually Viral culture and DNA detection using polymerase chain reaction (PCR) of a swab from the base of an ulcer are used to diagnose genital herpes.

Al-Khair

Anti-HSV antibodies are only used in certain scenarios. One of them is if there are recurrent/atypical genital ulcers with negative culture or PCR results.

### **Genital Herpes**

- may be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.
- Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over).

**Signs:** Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.

### **Management:**

Oral aciclovir. Some patients with frequent exacerbations may benefit from longer term aciclovir

Q. A 35 week pregnant woman presents to the Antenatal Day Unit with productive cough and rigors. This is her first pregnancy and there have been no issues to date. She returned from Uganda two weeks ago from a family visit. She is suspected to have respiratory tuberculosis. What is the SINGLE most likely medication that should NOT be used in pregnancy?

- A. Ethambutol
- B. Pyrazinamide
- C. Streptomycin**
- D. Isoniazid
- E. Rifampicin

**EXPLANATION:**

The standard unsupervised six month treatment regimen may be used during pregnancy. Streptomycin should not be used in pregnancy because it has been shown to have harmful effects on the fetus.

This patient should be treated as the risks of untreated tuberculosis are greater to pregnancy than the medication. The risk towards the pregnancy are perinatal infection, low birth weight or growth retardation, and premature delivery. Treatment for tuberculosis is the same for pregnant and non-pregnant status: 4 drug therapy (Isoniazid, Rifampicin, Pyrazinamide, Ethambutol).

Q. A 12 month old child who is HIV positive is due for his measles, mumps, and rubella (MMR) vaccine. His CD4 count is more than 200 cells/mL. What is the SINGLE most appropriate action?

- A. Defer immunization for 2 weeks
- B. Advise not to have MMR vaccine
- C. Administer half dose of MMR vaccine
- D. Administer paracetamol with MMR vaccine
- E. Proceed with administration of MMR vaccination**

**EXPLANATION:**

Even though measles, mumps, and rubella (MMR) vaccine contains live attenuated viruses, it is sometimes recommended for people with HIV/AIDS. It is contraindicated if the patient is severely immunocompromised including a HIV-infected patient with CD4 counts less than 200 cells/mL.

Q. A 6 week infant has been diagnosed as HIV positive. What is the SINGLE most appropriate immunization plan for the infant?

- A. Avoid MMR vaccinations and tetanus vaccinations
- B. Administer all vaccines as scheduled except live attenuated vaccines
- C. Administer only BCG vaccine
- D. Administer all vaccines as scheduled except BCG vaccine**
- E. Avoid influenza vaccinations

**EXPLANATION:**

BCG should not be given to HIV positive patients. All other vaccinations can be given. MMR vaccinations should not be given if the CD4 count is below 200 cells/mL.

# Al-Khair

Q. A 33 year old African woman presents with episodes of fever with rigors and chills for the past year. Blood film shows ring form plasmodium with schuffner's dots in red blood cells. What is the SINGLE most appropriate drug to eradicate this infection?

- A. Mefloquine
- B. Doxycycline
- C. Proguanil
- D. Quinine
- E. Primaquine**

## **EXPLANATION:**

Schuffner's dots are exclusively found in Plasmodium ovale and Plasmodium vivax. Thus primaquine should be used to eradicate them. The fact that they gave you the ethnicity, is another clue. Plasmodium ovale typically comes from Africa.

Plasmodium vivax → Fever spikes every 48 hours.

Plasmodium ovale → Similar to P. vivax, except untreated infection lasts less long.

Both may produce true relapses by new invasion of the blood from latent hypnozoites in the liver, up to a few years after complete clearance of parasites from the blood.

Ovale and vivax malaria have a hypnozoite stage and may therefore relapse following treatment.

# Al-Khair



# Al-Khair

## Treatment of non-falciparum malaria

- Almost always chloroquine sensitive thus chloroquine is the drug of choice
- If chloroquine fails, resistant *P. vivax* can be treated with quinine
- Primaquine is used to destroy liver stage parasites and prevent relapse

**Q. A 62 year old IV drug abuser is brought into the emergency department with complaint of fever, shivering, malaise, shortness of breath and productive cough. Around 8 days ago he developed symptoms consistent with a flu-like illness. Initially there was an improvement in his condition but deteriorated over the past three days. He now has a temperature of 39°C, a pulse of 110 beats/minute, a blood pressure of 100/70 mmHg and a respiratory rate of 22 breaths/minute. A Chest X-ray shows bilateral cavitations. What is the SINGLE most likely causative organism?**

A. *Mycoplasma pneumoniae*

**B. *Staphylococcus aureus***

C. *Chlamydia pneumoniae*

D. *Escherichia coli*

E. *Klebsiella pneumonia*

### **EXPLANATION:**

*Staphylococcus aureus* may complicate influenza infection and is seen most frequently in the elderly and in intravenous drug users or patients with underlying disease. Chest X-ray shows bilateral cavitations. Remember, there is a high incidence of *Staphylococcus aureus* pneumonia in patients following influenza so in PLAB if you see a patient with a flu-like illness which symptoms are now of pneumonia, the likely causative organism is *Staphylococcus aureus*.

# Al-Khair

**Q. A 34 year old man who has a new diagnosis of haematological malignancy presents in the emergency department with bruises all over his abdomen. He has a temperature of 38.6°C. His respiratory rate is 25 breaths/minute, heart rate is 102 beats/minute and blood pressure is 80/50 mmHg. His blood results show:**

White cell count  $23 \times 10^9/L$

Neutrophils  $0.4 \times 10^9/L$

He is commenced on meropenem. What is the SINGLE most likely diagnosis?

A. Septic shock

**B. Neutropenic sepsis**

C. Hepatitis

D. Cytomegalovirus

E. HIV

## **EXPLANATION:**

Neutropenic sepsis is a potentially fatal complication of anticancer treatment (particularly chemotherapy).

**Febrile neutropenia is defined as:**

- An oral temperature  $\geq 38.5^\circ\text{C}$  or two consecutive readings of  $\geq 38.0^\circ\text{C}$  for two hours and
- An absolute neutrophil count  $\leq 0.5 \times 10^9/L$

# Al-Khair

## **Febrile neutropenia should also be suspected in:**

- Recipients of chemotherapy within the last 4 weeks
- Recipients of bone marrow transplant within the last year who are febrile

Treat these patients, pending confirmation of neutrophil count, to avoid any delays in antibiotic administration.

## **General Management for Neutropenic Sepsis**

- Antibiotics must be started immediately (do not wait for the WBC)
- NICE recommend starting empirical antibiotic therapy with piperacillin with tazobactam (Tazocin) immediately
- if patient is still febrile and unwell after 48 hours → an alternative antibiotic such as meropenem is often prescribed +/- vancomycin
- if patient is not responding after 4-6 days → order investigations for fungal infections, rather than just starting antifungal therapy blindly

**Q. A 17 year old man has acute pain and earache on the right side of his face. He has a temperature of 39.4°C and has extensive pre-auricular swelling that is tender on palpation bilaterally. He also complains of headache, malaise, and dry mouth. What is the SINGLE most likely diagnosis?**

- A. Acute mastoiditis
- B. Acute otitis externa
- C. Acute otitis media

**D. Mumps**

- E. Otitis media with effusion

## **EXPLANATION:**

### **Mumps**

- Mumps is an acute, generalised infection caused by a paramyxovirus, usually in children and young adults
- It can infect any organ but usually affects the salivary glands
- The virus is highly infectious with transmission by droplets spread in saliva via close personal contact
- Infected persons excrete the virus for several days before symptoms appear and for several days afterwards

### **Presentation**

- Mumps can be asymptomatic
- Nonspecific symptoms lasting a few days, such as fever, headache, malaise, myalgia and anorexia, can precede parotitis
- Parotitis is usually bilateral although it can be unilateral
- Typically, there is pain at or near the angle of the jaw
- Fever may be as high as 39.5°C without rigors in small children
- Swelling causes distortion of the face and neck with skin over the gland hot and flushed but there is no rash.
- With severe swelling, the mouth cannot be opened and is dry because the salivary ducts are blocked.
- Discomfort lasts for three or four days but may be prolonged when one side clears and the other side swells.
- Usually just the parotid glands are involved but, rarely, the submaxillary and sublingual salivary glands are affected

### **Orchitis**

Orchitis may occur four or five days after the start of parotitis but it often appears without it. This can sometimes lead to the diagnosis being missed. Orchitis presents with chills, sweats, headache and backache with swinging temperature and severe local testicular pain and tenderness. The scrotum is swollen and oedematous so that the testes are impalpable.

Orchitis is usually unilateral but may be bilateral.

**Q. A 33 year old known drug abuser has swelling and erythema in his arm where he injects. He has a fever and appears sick. He is asking for morphine as the pain is severe and seems to be disproportionate to the clinical appearance. Bullae is seen on the skin of his arm. He was started on intravenous flucloxacillin but the infection has not responded to antibiotics and seems to be worsening. What is the SINGLE most likely diagnosis?**

- A. Cellulitis
- B. Erysipelas
- C. Pyoderma gangrenosum
- D. Penicillin allergic reaction

***E. Necrotising fasciitis***

**EXPLANATION:**

**Necrotising fasciitis**

Necrotising fasciitis is a life-threatening infection which rapidly spreads caused predominantly by group A  $\beta$ -haemolytic Streptococci. It is defined as necrotising infection involving any layer of the deep soft tissue compartment (dermis, subcutaneous tissue, fascia or muscle).

**Risk factors**

- Intramuscular or subcutaneous drug injection
- Diabetes

- Immunosuppression

Al-Khair

**Presentation** → According to days

- Day 1 to 2
  - Swelling, erythema, pain over affected area (mimics cellulitis)
  - Margins of infection are poorly defined, with tenderness extending beyond the apparent area of involvement (unlike cellulitis)
  - No response to antibiotics (unlike cellulitis)
- Day 2 to 4
  - Bullae, indicating skin ischaemia (unlike cellulitis)
  - Skin progresses to grey colour due to necrosis (unlike cellulitis)
  - Subcutaneous tissues have a wooden-hard feel (unlike cellulitis)
  - From intense pain to anaesthesia like pain → due to nerves being destroyed
- Day 4 to 5
  - Septic shock develops

*As necrotising infection is deep within the skin and is not visible it is often difficult to diagnose. One important notable feature is if the pain is severe, and disproportionate to the physical signs, think necrotising fasciitis.*

**Q. A 33 year old woman has numerous painful ulcers on her vulva. She is sexually active and has multiple partners in the past. What is the SINGLE most likely cause of her ulcers?**

- A. Chlamydia
- B. Trichomonas vaginalis
- C. Gardenella
- D. Herpes simplex virus**
- E. Epstein barr virus

Al-Khair

## **EXPLANATION:**

The probable diagnosis here is genital herpes.

### **Genital Herpes**

- May be asymptomatic or may remain dormant for months or even years. When symptoms occur soon after a person is infected, they tend to be severe. They may start as multiple small blisters that eventually break open and produce raw, painful sores that scab and heal over within a few weeks. The blisters and sores may be accompanied by flu-like symptoms with fever and swollen lymph nodes.
- Genital herpes can be a chronic, lifelong infection. Majority of cases are caused by HSV-2 (HSV-1 is taking over).

**Signs:** Flu-like prodrome, then grouped vesicles/papules develop around genitals. These burst, and form shallow ulcers.

### **Management:**

Oral acyclovir. Some patients with frequent exacerbations may benefit from longer term acyclovir

Q. A 38 year old female, 32 weeks pregnant presents with thick white marks on the inside of her mouth for 3 weeks. Her mouth including her tongue appears inflamed on examination. She smokes 20 cigarettes a day despite advice to quit. What is the SINGLE most likely diagnosis?

- A. Lichen planus
- B. Aphthous ulcer
- C. Molluscum contagiosum
- D. Candidiasis**
- E. Leukoplakia

**EXPLANATION:**

Smokers are more likely to develop oral thrush. The history of pregnancy is not too relevant. But the idea that the question writers want to portray is that in pregnancy, the immune system is weakened. Thus candidiasis is more likely.

Lichen planus may have lace like appearance and not thick white mark like in this case.

Aphthous ulcer is typically round or oval sores or ulcers inside the mouth.

Molluscum contagiosum present as firm, smooth, umbilicated papules on the trunk or extremities and not in the mouth like in the given stem.

Leukoplakia is an option but it is less likely than oral candidiasis. They may sometimes give a history of a white lesion in the mouth that cannot be rubbed off.


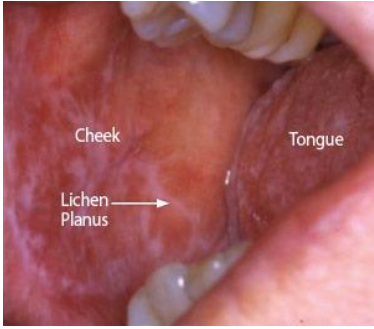



# Al-Khair

## Pseudomembranous oral candidiasis (oral thrush)

- Curd-like white patches in the mouth. The white pseudomembrane can be easily removed, leaving an underlying red base that is usually painless (in contrast with leukoplakia, which cannot be rubbed off)
- Cracks can occasionally be seen at the corners of the mouth

## Candida Vs Lichen Planus Vs Leukoplakia

Oral Candidiasis	Oral Lichen Planus	Leukoplakia
		
<p>History of immunosuppression or smoking e.g. taking oral/inhaled steroids</p> <p>Thick white marks</p> <p><b>Treatment</b></p>	<p>Lace like appearance</p>	<p>Also history of smoking</p> <p>Raised edges/ bright white patches and sharply defined and cannot be rubbed out like a candida patch.</p> <p><b>Treatment</b></p>

<p>If using inhaled steroids, good inhaler technique, spacer device, rinse mouth with water after use.</p> <p>Stop smoking</p> <p>Oral fluconazole 50 mg/day for 7 days.</p>	<p>Al-Khair</p>	<p>Stop smoking</p>
--	-----------------	---------------------

**Q. An 82 year old man was brought into the emergency department with a low level of consciousness. His wife mentions that he had a severe headache for the last 20 hours and was very sensitive to light. He has a temperature of 39.0°C, a pulse of 118 beats/minute, a blood pressure of 80/55 mmHg and a respiratory rate of 32 breaths/minute. He is conscious but confused. Kernig's sign was positive. High flow oxygen and IV fluids was immediately started. What is the SINGLE most appropriate immediate management?**

- A. Intravenous antibiotic**
- B. Lumbar puncture
- C. Computed tomography brain scan
- D. Head magnetic resonance imaging
- E. Blood culture

**EXPLANATION:**

This man is having meningitis. Treatment for meningitis should be started before doing any investigations due to the seriousness of the disease.

In a hospital setting, give intravenous third generation cephalosporin antibiotics (ceftriaxone or cefotaxime)

**Q. A 49 year old man with known HIV presents with history of cough and shortness of breath. His CD4 count is measured at  $350\text{mm}^3$ . A chest X-ray was performed and shows lobar consolidation. He has a temperature of  $38.1^\circ\text{C}$ , a respiratory rate of 30 breaths/minute and a heart rate of 90 beats/minute. What is the SINGLE most likely causative organism?**

A. Mycobacterium avium intracellulare

B. Cytomegalovirus

**C. *Streptococcus pneumoniae***

D. Toxoplasmosis

E. Pneumocystis jiroveci

**EXPLANATION:**

This is another debatable topic. At first, the impression that is given in the stem points towards Pneumocystis jiroveci given the history of cough and a HIV-positive patient. Pneumocystis jiroveci is obviously the most common opportunistic infection in HIV positive patients. However, one must remember that Pneumocystis jiroveci tends to affect HIV-positive patients who have a CD4 count below  $200\text{ cells/mm}^3$ . For this reason, all patients with a CD4 count  $< 200/\text{mm}^3$  should receive Pneumocystis jiroveci prophylaxis. While it is true that Pneumocystis jiroveci can also infect a HIV positive patient with a CD4 count above  $200\text{ cells/mm}^3$ , it is less likely compared to Streptococcus pneumoniae.

# Al-Khair

The chest X-ray findings also point more towards *Streptococcus pneumoniae* as the causative organism. Remember that *Streptococcus pneumoniae* is the most common causative organism of lobar pneumonia and it accounts for around 80% of cases of community acquired pneumonia (CAP). Note that, HIV infection is also a risk factor for *Streptococcus pneumoniae* infections.

**Q. A 24 year old man presents with a deep penetrating wound on his foot after having stepped on a nail in a field. The wound is deep. He does not remember if he had tetanus vaccines when he he was a child. What is the SINGLE most appropriate management to be given**

- A. Tetanus immunoglobulins only
- B. *Tetanus immunoglobulins and tetanus vaccine***
- C. Complete course of tetanus vaccine
- D. Tetanus booster vaccine only
- E. Antibiotic

## **EXPLANATION:**

If uncertain history of previous vaccination and high risk wound (like in this case): Give vaccine and tetanus immunoglobulin (TIG)

Tetanus vaccine is currently given in the UK as part of the routine immunisation schedule at:

- 2 months
- 3 months
- 4 months
- 3-5 years

- 13-18 years

Al-Khair

**If high-risk wound** → Give intramuscular human tetanus immunoglobulin irrespective of whether 5 doses of tetanus vaccine have previously been given

**If incomplete or unknown vaccination** → Give complete course of tetanus vaccine

**What is considered a high risk wound?**

- Wounds contaminated with soil
- Compound fractures
- Wounds containing foreign bodies
- Wounds or burns in people with systemic sepsis

Al-Khair

## OBSTETRICS & GYNAECOLOGY:

Q. A 42 year old pregnant woman at 38 weeks gestation has an eclamptic fit in the labour ward which has been ongoing and started 10 minutes ago. She had severe pre-eclampsia which was diagnosed when she was 35 weeks gestation. She was given a loading dose of magnesium sulfate several hours ago and is currently on a maintenance dose. When she was last examined, there was loss of patellar reflexes and she was feeling nauseous and warm. What is the SINGLE most appropriate next step?

- A. A further bolus of 2 g magnesium sulphate
- B. Increase infusion rate of magnesium sulphate
- C. Intravenous hydralazine
- D. Immediate delivery of baby
- E. Administer diazepam**

### **EXPLANATION:**

This lady is having a seizure but at the same time she is experiencing signs and symptoms of magnesium sulphate toxicity.

Magnesium sulphate toxicity is characterized by confusion, loss of reflexes (deep tendon reflexes), respiratory depression, and hypotension. In obstetric woman with magnesium sulphate toxicity, the following need to be performed:

*If only loss of patellar reflex or respiratory rate less than 10 breaths/minute:*

1. Stop magnesium sulphate maintenance infusion
2. Send magnesium sulphate levels to laboratory urgently
3. Consider administration of intravenous calcium gluconate 1 g (10 ml) over 10 minutes if there is concern over respiratory depression. *Calcium gluconate is the antidote*

4. Withhold further magnesium sulphate until patellar reflexes return or blood magnesium sulphate level known

*If cardiorespiratory arrest (due to magnesium sulphate toxicity)*

1. Crash call
2. Position woman in left lateral tilt position and initiate CPR
3. Stop magnesium sulphate maintenance infusion
4. Administer intravenous calcium gluconate 1 g (10 ml) over 10 minutes. *Calcium gluconate is the antidote*
5. Intubate immediately and manage with assisted ventilation until resumption of spontaneous respirations
6. Send magnesium sulphate levels to laboratory urgently

In general we do not use diazepam or phenytoin as an alternative to magnesium sulphate in women with eclampsia. However, since she is still having a fit, and magnesium sulphate toxicity is suspected, we are not able to use magnesium sulphate and thus diazepam would be the option here. Note however, we would only use it as a single dose, since prolonged use of diazepam is associated with an increase in maternal death.

If there were no features of magnesium sulphate toxicity in this question, recurrent seizures are treated with either a further bolus of 2 g magnesium sulphate or an increase in the infusion rate to 1.5 g or 2.0 g/hour.

The fetus should be continuously monitored with CTG. The woman in this stem is 38 weeks pregnant, and so plans for delivery should be made once stabilised but there is no particular hurry and a delay of several hours to make sure the correct care is in hand is acceptable assuming that there is no acute fetal concern such as a fetal bradycardia.

Q. A 23 year old woman has vaginal discharge and bleeding. An endocervical swab was taken which tested positive for *Neisseria gonorrhoeae*. What is the SINGLE most appropriate management?

- A. Erythromycin 500 mg PO for 5 days
- B. Ceftriaxone 500 mg as a single IM dose
- C. Metronidazole 400 mg PO twice daily for 14 days
- D. Azithromycin 1g PO for 7 days
- E. Azithromycin 1g PO and ceftriaxone 500mg IM stat**

**EXPLANATION:**

**Cervicitis management**

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)  
*Note that The 2009 SIGN guidelines suggest azithromycin should be used first-line due to potentially poor compliance with a 7 day course of doxycycline*

If just cervicitis (*Neisseria gonorrhoeae*)

- Azithromycin 1g PO and ceftriaxone 500mg IM stat

*It is important to note the differences between acute PID and just cervicitis as the management is different*

Q. A 28 year old primiparous woman, with no previous history of infection with herpes zoster, is 18 week pregnant. She had significant contact with a young girl with widespread



chicken pox. Serum stored from an antenatal booking blood sample was sent for serology and came back negative for VZV IgG. What is the SINGLE most appropriate management?

- A. Aciclovir PO
- B. Aciclovir IV +IVIG
- C. Aciclovir IV
- D. Reassure
- E. IVIG only**

**EXPLANATION:**

**Chickenpox exposure in pregnancy**

Chickenpox is caused by primary infection with varicella zoster virus. Shingles is reactivation of dormant virus in dorsal root ganglion. In pregnancy there is a risk to both the mother and also the fetus, a syndrome now termed fetal varicella syndrome

Fetal varicella syndrome (FVS)

- risk of FVS following maternal varicella exposure is around 1% if occurs before 20 weeks gestation studies have shown a very small number of cases occurring between 20-28 weeks gestation and none following 28 weeks
- features of FVS include skin scarring, eye defects (microphthalmia), limb hypoplasia, microcephaly and learning disabilities

Other risks to the fetus

- shingles in infancy: 1-2% risk if maternal exposure in the second or third trimester  
severe neonatal varicella: if mother develops rash between 5 days before and 2 days after birth there is a risk of neonatal varicella, which may be fatal to the newborn child in around 20% of cases

**Management of chickenpox exposure**

PLAB usually would test your knowledge on 3 of these scenarios:

# Al-Khair

1. Who gets checked for Varicella antibodies?

If the woman's immunity to chickenpox is unknown and if there is any doubt about previous infection, or if there is no previous history of chickenpox or shingles, serum should be tested for VZV IgG. This can usually be performed within 24–48 hours and often within a few hours if the laboratory can access serum stored from an antenatal booking blood sample. At least 80% of women tested will have VZV IgG and can be reassured.

2. Who gets VZIG?

If the pregnant woman is not immune to VZV and she has had a significant exposure, she should be offered VZIG as soon as possible. VZIG is effective when given up to 10 days after contact.

Note: If the immune status of the woman is unknown, the administration of VZIG can be delayed until serology results are available

Note: VZIG has no therapeutic benefit once chickenpox has developed and should therefore not be used in pregnant women who have developed a chickenpox rash.

3. Who gets oral aciclovir?

Oral aciclovir should be prescribed for pregnant women with chickenpox if they present within 24 hours of the onset of the rash and if they are 20+0 weeks of gestation or beyond.

***In summary:***

1. *Pregnant exposed to chicken pox → Check women's immunity (previous infection, varicella antibodies)*
2. *Not immuned → Administer VZIG*
3. *If develop chicken pox rash → Administer oral aciclovir*

Q. A 34 year old lady comes to the GP for removal of an intrauterine device. On speculum examination, the cervix is visualised but the intrauterine device thread is not seen. Her last menstrual period is 2 weeks ago and she has been having regular sexual intercourse with her partner. What is the SINGLE most appropriate next step?

A. Transabdominal ultrasound

**B. Transvaginal ultrasound**

C. Abdominal X-ray

D. Combined oral contraceptive pill

E. Repeat speculum examination under general anaesthesia

**EXPLANATION:**

Transvaginal ultrasound is a good step to locate if the intrauterine device is still intrauterine, displaced or fallen out. It is unlikely that it has perforated the uterus as if so, the patient would be presenting with an acute abdomen. Transvaginal ultrasound has better image quality when looking at the uterus compared to a transabdominal ultrasound. An X-ray is capable of seeing the intrauterine device as well but it is reserved for more acute presentations like suspected perforation or when the IUD is not seen on a ultrasound scan.

Combined oral contraceptives are not completely wrong as if there was a delay in obtaining the ultrasound scan, it may be necessary to start the woman on a form of contraception until the ultrasound scan can be performed. However, the option of having a transvaginal ultrasound is still the best choice among the rest.

Management of lost intrauterine device threads

*The explanation below is rather specific and most likely not required for PLAB but they do help with the understanding of what do you do in situations where the IUD thread is not found.*

**Speculum examination reveals no IUD thread**

- Take menstrual and sexual history, exclude pregnancy. Provide alternative contraception and/or post coital contraception if indicated by history
- If women is pregnant

- Refer to Early Pregnancy Unit for rapid access to ultrasound scan. Viability of pregnancy, site, gestation will need to be determined. *The management from here on is rather complex and unlikely to be asked in the PLAB test.*
- If women is not pregnant
  - Refer for ultrasound scan. Ensure contraception is given until ultrasound scan is performed
    - If ultrasound scan reports misplaced in cavity, the management depends on symptoms and degree of displacement
    - If ultrasound scan reports device is correctly located in the uterus, leave the IUD in situ until it is due to be removed
    - If IUD not seen in uterus, order a plain abdominal X-ray
      - If abdo X-ray shows IUD is in the abdominal cavity, this may require laparoscopic removal.
      - If abdo X-ray shows IUD not located, this implies that IUD has fallen out and replacement of IUD can be offered

Q. A 24 year old lady presents with lower abdominal pain for the last 3 months, dysuria, dyspareunia and vaginal discharge. Urine HCG is negative. She has no significant past medical history. What is the SINGLE most appropriate next step in management?

A. Laparoscopy

**B. High vaginal swab**

C. Hysteroscopy

D. Laparotomy

E. Ultrasound

**EXPLANATION:**

Women of her age group (<25 years old) are of greater risk for pelvic inflammatory disease as they are more sexually active during this period. A high vaginal swab is the first test to do to help diagnose PID.

# Al-Khair

## **Pelvic inflammatory disease (PID)**

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

### **Causative organisms**

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

### **Risk factors for PID**

- Age <25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

### **Features**

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

### **Investigation**

- screen for Chlamydia and Gonorrhoea

## Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

### **This is one of the combination examples for treatment of PID:**

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

### **Note the differences between acute PID and just cervicitis.**

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (Neisseria gonorrhoeae)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

## Complications

- infertility - the risk may be as high as 10-20% after a single episode
- chronic pelvic pain
- ectopic pregnancy

# Al-Khair

Q. A 24 year old woman has right iliac fossa pain and vaginal spotting. Her last menstrual period was 8 weeks ago. She is afebrile. A bimanual examination reveals cervical excitation. What is the SINGLE most likely diagnosis?

**A. Ectopic pregnancy**

B. Salpingitis

C. Endometriosis

D. Ovarian torsion

E. Ovarian tumour

## **EXPLANATION:**

Salpingitis, endometriosis, ovarian torsions and ovarian tumours are not associated with amenorrhoea.

Patients pelvic pain and vaginal bleeding with peritonism and cervical excitation obviously points towards ectopic pregnancy.

## **Ectopic pregnancy**

Defined by the implantation of a fertilized ovum outside the uterus

## **Clinical features**

- lower abdominal pain: typically the first symptom.
- vaginal bleeding: usually less than a normal period
- history of recent amenorrhoea: typically 6-8 weeks from start of last period
- peritoneal bleeding can cause shoulder tip pain

# Al-Khair

## Examination findings

- abdominal tenderness
- cervical excitation (also known as cervical motion tenderness)
- adnexal mass may be noticed

## Management:

- A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach
- Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.

Q. A 53 year old woman presents with hot flashes, mood disturbances and insomnia. She also has vaginal dryness. Her last menstrual period was 8 months ago. What is the SINGLE most appropriate management?

A. Raloxifene

**B. Oestrogen and progestogen patches**

C. Primrose oil

D. Combined oral contraceptive pills

E. Topical oestrogen

## EXPLANATION:



Hormone replacement therapy like oestrogen and progestogen patches are indicated here as she is having menopausal symptoms. This systemic treatment can also alleviate symptoms of vaginal dryness.

A vaginal oestrogen cream or pessary would be appropriate if the patient only had symptoms of vaginal dryness without the other symptoms of menopause like hot flushes. In such cases, there is no need for a systemic treatment as topical treatment can alleviate symptoms.

### **Hormone replacement therapy (HRT) indications**

Hormone replacement therapy (HRT) involves the use of a small dose of oestrogen, combined with a progestogen (in women with a uterus), to help alleviate menopausal symptoms.

### **Current indications for the use of HRT are:**

- Vasomotor symptoms such as flushing, including sleep, mood disturbance and headaches
- For women with early menopause. They should be treated with HRT until the age of natural menopause (around 51 years). The most important reason for HRT in this group is preventing the development of osteoporosis
- For those women under 60 years who are at risk of an osteoporotic fracture in whom non-oestrogen treatments are unsuitable

It is especially important to note that other indications such as reversal of vaginal atrophy should be treated with topical oestrogens.

Q. A 23 year old woman presents with offensive, homogenous grey-white vaginal discharge. Clue cells are demonstrated on a saline smear. What is the SINGLE most likely diagnosis?

**A. Bacterial vaginosis**

B. Trichomoniasis

C. Candidiasis

D. Chlamydia infection

E. Neisseria gonorrhoeae infection

Al-Khair

#### **EXPLANATION:**

##### **Bacterial vaginosis**

Bacterial vaginosis (BV) is caused by an overgrowth of mixed anaerobes, such as *Gardnerella vaginalis*, which replace the usually dominant vaginal lactobacilli resulting in a raised vaginal pH.

It is the commonest cause of abnormal vaginal discharge in women of childbearing age.

Whilst BV is not a sexually transmitted infection it is seen almost exclusively in sexually active women.

##### **Features**

- vaginal discharge: 'fishy', offensive  
The characteristic 'fishy' smell is due to the presence of amines released by bacterial proteolysis and is often the reason women attend the clinic
- asymptomatic in 50%

##### **Amsel's criteria for diagnosis of BV → 3 out of 4 required for diagnosis:**

- Homogenous grey-white discharge
- Characteristic fishy smell
- 'Clue cells' present on microscopy
- vaginal pH > 5.5

Al-Khair

# Al-Khair

## Management

May resolve spontaneously and if successfully treated has a high recurrence rate. However, most women prefer it to be treated.

- Metronidazole 400mg orally bd for 5 days or metronidazole 2g (single dose) OR
- Clindamycin 2% cream vaginally at night for 7 days

Q. A 19 year old lady with primary amenorrhoea has the following blood results:

Follicle-stimulating hormone (FSH) 11 IU/L

Luteinizing Hormone (LH) 15 IU/L

Prolactin 13 ng/mL

Oestradiol 50 pmol/L

What is the SINGLE most likely diagnosis?

A. Polycystic ovary syndrome

B. Premature ovarian failure

**C. Absent uterus**

D. Absent ovaries

E. Turner's syndrome

**EXPLANATION:**

A normal LH, FSH, oestradiol and prolactin rule out polycystic ovary syndrome (PCOS). In PCOS there would be an increased LH, increased FSH, normal oestradiol. The LH:FSH ratio is usually 2:1 or 3:1.

In premature ovarian failure, LH and FSH is raised.

Turner syndrome and absent ovary would have bloods with a low estradiol, high FSH and LH.

Thus, the only answer possible here would be absent uterus.

FSH LH Oestradiol Prolactin table

The highlighted boxes are the most important clinically and can sway physicians into making the diagnosis in some circumstances.

	FSH	LH	Oestradiol	Prolactin
Polycystic ovarian syndrome (PCOS)	Normal	Increased Note: LH:FSH more than 2	Normal to mildly increased	Normal to mildly increased
Premature ovarian insufficiency (POI)	Increased Diagnostic criteria: An elevated FSH level > 25 IU/l on two occasions > 4 weeks apart	Increased	Decreased	
Prolactinoma	Decreased	Decreased	Decreased	Extremely increased (>5000 mU/L)
Absent uterus	Normal	Normal	Normal	Normal
Anorexia nervosa	Decreased to normal		Decreased	Normal
Sheehan's syndrome	Decreased	Decreased	Decreased	Decreased
Congenital adrenal hyperplasia (non-classic)	Normal	Normal	Normal to increased	Normal

### **Polycystic ovary syndrome**

Slowly progressive symptoms, hirsutism, acne, oligomenorrhoea or amenorrhoea, weight gain, reduced fertility

- Serum FSH: Normal
- Serum Oestradiol: Normal to mildly increased
- Serum AMH: Increased
- Serum TSH: Normal
- Serum Prolactin: Normal to mildly increased
- Serum Dehydroepiandrosterone sulfate (DHEAS): Increased
- Total Serum Testosterone: Increased
- Pelvic Ultrasound: Polycystic ovaries

### **Premature ovarian insufficiency (Premature ovarian failure)**

Menopausal symptoms and elevated gonadotropin levels before the age of 40 years

- Serum FSH: Increased → Diagnostic criteria: An elevated FSH level > 25 IU/l on two occasions > 4 weeks apart
- Serum LH: Increased
- Serum Oestradiol: Decreased

### **Prolactinoma**

Galactorrhoea, amenorrhoea or oligomenorrhoea, headache or visual disturbances → Bitemporal hemianopsia (due to pressure on the optic chiasm)

- MRI brain: Pituitary tumour

- Serum Prolactin: Extremely increased ( $>5000$  mU/L) is highly suggestive of prolactinoma
- Serum FSH: Decreased
- Serum LH: Decreased
- Serum Oestradiol: Decreased

### **Anorexia nervosa**

Low BMI, pathological desire for thinness, normal secondary sexual characteristics, normal external and internal genitalia

- Serum FSH: Decreased to normal
- Serum Oestradiol: Decreased
- Serum AMH: Decreased to normal
- Serum TSH: Normal
- Serum Prolactin: Normal
- Pelvic Ultrasound: Thin endometrial stripe

### **Sheehan's syndrome**

Severe obstetric haemorrhage, hypotension, and shock with postnatal panhypopituitarism caused by necrosis of pituitary gland. Nausea, vomiting, lethargy, failure to breastfeed (agalactorrhoea), postural hypotension. Late features: Hypothyroidism features, adrenal crisis (with skin depigmentation)

- Serum FSH: Decreased
- Serum Oestradiol: Decreased
- Serum TSH: Decreased
- Serum T4: Decreased
- Serum Prolactin: Decreased

- Serum Growth hormone: Decreased
- Serum ACTH: Decreased
- Serum Sodium: Decreased
- Serum Cortisol: Decreased
- MRI Brain: Sella empty or filled with CSF, pituitary gland may be small

### **Congenital adrenal hyperplasia (non-classic)**

Presents with hyperandrogenism in late childhood to early adult life. Obesity, hirsutism, acne, weight gain, history of premature pubarche, oligomenorrhoea or amenorrhoea, infertility

- Serum 17-hydroxyprogesterone (17-OHP) fasting levels >200 nanograms/dL (>6.06 nanomol/L)
- Total Serum Testosterone: Increased
- Serum DHEAS: Increased
- Serum FSH: Normal
- Serum LH: Normal
- Serum TSH: Normal
- Serum Prolactin: Normal
- Serum Oestradiol: Normal to increased

Q. A 27 year old lady presents with lower abdominal pain in the emergency department. 2 weeks ago, she came to the hospital with fever, suprapubic tenderness and vaginal discharge. Pelvic inflammatory disease (PID) was confirmed and she was sent home on oral doxycycline and oral metronidazole. She now presents with abdominal tenderness, temperature of 39.0°C, heart rate of 98 bpm, and a blood pressure of 130/85 mmHg. What is the SINGLE most appropriate next course of action?

- A. High vaginal swab
- B. Endocervical swab

**C. Pelvic ultrasound**

- D. Abdominal X-ray
- E. Emergency laparoscopy

**EXPLANATION:**

The possible diagnosis here is a pelvic abscess or tubo-ovarian abscess which are complications of PID. A high vaginal swab or endocervical swab can take days to return with results. As this is a A&E case, an ultrasound would be more appropriate as this would lead to a diagnosis.

Ultrasound scan is the diagnostic imaging method of choice for acute pelvic pain in gynaecology. It can easily diagnose sequelae of PID (including pyosalpinx and tubo-ovarian abscess).

Laparoscopy would be the next step after finding a mass on ultrasound.

Abdominal X-ray has no part in the diagnosis of a pelvic abscess.

Q. A 39 year old woman has had no menstrual periods for the last 11 months. Prior to that she had regular menstrual cycles. She recently has hot flashes and night sweats. She is also experiencing feelings of anger and helplessness. FSH was done and it was raised on two separate occasions. What is the SINGLE most appropriate management?

- A. Hormone replacement therapy (HRT) for 5 years
- B. Hormone replacement therapy (HRT) until age 51**
- C. Tricyclic antidepressants
- D. Levothyroxine
- E. Progestogen-only pill (POP)



## **EXPLANATION:**

### **Premature ovarian failure**

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

### **Causes**

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

### **Presentation**

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flushes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
  - Hot flashes
  - Night sweats
  - Irritability
  - Poor concentration
  - Decreased sex drive
  - Dyspareunia

- Vaginal dryness

Al-Khair

#### **Tests:**

##### FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

#### **Management:**

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

#### **Important Notes:**

##### Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

##### Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.

Al-Khair

# Al-Khair

Q. A 23 year old woman is followed up for 6 weeks after a surgical procedure to evacuate the products of conception in the uterus following a miscarriage. The histology shows changes consistent with a hydatidiform mole. What is the SINGLE most appropriate investigations in this case?

- A. Abdominal Ultrasound
- B. Maternal karyotype
- C. Paternal blood group
- D. Serum B-hCG**
- E. Transvaginal US

## **EXPLANATION:**

Serum and urine samples of hCG concentrations are extremely important.

In hydatidiform mole, hCG levels are likely to be raised excessively (especially in complete moles). Management would involve surgical evacuation, after which the hCG levels are expected to return to a normal, non-pregnant level.

We would like the hCG to go down towards a normal level but If it plateaued or if hCG levels rise after evacuation, chemotherapy is indicated.

This is the reason it is so important not to get pregnant during the time that hCG levels are decreasing as if one were to get pregnant, hCG levels would increase again and we will not know if it is due to the hydatidiform mole or the new pregnancy.

## **Gestational Trophoblastic Disease**

Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).

**GTD is classified as follows:**

Premalignant - hydatidiform mole

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

Malignant - gestational trophoblastic neoplasia (GTN)

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

*The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.*

**Features:**

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception
- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

# Al-Khair

## **Ultrasound findings of a complete mole**

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

## **Management of Hydatidiform mole:**

- Surgical evacuation (Suction curettage)
  - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.
  - Women should be advised not to conceive until hCG level has been normal for 6 months
  - Barrier contraception should be used until serum hCG is normal
  - COCP and HRT are safe to use after hCG levels have returned to normal

## **Management of gestational trophoblastic neoplasia (GTN)**

*This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy*

Q. A 17 year old girl with primary amenorrhoea complains of severe abdominal pain every 4 to 8 weeks which is now getting worse. On abdominal examination, a lower abdominal mass is felt. What is the SINGLE most likely diagnosis?

- A. Ectopic pregnancy
- B. Ovarian carcinoma

**C. Haematometra**

D. Endometriosis

E. Adenomyosis

Al-Khair

**EXPLANATION:**

The key word here is primary amenorrhoea. This means that she has never had her menses before. The only possibility among the options given that could cause primary amenorrhoea is haematometra.

Primary amenorrhoea and cyclical pain indicate haematometra. Haematometra is an accumulation of blood within the uterus.

One of the causes of haematometra that is associated with primary amenorrhoea is an imperforate hymen or a transverse vaginal septum. In an imperforate hymen, one might have a bluish bulging membrane visible at the introitus. A transverse vaginal septum may present with a possible abdominal mass.

Q. A 24 year old lady has lower abdominal pain worsening over the last 7 days. She has vaginal discharge and also complains of deep dyspareunia. Her last menstrual period was 2 weeks ago. Cervical motion tenderness was noted when doing a pelvic examination. She has a temperature of 38.2°C. Her blood tests show:

White cell count  $15 \times 10^9/L$

CRP 55 mg/L

She has no significant past medical history. What is the SINGLE most likely diagnosis?

A. Endometriosis

**B. Acute pelvic inflammatory disease**

Al-Khair

C. Ectopic pregnancy

D. Appendicitis

E. Pelvic congestion syndrome

Al-Khair

**EXPLANATION:**

**Pelvic inflammatory disease (PID)**

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

**Causative organisms**

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

**Risk factors for PID**

- Age < 25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

**Features**

- Lower abdominal pain
- Fever
- Deep dyspareunia
- Dysuria and menstrual irregularities may occur
- Vaginal or cervical discharge
- Cervical excitation

Al-Khair

## Investigation

- Screen for Chlamydia and Gonorrhoea

## Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

### **This is one of the combination examples for treatment of PID:**

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

### **Note the differences between acute PID and just cervicitis.**

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (Neisseria gonorrhoeae)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

## Complications

- Infertility - the risk may be as high as 10-20% after a single episode
- Chronic pelvic pain
- Ectopic pregnancy



Q. A 22 year old woman who was diagnosed with a missed miscarriage a week ago now presents to the hospital because of abdominal pain. She says she passed a small fetus and a number of clots this morning. On examination, abdomen is tender, and cervical os is opened. A transvaginal ultrasound scan shows products of conception still present in the uterus. What is the SINGLE most likely diagnosis?

- A. Threatened miscarriage
- B. Inevitable miscarriage
- C. *Incomplete miscarriage***
- D. Complete miscarriage
- E. Spontaneous miscarriage

**EXPLANATION:**

Products of conception still present in the uterus defines incomplete miscarriage. Some products of conception have been expelled but some still remain thus giving the diagnosis of incomplete miscarriage. There is usually pain and vaginal bleeding and the cervical os is open.

**A short summary of types of miscarriages that are commonly asked in PLAB**

**Threatened miscarriage** → Vaginal bleeding + fetal heart seen. Cervical os is closed

**Missed miscarriage (delayed miscarriage)** → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.

**Inevitable miscarriage** → Cervical os opened and bleeding

**Incomplete miscarriage** - Not all products of conception have been expelled

**Complete miscarriage** - Everything has been expelled

Q. A 33 year old woman, with 3 previous normal vaginal deliveries is diagnosed with stress incontinence. She has tried pelvic floor exercises and lifestyle modifications but they have not been successful. Her BMI is 29. What is the SINGLE most appropriate management?

**A. Tension free vaginal tape**

B. Bladder training

C. Oestrogen

D. Intermittent urethral catheters

E. Antimuscarinic medications

**EXPLANATION:**

Stress incontinence is a leak of small amounts of urine when coughing or laughing. Usually with a history of many vaginal deliveries as this would weaken the pelvic floor muscles. The next management here would be surgical. A tension free vaginal tape would be appropriate.

**The other options are less likely the correct answer:**

**Bladder training** → is used for women with urgency or mixed urinary incontinence. It is not used for stress incontinence.

**Oestrogens** → Do not offer systemic hormone replacement therapy for the treatment of urinary incontinence

**Intermittent urethral catheters** → This is primarily for people with urinary retention rather than stress incontinence

**Antimuscarinic medications** → Are used to treat overactive bladder and not stress incontinence.

Q. A 33 year old woman who is 11 weeks gestation attends her booking appointment with questions regarding vaccinations in pregnancy. What vaccines are offered to women who are pregnant in the UK?

A. Pertussis, diphtheria and pneumococcal vaccines

B. Influenza and rubella vaccines

C. Influenza and pneumococcal vaccines

D. Pertussis and rubella vaccines

***E. Influenza and pertussis vaccines***

**EXPLANATION:**

There are two vaccines which are specifically recommended for pregnant women: the flu (influenza) vaccine and the whooping cough (pertussis) vaccine.

For whooping cough the best time to get vaccinated is between 20 weeks and 32 weeks gestation. This maximises protection for the baby through antibody transfer.

Note that there is actually no whooping cough-only (pertussis) vaccine. The vaccine is usually combined with polio, diphtheria and tetanus.

Q. A 31 year old woman has vaginal spotting after her last intercourse which was a day ago. Her last menstrual period was 10 days ago and she usually has a regular 28 day menstrual cycle. A cervical smear performed 6 months ago was shown to be normal. A speculum examination shows cervical ectropion which does not bleed on touch. What is the SINGLE most appropriate action?

A. Transvaginal ultrasound

B. Cervical smear

C. Endocervical swab

**D. Reassurance**

E. Serum estradiol

Al-Khair

**EXPLANATION:**

There is no screening test needed for cervical ectropion as cervical ectropion is not linked to the development of cervical cancer or any other condition that causes cancer. Treatment can be offered if the cervical ectropion is causing problems such as bleeding or pain during or after sex. However in this case, the cervix is not bleeding on touch thus no treatment is needed.

**Cervical ectropion**

- This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.
  - The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)
  - It is seen on examination as a red ring around the os and is so common as to be regarded as normal
  - It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge
  - The discharge if present is usually clear, watery in consistency and without odour
  - Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.
  - After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy

Al-Khair

Q. A 25 year old woman has vaginal discharge, intermenstrual bleeding and post coital bleeding. She is sexually active and does not use any form of contraception. What is the SINGLE most appropriate investigation?

- A. High vaginal swab
- B. Endocervical swab**
- C. Urine culture and sensitivity
- D. Blood culture
- E. Pelvic ultrasound scan

**EXPLANATION:**

The likely diagnosis here is cervicitis caused by either chlamydia or neisseria gonorrhoeae. An endocervical or vulvovaginal swab would give the diagnosis

A high vaginal swab (HVS) is only worthwhile where there are recurrent symptoms, treatment failure or in pregnancy, postpartum, post-abortion or post-instrumentation.

**Cervicitis (Chlamydia and Neisseria gonorrhoeae)**

- Usually asymptomatic
- Can present with vaginal discharge, low abdominal pain, intermenstrual bleeding or post coital bleeding

**Diagnosis**

- Endocervical or vulvovaginal swab with NAAT

**Diagnosis in detail**

- Endocervical swab in transport medium (charcoal preferably) is to diagnose gonorrhoea.
- Endocervical swab for a chlamydial nucleic acid amplification test (NAAT) is to diagnose chlamydia.

- If examination is declined, a self-taken vulvovaginal swab for *C. trachomatis* and *N. gonorrhoeae* for NAAT may be an option and is more sensitive in women than urine testing

Q. A 17 year old senior schoolgirl has prolonged irregular menstrual periods and menorrhagia. She is not sexually active. What is the SINGLE most appropriate management?

A. Mefenamic acid

**B. Combined oral contraceptive pills**

C. Progestogen-only pill

D. Copper intrauterine contraceptive device

E. Levonorgestrel intra-uterine system

**EXPLANATION:**

Combined oral contraceptive pills suppresses production of gonadotrophins and is thought to reduce menstrual blood loss by up to 50%. It can improve dysmenorrhoea, lighten periods, regulate the cycle, improve premenstrual symptoms, COCP is very useful in adolescence. Also note that tranexamic acid is also effective.

Although levonorgestrel intra-uterine system is first line for menorrhagia, it is difficult to fit in a nulliparous woman as her cervix has not yet been dilated before. However, there has been more and more research regarding the use of levonorgestrel intra-uterine systems in nulliparous woman and some clinicians would prefer levonorgestrel intra-uterine system to combined oral contraceptives. Their argument is that the levonorgestrel intra-uterine systems such as Jaydess® may be fitted more easily, as the frame is smaller and narrower compared to the Mirena® IUS.

NSAIDS such as mefenamic acid may decrease menstrual blood loss by up to 20–30% and also significant decreases in dysmenorrhoea. But it will not regulate her periods whereas COCP will regulate an irregular cycle.

# Al-Khair

Q. A 29 year old woman experienced severe blood loss shortly after delivery of a still born vaginally, following a major placental abruption. Given the risk factors, what is the SINGLE most likely predisposing factor for developing postpartum haemorrhage in this women?

A. Retained product

**B. Disseminated intravascular coagulation (DIC)**

C. Fibroid uterus

D. Uterine infection

E. Large placental site

## **EXPLANATION:**

Although incidence of DIC as a cause of postpartum haemorrhage is low. This question is giving all the risk factors that would lead to disseminated intravascular coagulation (DIC)

With severe abruption, severe disseminated intravascular coagulation (DIC) may occur.

Fetal demise is also a risk factor for DIC resulting from release of tissue thromboplastin from deteriorating fetal organs.

Other causes of pregnancy related DIC are: eclampsia, retention of a dead fetus, amniotic fluid embolism, retained placenta or bacterial sepsis.

Q. A 32 year old rhesus negative woman whose previous pregnancy was complicated by rhesus isoimmunisation, now presents with vaginal spotting at 37 weeks. Her pregnancy has otherwise been normal. Her partner is rhesus positive. What is the SINGLE most appropriate investigation?

A. Kleihauer-Betke test

# Al-Khair

B. Coagulation profile

C. Recheck mother's rhesus status

***D. Assess fetal middle cerebral artery on ultrasound***

E. Fetal blood sampling

**EXPLANATION:**

You would have to understand rhesus isoimmunization fully before you can proceed with this question. Firstly, the mother is already isoimmunized. This means that she has developed antibodies towards fetal red cells.

A Kleihauer-Betke test would be useless at this point of time as the whole reason we do Kleihauer-Betke test is to determine how much Rh immunoglobulin to give to the patient to PREVENT Isoimmunization. In this question, the woman already is already isoimmunized! There is no point in giving Rh immunoglobulins to an already isoimmunised patient. Kleihauer-Betke test would be appropriate in her first pregnancy before she developed immunity.

There is no need to recheck mother's rhesus status as this would have been checked several times in her last pregnancy and this pregnancy.

Fetal blood sampling is an option but is only indicated if the peak systolic velocity (PSV) of the middle cerebral artery (MCA) is abnormal.

Thus, the answer to this question is assess fetal middle cerebral artery on ultrasound. By doing so we can assess severity of fetal anaemia.

**Rhesus isoimmunization (immune hydrops)**

Occurs when a maternal antibody response is mounted against fetal red cells. These immunoglobulin (IgG) antibodies cross the placenta and cause fetal red blood cell destruction. The ensuing anaemia, if severe, precipitates fetal hydrops, which is often referred to as immune hydrops.

If the mother is already isoimmunized, part of the management includes a measurement of the peak systolic velocity (PSV) of the fetal middle cerebral artery (MCA) seen on ultrasound



about once a week. If this is abnormal, fetal blood sampling is indicated, with blood available for transfusion.

### **Rhesus negative pregnancy**

A basic understanding of the pathophysiology is essential to understand Rhesus negative pregnancies.

If a Rh -ve mother delivers a Rh +ve child a leak of fetal red blood cells may occur, this causes anti-D IgG antibodies to form in mother. In later pregnancies these antibodies can cross placenta and cause haemolysis in fetus.

### **Prevention**

- test for anti-D antibodies in all Rh -ve mothers at booking
- NICE (2008) advise giving anti-D to non-sensitised Rh -ve mothers at 28 and 34 weeks
- anti-D is prophylaxis - once sensitization has occurred it is irreversible

**Anti-D immunoglobulin should be given as soon as possible (but always within 72 hours) in the following situations:**

- delivery of a Rh +ve infant, whether live or stillborn
- any termination of pregnancy
- miscarriage if gestation is > 12 weeks
- ectopic pregnancy
- external cephalic version
- antepartum haemorrhage
- amniocentesis, chorionic villus sampling, fetal blood sampling

### **Affected fetus**

- oedematous (hydrops fetalis, as liver devoted to RBC production albumin falls)
- jaundice, anaemia, hepatosplenomegaly
- treatment: transfusions, UV phototherapy

Q. A 27 year old presents with left sided abdominal pain and vaginal spotting. Her last menstrual period was 7 weeks ago. Abdomen was tender to palpate and cervical motion tenderness was noticed on examination. Transvaginal ultrasound scan was performed which showed an empty uterus. Serum human chorionic gonadotropin (hCG) is 1200 IU/litre. Blood pressure is 110/65 mmHg, heart rate is 80 bpm and respiratory rate is 18/min. What is the SINGLE most appropriate next course of action?

(A serum hCG above 25 IU/litre is considered positive for pregnancy)

A. Immediate laparotomy

**B. Laparoscopy**

C. Discharge home

D. CT abdomen

E. Methotrexate

## **EXPLANATION:**

It is clear here that she has an ectopic pregnancy.

As she is haemodynamically stable, a laparoscopic approach to the surgical management of tubal pregnancy is warranted.

Laparotomy would be the choice if the patient is clearly haemodynamically unstable. The reason for this is laparotomy is quicker than a laparoscopy.

Methotrexate would be first line for an ectopic pregnancy if she was not in significant pain. Although systemic methotrexate is first line, it can only be used if it contains all the criteria below:

- Not in significant pain
- Adnexal mass smaller than 35mm with no fetal heart visible
- Serum hCG less than 1500 IU/litre
- Able to return for follow-up

It is unlikely that the examiners for PLAB expect you to know these criteria thus methotrexate is unlikely to be the answer in PLAB.

# Al-Khair

## **Ectopic pregnancy**

Defined by the implantation of a fertilized ovum outside the uterus

### **Clinical features**

- lower abdominal pain: typically the first symptom.
- vaginal bleeding: usually less than a normal period
- history of recent amenorrhoea: typically 6-8 weeks from start of last period
- peritoneal bleeding can cause shoulder tip pain

### **Examination findings**

- abdominal tenderness
- cervical excitation (also known as cervical motion tenderness)
- adnexal mass may be noticed

### **Management:**

- A laparoscopic approach to the surgical management of tubal pregnancy, in the haemodynamically stable patient, is preferable to an open approach
- Management of tubal pregnancy in the presence of haemodynamic instability should be by the most expedient method. In most cases this will be laparotomy.

Q. A 24 year old woman who is 15 weeks pregnant presents with pain in her lower abdomen for the past couple of hours. She has some vaginal spotting. On examination, abdomen is tender, and cervical os is closed. A transvaginal ultrasound scan shows no fetal heartbeat or fetal activity. What is the SINGLE most likely diagnosis?

A. Threatened miscarriage

B. Inevitable miscarriage

C. Incomplete miscarriage

**D. Missed miscarriage**

E. Spontaneous miscarriage

#### **EXPLANATION:**

It is important to note that missed miscarriage may present with heavy vaginal bleeding or none at all. But if there is no fetal heart seen, at this stage of pregnancy, it is a missed miscarriage. Note that in normal pregnancy the fetal heart is seen usually at 6 weeks. So you should not be diagnosing a missed miscarriage if a 4 week pregnant lady has no fetal heartbeat seen on a transvaginal ultrasound.

There are more specific ultrasound criterias to diagnose missed miscarriage but are beyond what will be asked in PLAB part 1.

#### **A short summary of types of miscarriages that are commonly asked in PLAB**

**Threatened miscarriage** → Vaginal bleeding + fetal heart seen. Cervical os is closed

**Missed miscarriage (delayed miscarriage)** → Dead fetus before 20 weeks without the symptoms of expulsion. May or may not have vaginal bleeding. Cervical os is closed.

**Inevitable miscarriage** → Cervical os opened and bleeding

**Incomplete miscarriage** - Not all products of conception have been expelled

**Complete miscarriage** - Everything has been expelled

Q. A 28 week pregnant lady presents with painless vaginal bleeding after sexual intercourse. The cervical os is closed. On ultrasound, placenta is noted to be anterior and high. Fetal movements and fetal heart is seen on scan. Abdomen is soft and non tender. What is the SINGLE most likely diagnosis?

- A. Missed miscarriage
- B. Disseminated intravascular coagulation
- C. Placental abruption
- D. Placental praevia
- E. Cervical ectropion**

**EXPLANATION:**

Post coital bleeding could be a symptom of either placenta praevia or cervical ectropion.

As the placenta is noted to be high, it is not placenta praevia.

Fetal heart was seen which excludes the diagnosis of missed miscarriage.

Placenta abruption would present a hard, tender abdomen.

There are no signs or symptoms of disseminated intravascular coagulation.

Cervical ectropion would be the most likely diagnosis.

**Cervical ectropion**

- This occurs when the columnar epithelium of the endocervix is displayed beyond the os. The stratified squamous epithelium that normally lines the vaginal part of the cervix (ectocervix) is replaced by columnar epithelium, which has migrated from the endocervix.

- The cervix enlarges under the influence of oestrogen and as a result the endocervical canal is everted. Exposure of high levels of oestrogen usually occurs at certain times (e.g. puberty, in pregnancy or women on COCP)
- It is seen on examination as a red ring around the os and is so common as to be regarded as normal
- It is generally an asymptomatic condition but patients occasionally present with bleeding or excessive discharge
- The discharge if present is usually clear, watery in consistency and without odour
- Once a normal cervical smear has been confirmed, it is actively managed only if there are symptoms.
- After stopping any oestrogen-containing contraceptive, treatment options include diathermy, or cryotherapy

Q. A 16 year old girl who is normally fit and healthy attends her GP complaining of very painful menstrual periods. She has a regular 28 day menstrual cycle. She denies being sexually active. What is the SINGLE most appropriate management?

- A. Tranexamic acid
- B. Combined oral contraceptive pills
- C. Endometrial ablation
- D. Levonorgestrel intra-uterine system
- E. Mefenamic acid**

**EXPLANATION:**

Dysmenorrhoea is very common among this age group. Mefenamic acid is usually the first tried management as the pain during periods may sometimes lessen over the next couple of months to years.

**Dysmenorrhea**

Dysmenorrhoea can be divided into two:

Al-Khair

- Primary dysmenorrhoea: the pain has no obvious organic cause.
- Secondary dysmenorrhoea: the pain is due to an underlying condition.

### **Primary dysmenorrhoea**

- *Management:*
  - NSAIDs such as mefenamic acid with each period is usually the first tried treatment
  - Combined oral contraceptive pills are used second line if the only symptom is pain
  - Mirena IUS demonstrates benefit

### **Secondary dysmenorrhoea**

- *Common aetiology*
  - Endometriosis
  - Adenomyosis
  - PID
- *Management* → Treat the underlying condition

Q. A 38 year old woman has had no menstrual periods for the last 11 months. Prior to that she had regular menstrual cycles. FSH was found raised on two separate occasions a month apart. What is the SINGLE most likely diagnosis?

A. Polycystic ovarian syndrome

**B. Premature ovarian failure**

C. Early menopause

D. Fragile X

E. Addison's disease

## **EXPLANATION:**

### **Premature ovarian failure**

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

### **Causes**

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease
- Bilateral oophorectomy or surgical menopause

### **Presentation**

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flushes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
  - Hot flashes
  - Night sweats
  - Irritability
  - Poor concentration
  - Decreased sex drive
  - Dyspareunia



- Vaginal dryness

Al-Khair

#### **Tests:**

##### FSH levels:

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.

#### **Management:**

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

#### **Important Notes:**

##### Do NOT use early menopause and premature ovarian failure interchangeably

- The term early menopause is used for those women who go through their menopause between 40-45 years

##### Do NOT use premature menopause and premature ovarian failure interchangeably

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.

Al-Khair

Q. A 24 year old woman stopped taking combined oral contraceptive pills 11 months ago and she has not had her menstrual period since.

Her blood results show:

Follicle-stimulating hormone (FSH) 11 IU/L

Luteinizing Hormone (LH) 15 IU/L

Prolactin 72 ng/mL

Oestradiol 53 pmol/L

What is the SINGLE most likely cause?

- A. Hypothalamic amenorrhoea
- B. Polycystic ovary syndrome
- C. Prolactinoma
- D. Post pill amenorrhoea**
- E. Premature ovarian failure

## **EXPLANATION:**

### **Post pill amenorrhoea**

Post pill amenorrhoea occurs when stopping oral contraceptives does not lead to a resumption of a normal menstrual cycle. It is described as the loss of menstrual periods for at least 6 months after stopping birth control pills.

Post-pill amenorrhea is believed to be due to suppression of the pituitary gland by the birth control pills.

# Al-Khair

## Investigations

Investigation are usually needed if menstrual cycles do not resume after 3 months post pill. It may be that the cause of amenorrhoea started whilst taking the contraceptives which induced an artificial cycle, masking the issue until they were stopped.

- Ultrasonography will reveal ovaries with no signs of developing follicles and ovulation even after having stopped the pills for 6 months
- Blood tests showing a low level of FSH, LH and oestrogen is usually sufficient to confirm the diagnosis

## Treatment

- The first line of treatment in case of post-pill amenorrhea is waiting for a spontaneous remission of the amenorrhea and a spontaneous occurrence of periods.
- The time limit is usually six months. But if the woman is anxious to get her periods, active treatment may be started after waiting for only three months. The standard treatment of post-pill amenorrhea is by stimulating the pituitary to produce FSH and LH. This is done by the drug clomiphene citrate.

Q. A 31 year old primigravida at 24 weeks' gestation was admitted 24 hours ago to the maternity unit because of preterm premature rupture of membranes (PPROM). She is starting to have abdominal pains and uterine contractions. She has a pulse rate of 102 beats/minute and a temperature of 38.6°C. Routine examination of the patient's abdomen reveals tenderness suprapubically. A speculum examination reveals a foul-smelling discharge originating from the cervix with the cervix slightly opened. What is the SINGLE most likely diagnosis?

A. Placental abruption

**B. Chorioamnionitis**

C. Bacterial vaginosis

- D. Urinary tract infection  
E. Threatened miscarriage

Al-Khair

**EXPLANATION:**

Fever, maternal tachycardia, tenderness suprapubically and purulent vaginal discharge with history of ruptured membranes points towards chorioamnionitis.

There is no indication of miscarriage here which is characterised by vaginal blood loss.

**Chorioamnionitis**

Chorioamnionitis is an acute inflammation of the foetal amnion and chorion membranes, typically due to an ascending bacterial infection in the setting of membrane rupture.

**Features suggestive of chorioamnionitis**

- Fever
- Abdominal pain, including contractions
- Maternal pyrexia and tachycardia.
- Uterine tenderness.
- Fetal tachycardia
- Maternal tachycardia.
- Speculum: offensive vaginal discharge → yellow/brown

Q. A 66 year old woman had two episodes of post-coital vaginal bleeding in the last week. She has not had any withdrawal bleeds for more than 12 years. Her last cervical smear was 3 years ago which showed no abnormalities. What is the SINGLE most appropriate initial action?

- A. Repeat cervical smear

Al-Khair

B. Topical oestrogen cream

C. Thyroid function test

***D. Transvaginal ultrasound***

E. Abdominal CT scan

#### **EXPLANATION:**

The idea here is to think of endometrial cancer. Any women who has postmenopausal bleeding should have a transvaginal ultrasound to determine the endometrial thickness. If the endometrium is thick, hysteroscopy with endometrial biopsy would be arranged.

Atrophic vaginitis could also cause postmenopausal bleeding or postcoital bleeding. But it is more important to rule out endometrial cancer because of it's seriousness. Remember, postmenopausal bleeding is cancer until proved otherwise.

A cervical smear is offered every 5 years in the UK if in the age group of 50 to 64 years old. Thus, having a cervical smear that was normal 3 years ago is a usual phenomenon. A repeat cervical smear is not necessary.

#### **Endometrial cancer**

Endometrial cancer is classically seen in post-menopausal women. Classically, endometrial cancer presents as postmenopausal bleeding (PMB) and, although this is not the only cause, it must be excluded.

#### **Risk factors for endometrial cancer:**

- Obesity
- Nulliparity
- early menarche
- late menopause

- unopposed oestrogen. The addition of a progestogen to oestrogen reduces this risk (e.g. In HRT). The BNF states that the additional risk is eliminated if a progestogen is given continuously
- diabetes mellitus
- tamoxifen
- polycystic ovarian syndrome

### Features

In PLAB, they will always present with postmenopausal bleeding

### Investigation

- first-line investigation is trans-vaginal ultrasound - a normal endometrial thickness (< 4 mm) has a high negative predictive value
- hysteroscopy with endometrial biopsy gives the definitive diagnosis

### Management

Is beyond the scope for PLAB. Remember, PLAB is an easy test.

Q. A 38 year old female attends the clinic because of issues of infertility. She also says that her last period was 9 months. Lab results show:

Follicle-stimulating hormone (FSH) 59 IU/L

Luteinizing Hormone (LH) 78 IU/L

Prolactin 12 ng/mL

Oestradiol 25 pmol/L

# Al-Khair

An FSH was repeated 4 weeks later which was still elevated.

What is the SINGLE most likely diagnosis?

- A. Hypothalamic amenorrhoea
- B. Polycystic ovarian syndrome
- C. Prolactinoma
- D. Hypothyroidism
- E. Premature ovarian failure**

## **EXPLANATION:**

The diagnosis of premature ovarian failure usually needs two raised levels of FSH (more than 40 IU/L) taken at least four weeks apart. In this question, since she is amenorrheic with raised FSH and LH and a normal prolactin level, the most likely diagnosis would be premature ovarian failure. Women with premature ovarian failure also have low estradiol (usually < 50 pmol/l).

## **Premature ovarian failure**

Premature ovarian failure (Premature ovarian insufficiency) is defined as the onset of menopausal symptoms and elevated gonadotropin levels before the age of 40 years. It occurs in around 1 in 100 women.

## **Causes**

- Idiopathic - the most common cause
- Chemotherapy (this can be temporary, as recovery of ovarian function can occur, especially in younger women)
- Radiation
- Autoimmune disease

- Bilateral oophorectomy or surgical menopause

### **Presentation**

1. The most common presentation is amenorrhoea or oligomenorrhoea (which may not necessarily be accompanied by hot flashes)
2. Infertility
3. Other features are similar to those of the normal climacteric symptoms:
  - Hot flashes
  - Night sweats
  - Irritability
  - Poor concentration
  - Decreased sex drive
  - Dyspareunia
  - Vaginal dryness

### **Tests:**

#### *FSH levels:*

- FSH test should be undertaken in women aged under 40 years in whom menopause is suspected
- Two raised levels (more than 40 IU/L) taken at least four weeks apart are diagnostic

Serum follicle-stimulating hormone (FSH) measurement alone can be used to diagnose the disease. The anterior pituitary secretes FSH and LH at high levels due to the dysfunction of the ovaries and consequent low estrogen levels.



### Management:

- hormone replacement therapy (HRT) until at least the average age of the menopause (51 years)

(The average age of the menopause in women in the UK is 51 years)

### Important Notes:

*Do NOT use early menopause and premature ovarian failure interchangeably*

- The term early menopause is used for those women who go through their menopause between 40-45 years

*Do NOT use premature menopause and premature ovarian failure interchangeably*

- Premature ovarian failure is sometimes referred to as premature menopause, but the two conditions aren't exactly the same. Women with premature ovarian failure may have irregular or occasional periods for years and may even become pregnant. Women with premature menopause stop having periods and can't become pregnant.

Q. A 26 year old lady presents with worsening lower abdominal pain and purulent vaginal discharge. She was recently treated for pelvic inflammatory disease with antibiotics as an outpatient but did not complete her course of antibiotics. A urine HCG is negative. Cervical motion tenderness was noted when doing a pelvic examination. She has a temperature of 38.6°C and a pulse rate of 95 beats/minute. What is the SINGLE most appropriate management?

A. Oral tetracycline 250mg QDS

B. Oral doxycycline 100mg BD and oral metronidazole 400mg BD

**C. Intravenous ceftriaxone 2g OD with oral doxycycline 100mg BD**

D. Intravenous ceftriaxone 2g OD only

E. Oral ofloxacin 400mg BD and oral metronidazole 400mg BD

### **EXPLANATION:**

This patient clearly needs to be admitted for antibiotics. An outpatient therapy has already failed. She has signs and symptoms of pelvic inflammatory disease. She has a high temperature and tachycardia.

One of the more common inpatient regimens for pelvic inflammatory disease is IV ceftriaxone 2g daily plus IV doxycycline 100mg twice daily (oral doxycycline may be used if tolerated) followed by oral doxycycline 100mg twice daily plus oral metronidazole 400mg twice daily for a total of 14 days. Intravenous therapy should be continued until 24 hours after clinical improvement and then switched to oral.

Although it's stated that we use intravenous doxycycline as part of the antibiotic regimen, this is usually not the case as Intravenous doxycycline is not currently licensed in the UK.

### **OPTIONS FOR MANAGEMENT OF PID**

#### ***Outpatient management of PID***

- *IM ceftriaxone stat plus oral doxycycline and oral metronidazole for 14 days; or*
- *Ofloxacin and metronidazole orally for 14 days*

#### ***Inpatient management of PID***

- *IV ceftriaxone and IV doxycycline followed by oral doxycycline and oral metronidazole for 14 days; or*
- *IV ofloxacin and IV metronidazole for a total of 14 days*

# Al-Khair

## **Pelvic inflammatory disease (PID)**

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

### **Causative organisms**

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

### **Risk factors for PID**

- Age < 25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

### **Features**

- Lower abdominal pain
- Fever
- Deep dyspareunia
- Dysuria and menstrual irregularities may occur
- Vaginal or cervical discharge
- Cervical excitation

### **Investigation**

- Screen for Chlamydia and Gonorrhoea

## Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

### **This is one of the combination examples for treatment of PID:**

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

### **Note the differences between acute PID and just cervicitis.**

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (Neisseria gonorrhoeae)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

## Complications

- infertility - the risk may be as high as 10-20% after a single episode
- chronic pelvic pain
- ectopic pregnancy

Q. A 32 year old female who has completed her wants to know more about contraception and the risk of ectopic pregnancies. Which of the following contraceptive methods increase the absolute risk of ectopic pregnancies?

A. Combined oral contraceptive pills (COCP)

B. Intrauterine system (Mirena coil)

C. Progestogen-only Pill (POP)

D. Progesterone-only implant (Nexplanon)

**E. None of the above**

**EXPLANATION:**

This question by the examiners is written purely to test your knowledge of absolute and relative risk. You would need to know a little on the background of intrauterine systems.

The absolute risk of ectopic pregnancy with the mirena coil is decreased but the relative risk is increased. Meaning if you were to become pregnant while on the mirena coil, the risk of it being an ectopic is higher as compared to if you were to become pregnant while you were not on the mirena coil.

The risk of ectopic pregnancy when using IUDs is lower than when using no contraception.

The overall risk of ectopic pregnancy when using the IUD is very low, at about 1 in 1000 in 5 years.

If a woman becomes pregnant with the IUD in situ, the risk of ectopic pregnancy is about 1 in 20.

Q. A 23 year old woman who has been using an intrauterine system (Mirena coil) for one year now complains of lower abdominal pain and menstrual irregularities. She has no significant past medical history. Which is the SINGLE most likely cause of her symptoms?

**A. Pelvic Inflammatory Disease (PID)**

B. Endometriosis

C. Adenomyosis

D. Fibroids

E. Asherman syndrome

**EXPLANATION:**

Intrauterine contraceptive devices are a risk factor for pelvic inflammatory disease. Women of her age group (<25 years old) are of greater risk for pelvic inflammatory disease as they are more sexually active during this period.

**Other options are less likely because:**

**Endometriosis, adenomyosis and fibroids** → Are less likely as an intrauterine system is likely to benefit symptoms and not worsen them

**Asherman syndrome** → are adhesions of the endometrium often associated with dilation and curettage of the intrauterine cavity. It results in infertility. Often, they experience menstrual irregularities. But in this question there is no relevant past medical history meaning she did not have any dilation and curettage thus this option is very unlikely.

**Pelvic inflammatory disease (PID)**

Pelvic inflammatory disease (PID) is a term used to describe infection and inflammation of the female pelvic organs including the uterus, fallopian tubes, ovaries and the surrounding peritoneum. Most commonly caused by ascending infection from the endocervix.

**Causative organisms**

- Chlamydia trachomatis - the most common cause
- Neisseria gonorrhoeae

**Risk factors for PID**

- Age <25
- Previous STIs
- New sexual partner/multiple sexual partners
- Uterine instrumentation such as surgical termination of pregnancy
- Intrauterine contraceptive devices
- Post-partum endometritis

## Features

- lower abdominal pain
- fever
- deep dyspareunia
- dysuria and menstrual irregularities may occur
- vaginal or cervical discharge
- cervical excitation

## Investigation

- screen for Chlamydia and Gonorrhoea

## Management

- There are many combinations of antibiotics to treat PID. It is unlikely that the PLAB test would ask you the management of PID. PLAB questions may ask you for the management of cervicitis (but unlikely PID). Remember, cervicitis is not the same as PID.

### **This is one of the combination examples for treatment of PID:**

Outpatients: Ceftriaxone 500 mg as a single intramuscular dose, followed by oral doxycycline 100 mg twice daily plus oral metronidazole 400 mg twice daily, both for 14 days.

### **Note the differences between acute PID and just cervicitis.**

If just cervicitis (Chlamydia)

- Azithromycin 1g single dose (OR doxycycline 100mg bd for 7 days) (both have similar efficacy of more than 95%)

If just cervicitis (*Neisseria gonorrhoeae*)

- Azithromycin 1g PO and ceftriaxone 500mg IM
- RCOG guidelines suggest that in mild cases of PID intrauterine contraceptive devices may be left in. The more recent BASHH guidelines suggest that the evidence is limited but that 'Removal of the IUD should be considered and may be associated with better short term clinical outcomes'

### **Complications**

- infertility - the risk may be as high as 10-20% after a single episode
- chronic pelvic pain
- ectopic pregnancy

Q. A 23 year old woman comes to the A&E with severe lower abdominal pain. Her blood pressure is 120/85 mmHg and temperature is 38.9°C. The abdomen is rigid. Cervical excitation is noticed during a vaginal examination. She gave a past history of pelvic inflammatory disease 3 years ago which was successfully treated with antibiotics. What is the SINGLE most appropriate investigation?

**A. Ultrasound**

B. Abdomen X-ray

C. CT Abdomen

D. High vaginal swab

E. Endocervical swab



**EXPLANATION:**

The possible diagnosis here is a pelvic abscess or tubo-ovarian abscess which are complications of PID. A high vaginal swab or endocervical swab can take days to return with results. As this is a A&E case, an ultrasound would be more appropriate as this would lead to a diagnosis.

Ultrasound scan is the diagnostic imaging method of choice for acute pelvic pain in gynaecology. It can easily diagnose sequelae of PID (including pyosalpinx and tubo-ovarian abscess).

Note that even if no PID history was given in this question, an ultrasound scan would still be the most appropriate as it would rule out ovarian cyst or adnexal torsion.

Q. An 11 week pregnant woman presents with severe vomiting and nausea. She has been feeling nauseous for the past few days. A urinalysis shows 2+ ketones. What is the SINGLE most appropriate action?

- A. Ultrasound
- B. Thiamine
- C. Serum BHCG
- D. Parenteral antiemetics

***E. Intravenous fluids***

**EXPLANATION:**

This is a case of hyperemesis gravidarum. Intravenous fluids is the most important part of management to ensure that the patient is not dehydrated. If this has already been given and dehydration managed, intravenous antiemetics is the next best answer. Regular antiemetics such as promethazine or cyclizine are often tried first in many early pregnancy units. If this fails, prochlorperazine intramuscularly or orally can be added on. If patient continues to vomit, intravenous metoclopramide or ondansetron can be used on top of the already prescribed regular antiemetics.

Advice such as eat little and often should be given.

Thiamine is also used in hyperemesis gravidarum and should ideally be given to all women admitted with prolonged vomiting. This is to prevent Wernicke's encephalopathy which is due to vitamin B1 (thiamine) deficiency. However, the importance of thiamine in an acutely vomiting woman is less compared to having intravenous antiemetics.

### **Hyperemesis Gravidarum**

Nausea and vomiting are common in early pregnancy. When it is severe or prolonged it is called hyperemesis gravidarum.

Symptoms usually begin between 6-8 weeks: peak at 12 weeks and usually resolve by 20 week

#### **Symptoms**

- Nausea
- Vomiting
- Food and fluid intolerance
- Lethargy

#### **Signs**

- Ketonuria
- Weight loss > 5%
- Tachycardia
- Signs of dehydration:
  - Decreased skin turgor
  - Prolonged capillary refill
  - Sunken eyes

## Management

- IV fluids
  - If potassium is found to be low i.e.  $< 3.5$  mmol, sodium chloride 0.9% with 20-40 mmol/litre potassium chloride (KCl) is usually added
- Antiemetics
  - Promethazine or cyclizine first-line
  - Metoclopramide, prochlorperazine or ondansetron second-line

Q. A 26 year old woman presents with vaginal bleeding. She has a positive pregnancy test and her last menstrual period was 10 weeks ago. She has been having a loss of appetite, nausea and vomiting for the past two weeks. On palpation, her symphyseal fundal height is 16cm. On speculum examination, the cervical os is seen as closed. What is the SINGLE most likely diagnosis?

- A. Thyrotoxicosis
- B. Threatened miscarriage
- C. Twin pregnancy
- D. Hyperemesis gravidarum

***E. Molar pregnancy***

### **EXPLANATION:**

The patient is presenting with classical features of molar pregnancy which are uterus large for dates, first trimester bleeding, hyperemesis. This is a presentation that is also similar to multiple pregnancies like twin pregnancy as they are also at increased risk of bleeding, hyperemesis and have a uterus that is larger for dates. However, in multiple pregnancies the uterus is seen to be larger in the second trimester rather than the first.

Hyperemesis gravidarum is not totally incorrect as this patient does also have a diagnosis of hyperemesis gravidarum as she is seen to be vomiting for the past two weeks. However, the most likely diagnosis is still molar pregnancy given the other features.

# Al-Khair

## **Gestational Trophoblastic Disease**

Gestational trophoblastic disease (GTD) covers a spectrum of diseases caused by overgrowth of the placenta. It ranges from molar pregnancies to malignant conditions such as choriocarcinoma. If there is any evidence of persistence of GTD the condition is referred to as gestational trophoblastic neoplasia (GTN).

### **GTD is classified as follows:**

#### *Premalignant - hydatidiform mole*

- Complete hydatidiform mole (CHM)
- Partial hydatidiform mole (PHM)

#### *Malignant - gestational trophoblastic neoplasia (GTN)*

- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour (PSTT)
- Epithelioid trophoblastic tumour (ETT)

*The classification of GTD is less important. An exam of this level usually does not require you to know details of types of GTD.*

### **Features:**

- Hyperemesis
- Irregular first-trimester vaginal bleeding
- Uterus large for dates
- Vaginal passage of vesicles containing products of conception

- Serum hCG is excessively high with complete moles, but levels may be within the normal range for partial moles.

#### **Ultrasound findings of a complete mole**

- 'Snowstorm' appearance of mixed echogenicity, representing hydropic villi and intrauterine haemorrhage
- Large theca lutein cysts

#### **Management of Hydatidiform mole:**

- Surgical evacuation (Suction curettage)
  - Note that histological examination of products of conception is essential to confirm diagnosis
- Two-weekly serum and urine samples until hCG concentrations are normal.
  - Women should be advised not to conceive until hCG level has been normal for 6 months
  - Barrier contraception should be used until serum hCG is normal
  - COCP and HRT are safe to use after hCG levels have returned to normal

#### **Management of gestational trophoblastic neoplasia (GTN)**

*This is unlikely to be asked in detail in PLAB 1 due to the complexity of the management. But you do need to know it involves chemotherapy*

Q. A 29 year old at 38 weeks gestation presents with a 2 hours history of constant abdominal pain. While waiting to be seen, she passes 300 ml of blood per vagina. What is the SINGLE most appropriate next step?

A. Ultrasounds

**B. Cardiotocography**

C. Clotting screen

D. Group and save

E. Kleihauer Betke test

Al-Khair

**EXPLANATION:**

With constant abdominal pain and PV bleeding, placental abruption is one of our differentials. The first and most important step is to put on a cardiotocograph (CTG). If there is fetal distress seen on the CTG, the woman may be rushed for an emergency C-section.

As abruption is a clinical diagnosis, an ultrasound would have little value. A CTG is extremely important as a first step to monitor the fetus. Ultrasound would be a good step to perform to rule out placenta praevia if the CTG is found to be reassuring.

A group and save is also important as she is having PV bleeding, but the importance of monitoring fetus comes above having a group and save as most maternity units will have O type blood stored in fridge.

Al-Khair

## PNEUMONIA

Al-Khair

1) **PCP** --> **Co-Trimaxole**

**(PC)**

2) **MYCOPLASMA (MEC)**

M – Mycoplasma

E – Erythromycin (1)

C – Clarithromycin (2)

Tetracycline (3)

3) **LEGIONELLA (LEC)**

L – Legionella

E – Erythromycin (1)

C – Clarithromycin (2)

Tetracycline (3)

\*Rifampicin = if severe

4) **C. PSITTACI** --> **Tetracycline (1), Clarithromycin (2)**

**(CT)**

5) **KLEBSIELLA**

1) Cefotaxime

2) Imipenem

Al-Khair

Organism	Features	Investigation	Treatment
Strep. Pneumonia	<p>→ <b>Common bacterial pneumonia</b></p> <p>→ Affects all ages, but is commoner in the:</p> <ol style="list-style-type: none"> <li>1) Elderly</li> <li>2) <b>Alcoholics</b></li> <li>3) <b>Post splenectomy</b></li> <li>4) Patients with chronic heart disease</li> <li>5) Immune suppressed</li> <li>6) Failure or pre-existing lung disease</li> </ol> <p>Clinical Features:</p> <ol style="list-style-type: none"> <li>1) <b>Fever</b></li> <li>2) <b>Pleurisy</b></li> <li>3) Herpes Labialis</li> </ol>	<p>→ CXR shows <b>LOBAR CONSOLIDATION</b></p> <p>→ If moderate or severe check for URINARY ANTIGEN</p>	<p>→ <b>Amoxicillin</b></p> <p>→ Benzylpenicillin, or Cephalosporin</p>
Staph Aureus	<p>→ May complicate <b>influenza infection</b></p> <p>→ Occur in the –</p> <ul style="list-style-type: none"> <li>- Young</li> <li>- Elderly</li> <li>- intravenous drug users</li> <li>- patients with underlying disease, eg leukaemia, lymphoma, cystic fibrosis (CF)</li> </ul>	<p>→ It causes a <b>bilateral cavitating</b> bronchopneumonia.</p>	<p>→ <b>Flucloxacillin</b> ± <b>Rifampicin</b></p> <p>→ MRSA: contact lab; consider vancomycin</p>
Klebsiella Pneumonia	<p>→ Rare</p> <p>→ Occurs in:</p> <ol style="list-style-type: none"> <li>1) Elderly</li> <li>2) Diabetics</li> <li>3) <b>Alcoholics</b></li> </ol>	<p>→ Causes a cavitating pneumonia, particularly of the upper lobes.</p>	<p>→ often drug resistant</p> <p>→ <b>Cefotaxime or Imipenem</b></p>
Pseudomonas	<p>→ common pathogens in:</p> <ul style="list-style-type: none"> <li>- <b>Bronchiectasis</b></li> <li>- <b>CF</b></li> </ul> <p>→ causes hospital acquired infections particularly in:</p>		<p>→ <b>antipseudomonal penicillin</b></p> <p>→ ceftazidime</p> <p>→ meropenem</p>



	<ul style="list-style-type: none"> <li>- ITU</li> <li>- Post-surgery</li> </ul>		<p>→ ciprofloxacin + aminoglycoside</p> <p>*consider dual therapy to minimise resistance</p>
Mycoplasma Pneumonia	<p>→ Occurs in epidemics about every 4yrs</p> <p>→ presents:</p> <ul style="list-style-type: none"> <li>- insidiously eg- over 3 weeks with flu- like symptoms (headache, myalgia, arthralgia)</li> <li>- followed by a dry cough</li> </ul> <p>→ Complications:</p> <ul style="list-style-type: none"> <li>- skin rash (erythema multiform)</li> <li>- Stevens–Johnson syndrome</li> <li>- Meningoencephalitis</li> <li>- Myelitis</li> <li>- Guillain–Barré syndrome</li> <li>- Cold agglutinins may cause an autoimmune haemolytic anaemia</li> </ul>	<p>→ CXR: <b>reticular-nodular shadowing</b> or patchy consolidation often of <b>1 lower lobe</b>, and worse than signs suggest.</p> <p>→ Diagnosis: PCR sputum or serology.</p>	<p>→ Clarithromycin (500mg/12h) or</p> <p>→ Doxycycline (200mg loading then 100mg od)</p> <p>or</p> <p>→ Fluoroquinolone (eg Ciprofloxacin or Norfloxacin</p>
Legionella Pneumophila	<p><b>*HOSTELS/BOARDING</b></p> <p>→ colonizes water tanks kept at &lt;60°C (eg: hotel</p> <p>Air-conditioning and hot water systems) causing outbreaks of Legionnaire's disease.</p> <p>→ Patient may have a history of recent trip overseas</p> <p>→ Presentation</p>	<p>→ CXR shows Bi-basal consolidation.</p> <p>→ Blood tests may show lymphopenia, hyponatraemia, and deranged LFTs.</p> <p>→ Urinalysis may show Haematuria.</p>	<p>→ Fluoroquinolone for 2–3wks</p> <p>or</p> <p>→ Clarithromycin</p>

	<ul style="list-style-type: none"> <li>- Flu-like symptoms (fever, malaise, myalgia) Followed by a dry cough and dyspnoea.</li> </ul> <p>→ Extra-pulmonary features include</p> <ul style="list-style-type: none"> <li>- Anorexia</li> <li>- D&amp;V</li> <li>- Hepatitis</li> <li>- Renal failure</li> <li>- Confusion</li> <li>- Coma.</li> </ul> <p>→ 10% mortality</p>	<p>→ Diagnosis: Legionella</p> <p>Urine antigen/culture.</p>	
Chlamydia Pneumonia	<p>→ commonest chlamydial infection</p> <p>→ Person-to-person spread occurs</p> <p>→ Biphasic illness:</p> <ul style="list-style-type: none"> <li>- <b>pharyngitis, hoarseness, otitis</b></li> <li>- followed by pneumonia.</li> </ul>	<p>→ Diagnosis:</p> <p>Chlamydia complement fixation test, PCR invasive samples</p>	<p>→ Doxycycline or Erythromycin</p>
Chlamydia Psittaci	<p>→ Causes psittacosis, an ornithosis acquired from infected <b>birds (typically parrots)</b></p> <p>→ Symptoms include headache, fever, dry cough, lethargy, arthralgia, anorexia, and D&amp;V.</p> <p>→ Extra-pulmonary features are legion but rare</p> <ul style="list-style-type: none"> <li>- meningo-encephalitis</li> <li>- infective endocarditis</li> <li>- hepatitis</li> <li>- nephritis</li> <li>- rash</li> <li>- splenomegaly.</li> </ul>	<p>→ CXR shows:</p> <p>Patchy consolidation</p> <p>→ Diagnosis:</p> <p>Chlamydia serology.</p>	<p>→ <b>Doxycycline or Clarithromycin</b></p>
PCP	<p>→ causes pneumonia in the immunosuppressed (<b>eg- HIV</b>)</p>	<p>→ CXR may be normal or show bilateral perihilar interstitial shadowing</p>	<p>→ <b>high dose Co-Trimaxazole</b></p>

	<p>→ organism responsible was previously called Pneumocystis carinii, and now called Pneumocystis jiroveci</p> <p>→ presents with a</p> <ul style="list-style-type: none"> <li>- <b>dry cough</b></li> <li>- exertional dyspnoea,</li> <li>- decreased. PaO<sub>2</sub></li> <li>- fever</li> <li>- bilateral crepitation's</li> </ul>	<p>→ Diagnosis: visualization of the organism in induced sputum, bronchoalveolar lavage, or in a lung biopsy specimen.</p>	<p>or</p> <p>→ Pentamidine by slow IV or 2-3 weeks' steroids are beneficial if severe hypoxaemia</p> <p>→ prophylaxis is indicated if the CD4 count is &lt;200 = 106/L or after the first attack</p>
Viral Pneumonia	<p>→ commonest cause is <b>INFLUENZA</b></p> <p>→ other viruses that can affect the lung are:</p> <ul style="list-style-type: none"> <li>- Measles</li> <li>- CMV</li> <li>- Varicella Zoster</li> </ul>		

\* **PATCHY CONSOLIDATION = MYCOPLASMA or LEGIONELLA**

\* **UPPER LOBE CONSOLIDATION = TB**

\* **BILATERAL INTERSTITIAL SHADOWING = PCP**

\* **BILATERAL CAVITATION = STAPH PNEUMONIA**

## Post Streptococcal GN (Nephritic Syndrome)

Occurs post sore throat/skin infection 1-12 weeks

Streptococcal antigen deposits in the GLOMERULUS → host reaction and immune complex formation.

### Sign and Symptoms

- 1) Smokey urine
- 2) Oedema
- 3) Hypertension
- 4) Oliguria (decrease urine output)

### Investigation

- 1) Urea and Creatinine increased (can be indication of RF)
- 2) Proteinuria <3g/day

### Management

- 1) Supportive, 95% recover Renal function
- 2) Diuretics for fluid volume (for oedema – fluid retention)
- 3) ACE can't give if creatinine if >200

Reference:

- 1) OHCM 301
- 2) DOKNotes

## **Postpartum Haemorrhage**

Al-Khair

### **Primary:**

- 1) Occurs within first 24 hours
- 2) Loss >500mL

### **Causes**

- Uterine atony 90%
- Trauma
- Clotting factors

### **Risk Factors**

Antenatal → past pph or retained placenta, obesity, hbg <8.5, antepartum haemorrhage, age, low placenta praevia (painless bleeding), placental abruption.

In labour → prolonged labour (→ atony), induced labour (oxytocin), CS.

### **Management**

- 1) Give oxytocin (uterine not contracting) 5 units slowly IV
- 2) O2
- 3) Set up IV line
- 4) Shocked? → fresh blood
- 5) Make sure placenta is delivered completely
- 6) Bleeding continues → oxytocin 10 units in 500ml

### **Secondary:**

- 1) Excessive blood loss from genital after 24hrs up to 12 days due to retained placental tissue or clot.
- 2) Infection another cause. → give antibiotics = Metronidazole / Ampicillin

Al-Khair

Respiratory

Achalasia → Condition in which food accumulates in the oesophagus and the organ becomes highly dilated. It is due to increased resting lower oesophageal sphincter tension and incomplete relaxation of this sphincter on swallowing.

Pharyngeal pouch → halitosis (bad breath)

Allergic reaction (mild) → anti histamine = oral chlorpheniramine

Anaphylactic shock → IM adrenaline

COPD → raised pcv, cxr – hyperinflation (>6 ribs)

Atelectasis → post op 48 hours can occur = chest physiotherapy, analgesia

Pancoast + Horner → tumour at apex of lung → compresses cervical sympathetic plexus → M-meiosis, A-anhydrosis, P-ptosis

Thoracic outlet syndrome – compress nerves → s/s = pain shoulder, axilla

Polycythemia – headache, visual disturbance, itching post shower/bath

Achalasia – dysphagia for both solids and liquids, bird beak appearance, no acid reflux

PE – long flights, low vascular markings and wedge shape infarct etc → best CTPA ... tx: LMWH / fondaparinux

Steroids suppress ACTH

Cushing causes hypertension

SCLC – hyponatremia

Squamous Cell Cancer – Hypercalcemia

Spirometry – diagnose asthma

CF → Sweat test → repeated chest infections, yellow discolouration and diarrhoea

Coeliac Disease → Anti Endomyseal Antibodies

TB → DOTS therapy = RIPE 42 RI 24

Diuretic → HypoNatremia and HypoKalemia

Croup: Barking like cough, stridor ← Parainfluenza

Flail Chest → tender with paradoxical chest wall movement

Nedocromil Sodium → mast cell stabiliser

Al-Khair

Al-Khair

Al-Khair

## Rheumatoid Arthritis

# Al-Khair

Effects peripheral joints mainly small joints. Symmetrical & causes stiffness which **IMPROVES** as **THE DAY GOES ON**.

Onset age usually **5<sup>th</sup> decade** and **Female ratio 2:1**

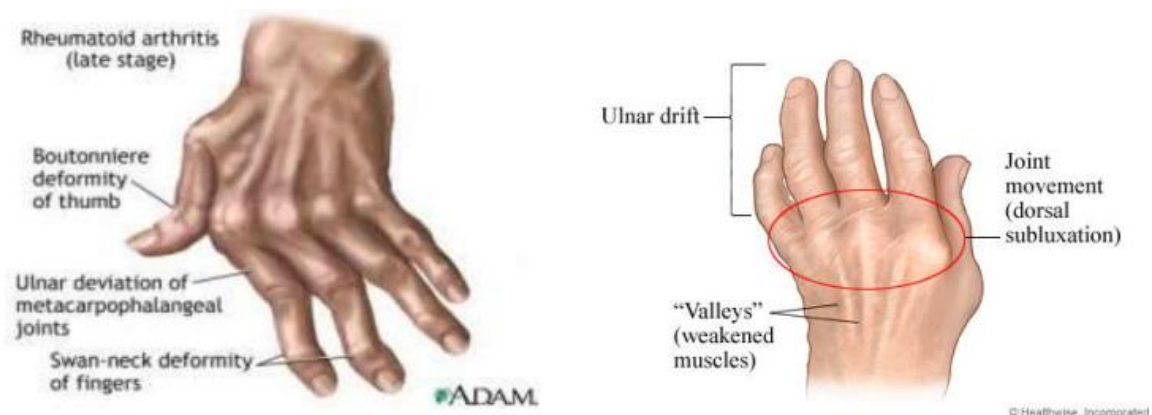
**Relapsing and remitting** and effects many joints.

### Sign and Symptoms

- Typically, **symmetrical swollen, painful, and stiff small joints of hands and feet**, **worse in the morning**.
- **Ulnar deviation**
- Swan neck deformity
- Boutonniere deformity
- **Z-deformity of thumb**

### Extra Articular features

- **Anaemia**
- **Vasculitis's**
- **Episcleritis, Scleritis, Keratoconjunctivitis sicca** (also in SLE)
- Pleurisy and pericarditis
- Pulmonary fibrosis
- **Felty's Syndrome** → neutropenia, splenomegaly and RA
- **Amyloidosis** → condition caused by deposits of abnormal protein, called amyloid, in tissues and organs throughout the body.



### Investigations

- X-ray → increased soft tissue swelling, decreased joint space narrowing, bony erosions in the late stages with or without subluxation

# Al-Khair



- Blood test → Increased ESR, CRP & Platelets. Decreased Hb and WCC
- Rheumatoid Factor is +ve in 70%
- ANA is +ve in 30%

## Treatment

### Initial therapy

In the 2009 NICE guidelines, it is recommended that patients with newly diagnosed active RA start a combination of DMARDs (including methotrexate and at least one other DMARD, plus short-term glucocorticoids)

#### 1) DMARD's

→ Methotrexate is the most widely used DMARD. Monitoring of FBC & LFTs is essential due to the risk of myelosuppression and liver cirrhosis.

Other important side-effects include pneumonitis, sulfasalazine, leflunomide, hydroxychloroquine

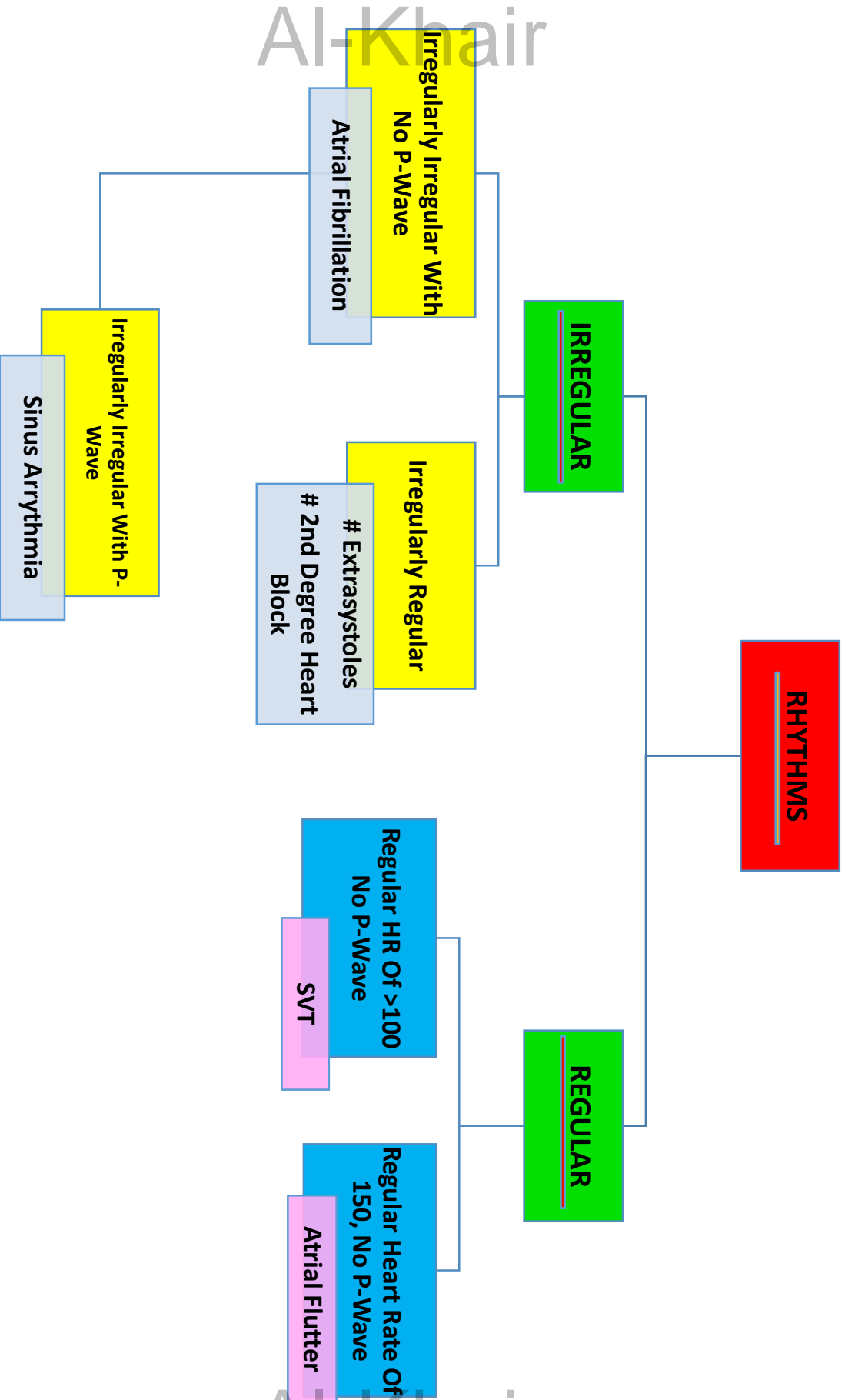
#### 2) TNF-inhibitors

→ the current indication for a TNF-inhibitor is an inadequate response to at least two DMARDs including methotrexate etanercept, infliximab, adalimumab

#### 3) Rituximab

→ anti-CD20 monoclonal antibody, results in B-cell depletion

#### 4) Abatacept: not recommended by NICE



## Right Bundle Branch Block (RBBB) Overview

- In RBBB, activation of the right ventricle is delayed as depolarisation has to spread across the septum from the left ventricle.
- The left ventricle is activated normally, meaning that the early part of the QRS complex is unchanged.
- The delayed right ventricular activation produces a secondary R wave (R') in the right precordial leads (V1-3) and a wide, slurred S wave in the lateral leads.
- Delayed activation of the right ventricle also gives rise to secondary repolarization abnormalities, with ST depression and T wave inversion in the right precordial leads.
- In isolated RBBB the cardiac axis is unchanged, as left ventricular activation proceeds normally via the left bundle branch.

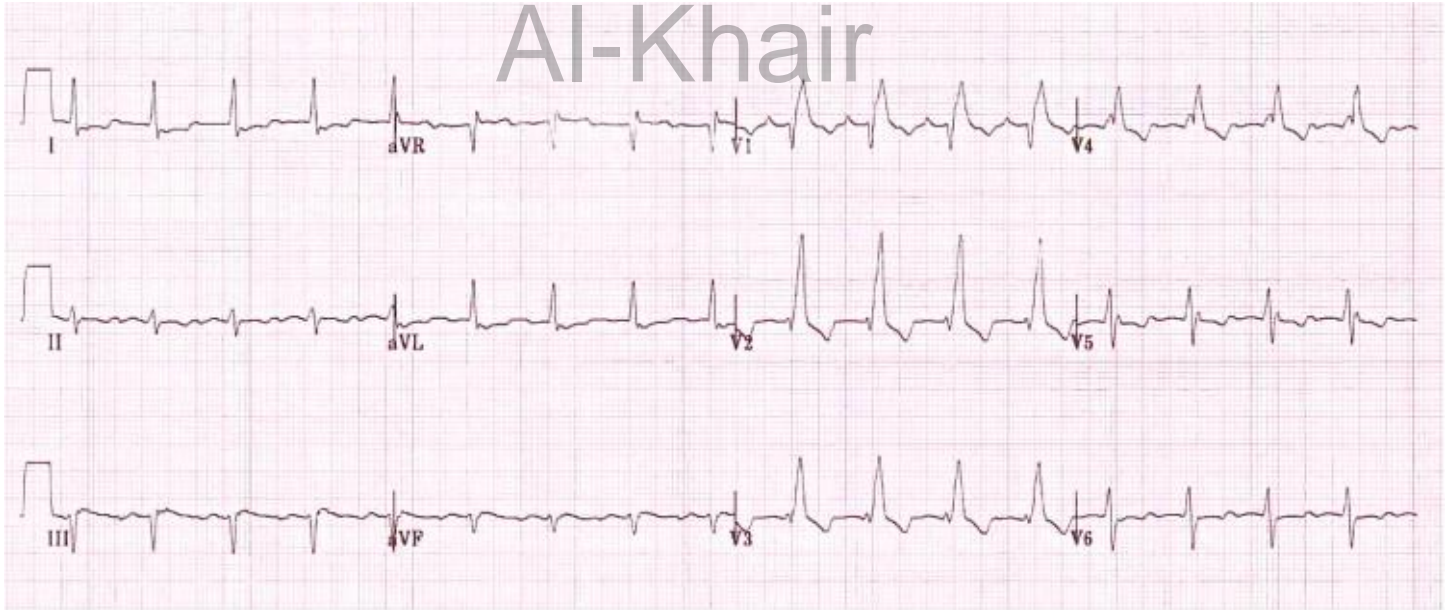


**Tall R' wave in V1 ("M" pattern) with wide, slurred S wave in V6 ("W" pattern)**

## ECG changes in RBBB

### Diagnostic Criteria

- Broad QRS > 120 ms
- RSR' pattern in V1-3 ('M-shaped' QRS complex)
- Wide, slurred S wave in the lateral leads (I, aVL, V5-6)



## Associated Features

- ST depression and T wave inversion in the right precordial leads (V1-3)

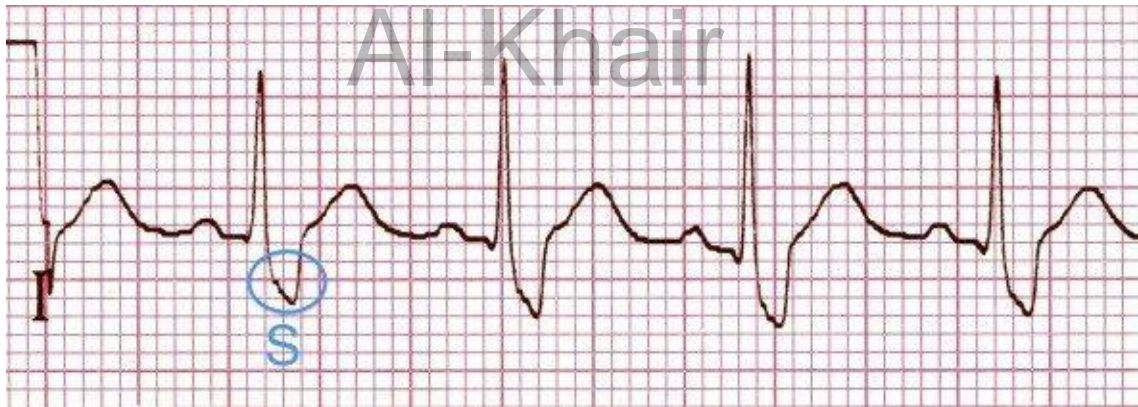
## Variations

- Sometimes rather than an RSR' pattern in V1, there may be a broad monophasic R wave or a qR complex.

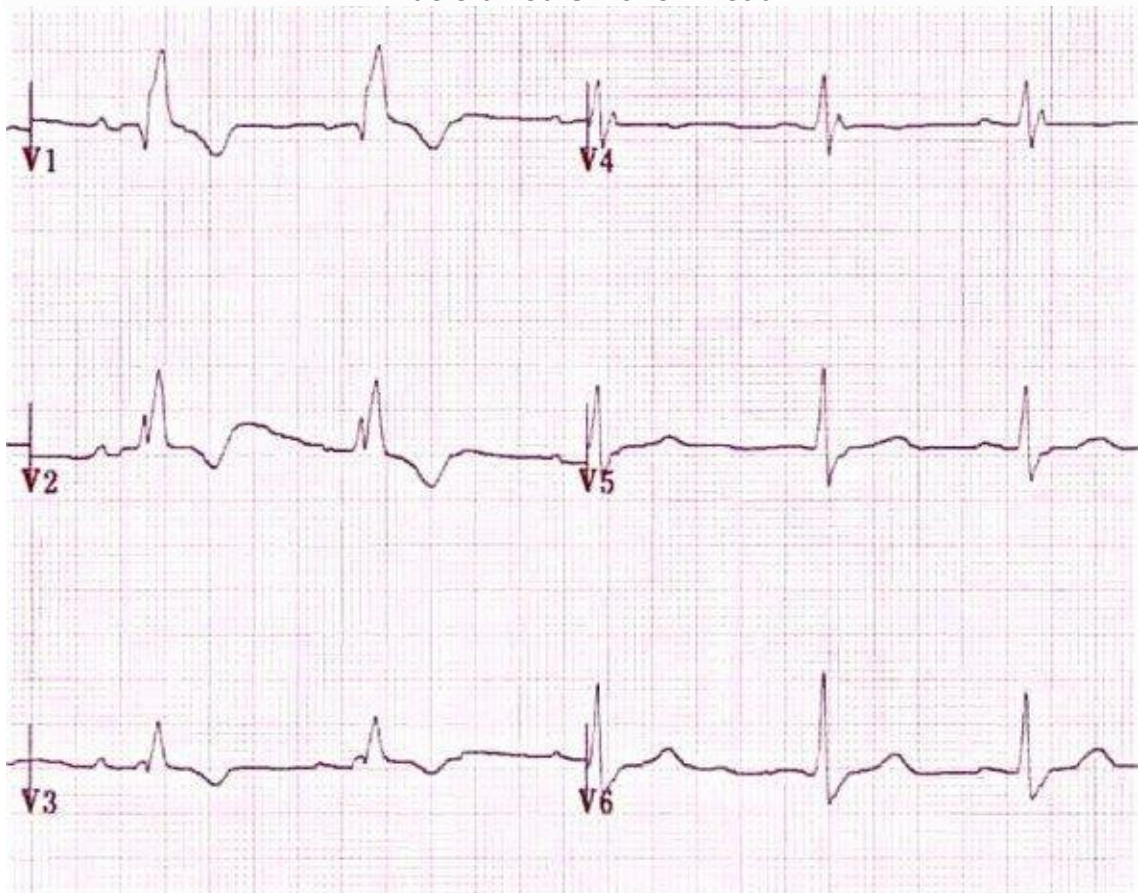


**Typical RSR' pattern ('M'-shaped QRS) in V1**





Wide slurred S wave in lead I



Typical pattern of T-wave inversion in V1-3 with RBBB

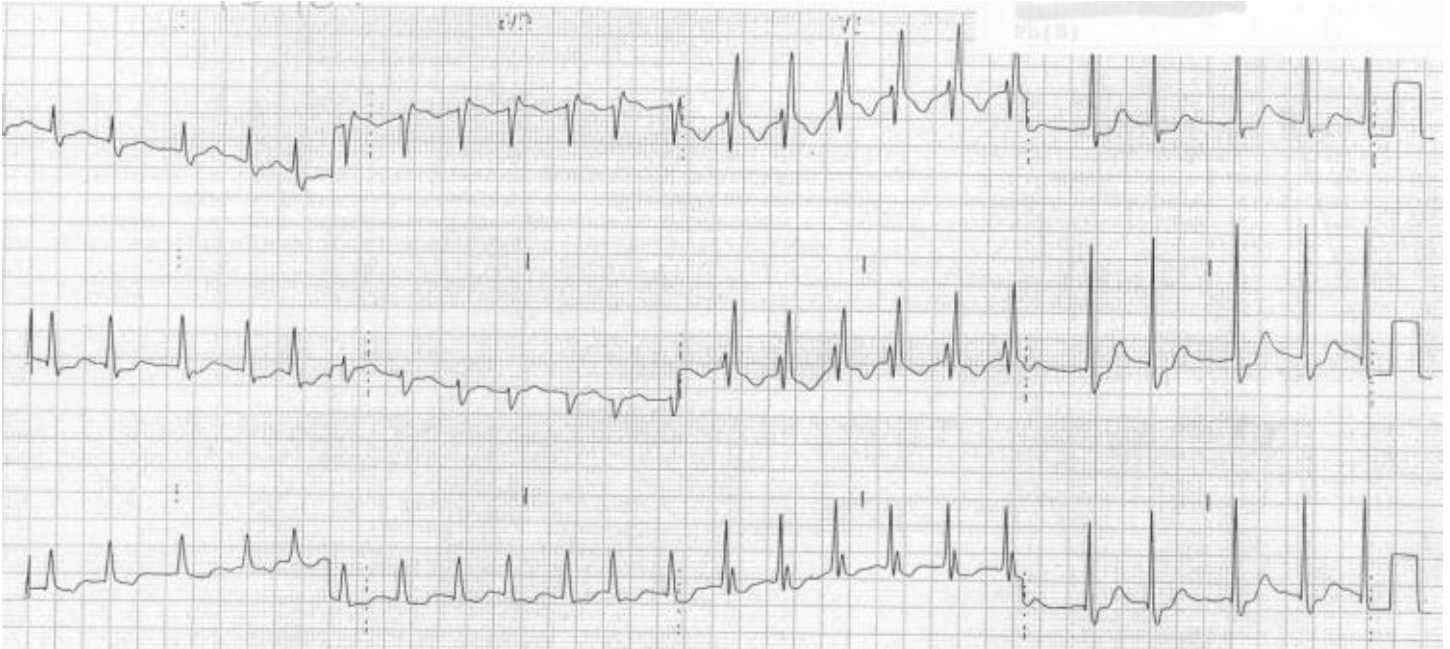
#### Causes of RBBB

- Right ventricular hypertrophy / cor pulmonale
- Pulmonary embolus
- Ischaemic heart disease
- Rheumatic heart disease
- Myocarditis or cardiomyopathy
- Degenerative disease of the conduction system

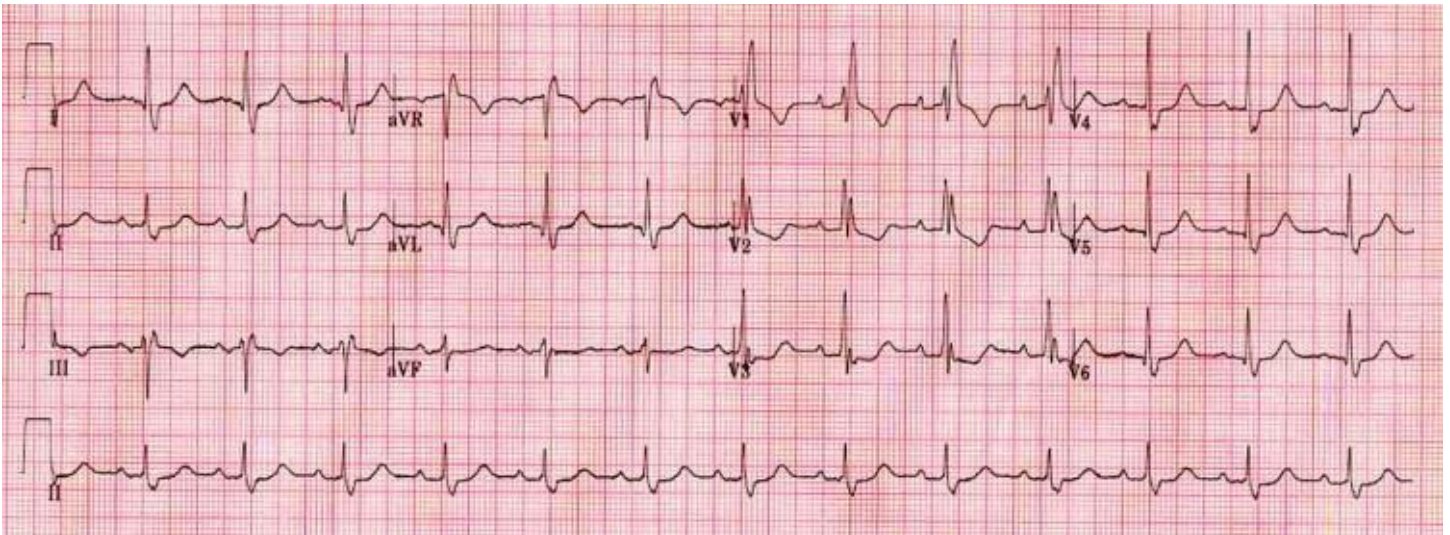
- Congenital heart disease (e.g. atrial septal defect)

## ECG Examples of RBBB

### Example 1



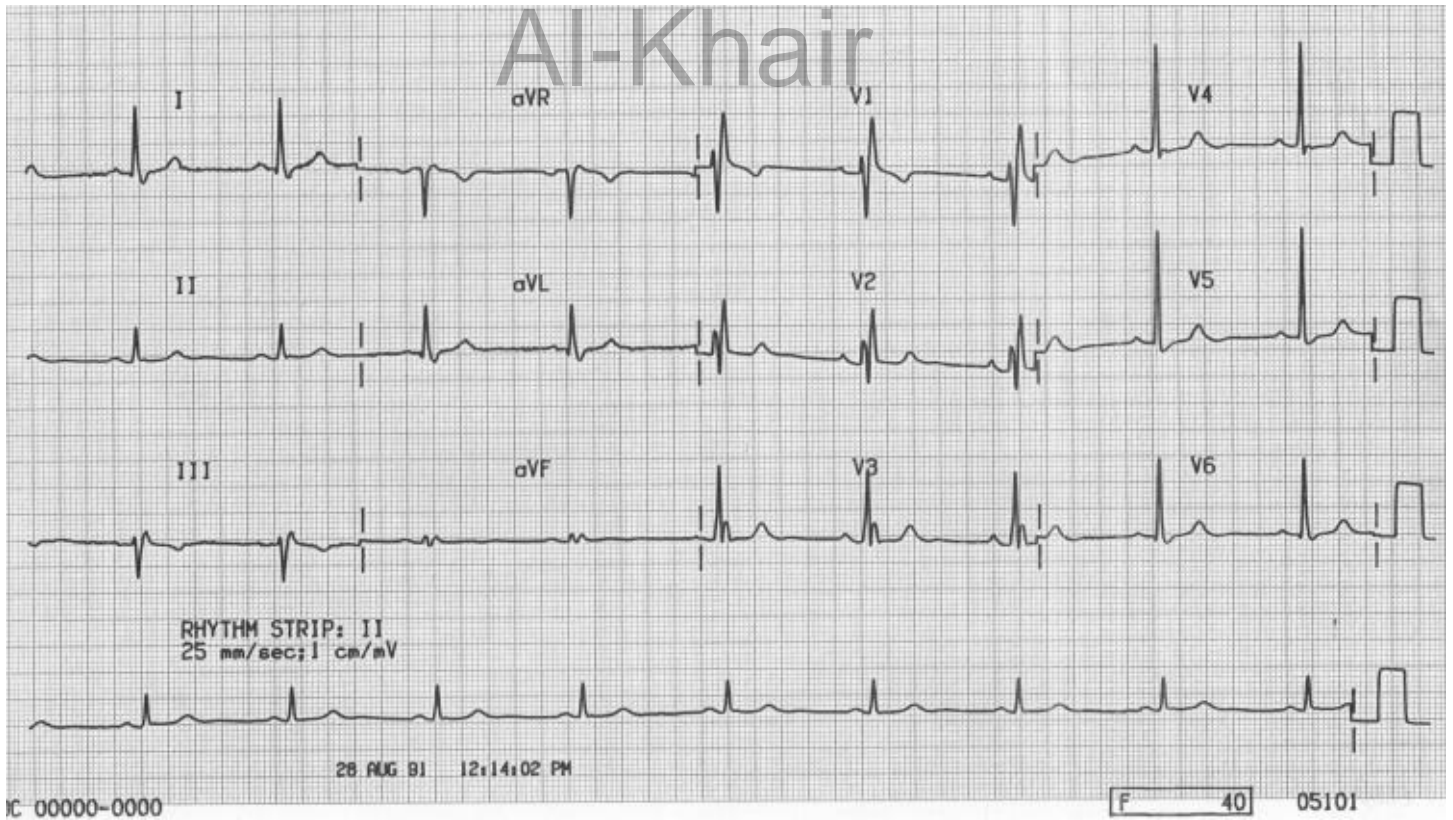
### Example 2



### Example 3



Al-Khair



Al-Khair

## Psychiatry Notes

\*do not diagnose SCHIZOPHRENIA unless symptoms last for >6 months and symptoms are present for much of the time for at least a month and there is marked impairment in work or home functioning.

### >6 months

- GAD
- PTSD
- CFS (chronic fatigue syndrome)
- **Schizophrenia**

→ 3 main symptoms

- **Hallucinations**
- **Delusion (cognitive changes)**
- **Thought disorder** (insertion, withdrawal, broadcast, blocking)

### Management

Anti-Psychotics: **TYPICAL & ATYPICAL**

#### Typical

HALOPERIDOL  
CHLORPROMAZINE  
THIORIDAZONE

\*good for SCHIZOPHRENIA but not so good with side effects

#### Side Effects

- 1) Parkinsonism → Tremors, Rigidity, Bradykinesia → Tx = **BENZHEXOL**, PROCYLIDINE
- 2) Acute Dystonia → rapid onset muscle spasms **torticollis**, upward eye deviation, lockjaw → Tx = BENZHEXOL, PROCYLIDINE
- 3) Ekblom syndrome (Akathisia) → **Restless legs** → Tx = Propranolol
- 4) Tardive dyskinesia → late onset facial tics, erectile dysfunction → Tx = Tetrabenazine, **Cyproheptadine**
- 5) **Hyperprolactinemia** → weight gain, poor libido, erectile dysfunction, gynecomastia/galactorrhoea, amenorrhea → Tx = **Bromocriptine**, Cabergoline
- 6) **Neuroleptic Malignant Syndrome** → High fever, muscle tremors, rigidity, tachycardia, fluctuating BP → Tx = **Bromocriptine**, Dantrolene

#### Atypical



- 1) **Clozapine** → **Agranulocytosis** → deficiency of granulocytes in the blood, causing increased vulnerability to infection
- 2) **Risperidone & Olanzapine** → extra-pyramidal side effect and **hyperprolactinaemia** in higher doses.
- 3) All atypical anti-psychotic can cause **sexual dysfunction** e.g. erectile dysfunction, low libido, low arousal, anorgasmia, sexual dysfunction, **weight gain**.

Generalised seizures = 1<sup>st</sup> line - sodium valproate, 2<sup>nd</sup> line – lamotrigine, carbamazepine

Partial seizures = 1<sup>st</sup> line - carbamazepine / lamotrigine 2<sup>nd</sup> line – sodium valproate

Absence seizures \*petit mal = sodium valproate / ethosuximide \*carbamazepine don't give → exacerbate absence seizures

Myoclonic seizure = 1<sup>st</sup> line - sodium valproate, 2<sup>nd</sup> line – clonazepam / lamotrigine

Status Epilepticus = 1<sup>st</sup> line – benzodiazepine (diazepam / lorazepam), 2<sup>nd</sup> line – phenytoin / sodium valproate / phenobarbital

\*last line = general anaesthesia

### SIDE EFFECTS

**Sodium Valproate** = weight gain, alopecia, tremors, ataxia, hepatitis, neural tube defect, thrombocytopenia, pancreatitis

Carbamazepine = dizziness, ataxia, agranulocytosis, leucopenia, SIADH, diplopia

Lamotrigine = Steven Johnson syndrome (life threatening skin disease where skin separates)

Phenytoin = gum hypertrophy, hirsutism, drowsiness, coarsening facial features, megaloblastic anaemia, osteomalacia, peripheral neuropathy

## Statins

Simvastatin → decreases circulating LDL cholesterol

## Side effect

- 1) Muscle aches
- 2) Abdominal discomfort

\*it is used for the treatment of hyperlipidaemia

those at risk of hyperlipidaemia → family hx, smokers, CVD, DM, Obesity, Hypertension

<b>Absent Uterus</b>	All normal + Primary amenorrhea + prolactin normal
<b>PCOS</b>	LH + FSH increased/normal, prolactin slightly raised, normal estradiol <b>Ratio = 2:1 or 3:1</b>
<b>POF</b>	LH + FSH increased, <b>FSH = &gt;20 IU/L</b> , Oestrogen decreased, normal prolactin
<b>Absent Ovary</b>	<b>LH + FSH increased</b> , Low Oestrogen
<b>Turners</b>	Gonadal Streaks as absent ovaries
<b>Hypothalamic Amenorrhea</b>	All Normal/slightly LOW + <b>Athlete</b>
<b>Prolactinoma</b>	<b>&gt;6000</b> prolactin level

### Vaginal Discharge (non-sexually transmitted)

**Candida** – no odour, white, curdy, itchy, soreness

Endo-cervical swab if not given high vaginal swab

pH - <4.5

**clotrimazole topical cream / oral fluconazole capsule (pregnant – only topical)**

**BV** – offensive abd fishy (gardenella), no itch, no vulva inflammation

pH >4.5

**Oral Metronidazole or Clindamycin if c/I (can be used in pregnancy)**

S/E – metallic taste/ GI symptoms

### Vaginal Discharge (sexually transmitted)

**Chlamydia** – purulent discharge, low abdominal pain (common cause of PID), abnormal bleeding, dyspareunia, dysuria.

Endocervical swab/urethral swab

**Doxycycline (erythromycin in pregnancy) or AZITHROMYCIN**

Complication – PID, reiters syndrome

**TV** – offensive, frothy and itchy, Low abd pain, dysuria. Strawberry cervix

Endocervical smear

pH >4.5

**Metronidazole (pregnancy safe)**

Condition	Key features
<i>Candida</i>	'Cottage cheese' discharge Vulvitis Itch
<i>Trichomonas vaginalis</i>	Offensive, yellow/green, frothy discharge Vulvovaginitis Strawberry cervix
Bacterial vaginosis	Offensive, thin, white/grey, 'fishy' discharge

Al-Khair

BEST WISHES

Al-Khair