



FINALS REVISION



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Finals Revision
Second Edition
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Antibiotic	Gram +ve	Gram -ve	Anaerobes	Atypicals
Amoxicillin	✓			
Co-amoxiclav	✓	✓	✓	
Clarithromycin	✓			✓
Clindamycin	✓		✓	
Gentamicin		✓		
Ciprofloxacin		✓		✓
Metronidazole			✓	
Doxycycline	✓	✓	✓	✓
Vancomycin	✓			

Autoimmune Condition	Relevant Autoantibodies
Rheumatoid arthritis	Rheumatoid factor Anti-cyclic citrullinated peptide (anti-CCP)
Systemic lupus erythematosus (SLE)	Anti-nuclear antibodies (ANA) Anti-double stranded DNA (anti-dsDNA)
Sjögren's syndrome	Anti-SS-A (anti-Ro) Anti-SS-B (anti-La)
Hashimoto's thyroiditis	Anti-thyroid peroxidase (anti-TPO) Anti-thyroglobulin (anti-Tg)
Graves' disease	TSH receptor antibodies Anti-thyroid peroxidase (anti-TPO) Anti-thyroglobulin (anti-Tg)
Myasthenia gravis	Anti-acetylcholine receptor (anti-AChR) Anti-muscle-specific kinase (anti-MuSK)
Coeliac disease	Anti-tissue transglutaminase antibodies (anti-TTG) Anti-endomysial antibodies (anti-EMA)
Vasculitis	Anti-neutrophil cytoplasmic antibodies (ANCA) p-ANCA (MPA + EGPA) and c-ANCA (GPA)
Autoimmune hepatitis (type 1)	Anti-nuclear antibodies (ANA) Anti-smooth muscle antibodies (anti-actin) Anti-soluble liver antigen (anti-SLA/LP)
Systemic sclerosis	Anti-nuclear antibodies (ANA) Anti-centromere antibodies (limited cutaneous SS) Anti-Scl-70 antibodies (diffuse cutaneous SS)
Endocrine Condition	Dynamic Test
Cushing's syndrome	Dexamethasone suppression test
Adrenal insufficiency	Short Synacthen test
Acromegaly	Growth hormone suppression test
Diabetes insipidus	Water deprivation test

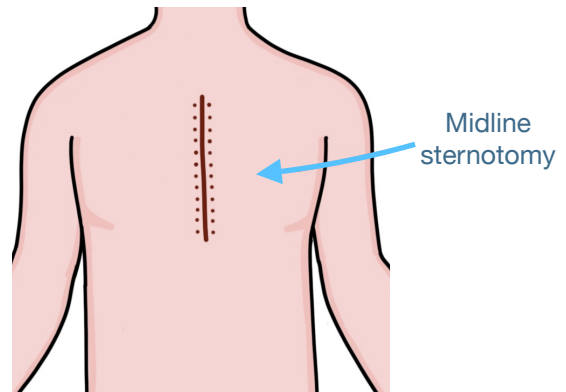
Prosthetic Heart Valves

Key Facts

- Aortic stenosis → Most common indication for valve replacement surgery.
- Midline sternotomy scar → Open surgery.
- Complication: Infective endocarditis.

Types of Valves

- Bioprosthetic Valves:
 - Lifespan ~10 years (e.g., porcine/bovine valves).
- Mechanical Valves:
 - Lifespan >20 years.
 - Require lifelong warfarin.
 - INR target: 2.5-3.5 (higher than AF).
 - Auscultation:
 - Metallic mitral valve → Click replaces S1.
 - Metallic aortic valve → Click replaces S2.



Bioprosthetic



Mechanical

Transcatheter Aortic Valve Implantation (TAVI)

- For severe aortic stenosis in high-risk surgical patients.
- Procedure:
 - Local/general anaesthetic.
 - Catheter via femoral artery under x-ray.
 - Balloon inflation and bioprosthetic valve implantation.

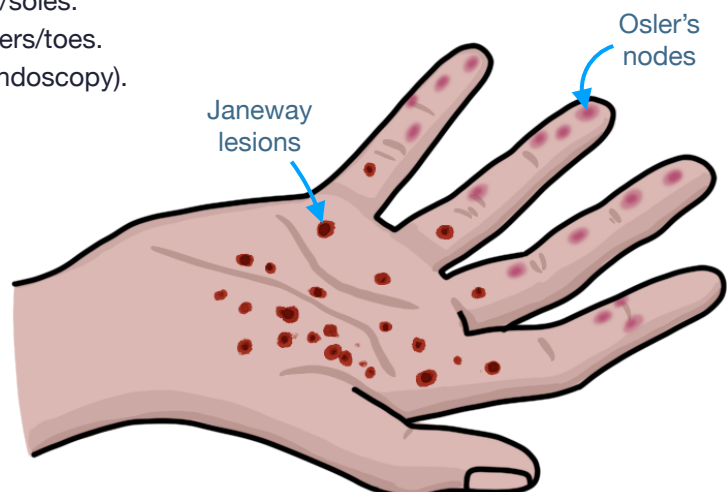
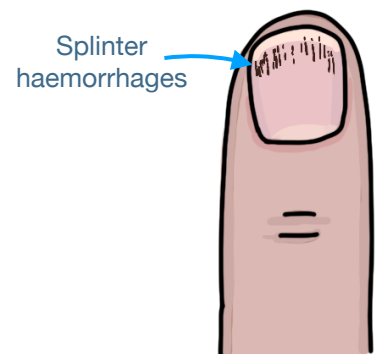
Infective Endocarditis

Risk Factors

- Intravenous drug use.
- Structural heart pathology (e.g., valvular disease, valve replacement).
- Dialysis.
- Immunocompromised states.

Key Examination Findings

- General: Fever, new or changing heart murmur.
- Skin and Nails:
 - Splinter haemorrhages: Thin red-brown lines along fingernails.
 - Petechiae: Small non-blanching red/brown spots on trunk, limbs, oral mucosa, or conjunctiva.
 - Janeway lesions: Painless red macules on palms/soles.
 - Osler's nodes: Tender red/purple nodules on fingers/toes.
- Eyes: Roth spots (retinal haemorrhages seen on fundoscopy).
- Other Signs (in longstanding disease):
 - Splenomegaly.
 - Finger clubbing.



Diagnosis

- 3 blood cultures (different sites, >6h apart).
- Modified Duke Criteria.
- Transoesophageal echocardiography (TOE).

Management: Extended antibiotics.

Wolff-Parkinson-White Syndrome (WPW)

- Extra electrical pathway (Bundle of Kent) allows bypassing of the AV node, causing episodes of SVT.
- ECG Findings:
 - Short PR interval (<0.12 seconds).
 - Wide QRS complex (>0.12 seconds).
 - Delta wave: Slurred upstroke of QRS.
- Definitive treatment: Radiofrequency ablation.



Cardiac Arrest

Shockable Rhythms

- Ventricular tachycardia (VT)
- Ventricular fibrillation (VF)



Non-Shockable Rhythms

- Pulseless electrical activity: Any electrical activity except VF/VT (e.g., sinus rhythm without a pulse).
- Asystole: No significant electrical activity.

Broad Complex Tachycardia

Causes and Management

- Ventricular tachycardia (VT): Treated with IV amiodarone.
- Polymorphic VT (e.g., torsades de pointes): Treated with IV magnesium.
- Atrial fibrillation with bundle branch block: Treated as AF.
- Supraventricular tachycardia (SVT) with bundle branch block: Treated as SVT.

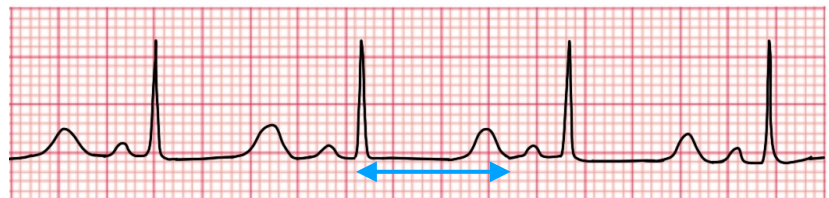
Prolonged QT Interval

Prolonged QT

- Men: >440 ms.
- Women: >460 ms.

Causes of Prolonged QT

- Long QT syndrome (inherited).
- Medications: Antipsychotics, citalopram, flecainide, sotalol, amiodarone, macrolides.
- Electrolyte imbalances: Hypokalemia, hypomagnesemia, hypocalcemia.



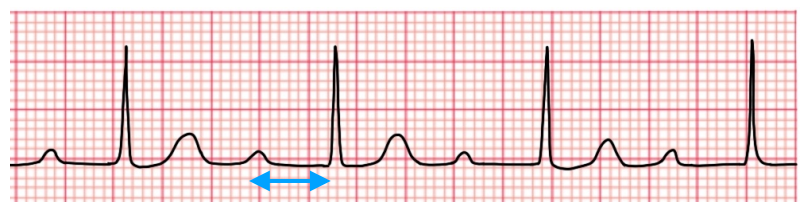
Risk of torsades de pointes:

- A form of VT that can spontaneously resolve or progress to VT leading to cardiac arrest.
- Acute management: Magnesium infusion for torsades de pointes.

Heart Block

First Degree Heart Block

- Delayed conduction through the AV node.
- PR interval >0.2 seconds
 - 5 small or 1 big square.



Long PR interval

Phaeochromocytoma

Adrenaline: Produced by the chromaffin cells in the medulla (middle part) of the adrenal glands.

Definition: Adrenal tumor secreting excessive adrenaline.

Related genetic conditions (30-40% of cases):

- Multiple endocrine neoplasia type 2 (MEN 2)
- Neurofibromatosis type 1
- Von Hippel-Lindau disease

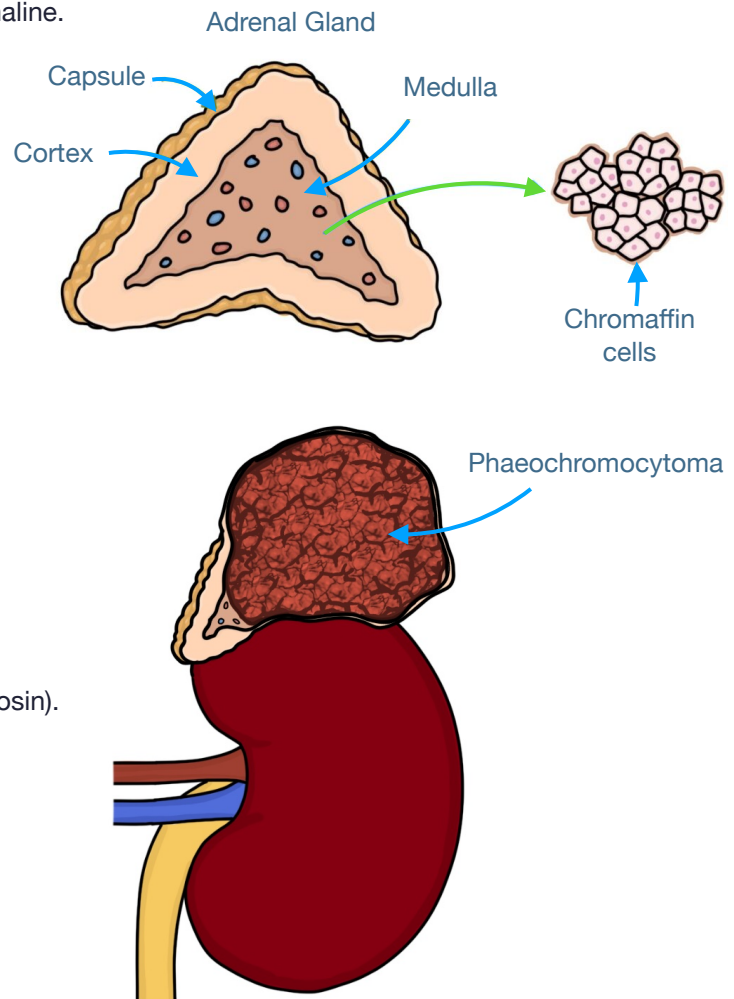
Symptoms: Hypertension, headaches, anxiety.

Investigations

- Lab tests:
 - Plasma free metanephrines.
 - 24-hour urine catecholamines.
- CT or MRI abdomen: look for tumour.
- Genetic testing.

Management

- Medications:
 - Alpha blockers (e.g., phenoxybenzamine, doxazosin).
 - Beta blockers (only after using alpha blockers).
- Surgery: Tumour removal.



Hyperprolactinaemia

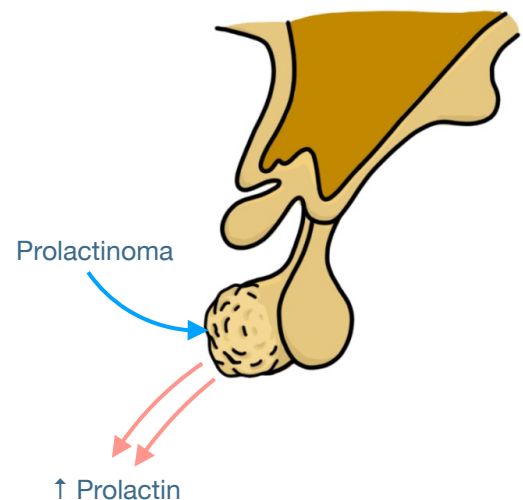
Hyperprolactinaemia: Raised prolactin.

Symptoms

- Galactorrhea (non-pregnancy-related breastmilk production).
- Menstrual irregularities (e.g., amenorrhoea).
- Infertility.
- Reduced libido.
- Erectile dysfunction (men).
- Gynaecomastia (men).

Causes

- Pregnancy and breastfeeding.
- Prolactinomas (pituitary tumours).
- Hypothyroidism.
- Medications (dopamine antagonists, antipsychotics).



UROLOGY

Obstructive Uropathy

Pathophysiology

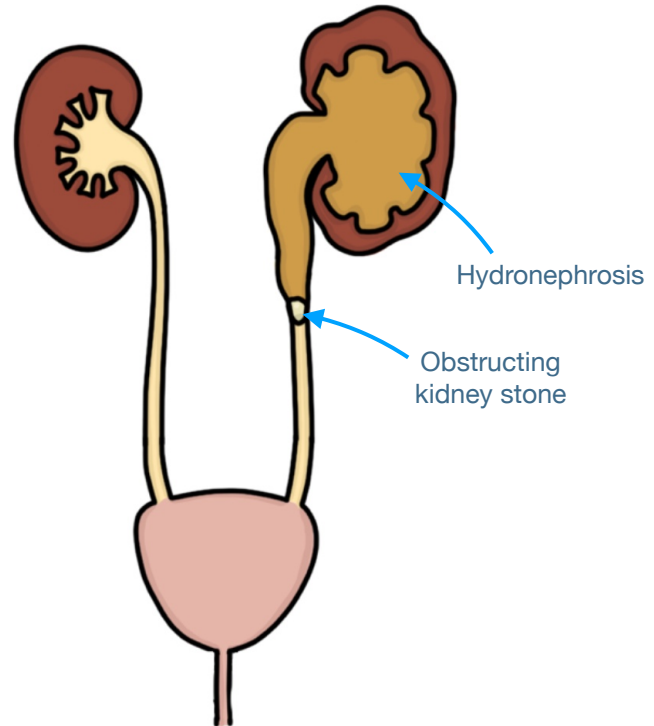
- Back pressure of urine to kidney →
 - Renal impairment ("post-renal" acute kidney injury).
 - Hydronephrosis (swelling of kidney).

Causes

- Upper urinary tract:
 - Kidney stones.
 - Ureteral narrowing (tumours/strictures).
 - Bladder cancer (blocks ureter openings).
- Lower urinary tract:
 - Benign prostatic hyperplasia (BPH).
 - Prostate cancer.
 - Bladder cancer (blocks bladder neck).
 - Urethral strictures (scar tissue).
 - Neurogenic bladder (MS, diabetes, stroke).

Symptoms

- Upper obstruction:
 - Loin to groin/flank pain.
 - Reduced/no urine output.
 - Non-specific systemic symptoms (e.g., vomiting).
- Lower obstruction:
 - Difficulty passing urine (weak flow, hesitancy, dribbling).
 - Urinary retention, full bladder.



Investigation: Ultrasound of kidneys, ureters, bladder.

Treatment: Relieve obstruction.

Benign Prostatic Hyperplasia (BPH)

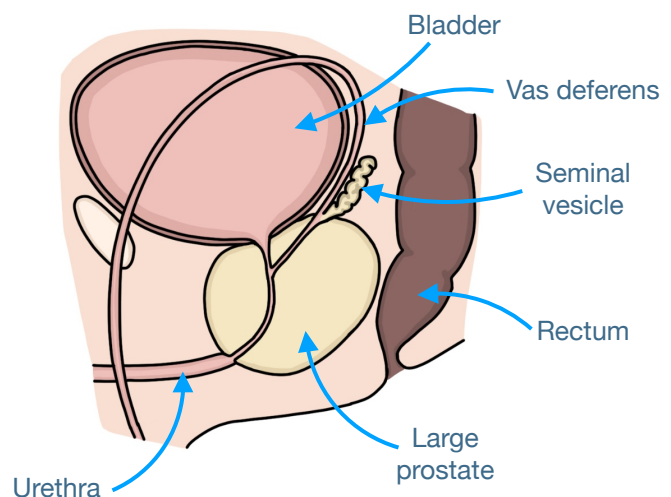
Pathophysiology: Prostate enlargement driven by dihydrotestosterone (DHT).

Symptoms (LUTS)

- Hesitancy, weak flow.
- Urgency, frequency.
- Intermittency, straining.
- Terminal dribbling, incomplete emptying.
- Nocturia.

Assessment

- International Prostate Symptom Score (IPSS).
- Digital rectal exam (enlarged, smooth prostate).
- Abdominal exam (urinary retention).
- Urine dipstick (infection, haematuria).
- PSA test (consider prostate cancer).

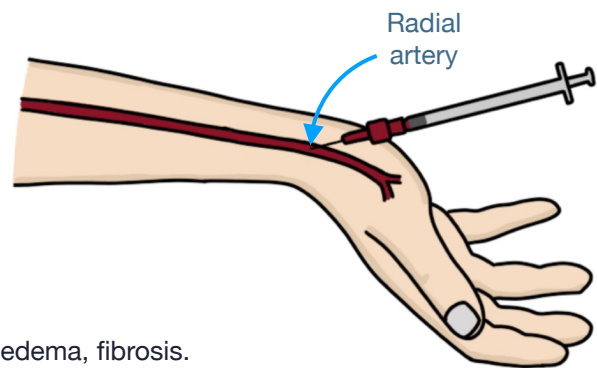


Arterial Blood Gases (ABGs)

Marker	Normal Values
pH	7.35 - 7.45
PaO ₂ (oxygen in the blood)	10.7 - 13.3 kPa
PaCO ₂ (carbon dioxide in the blood)	4.7 - 6.0 kPa
HCO ₃ (bicarbonate)	22 - 26 mmol/L
Base excess	-2 - +2
Lactate	0.5 - 1 mmol/L

Parameters

- PaO₂: Oxygen dissolved in blood.
- FiO₂: Fraction of inhaled oxygen (room air = 21%).
- PaCO₂: Carbon dioxide dissolved in blood.
- Bicarbonate (HCO₃): Alkalotic, compensates for CO₂.



Respiratory Failure Types

- Type 1: Low PaO₂, normal PaCO₂.
 - Causes: Pneumonia, pulmonary embolism, pulmonary oedema, fibrosis.
- Type 2: Low PaO₂, high PaCO₂.
 - Cause: COPD (CO₂ retention).

pH Balance

- High PaCO₂: Causes acidosis.
- High HCO₃: Causes alkalosis.
- Chronic COPD: Elevated CO₂ and HCO₃.
- Acute Exacerbation: Elevated CO₂ overwhelms kidneys, pH drops.

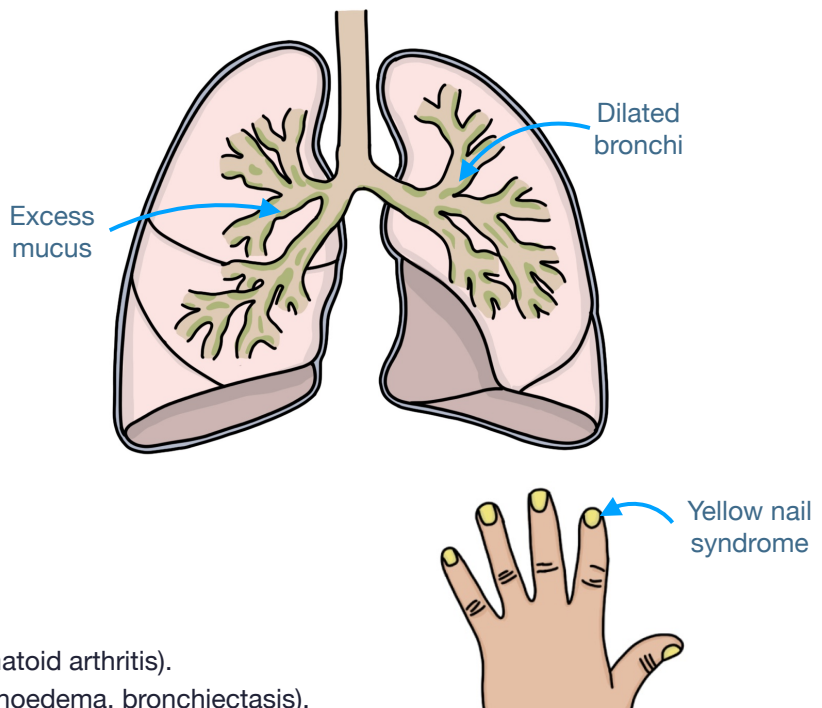
Bronchiectasis

Pathophysiology

- Permanent dilation of bronchi causing:
 - Chronic productive cough.
 - Continuous sputum production.
 - Recurrent infections.

Causes

- Idiopathic: No apparent cause
- Infective:
 - Pneumonia.
 - Whooping cough (pertussis).
 - Tuberculosis.
- Genetic:
 - Cystic fibrosis.
 - Alpha-1 antitrypsin deficiency.
- Other:
 - Connective tissue disorders (e.g., rheumatoid arthritis).
 - Yellow nail syndrome (yellow nails, lymphoedema, bronchiectasis).



SURGERY

Acute Abdomen

Generalised Abdominal Pain

- Peritonitis
- Ruptured abdominal aortic aneurysm
- Intestinal obstruction
- Ischaemic colitis

Right Upper Quadrant Pain

- Biliary colic
- Acute cholecystitis
- Acute cholangitis

Epigastric Pain

- Acute gastritis
- Peptic ulcer disease
- Pancreatitis
- Ruptured abdominal aortic aneurysm

Periumbilical (Central) Abdominal Pain

- Ruptured abdominal aortic aneurysm
- Intestinal obstruction
- Ischaemic colitis
- Early stages of appendicitis

Right Iliac Fossa Pain

- Acute appendicitis
- Ectopic pregnancy
- Ruptured ovarian cyst
- Ovarian torsion
- Meckel's diverticulitis

Left Iliac Fossa Pain

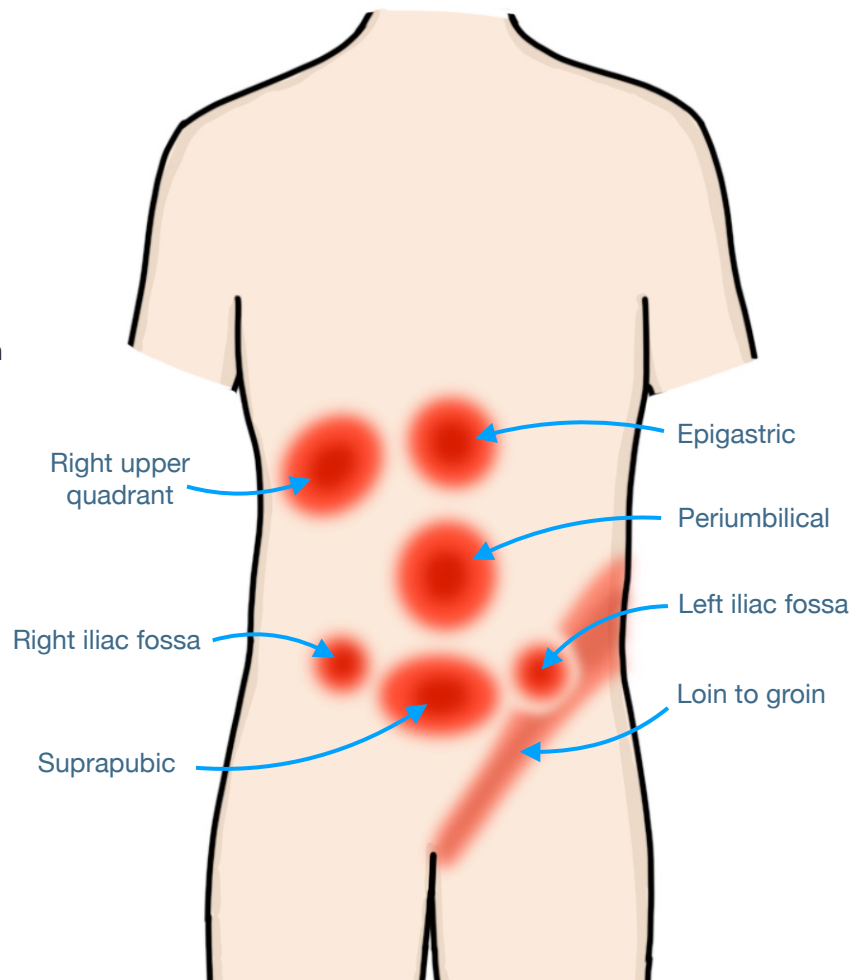
- Diverticulitis
- Ectopic pregnancy
- Ruptured ovarian cyst
- Ovarian torsion

Suprapubic Pain

- Lower urinary tract infection
- Acute urinary retention
- Pelvic inflammatory disease
- Prostatitis

Loin to Groin Pain

- Renal colic (kidney stones)
- Ruptured abdominal aortic aneurysm
- Pyelonephritis



Acute Cholecystitis

Presentation

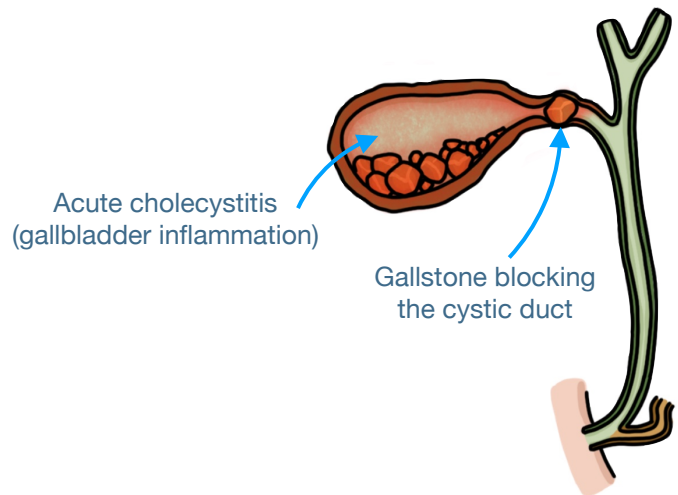
- RUQ pain (may radiate to right shoulder).
- Fever.
- Nausea, vomiting.
- Murphy's sign:
 - Palpating RUQ during deep breath →
 - Pain and halted inspiration.

Imaging

- First-line: Ultrasound.
- If inconclusive: MRCP.

Management

- Nil by mouth.
- IV fluids.
- Antibiotics.
- Surgery: Cholecystectomy within 72 hours or delayed 6-8 weeks.



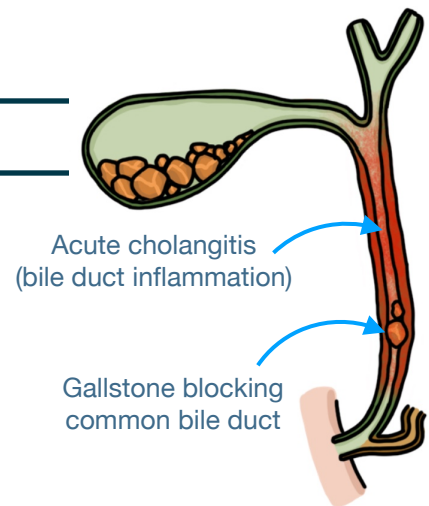
Acute Cholangitis

Charcot's Triad

- RUQ pain.
- Fever.
- Jaundice.

Management

- IV fluids and antibiotics.
- Procedure: ERCP to remove bile duct stones.



Acute Pancreatitis

Top Causes

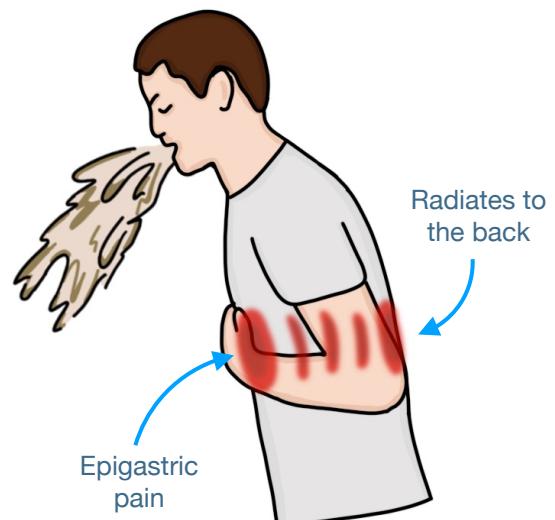
- Gallstones
- Alcohol
- Post-ERCP

Presentation

- Acute severe epigastric pain radiating to the back.
- Vomiting.
- Abdominal tenderness.
- Systemic signs (fever, tachycardia).

Diagnosis

- Lab: Amylase >3x normal.
- Severity (Glasgow score):
 - Mild: Score 0-1
 - Moderate: Score 2
 - Severe: Score ≥3



HAEMATOLOGY

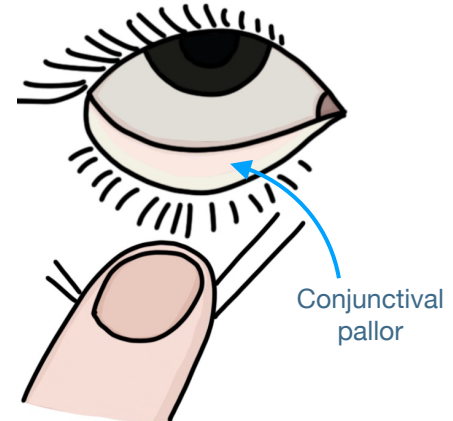
Anaemia

Microcytic Anaemia (\downarrow MCV) ("TAILS" mnemonic)

- T: Thalassaemia
- A: Anaemia of Chronic Disease
- I: Iron Deficiency Anaemia
- L: Lead Poisoning
- S: Sideroblastic Anaemia

Normocytic Anaemia (normal MCV) (3 As, 2 Hs, 1 M)

- A: Acute Blood Loss
- A: Anaemia of Chronic Disease
- A: Aplastic Anaemia
- H: Haemolytic Anaemia
- H: Hypothyroidism
- M: Myeloma



Macrocytic Anaemia (\uparrow MCV)

- Megaloblastic (impaired DNA synthesis \rightarrow large, abnormal cells):
 - B12 deficiency
 - Folate deficiency
- Normoblastic (immature red blood cell that still has a nucleus):
 - Alcohol
 - Reticulocytosis (\uparrow reticulocytes - immature red blood cells). Causes: haemolytic anaemia, blood loss.
 - Hypothyroidism
 - Liver disease
 - Drugs (e.g., Azathioprine)

Iron Deficiency Anaemia

Red Blood Cells

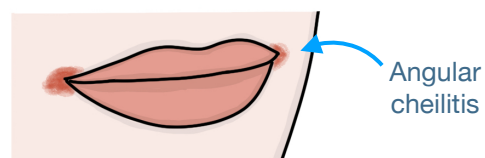
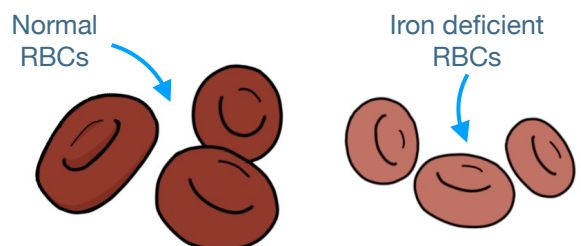
- Microcytic (small).
- Hypochromic (pale).

Causes

- Insufficient dietary iron intake (e.g., restrictive diets).
- Reduced absorption (e.g., coeliac disease).
- Increased demand (e.g., pregnancy).
- Blood loss (e.g., peptic ulcer, bowel cancer).

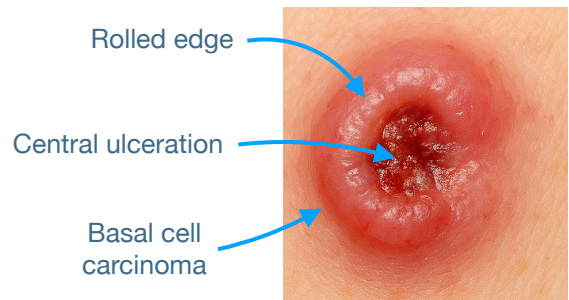
Ferritin Levels

- Low \rightarrow iron deficiency.
- Normal/raised:
 - Inflammation (e.g., infection, cancer).
 - Liver disease.
 - Iron supplements.
 - Haemochromatosis.



Basal Cell Carcinoma

- Least dangerous, most common.
- Origin: Basal cells.
- Features: Pearly nodules, rolled edges
- Central ulceration, telangiectasia.
- Behaviour: Slow-growing, local invasion, no metastasis.



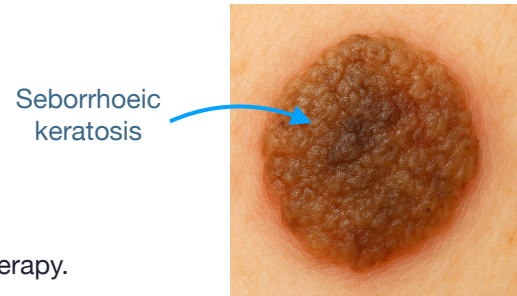
Seborrhoeic Keratosis

- Common benign skin lesions (not skin cancer).
- Typically flat top, clear border, "stuck-on" appearance.

Diagnosis: Biopsy.

Treatment of Skin Cancer

- Surgical removal.
- Advanced cases may need radiotherapy, chemotherapy, targeted therapy.



Skin Ulcers

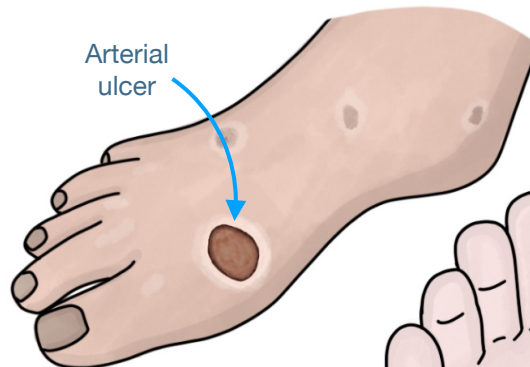
Venous Ulcers

- Location: Gaiter area (foot to calf).
- Associated: Chronic venous changes.
- Characteristics:
 - Larger, more superficial than arterial ulcers.
 - Irregular, gently sloping borders.
 - More likely to bleed.
 - Less painful; pain relieved by leg elevation.
- Triggers: Minor leg injury.
- Treatment: Compression therapy, pentoxifylline (off-label).



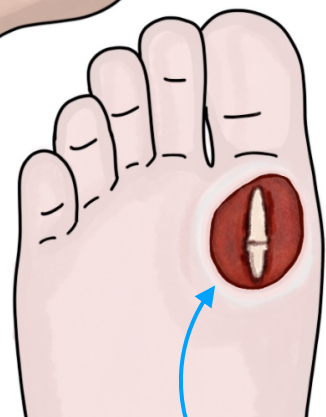
Arterial Ulcers

- Location: Toes, dorsum of the foot.
- Associated: Peripheral arterial disease.
- Characteristics:
 - Smaller, deeper than venous ulcers.
 - Well-defined, "punched-out" appearance.
 - Pale colour, less bleeding.
 - Painful; worse at night and on leg elevation.
- Treatment: Improve arterial circulation.



Diabetic Foot Ulcers

- Associated with diabetic neuropathy (reduced sensation).
- Risk of osteomyelitis.



Pressure Ulcers

- Associated: Immobility.
- Common sites: Pressure points (sacrum, heels).
- Prevention:
 - Regular repositioning.
 - Special mattresses.
 - Careful skin inspections.
- Risk assessment: Waterlow score.

