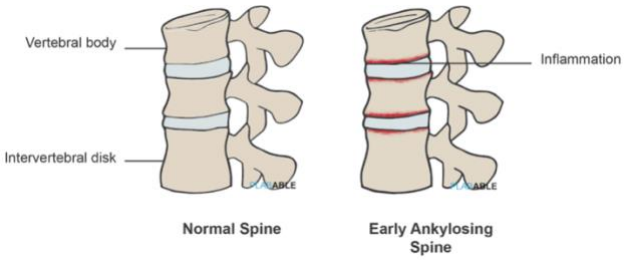
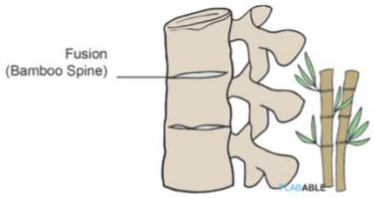
Ankylosing spondylitis

- An **HLA-B27** associated spondyloarthropathy which primarily involves the **axial skeleton** (i.e. sacroiliitis and spondylitis)
- It's classified as a **seronegative spondyloarthropathy**, a group of diseases that are *negative for rheumatoid factor*
- Common in patients with ***IBD***



Features

- **Young man** (<30 years old) presenting with **lower back pain** and **stiffness**
- Stiffness which is <u>*worse in the morning*</u> and <u>*improves with exercise*</u>
- A strong association with **HLA-B27**
- There is often tenderness of the **sacroiliac joints** or a limited range of spinal motion



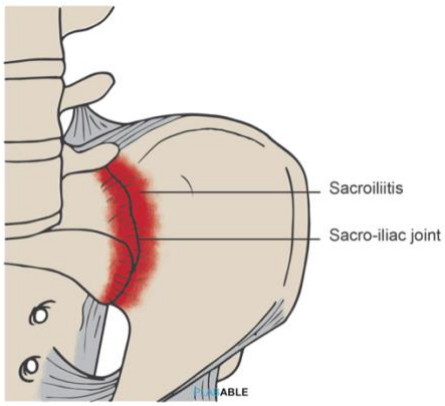
Ankylosing Spondylitis

Examination

- ***Schober's test***
  - A line is drawn 10 cm above and another line 5 cm below the back dimples (dimples of Venus)
  - The distance between the two lines should increase by more than 5 cm when the patient bends as far forward as possible

Other important features

- *Anterior uveitis* (20-30%) → presents with an acutely <u>painful red eye</u> and <u>severe photophobia</u>
- *Aortic regurgitation*



Sacroiliitis

Investigations

- **Plain x-ray** of the sacroiliac joints → *This is the most useful investigation*
  - It would show evidence of **sacroiliitis** which is the <u>earliest finding</u>
  - Later findings once there is significant chronic spine inflammation include a "**bamboo spine**" and squaring of the vertebral bodies
- **MRI** → more sensitive in demonstrating sacroiliitis
- DO NOT use HLA-B27 to make the diagnosis as it is also positive in 10% of normal patients
- Elevated ESR and CRP
- FBC → normochromic normocytic anemia

Management

- First line → ***NSAIDS***
- Second line → ***Anti-TNF therapy***

PEPSI

P → Pain lower back
E → Eye symptoms (anterior uveitis)
P → Progressive loss of special movements
S → Stiffness
I → IBD

Gout

- A disease that affects **middle-aged men** and presents most commonly with acute **Monoarthritis**
- The **metatarsophalangeal joint of the first toe** is commonly affected (podagra), but other joints like the knee, ankle, PIPs, or DIPs may be initially involved
- The first episode commonly occurs at **night** with severe joint pain waking the patient from sleep
- The joint rapidly becomes warm, red, and tender (it looks exactly like cellulitis). Without treatment the joint pain goes away ***spontaneously*** **in 2 weeks**
- Certain events that precipitate gout sometimes precede the attack → a person has consumed ***excessive amounts of alcohol*** or started taking ***diuretics*** such as **thiazide diuretics** (*xipamide, metolazone, indapamide*) or **furosemide** → *could be indirectly stated by mentioning a cardiac patient*
- Gout can be associated with: **PRV, CML, TL$, Psoriasis**

Diagnosis

- Diagnosis is made by → **Joint aspirate for microscopy → MSU crystals**
- MSU crystals deposit → **Tophi**
- The serum uric acid during the acute attack may be normal or low and shouldn't be measured until 4 weeks after an acute attack → no value in the diagnosis of acute urate arthropathy

Treatment

- **Acute management**
  - **NSAIDs (naproxen)** → *1st line unless the patient has asthma or renal insufficiency, often prescribed with PPIs for gastric protection and in elderly*
  - **Colchicine** (SE → diarrhea and nausea), should be avoided in renal insufficiency as well
  - Intra-articular **steroid** injection, *could be given as tablets or IM, prescribed if asthma or renal insufficiency*
- **Chronic hypouricemic therapy**
  - **Allopurinol** should not be started until 2 weeks after an acute attack has settled as it may precipitate a further attack if started too early, used to prevent recurrence not to treat
  - **NSAID or colchicine cover** should be used when starting allopurinol

Drugs that precipitate gout [FACT] + Niacin
F → Furosemide
A → Alcohol
C → Cytotoxic drugs/cyclosporine
T → Thiazide

Pseudogout

- Usually involves larger joints (knees and ankles)
- There should be a history of **hemochromatosis** or **hyperparathyroidism**

Diagnosis

- Joint aspirate → **calcium pyrophosphate** (rhomboid crystals), **+ve birefringence**

Rheumatoid arthritis

Management

- Acute → **NSAIDs** (ibuprofen, naproxen), ***PPIs*** *are used to prevent GI bleed*
- Long-term → **DMARDs** (methotrexate, hydroxychloroquine, sulfasalazine)

Septic arthritis

- The two most common organisms:
  - **Staphylococcus Aureus** → Most common pathogen for septic arthritis overall
  - **Neisseria gonorrhoeae** → Seen in young, sexually active adults
- Mode of infection:
  - **Hematogenous spread** during transient bacteremia
  - **Through a skin lesion** that penetrates the joint
  - **Local spread** from a contiguous infected site

***Knee** is involved in more than 50% of cases*

Risk factors

- Prior joint damage (**rheumatoid arthritis**, gout, osteoarthritis)
- **Immunodeficiency** states (HIV, corticosteroid use)
- **Diabetes**

Presentation

- **Single swollen, red joint** with **pain** on active or passive movement
- **Restricted** joint movement
- **Fever** and rigors

> Remember this triad of **fever**, **pain** and **impaired range of motion**

Investigations

- **Aspiration of synovial fluid** → Sent for gram staining, leukocyte count, microscopy and culture
- **Blood cultures** → Remember most cases of septic arthritis are due to hematogenous spread

Management

- **Flucloxacillin** for 4 to 6 weeks → *IV antibiotics should be commenced before culture's results*
- If penicillin-allergic → Use clindamycin
- If gonococcal arthritis (NG) → Use cefotaxime or ceftriaxone
- If infection not responding to antibiotics → Perform **repeated percutaneous aspiration**

*In general, **intravenous** antibiotics are used for **7 days** until the swelling subsides and blood cultures become negative. This is **followed by a 4-week** course of **oral** antibiotics*

Reactive arthritis

- A form of seronegative spondyloarthritis clinically associated with **back pain**, **migratory oligoarthritis** (affecting two to four joints during the first six months of disease) and **extra-articular** symptoms
- Typically follow a GI (**campylobacter**, salmonella, shigella) or urogenital infection (**chlamydia** trachomatis)
- The initial infection may be so mild it goes unnoticed
- Unlike septic arthritis, *fever* is not a typical feature however it can be seen

Features

- **Young** adults
- Develops *2-4 weeks after an initial infection* which have been **sexually** acquired or **gastrointestinal** in origin
- **Asymmetrical**, especially lower extremity, **oligoarhtritis** in the major symptom (usually **knees** and **ankles**)
- **Reiter triad** *[can't see, can't pee, can't climb a tree]*→ **conjunctivitis/anterior uveitis** + **urethritis** + **arthritis**
- **Skin**
  - *Circinate balanitis* → painless vesicles on the coronal margin of the prepuce (foreskin)
  - *Keratoderma blennorrhagicum* → waxy yellow/brown maculopapular rash seen on palms and soles
  - *Erythema nodosum* → tender red nodules on the shins

Treatment

- *NSAIDs*

Polymyositis

Features

- **Muscle weakness** involve the proximal muscles: lifting objects, combing hair, getting up from the chair
- Weakness usually **symmetric** and **diffuse**, involving the **proximal** muscles of the neck, shoulders, trunk, hips and thighs. **LL** muscles tend to be clinically symptomatic first
- **Fatigue**, **myalgia** and muscle **cramps**
- Advanced cases: dyspnea and **dysphagia**

Investigation

- *Raised CK*
- *Raised Aldolase level*
- *Autoantibodies: Anti-Jo-1 antibodies*. Note that these are common in patients with polymyositis than in patients with dermatomyositis
- ***Muscle biopsy*** can be diagnostic

Treatment

- Steroids

Polymyositis	Polymyalgia rheumatica
• **Weakness** of the proximal muscle + **raised CK** • Associated with **breast/lung cancer**	• **Stiffness** not weakness • *Difficulty to raise hands above head* • **Fever** + **weight loss** • *ESR> 30mm/h* or *CRP> 6mg/mL* • CK is NOT raised • Associated with **Temporal arteritis** (*TA)*

Chronic fatigue syndrome (CFS) or Myalgic Encephalomyelitis (ME)

- Severe fatigue + unrelated to exertion or triggered by minimal activity + unrelieved by rest
- All tests are normal
- Sometimes the symptoms start with a **viral infection** and it keeps progressing

Features

- Persistent or recurrent fatigue
- Fatigue unexplained by other conditions
- Difficulty sleeping
- Muscle and joint pain at multi-sites without evidence of inflammation
- Painful lymph nodes without pathological enlargement
- Headaches
- Cognitive dysfunction (difficulty thinking, concentrating or finding words)

Systemic lupus erythematous (SLE)

- Whenever patient has **multi-system involvement** + **raised ESR** + **normal CRP** → **SLE**

Features

- Remitting and relapsing illness
- Mouth ulcers → large, multiple and painful
- Lymphadenopathy
- Malar (butterfly) rash, sparing nasolabial folds
- Discoid rash: scaly, erythematous, well-demarcated rash in sun-exposed areas
- Photosensitivity
- Arthralgia
- Raynaud's phenomenon, occurs in 1/5 of the patients
- Cardiovascular → pericarditis
- Respiratory → pleurisy, fibrosing alveolitis
- Renal → AGN, often asymptomatic and detected by proteinuria, hypertension or a raised serum urea and creatinine
- Neuropsychiatric → anxiety and depression

Most common drugs causing induced Lupus

- **Hydralazine**
- **Isoniazid**
- **Procainamide**

Investigation

- FBC and ESR
  - Mild anemia
  - Raised ESR
- Autoantibodies
  - ***ANA*** → *most sensitive* (95%) but not diagnostic in the absence of clinical features
  - ***Anti-dsDNA*** → highly specific (>99%), but less sensitive (70%)
  - ***Anti-Smith*** → *most specific* (>99%), but *even less sensitive* (30%-40%)
  - ***Anti-histone*** → *drug-induced* lupus ANA antibodies are often this type
  - ***Rheumatoid factor*** → positive in 20%
- Complement levels (C3, C4) → low during active disease (formation of complexes leads to consumption of complement)

- Highly sensitive tests are used to screen (initial tests) while highly specific tests are used to diagnose

SLE [SOAP BRAIN MD]

S → Serosis (pleuritis, pericarditis)
O → Oral ulcers
A → Arthritis
P → Photosensitivity

B → Blood (all are low; Anemia, Leukopenia, Thrombocytopenia)
R → Renal (AGN)
A → ANA
I → Immunological (Anti-dsDNA)
N → Neurological (psych, seizures)

M → Malar rash
D → Discoid rash

Churg-Strauss Syndrome

- Also called "eosinophilic granulomatosis with polyangiitis" or "allergic granulomatosis"
- Rare diffuse vasculitis affecting **coronary**, **pulmonary**, **cerebral**, **abdominal** visceral and **skin** circulations
- The vasculitis affects *small*- and *medium*-sized **arteries** and **veins** and is associated with **asthma**
- The cardinal manifestations of Churg-Strauss syndrome are **Asthma**, **Eosinophilia**, and **Lung** involvement

Six criteria (4/6 is diagnostic)

- **Asthma** (wheezing, expiratory rhonchi)
- **Eosinophilia** of more than 10% in peripheral blood
- **Pulmonary infiltrates** (may be transient)
- Paranasal **sinusitis**
- **Histological** confirmation of vasculitis with extravascular eosinophils
- **Mononeuritis multiplex** (peripheral neuropathy)

Presentation

- Pulmonary → asthma
- Upper respiratory tract → allergic rhinitis, paranasal sinusitis, nasal polyposis
- **Cardiac** involvement is common → heart failure, myocarditis and myocardial infarction
- **Skin** → purpura, skin nodules
- **Renal** → glomerulonephritis
- **Peripheral neuropathy** → mononeuritis multiplex is the most frequent form

Investigations

- ***P-ANCA*** → +ve
- **FBC** → ***Eosinophilia*** and anemia
- Elevated **ESR** and **CRP**
- Elevated serum creatinine
- Increased serum IgE levels
- **CXR** → pulmonary opacities, transient pulmonary infiltrates, and bilateral multifocal consolidation
- High-resolution **CT** → Ground-glass attenuation
- **Biopsy** → small necrotizing **granulomas**, as well as **necrotizing vasculitis** (found especially in the lung)

Granulomatosis with polyangiitis (GPA) or Wegner's granulomatosis

- Idiopathic small to medium vessel **vasculitis**
- Appears around **middle-age**
- A person **bleeding** from his nose, lungs and kidneys

Features

- **URTIs**
  - Nosebleeds
  - Nasal crusting
  - Chronic sinusitis
- **Lungs**
  - Hemoptysis
  - Cough
- **Kidneys**
  - Hematuria

Investigation

- +ve **C-ANCA**

- Churg-Strauss → ***P-ANCA***
- Granulomatosis with polyangiitis → ***C-ANCA***

- Jaundice + hemoptysis → ***alpha 1 anti trypsin deficiency***
- Hematuria + hemoptysis → ***good pasture syndrome***
- Hematuria + hemoptysis + nasal crusting + nosebleeds → ***GPA***

Temporal arteritis (TA) or Giant cell arteritis (GCA)

- **Vasculitis** that affects the large arteries that supply the **head**, **eyes** and **optic nerves**
- **New onset headache** in any patient **<u>older than 50 years</u>** prompts consideration of this diagnosis, which if left untreated may result in *permanent vision loss*

Features

- **Headache** → usually occurs in one or both <u>temples</u>
- **Scalp tenderness,** when comping hair
- **Jaw claudication,** pain when shewing
- **Decreased/blurry vision,** rarely sudden loss of vision
- **Tongue numbness**

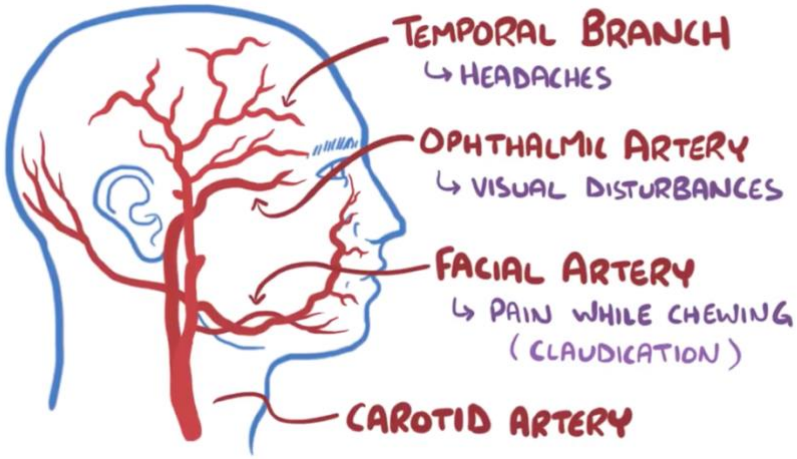
  \+ Proximal stiffness (neck, arms, hips) due to ***polymyalgia rheumatica***, a co-existing condition with TA

Investigation

- **ESR** → initial test
- **Biopsy of the temporal arteries** → Characteristic **giant cells** → *confirmatory*

Management

- Elevated ESR → **Steroids** (prednisolone) should be started <u>immediately</u>, before the biopsy is performed
- Add-on drugs
  - ***Low-dose aspirin 75mg*** → reduces the rate of visual loss and strokes
  - ***Bisphosphonates*** → reduces the risk of osteoporosis as a result of steroids especially in an elderly female



Sjogren's $

- **Autoimmune** disorder affecting **exocrine glands** resulting in **dry mucosal surfaces**
- May be seen alone or in association with other autoimmune diseases (secondary) such as rheumatoid arthritis, primary biliary cirrhosis or SLE
- As it progresses, it becomes a systemic disease involving major organs (lungs, kidneys, etc.) and may eventually evolve into a lymphoproliferative disease → **malignant lymphoma**
- Much more common in **females** (9:1)

Features

- **Dry eyes** (keratoconjunctivitis sicca)
  - Itchy eyes, sandy feeling under their eyes (because of decreased lacrimal production)
- **Dry mouth**
  - Patients may complain of dysphagia
  - Can cause altered sense of taste
  - Dry throat can lead to hoarseness of voice
- **Vaginal dryness**
- **Bilateral parotid enlargement**

Investigation

- ***Schirmer's test*** → decreased tear production
- ***Rose Bengal stain*** → corneal ulceration
- ***ANAs*** → +ve, especially anti-Ro (SSA) and anti-La (SSB) [ROLA has Sjogren's S]
- ***Rheumatoid factor*** → +ve

Management

- There's no cure
- Artificial tears may help with the dry eyes (**Hypromellose**)
- **Pilocarpine** can also be used to stimulate the tear production

Mikulicz's syndrome

- **Persistent swelling** of **lacrimal** and **parotid** (or submandibular) glands due to lymphocytic infiltration
- When no specific cause is found → *Mikulicz's disease*, if 2ry to diseases like **sarcoidosis** or **tuberculosis** → *Mikulicz's $*
- If associated with sarcoidosis → bilateral perihilar **lymphadenopathy** may be present due to sarcoidosis

Features

1. **Symmetrical enlargement** of ALL salivary glands
2. **Narrowing** of the palpebral fissures due to enlargement if the lacrimal glands
3. **Dryness** of the mouth

- *Both Mikulicz and Lofgren can be associated with sarcoidosis. However, Lofgren $ is characterized by erythema nodosum, arthritis and bilateral hilar lymphadenopathy*
- ***Sarcoidosis*** → *non-caseating granulomas on biopsy*
- ***TB*** → *Caseating granulomas*

Limited scleroderma vs Diffuse scleroderma

	Limited scleroderma (CREST $)	Diffuse scleroderma (systemic sclerosis)
Skin	• Limited areas of skin are thick; usually just the **fingers** and/or **face** • Skin involvement doesn't extend above the elbow or above the knee • NO trunk involvement	• More areas are involved and thickened • **Arms**, **legs** and **trunks** are more affected
Onset	• Slow	• Rapid
Progression	• Slow	• Rapid
Length of skin changes from Raynaud's phenomenon	• Raynaud's phenomenon for many years before any skin changes	• Skin changes **within 1 year** of Raynaud's
Organ involvement	• Milder → less involvement • *Lung* involvement can be seen but usually milder and less common	• More severe → involvement of GIT, heart, lungs or kidneys
others	**CREST** syndrome may be present • *Calcinosis* (Ca deposits) • *Raynaud's phenomenon* • *Esophageal dysmotility* • *Sclerodactyly* • *Telangiectasia (spider naevi)*	• The skin can lose or gain pigment, making areas of **light** or **dark** skin
Antibodies	• Most have positive **ANA** • Antibodies to Scl-70 are usually negative • **Anti-centromere** positive	• Most have positive **ANA** • **Anti-Scl-70** are usually positive (60%) *Anti-Scl 70 is strongly associated with lung fibrosis and renal disease besides poor prognosis*

Reynaud's phenomenon

- Sudden episodes of **pallor** or **cyanosis** in response to **cold** or **emotional stimuli**
- Patients complain of cold sensitivity with other areas of skin affected (ears, nose and lower extremities)
- Attacks may begin in one or two fingers but typically involve all fingers and/or toes symmetrically and bilaterally
- Could be secondary or associated with another disease (scleroderma)

- *Vasoconstriction of blood vessels → Ischemia → pale*
- *Deoxygenation → blue*
- *After rewarming the hands, the blood flow will rebound (Reactive hyperemia) → red*

De Quervain's tenosynovitis

- Also called "Washerwoman sprain", "Mummy thumb" or "Gamer's Thumb"
- Caused by inflammation of **the extensor pollicis previs** and **the abductor pollicis longus** due to repetitive stress injury
- Commonly occurs at in women following pregnancy due to the way in which the baby is lifted and held