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Osteoarthritis

- Epidemiology
  - Age of onset usually > 50yrs
  - F:M 3:1
  - Polyarticular
- Pathology
  - Synovial joints
    - Usually hip / knee
  - Pathology in IA
    - Fibrillates (tiny cracks) > Progressive loss of cartilage > Subarticular sclerosis
    - Bony overgrowths (osteophytes) > Cysts (which can burst and bleed into joints)
  - Predisposing factors
  - Nodal OA
    - Heberden's nodes
      - Bony lumps at DIP
    - Bouchard's nodes
      - Bony lumps at PIP
    - Generalised disease
    - Post menopausal
    - Commonly affects DIP, thumb carpo metocarpal joints and knee
- Clinical Features
  - Pain / night pain, stiffness, deformity, joint instability
  - Pain may exist without x-ray features
  - Pain on movement +/- crepitus, background pain / stiffness at rest
  - Distinguishing features from inflammatory arthritis
    - RA does not affect DIP joints
    - Imaging in Gout: periarticular erosion, normal joint space, soft tissue swelling
- Osteomyelitis
  - Infection of bone
    - Incidence reduces as living standards rise
    - Infection may spread from boils, abscesses, pneumonia or GU tract - although primary site may not be found
    - Common organisms: staph A, pseudomonas, e-coli, strept
  - Clinical features
    - Pathology
      - Cortex erosion with holes > pus lifts up periosteum causing death of original bone
      - Continued bone formation forms an involucrum > Pus may discharge into joint spaces or to the skin (via sinuses)
    - Patterns of infection
      - Adults - cancellous bone
      - Children - vascular bone (long bones - femur, tibia)
    - Signs & Symptoms
      - Pain, tenderness, warmth, erythema
      - Slight effusion in neighbouring joints, signs of systemic infection
  - Investigations
    - Tests
      - Raised ESR, CRP and WCC
    - Radiography
      - Changes not initially apparent
      - Haziness +/- loss of density of affected bone
      - Later shows involucrum (bone formation from elevated periosteum)
    - MRI sensitive and specific
  - Management
    - Drain abscesses and remove sequestra infected dead bone) by open surgery
    - Antibiotics
      - Vancomycin and cefotaime until sensitivities known
      - Continue for 6 weeks
  - Complications
    - Septic arthritis, fractures, deformity, chronic osteomyelitis
  - Chronic Osteomyelitis
    - Poor treatment results in pain, fever and sinus suppuration with long remissions
    - X-ray: thick irregular bone
    - Treatment: surgery, antibiotics for > 12 weeks
- Acute Pathology
  - Gout
    - Severe joint pain, redness and swelling
    - Typically monoarthritis, often the big toe
    - Deposition of urate crystals
      - Associated with trauma, surgery, starvation, infection, diuretics and alcoholism
    - Treatment
      - Acute: NSAIDs and colchicine
      - Chronic prevention: allopurinol
    - A number of acute episodes affecting one joint
    - Imaging
      - Periarticular erosion
      - Normal joint space
      - Soft tissue swelling
  - Septic arthritis
    - Typically monoarthritis
    - One or two joints, single acute episode
    - Need to treat ASAP or risk of permanent joint damage or septicaemia
    - Analgesia, blood cultures, synovial fluid, empirical antibiotics until sensitivities known
    - Infective organism
      - Young people = gonorrhoea
      - Older people = staph / strep
  - Pseudo gout
    - Similar presentation to gout
    - Typically monoarthritis
- Examination Findings
  - Commonly DIP joints, thumb carpo metacarpal joints and the knee
  - Joint tenderness
  - Bony swelling (Heberden's nodes @ DIP, Bouchard's nodes @ PIP)
  - Decreased range of movement
- Investigations
  - CT / MRI
  - Arthroscopy
  - Classic X-ray features
    - Loss of joint space
    - Subchondral sclerosis and cysts
    - Marginal osteophytes
  - CRP may be slightly elevated
- Management
  - Pain relief
    - Regular paracetamol +/- codeine
    - NSAIDs if not contraindicated
  - Education / weight loss
  - Physiotherapy / aids
    - Exercises for quads - increases muscle strength and joint stability
  - Intraarticular steroid injections help severe symptoms in short term
  - Joint replacement when severe unmanageable pain or loss of function