Osteoarthritis

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INTRODUCTION

- Osteoarthritis (OA) is the most common type of arthritis.
- It is now recognized to occur as a result of damage to articular cartilage induced by a complex interaction of genetic, metabolic, biochemical and biomechanical factors, leading to an inflammatory response affecting cartilage, subchondral bone, ligaments, menisci, synovium and capsule.

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EPIDEMIOLOGY

- The prevalence of OA rises with age, being uncommon before 50 years of age and increasing, so that most people over 60 years will have some radiological evidence of it, although only a quarter of these are symptomatic.
- Hip OA is less common and knee OA more common in Asians than in Europeans.

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EPIDEMIOLOGY

- Beyond 55 years of age, women are affected more commonly than men with a **familial pattern of inheritance** in nodal and primary generalized forms of OA.
- OA is the most common cause of disability in the Western world in older adults.

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CAUSES OF OSTEOARTHRITIS

Primary OA

- No known cause

Secondary OA

Pre-existing joint damage

- Rheumatoid arthritis
- Gout
- Spondyloarthritis
- Septic arthritis
- Paget's disease
- Avascular necrosis, e.g. corticosteroid therapy

Metabolic disease

- Cartilage calcification
- Hereditary haemochromatosis
- Acromegaly

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CAUSES OF OSTEOARTHRITIS

Secondary OA

Systemic disease

- Haemophilia – recurrent haemarthrosis
- Haemoglobinopathies, e.g. sickle cell disease
- Neuropathies

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CLINICAL FEATURES

- OA affects many joints, Hip and knee OA are major causes of disability.
- Early OA is rarely symptomatic, however, unless accompanied by a joint effusion, whilst advanced radiological and pathological OA is not always symptomatic.
- Symptoms are usually gradual in onset and progressive.

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CLINICAL FEATURES

- Episodic disease flare-ups may be inflammatory in nature, with an associated slight rise in ESR or CRP.
- Radiological OA is usually, but not inevitably, progressive. This progression may be stepwise or continual.
- Radiological improvement is uncommon but has been observed, suggesting that repair is possible

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CLINICAL FEATURES

Symptoms

- Joint pain with movement and/or weight-bearing.
- Short-lived morning joint stiffness.
- Functional limitation.

Signs

- Crepitus.
- Restricted movement.
- Bony enlargement.
- Joint effusion and variable levels of inflammation.
- Bony instability and muscle wasting.

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CLINICAL SUBSETS

Localized OA

1. Nodal OA Joints of the hand are usually affected one at a time over several years, with the DIPs more frequently involved than the PIPs . Heberden's nodes (DIPs) and Bouchard's nodes (PIPs), along with stiffness and deformity are present.

2. Hip OA Early onset of hip OA is associated with acetabular dysplasia or labral tears.

3. Knee OA More common in Obese women more than 75 years of age.

Generalized OA

1.Primary generalized OA

This condition is rare. Its onset is often sudden and severe. There is a female preponderance and a strong familial tendency

2. Erosive OA this is rare and the DIPs and PIPs are inflamed and equally affected, with a poor functional outcome.

3. Crystal-associated OA commonly occurs with calcium pyrophosphate deposition in the cartilage.

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INVESTIGATIONS

- **Blood tests.** There is no specific test; the ESR is usually normal, although high-sensitivity CRP may be slightly raised. Rheumatoid factor and antinuclear antibodies are negative.
- **X-rays.** These are abnormal only when the damage is advanced. They are useful in preoperative assessments.

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INVESTIGATIONS

- **X-rays.** For knees, a standing X-ray (stressed) is used to assess cartilage loss, and ‘skyline’ views in flexion are used for patello-femoral OA.
- **MRI.** This demonstrates meniscal tears, early cartilage injury and subchondral bone marrow changes (osteochondral lesions).

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INVESTIGATIONS

- **Aspiration of synovial fluid** (if there is a painful effusion). This shows a viscous fluid with few leucocytes
- **Arthroscopy**. This reveals early fissuring and surface erosion of the cartilage.

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MANAGEMENT

- The guiding principle is to treat the symptoms and disability, not the radiological appearances.
- Depression and poor quadriceps strength are better predictors of pain than radiological severity in OA of the knee.
- Patient education about the disease and its effects reduces pain, distress and disability, and increases compliance with treatment.

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MANAGEMENT

Physical measures

- Weight loss and exercises for strength and stability are useful. Hydrotherapy helps, especially in lower-limb OA. Local heat, ice packs, massage, and rubefacients or local NSAID gels are all used.
- Insoles for flat feet and a walking stick held on the contralateral side to the affected lower limb joint are useful.

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MANAGEMENT

Medication

- NSAIDs or coxibs should be used intermittently when possible. Opioids are a last resort.
- Intra-articular corticosteroid injections produce short-term improvement when there is a painful joint effusion.

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MANAGEMENT

Medication

- Glucosamine and chondroitin have no clinically relevant effect on joint pain or joint space narrowing.
- Potential benefit must be balanced against potential side-effects, especially in the elderly.

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MANAGEMENT

- **Surgery**
  - **Arthrodesis**
  - **Osteotomy**
  - **Joint replacement-** For most patients, a total hip or knee replacement reduces pain and stiffness, and greatly increases function and mobility.

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