Osteoarthritis & Arthroplasty

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Osteoarthritis (Degenerative Joint Disease)

DEFINITION:
“Noninflammatory disorder of movable joints characterised by deterioration of articular cartilage & formation of new bone at joint surfaces and margins”

Traditionally divided into 1° & 2° forms:
1° - No obvious cause is found. Polyarthritis affecting mainly: Hands, Hips, Knees, Spine
Mainly affects postmenopausal women
Marked familial incidence

2° - Sequel of some abnormality
Accounts for 80% of all OA
Causes of 2° OA

- **CONGENITAL**
  - DDH, SUFE

- **TRAUMA**
  - Intra-articular #

- **BONE DISEASE**
  - Paget’s, AVN

- **NEUROPATHIC JOINTS**
  - DM, Syph

- **ENDOCRINOPATHIES**
  - Cushing’s, Acromegaly

- **METABOLIC**
  - Gout, Pseudogout

- **INFLAMMATORY**
  - RA, Septic arthritis

- **DRUGS**
  - Repetitive intra-articular steroid injection

- **HAEMATOLOGICAL**
  - Haemophilia
Pathogenesis

- Disparity of stress applied to articular cartilage & ability of cartilage to withstand that stress leads to OA
- i.e:
  - Normal cartilage exposed to abnormal loads
  - Damaged cartilage exposed to normal loads
  - Damaged cartilage due to defective subchondral bone
Grading of cartilage degeneration

- I – Softening of articular cartilage
- II – Fibrillation & fissuring
- III – Partial thickness cartilage loss
- IV – Full thickness loss with exposed bone
Radiological features

- Loss of joint space
- Osteophyte formation
- Juxta-articular sclerosis
- Sub-articular bone cysts
Pain in OA

- 3 causes:
  - Capsule/synovium – Inflamed & thickened
  - Muscle – Spasm
  - Bone – Irregular & eburnated joint surfaces (remember bone has nerve fibres but cartilage does not)
Treatment options 1

- Early/non-operative:
  - Pain relief (analgesics & anti-inflammatories)
  - Heat
  - Reduction of activity
  - Reduction in load (e.g. stick in opposite hand, wt loss)
  - Muscle training
  - Intra-articular steroid injection
Treatment options 2

- Late/operative
  - OSTEOTOMY
    - Alteration in the biomechanics affecting the joint by realignment
  - ARTHRODESIS
    - Surgical fusion of the joint
  - ARTROPLASTY
    - Removal of the diseased joint.
    - e.g. Keller’s procedure of the great toe, TKR, THR
Arthroplasty of the hip

O.A hip accounts for 60,000 THR’s p.a.
Other indications include: #, Ca, AVN

ASSESSMENT:

Hx
Exam
Special investigations
Approaches

- Posterior, Lateral, Anterior
- All have specific advantages/disadvantages
Components

- Both femoral and acetabular components can be cemented or uncemented