



[ Color index : **Important** | **Notes** | Extra ]

---

## osteoarthritis

### Objectives:

- How patient present
- Risk factors
- Diagnosis (x-ray changes)
- Management
- When to refer
- Highlight on intervention

References : 435 medicine team (Davidson's, Kumar, Mater the board)

**Done by :** Torki alnasser & Abdulrahman albarakah.

**Revised by:** Adel Al Shihri.



## ◆ What is OA ?

**Osteoarthritis (OA)** is a **chronic, non-inflammatory, degenerative** joint disorder in which there is **progressive** softening and disintegration of articular cartilage followed by new growth of cartilage and bone at the joint margins (**osteophytes**), because there is no cartilage any more bones exposed to more pressure lead to **Subchondral bone sclerosis** and **cyst** formation, mild (compared to the inflammatory) synovitis and capsular fibrosis.

## ◆ Etiology:

- OA results from a disparity between the stress applied to articular cartilage and the ability of the cartilage to withstand that stress. This could be due to one or a combination of two processes:
  - Weakening of the articular cartilage (due to a genetic defect or enzyme activities).
  - Increased mechanical stress in some part of the articular surface. Which can be caused by overuse or joint instability.
- It has two types :
  1. **Primary (idiopathic):** no known cause.
  2. **Secondary:**
    - A. Pre-existing joint damage: RA , septic arthritis , gout , Paget's disease.
    - B. Metabolic : Cartilage calcification , acromegaly.
    - C. Hematologic : hemophilia , sickle cell anemia.
    - D. Congenital : hip dysplasia.
    - E. Trauma.

## ◆ Risk factors

- Age.
- Obesity.
- Excessive joint loading (manual labor,athletes,etc)
- Trauma:
  - Repeated microtrauma—in many cases, a patient’s occupation or athletic activities require repetitive motions (such as repeated knee bending) that predispose the patient to degenerative joint disease in later years.
  - Macrotrauma (fractures, ligament injuries)— mainly intra-articular fracture.
- Genetic predisposition.
- Altered joint anatomy or instability (developmental hip dysplasia, dislocation due to trauma, rheumatoid arthritis, gout, pseudogout).



- Deposition diseases cause chondrocyte injury, or make the cartilage more stiff (hemochromatosis, ochronosis, alkaptonuria, Wilson disease, Gaucher disease, gout, CPPD).
- Hemophilia (hemarthrosis).

## ❖ Clinical features

- OA has two clinical variants :
  - **Monarticular and pauciarticular OA**: characterized by pain, limited range of motion (in late stage).
  - **Polyarticular (generalized) OA**: Characterized by pain, swelling and stiffness of the distal finger joints.
    - The first carpometacarpal, big toe metatarsophalangeal joints, knees and lumbar facet joints, may be affected as well.
      - **Heberden's nodes**: Bony overgrowth and significant osteoarthritic changes (i.e., osteophytes) at the DIP joints.
      - **Bouchard's nodes**: Bony overgrowth and significant osteoarthritic changes (i.e., osteophytes) at the PIP joints.
    - Pain may disappear but stiffness and deformity can be disturbing.
    - Boutonniere's deformity: PIP flexion with DIP hyperextension.
- OA pain starts insidiously and increases slowly over months or years.
- The pain is aggravated by exertion and relieved by rest.
- Stiffness is worst after periods of rest.
- Typically symptoms follow an intermittent course, with periods of remission.
- Night pain or pain at rest, swelling, deformity, tenderness, crepitus on movement, loss of mobility, muscle wasting, and joint instability are features of advanced disease.
- OA is unassociated with any systemic manifestations.
- OA is uncommon in the shoulder, elbow, wrist and ankle. If any of these joints is affected you should suspect a secondary cause or previous injury to that joint.



## ❖ X-ray changes



- ★ Osteoarthritis x-ray finding (Mnemonic : **LOSS**)
  - **L**: Loss of **joint space** (asymmetrical).
  - **O**: **osteophyte** formation.
  - **S**: subchondral **sclerosis**.
  - **S**: subchondral **cyst**.

## ❖ Management

### ★ Early stage of the disease

- ( in this stage you can treat your patient as a primary care physician ) : There are three principles:
  - Relieve pain; by Acetaminophen, NSAIDs, rest periods and modification of activities (avoiding activities like climbing stairs, squatting and praying on the floor), application of warmth, massage.
  - Increase joint mobility; by physiotherapy, even a small increase in range and power will reduce pain, prevent contractures and improve function.
  - Reduce load; by weight reduction.

### ★ Intermediate stage of the disease:(as a primary care physician you should consider referral in this stage )

- Arthroscopic joint debridement (removal of interfering osteophytes, meniscal or labral tears and loose bodies (that cause blocking of the movement or cracking), for OA of the knee.
- Corrective osteotomy (redistribution of loading forces towards less damaged parts),
- the use of Hyaluronic acid is controversial most evidence demonstrate small superiority over placebo



★ **Late stage of the disease:**(as a primary care physician you should consider referral in this stage)

- Joint replacement (Arthroplasty) is the procedure of choice for OA in patients with severe and advanced symptoms. Can be total for old patients with painful deformed stiff joint in or partial for young active patients with mild OA.
- Arthrodesis (Fusion of the two ends of the bones) is sometimes indicated for joints in which permanent stiffness is not a drawback. Relieve only pain and cause permanent stiffness (in small joints e.g. in hand, foot and spine).

## ◆ When to refer ?

- The majority of the management of patients with osteoarthritis is undertaken in primary care . Patients should, however, be referred to a specialist service if:
  - there is evidence of infection in the joint.
  - Pain is persistent despite therapy.
  - symptoms rapidly deteriorate and are causing severe disability.