ORTHOPAEDICS

FOR PRIMARY HEALTH CARE

LION

LEARNING INNOVATION VIA ORTHOPAEDIC NETWORKS

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Osteoarthritis

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Learning objectives

1. Understand epidemiology and pathophysiology
2. Learn how to make a diagnosis with clinical and radiological features
3. Understand treatment options and management principles

Introduction

Osteoarthritis (OA) is the most common form of arthritis and is also known as degenerative joint disease, wear and tear arthritis, or osteoarthrosis.

It can be primary or secondary.

Primary OA is idiopathic and is associated with increasing age and obesity. The incidence of OA ranges from 10-20% in people over the age of 60 years and females are affected more than males.

It commonly affects the hands, shoulders, spine, hips and knees.

Secondary OA can be post traumatic, post infective or as a result of any condition that causes an abnormality in the shape of the joint surface or destruction of the articular cartilage.

The pathology involves softening and erosion of the articular cartilage resulting in bone on bone articulation. Typical radiological features are joint space narrowing, osteophyte formation, subchondral sclerosis and subchondral cysts.

Hip OA

Clinical findings

History

Insidious onset typically described as dull start up pain felt in the groin radiating down the front of the thigh. Occasionally presents as knee pain only. Consider referred pain from the back if the pain radiates below the knee. Activities of daily living (ADL's) affected are activities involving hip flexion such as doing shoes and socks and sleep disturbance due to pain.

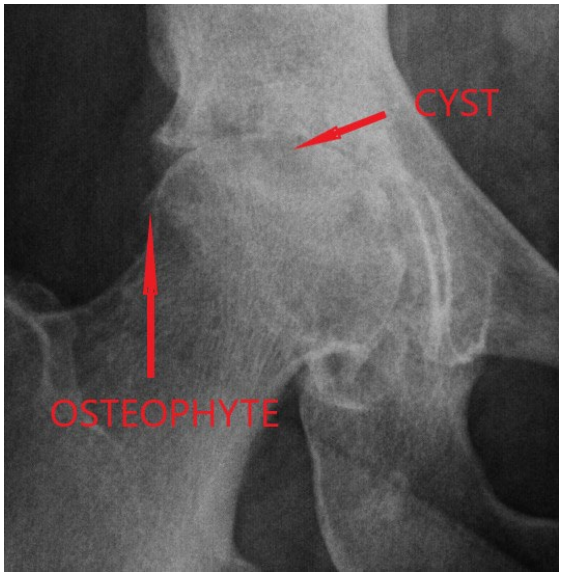
Examination

- Trendelenberg gait.
- There may be a leg length discrepancy (LLD).
- Loss of internal rotation is an early sign.
- Later on, a fixed flexion deformity (FFD) may occur (Thomas test).

Special investigations

Imaging

X-rays show joint space narrowing, osteophytes, sclerosis and cysts.



Management

If conservative treatment fails and the patient wants surgery then refer to an orthopaedic surgeon.

Non-surgical

- Activity modification.
- Walking aids.
- Analgesia and NSAID's

Surgical

- Total hip arthroplasty (Replacement) (THA or THR).
- Arthrodesis (fusion) of the joint is not commonly performed nowadays.

Knee OA

Clinical findings

History

Start up pain or stiffness that eases a little with movement. Can be worsened by walking on stairs and may be associated with clicking or locking or giving way.

Examination

- May have an effusion.
- There may be a varus or valgus deformity.
- Later on, a fixed flexion deformity (FFD) may occur typically 10- 15 deg.

Special investigations

Imaging

X-rays show medial joint space narrowing, osteophyte and sclerosis with an irregular joint surface.

Non-surgical

- Activity modification.
- Walking aids.
- Analgesia and NSAID's

Surgical

- Total knee arthroplasty (replacement) (TKA or TKR).

Osteoarthritis of the hand

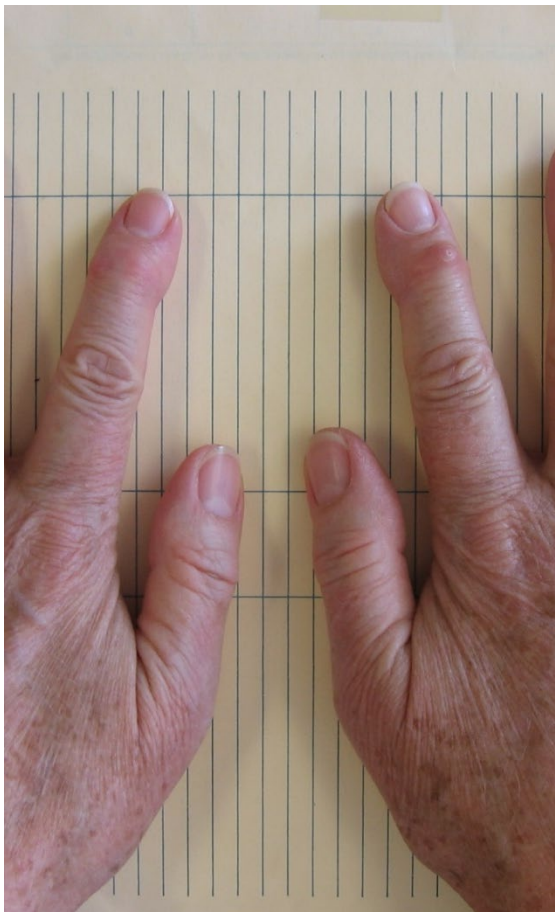
Clinical findings

History

Specific joints painful with activity unlike rheumatoid arthritis which typically has a period of generalised, symmetrical small joint morning stiffness.

Examination

- DIPJ swellings or Heberden's nodes as in picture below.
- Reduced range of motion and painful motion of the affected joints, commonly the base of thumb and DIPJ.



Special investigations

Imaging

X-rays show joint space narrowing and sclerosis (picture of BOT OA and DIPJ OA).

Management

Non-surgical

- NSAID's
- Bracing or splinting.
- Steroid injections.

Surgical

- Arthrodesis.
- Interposition arthroplasty.

Osteoarthritis of the shoulder

Clinical findings

History

Can involve the glenohumeral joint or the acromioclavicular joint (ACJ) and symptoms relate to the joint involved, usually difficulty doing overhead tasks and inability to sleep on the affected side.

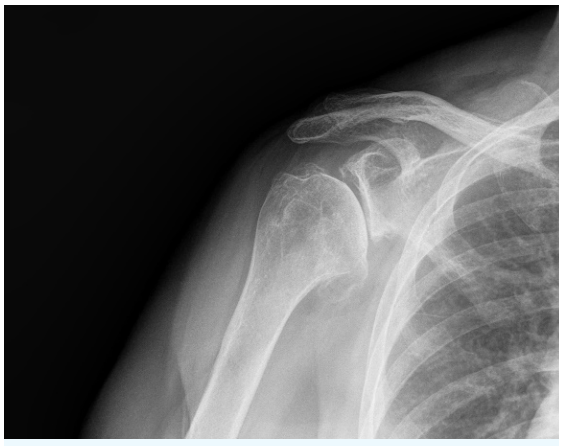
Examination

- ACJ tenderness.
- Crepitus in the glenohumeral joint.

Special investigations

Imaging

X-rays show joint space narrowing and sclerosis. ACJ OA.



Glenohumeral joint OA

Management

Non-surgical

- NSAID's
- Activity modification
- Steroid injections.

Surgical

- Excision of ACJ.
- Total shoulder arthroplasty (TSA or TSR).

Osteoarthritis of the spine

History

Cervical spondylosis presents with neck pain and stiffness. Radiating pain down the arms suggests radiculopathy. Lumbar spine OA and facet joint arthropathy presents with mechanical back pain, radiculopathy usually radiates down one leg.

Examination

- Tenderness over the spinous processes and there may be paraspinal muscle spasm.
- Pain and stiffness when assessing ROM.
- Straight leg raise (SLR) positive for pain going down the leg. Note at what degree of hip flexion the pain starts. In severe cases there is pain when performing SLR on the contralateral side.

Special investigations

Imaging

X-rays show joint space narrowing, osteophytes and sclerosis (picture of L spine lateral OA).

Non-surgical

- NSAID's
- Physiotherapy.

Surgical

- Fusion surgery.

Essential takeaways

- Diagnosis is made with history, examination (Look, Feel, Move) and X-rays.
- Management starts with modification of activities and lifestyle including weight loss if needed and splints or walking aids to alleviate pressure or reduce motion of the affected joint.
- Surgery (often major surgery) is reserved for failed conservative treatment and patients should be medically optimised.

References

Miller, M. D. & Thompson, S. (2019) *Miller's review of orthopaedics (8th ed.)*. Elsevier, Amsterdam

Assessment

A 67 year old patient presents with a 2-year history of gradually worsening hip pain that is starting to impact on their activities of daily living, which one of the following is most commonly reported in hip osteoarthritis?

A. Difficulty putting on shorts
B. b. Difficulty doing their shoes and socks
C. c. Needing to lean on the shopping trolley and
D. bend forward to ease the pain
E. d. Sleep disturbance

Answer b is correct as not being able to do their shoes and socks is a typical ADL affected by hip OA.

When performing the physical examination of a patient with osteoarthritis of the hip, which one of the following statements is most correct;

A. There is an absolute leg length discrepancy if the medial malleolus of both ankles do not line up next to each other.
B. There is a leg length discrepancy if one knee is flexed when standing.
C. The femoral head can be palpated medial to the greater trochanter.
D. Rotation range is usually determined with the patient lying supine and the hip flexed to 90 degrees.

Answer d is correct as flexing the hip and the knee to 90 degrees makes it easy to assess the degree of rotation.

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About the book

Informed by experts: Most patients with orthopaedic pathology in low to middle-income countries are treated by non-specialists. This book was based on a modified Delphi consensus study* with experts from Africa, Europe, and North America to provide guidance to these health care workers. Knowledge topics, skills, and cases concerning orthopaedic trauma and infection were prioritised. Acute primary care for fractures and dislocations ranked high Furthermore, the diagnosis and the treatment of conditions not requiring specialist referral were prioritised.

** Held et al. Topics, Skills, and Cases for an Undergraduate Musculoskeletal Curriculum in Southern Africa: A Consensus from Local and International Experts. JBJS. 2020 Feb 5;102(3):el0.*

The Lion

The Learning Innovation via Orthopaedic Network (LION) aims to improve learning and teaching in orthopaedics in Southern Africa and around the world. These authors have contributed the individual chapters and are mostly orthopaedic surgeons and trainees in Southern Africa who have experience with local orthopaedic pathology and treatment modalities but also in medical education of undergraduate students and primary care physicians. To centre this book around our students, iterative rounds of revising and updating the individual chapters are ongoing, to eliminate expert blind spots and create transformation of knowledge.

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