

INTRODUCTION TO ORTHOPAEDICS

PRESENTED BY:
PROF. J.A.O. MULIMBA

2. Introduction: What is Orthopaedics.

- This is the **study of the locomotor system.**
- Historically was derived from Greek meaning **straight child.**
- Term coined by Andre in 1741.

3. The scope of locomotor system:

- Bones
- Joints
- Muscles and Tendons
- Ligaments
- Bursae
- Nerves
- Blood Vessels.

4. Have Orthopaedic and Orthopaedic Trauma

- Orthopaedics: Derangements of the locomotor system.
- Orthopaedic Trauma: Injury of the locomotor system.

5. Scope of orthopaedics:

- Congenital disorders.
- Developmental disorders
- Genetic disorders- e.g Blood, storage disorder.
- Inflammatory - infective –e.g. Osteomyelitis.
- - None infective - e.g. Rheumatoid Arthritis
- Degenerative disorders - e.g.. Osteoarthritis.
- Tumours - e.g.. Osteosarcoma
 - Osteoclastoma.
- Miscellaneous – Osteoporosis etc.

6.Scope of Orthopaedic Trauma:

- Fractures - excluding skull and chest
- Dislocations
- Subluxations.
- Muscle and tendon injuries.
- Ligamentous injuries.
- Nerve injuries
- Blood vessels
- Cartilage
- Meniscii

7. In the time of Andre, Orthopaedics was primitive but has now become more sophisticated as a result of:

- Development of **Anesthesia**.
- Development of **Asepsis**.
- Development of **imaging**, especially X-rays and other investigation procedures such as – ultrasound, magnetism, radioisotopes; etc.
- **Metallurgy and other implants**.
- **Plasters and other casting materials**.
- **Laboratory**.

8. To understand the locomotor system some of the subjects to be studied include:

- Embryology.
- Anatomy.
- Biochemistry especially bone metabolism.
- Tissue healing i.e. bone, wound.
- Basic biomechanics.
- Implant materials.

9. Management of Orthopaedic problems is methodical:

- History
- Examination.
- Investigations
- Treatment
- Rehabilitation

10. Treatment is broadly divided into two:

- Conservative - none operative.
- Operative -

Requires: Technical know how.

Instruments.

Implants.

Appropriate theatres -

Sepsis is a curse!

11. There is much collaboration with other specialists namely:

- Radiology
- Pathology
- Radiotherapy
- Plastic surgery
- Engineering.
- Nursing.
- Physiotherapy.
- Occupational therapy.

12.Specialities in Orthopaedics:

- General.
- Spinal
- Arthroplasty.
- Arthroscopy.
- Hand
- Foot.
- Paediatric
- Sports.

13. Orthopaedic teaching at University of Nairobi.

- In 3rd and 5th year
- University examinations to be given both years.

Methods of treatment in orthopaedics and trauma

- Two main divisions
 - conservative
 - Operative

Conservative Management

Physiotherapy

- Exercises; manipulations
- Special devices e.g
 - springs
 - Ice
 - Heat
 - Static bicycles

- Reduce pain by use of :-

- Ice
- Heat
- Electrotherapy
- Short wave diathermy

- Encourage muscles to work with faradic stimulation

Special devices

- Walking frames
- Crutches
- Walking sticks
- Braces e.g - knee
- wrist
- Armslings
- Monkey chains
- Cervical collars

Occupational therapy

- Rehabilitation with methods relevant to work and profession.
- Include kitchen, bath and lavatory
- Printing/Typing
- Woodworking
- Special gadgets for working the hands e.g special cutlery

Chiropractors/Osteopaths

- Not sure where they fit in but do some form of physiotherapy
- Not many in Kenya

Orthopaedic technologists

Prepare all sorts of appliances.

- Crutches
- Frames
- Braces
- Splints e.g footdrop splints
- Orthoses
- Prostheses
- Collars
- Special footwear

Social Services

Paraplegics

Old folk

Resettlement – change of profession.

Drugs.

NSAID

Steroids

- local
- parenteral

Antibiotics

Anticoagulants

- oral
- injectable

others

e.g

- Allopurinol
- Colchicine
- Tetanus toxoid

Operative

Operation can be done on all locomotor tissues as follows:-

Muscles: Generally muscles are not amenable to repair.

Tendons:

Tenotomy – division of a tendon

Elongation – e.g ETA

Transposition – Transfer

Release – tenolysis e.g in De Quervains syndrome

Tenodesis – Fixation to bone

Repair – When cut or ruptured. Have special methods

Bones

Osteotomy – Breakage or cutting of bones to change their shape. e.g in Blounts disease

Osteosynthesis – This is the repair of bone. Done with screws, plates, nails etc.

- Lengthening various techniques.
- Excision
- Drainage
- Grafting
 - autograft
 - Allografts
 - Xenograft
 - Bone substitutes e.g chronos.

Joints

- Arthrotomy – simply opening a joints.
- Arthroscopy – Looking into a joint with an instrument (arthroscopy)
- Aspiration
- Synovectomy
- Arthrodesis – Fusion of a joint
- Arthrolysis and MUA
- **Arthroplasty**
 - - Excision
 - -Hemi arthroplasty
 - -Total arthroplasty

Ligaments

- Repair
- Replacement e.g ACL
- Plication – e.g Reefing

Nerves.

- Decompression – e.g carpal tunnel syndrome
- Repair
- Neurolysis
- Grafting

Skin

- Repair
- Graft
- Flaps – done by plastic surgeons

After all operations, there is post operative care.

These include:

Dressing

Splintage

Drugs - Analgesics

- Prophylactic

- Sedatives

- Curative

- Armslings
- Special mobilisation regimes.