Case

✓ 12 yo girl - fell at home while helping with farm chores

✓ Immediate pain & swelling - L elbow

✓ Unable to use her arm
S0 - with her arm hanging at her side --

✅ -> Health Station - No Rx ->
✅  next 2 days walked to road
✅ -> by bus to the city - 1 day
✅  -> Ortho Clinic on 5th day
At the hospital

- Arm swollen
- Warm / Red
- Decreased sensation & motor
- Skin blistered
Treatment

- Admitted
- Elevated in Splint
- OR closed Rx
- CT Scan +/-
- Pin fixation - Open
Lessons

- Late presentation - the rule / not the exception
  - transportation / $ / risk

- Skeletal injuries - limited knowledge base
  - rely on x-ray

- Referral Hospital - capabilities / limitations
Learning Objectives

✓ Describe & discuss briefly the burden of musculoskeletal disease in developing countries

✓ Initiate treatment for common musculoskeletal problems & emergencies
Burden of Disease

✓ Trauma
  ✓ RTA
  ✓ Falls
  ✓ War

✓ Late

✓ Emergencies
  ✓ Compartment Syndrome
  ✓ Dislocations
  ✓ Open Fractures
Burden of Disease

Infection

Osteomyelitis - chronic
Pyomyositis

Septic Arthritis *

Polio residuals
Osteomyelitis

- Pyogenic Infection
  - Presents Late
  - Stages
    - Abscess
    - Sequestrum
    - Involucrum
Burden of Disease - Pediatric

✔ Trauma
✔ Infection
✔ Developmental
  ✔ Club Feet
  ✔ Scoliosis
  ✔ Hip Dysplasia
  ✔ SCFE / Perthes
  ✔ Growth Disturbance
Club Feet

- Ponsetti Project
- World wide program
- Non-operative treatment of club feet
- All levels of health care system involved
Burden of Disease

- Arthritis
  - Osteoarthritis
  - Rheumatoid

- Spine
  - Infection - TB
  - Spinal Cord Injury

- Tumors
  - Surgery
  - Chemotherapy
Care Givers

✓ Orthopaedists:
  ✓ 1 / 250,000 Bhutan
  ✓ 1 / 1,000,000 is more common

✓ Others
  ✓ Traditional Healer [Bone Setters]
  ✓ General Surgeons
  ✓ General Medical Officer
  ✓ Nurses
  ✓ Technicians
Technician Programs

✓ PA / Nurse Practitioner

✓ 2 to 3 years of training

✓ Diagnosis

✓ Casting & Splinting

✓ Traction

✓ Assist in OR

✓ Perform emergency surgery
Technician Programs

- Countries
  - Malawi
  - Mozambique
  - Uganda
  - Bhutan

- Function in -
  - Central Hospitals
  - Remote facilities
Useful Skills

✓ Splinting / Casting
✓ Apply Traction
✓ ‘4’ Emergencies
  ✔ Washout open wounds
  ✔ Reduce Dislocations
  ✔ Release Compartments
  ✔ Drain Septic Joints

✓ External Fixation
CASTS AND SPLINTS

Plaster of Paris bandage

Figure 17.21
Splint Application
CAST APPLICATION
TRACTION

EXTREMITY TRACTION

Figure 17.15

Figure 17.16

Figure 17.17

Figure 17.18

Figure 17.19

Figure 17.20
Skin Traction

Figure 17.1

Figure 17.2

Figure 17.3

Figure 17.4
Traction Pin Placement

Figure 17.5

Figure 17.6

Figure 17.7

Figure 17.8
Perkins Traction
Debridement & External Fixation
APPLICATION OF EXTERNAL FIXATION

Half pins are threaded on the end

Transfixation pins are threaded in the middle
External Fixation
Compartment Syndrome

✓ Causes
✓ Fractures
✓ Crush Injuries
✓ Burns
✓ Vascular Injury
✓ Tight Dressings
✓ Stab Wounds
Diagnosis

✓ The ‘Ps’
  ✓ Pain
  ✓ Palor
  ✓ Pulse decreased
  ✓ Pressure
  ✓ Paresthesia
  ✓ Passive Stretch

✓ Pin - catheter measurement
Compartment Release
So Remember -

- **Musculoskeletal Disease Burden**
  - Trauma
  - Infection

- **Simple Techniques -> Great Benefit**
  - Casts / Splints / Traction
  - Wash out wounds
  - Drain Septic Joints
  - Release Compartments
  - Reduce Dislocations
Thank you & Safe Travels
References

✓ [www.who.int/surgery/publications/imeesc](www.who.int/surgery/publications/imeesc)
  ✓ Surgical Care at the District Hospital
  ✓ Integrated Management on Emergency Essential Surgical Care

✓ [www.hyousa.org](www.hyousa.org)

✓ [www.global-help.org](www.global-help.org)