

Common Foot and Ankle Disorders

Abdulaziz Almaawi. MD, MSc, FRCSC

Consultant Orthopedic Surgeon, King Khalid University Hospital
Assistant Professor, King Saud University

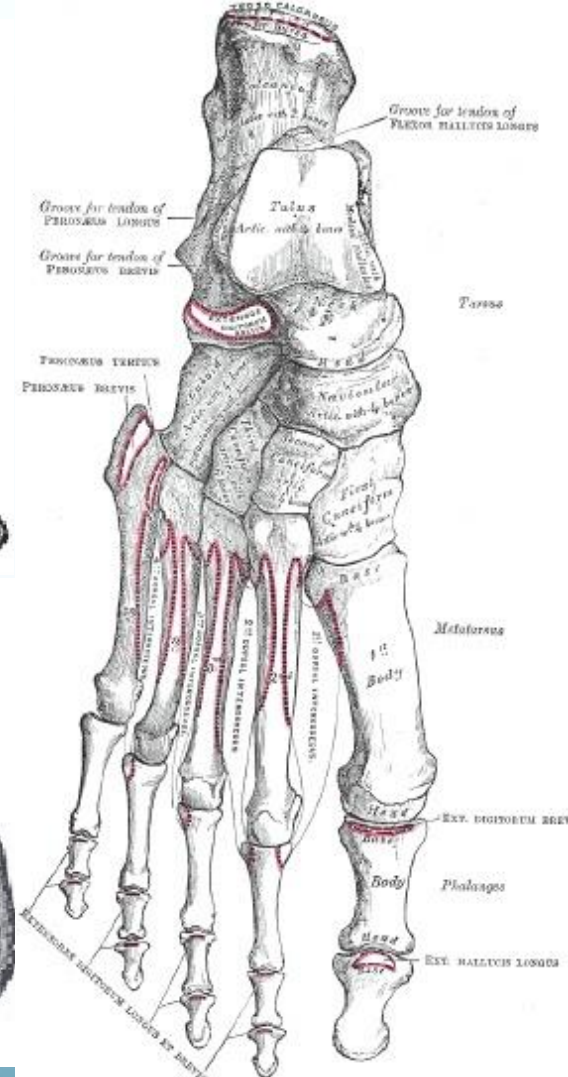
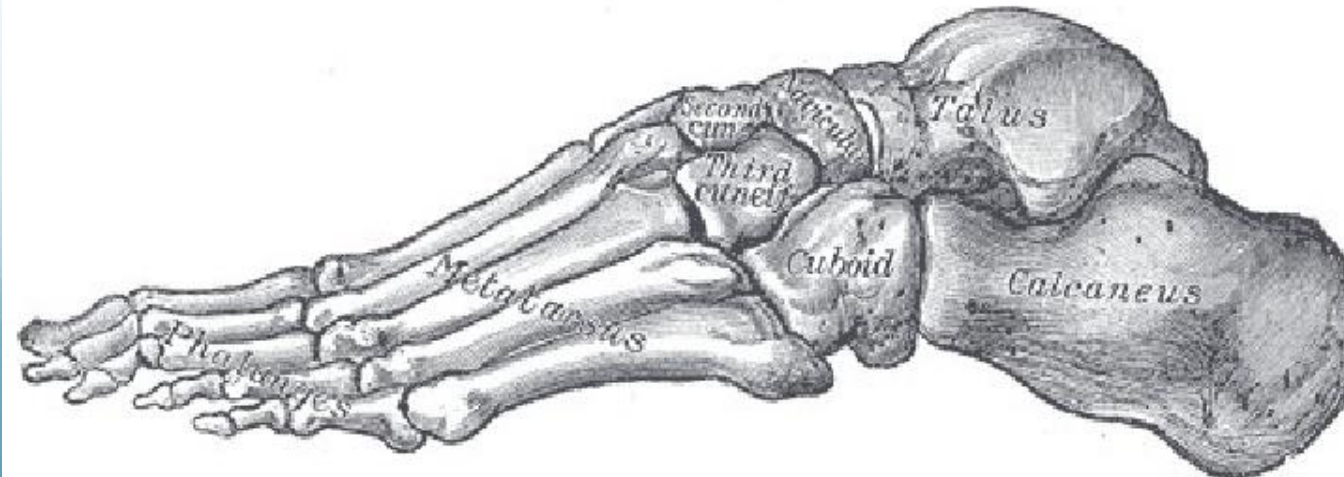
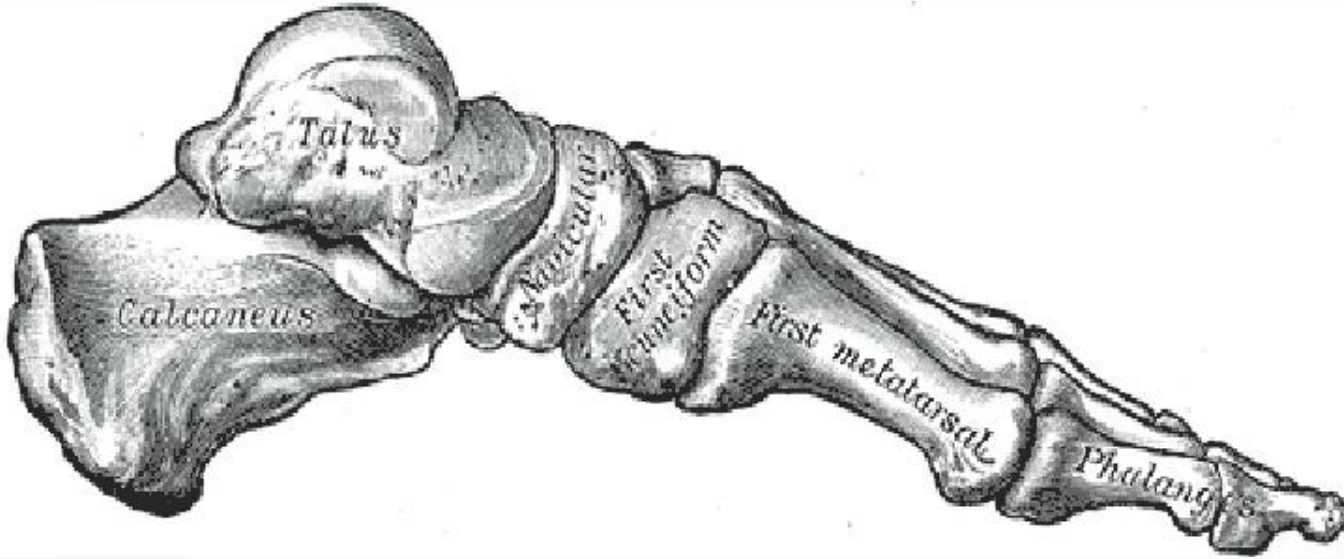
Objectives

- Anatomy in Foot and Ankle.
- Common Foot and Ankle disorders.
- To differentiate from simple disorders and serious ones.
- To learn about initial management and prognosis.

Importance of Foot and Ankle

- Subject to most weight bearing (Loading) of the body.
- Important proprioception function.
- Deformity is easily noticeable.
- Improper shoe wear can cause symptoms.
- With advancing age; deformity becomes more symptomatic.

Foot Anatomy



X-ray standing

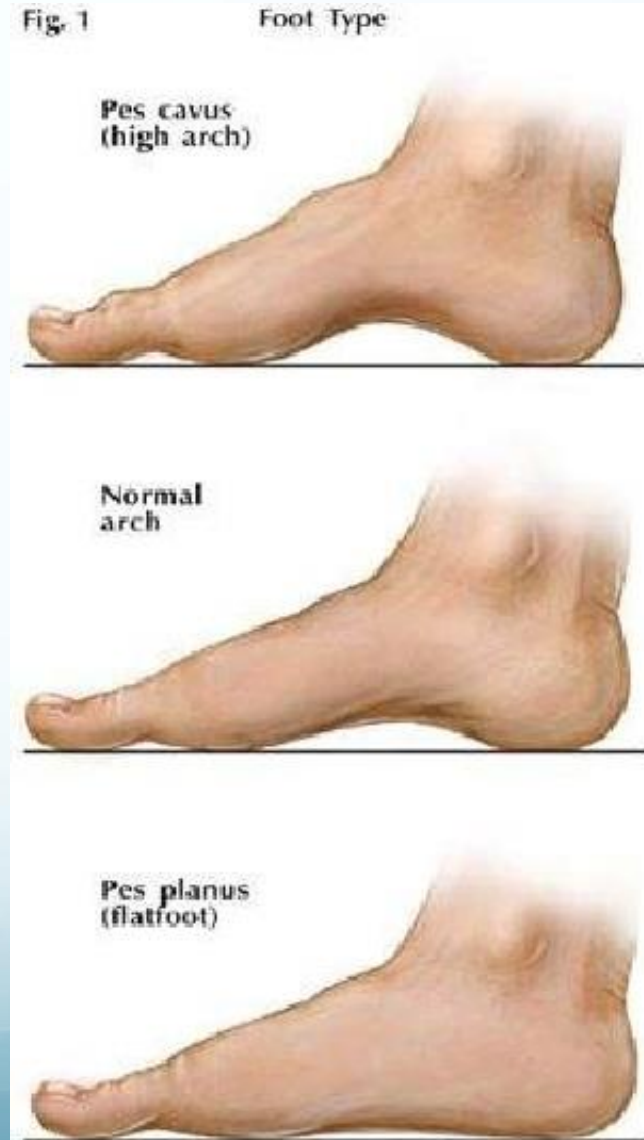


Common Disorders

- Flat Foot.
- Hallux Valgus.
- Plantar Fasciitis
- Ankle Sprains and Ankle Instability.
- Osteochondral lesions of Talus.
- Diabetic Foot.
- Charcot Foot.

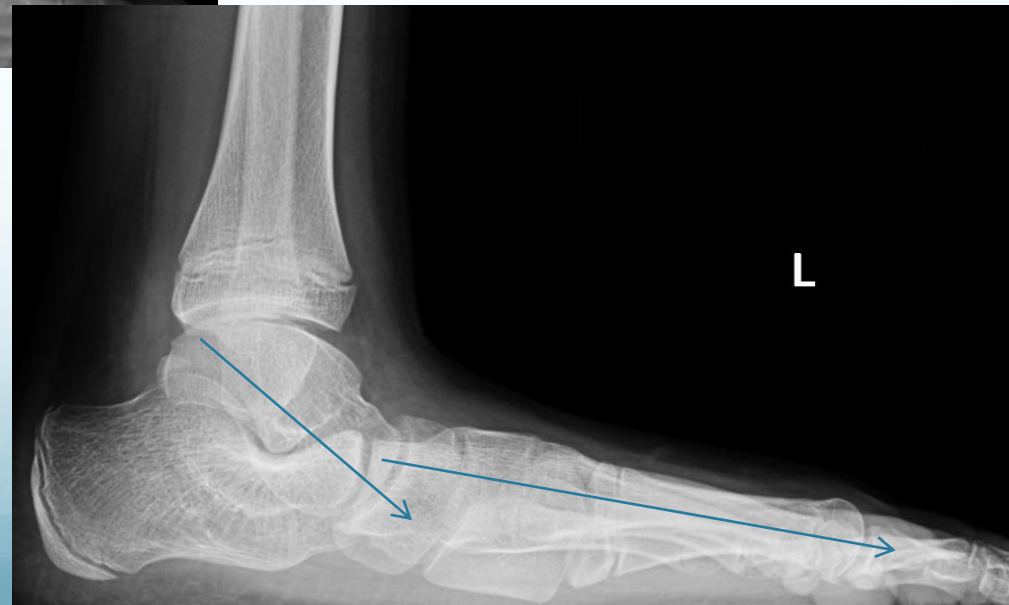
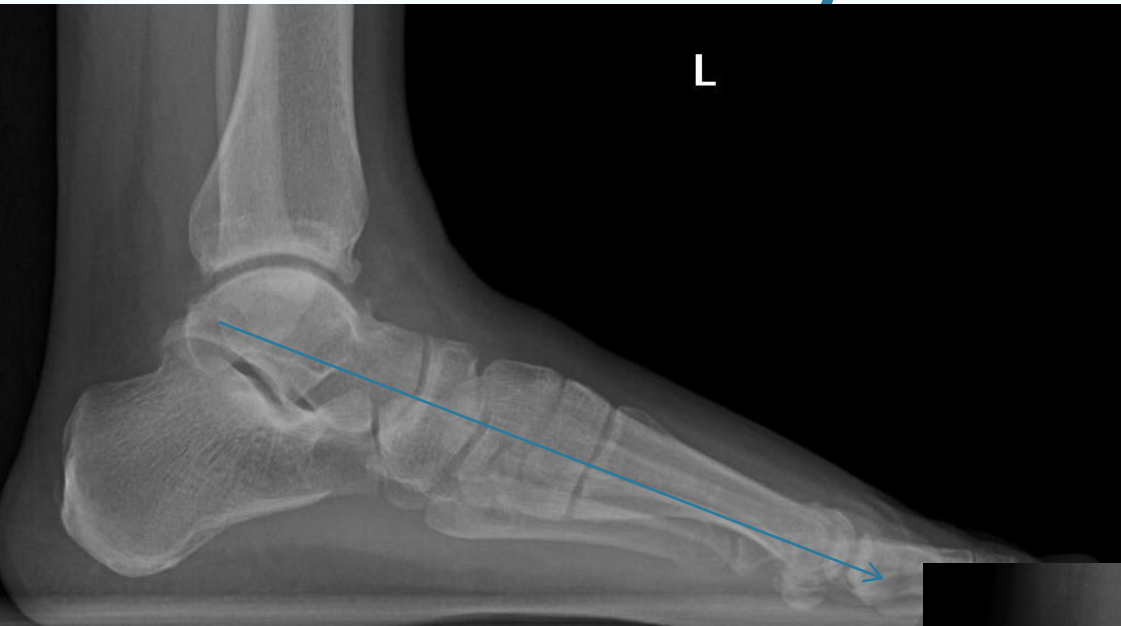
Flat Foot

- Reduction of longitudinal arches of the foot.
- Most cases are **Developmental**: i.e. arches do not develop normally.
- Usually painless.
- Acute flat foot?
- Rigid flat foot?

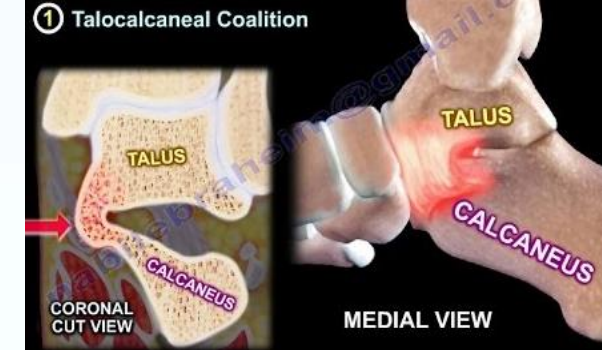




X-ray standing



Flat Foot



Flexible

- Ligamentous laxity
- Standing on tip-toes:
Heels move inward
- Subtalar motion
(inversion/Eversion):
Normal

Rigid

- Tarsal coalition:
Fibrous or Bony union between
bones of the foot
- Standing on tip-toes:
Heel does not move inward
- Subtalar motion
(inversion/Eversion):
Reduced or absent

Flat Foot

Flexible

Rigid



Flat Foot management

- **Foot exercises:**

Strengthen muscles but will not correct deformity

- **Orthotics/Insoles:**

Protective, correct Malalignment

- **Good Shoes:**

Beneficial on the long run

- **Surgery:**

Painful flatfoot with complication

Rigid flat foot

Acute flat foot



Hallux Valgus

- Lateral deviation of big toe.
- at MTP joint
- Mostly painless.
- **Bunion:**
Swelling and protrusion at the medial aspect of big toe.
- **Severe HV:**
Interferes with shoe wear



Hallux Valgus measurements



Hallux Valgus Measurements

- **Hallux Valgus Angel:** angle between line extending along 1st metatarsal and a line extending along proximal phalanx.

Normal : < 15°

Mild HV: 16-25°

Moderate HV: 26-35°

Severe HV: > 35°



Hallux Valgus Measurements

1st intermetatarsal Angle

- Angle between 1st metatarsal long axis and 2nd metatarsal

N < 10°



Hallux interphalangeus Angle

- Angle between long axis of proximal and distal phalanges

N < 8°



Hallux Valgus Management

- Correct and suitable **shoe wear**.
- Avoidance of tight shoes.
- Protection to the bunions.
- **Surgery** is reserved for symptomatic cases.
- Following surgery; patient has to continue proper shoe wear.

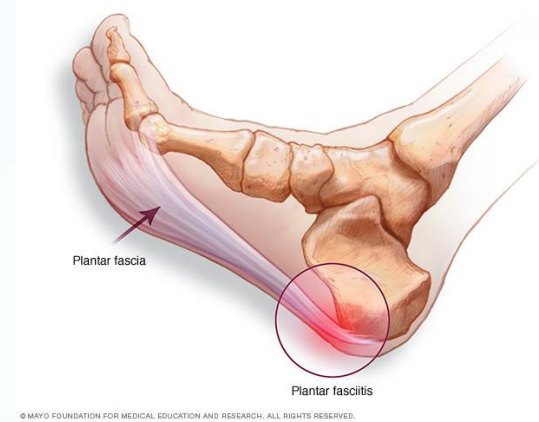


Hallux Valgus Surgery



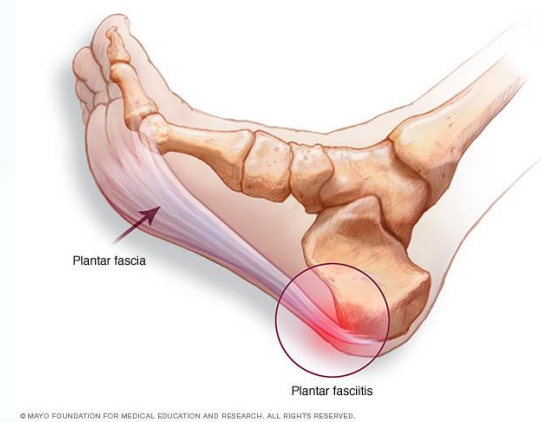
Plantar Fasciitis

- Common disorder at middle age and elderly.
- Insidious in onset;
- unilateral or bilateral.
- Localized tenderness to insertion of plantar fascia into calcaneum.
- Plain lateral X-ray of heel frequently shows calcaneal spur (prominence or ossification at the site of anterior calcaneum at plantar fascia insertion site)

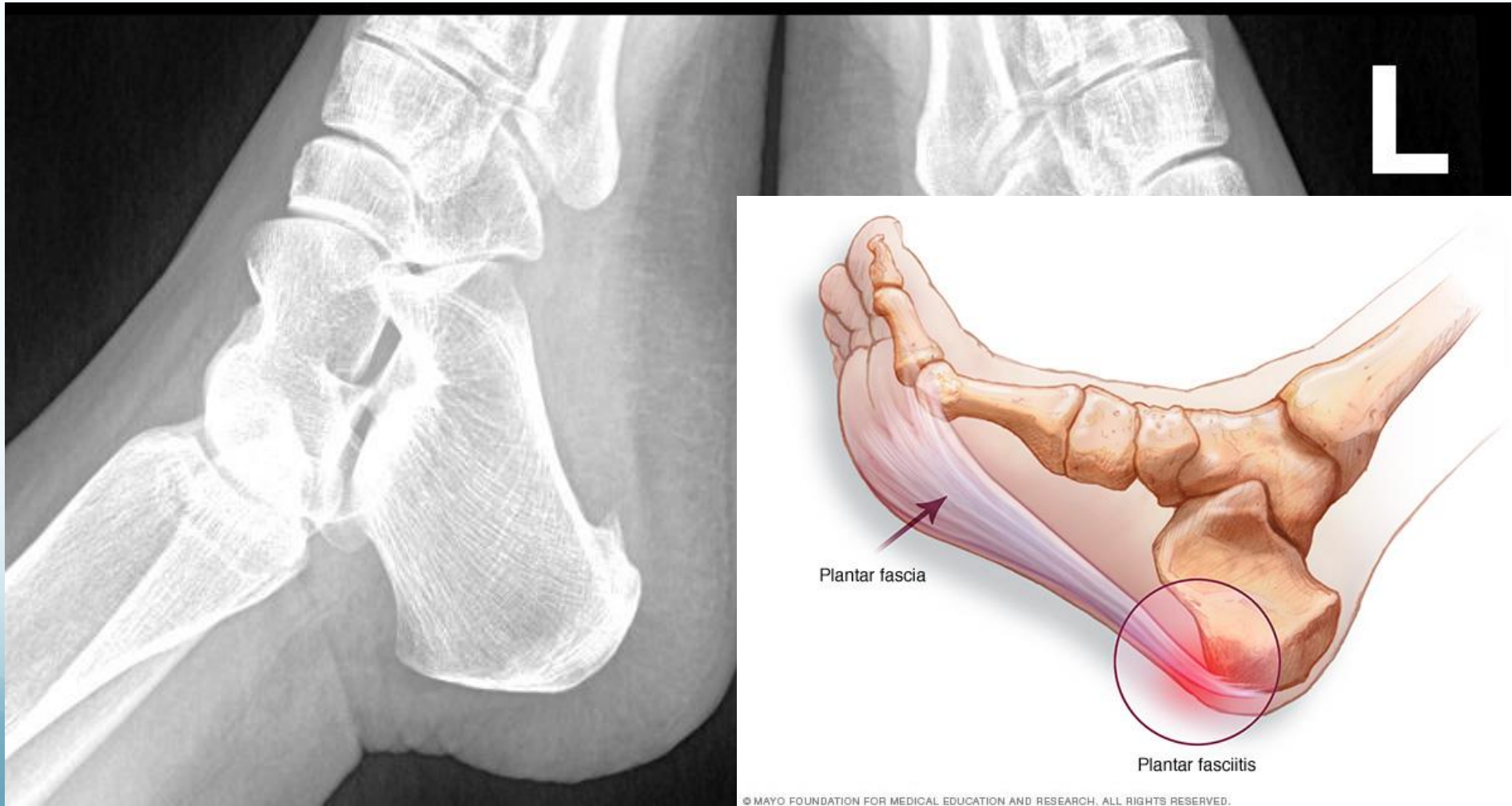


Plantar fasciitis

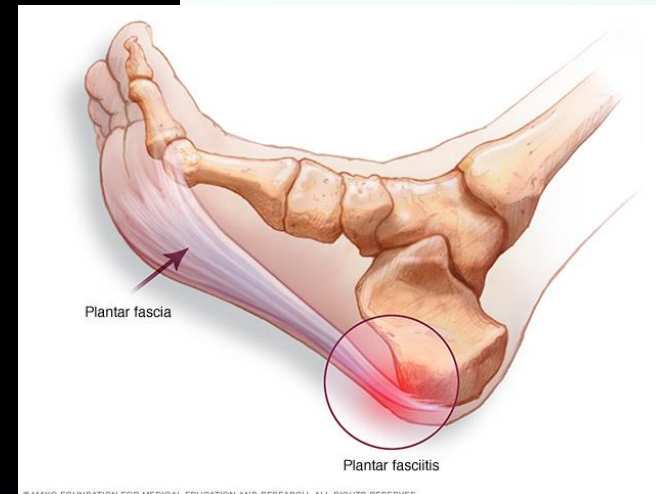
- Commonly associated with flat feet.
- No visible heel swelling, no skin changes and no increase in local temperature.
- Inflammatory process is at site of pain; i.e. at **plantar fascia insertion into calcaneum**.
- Heel pain like **stabbing pain** when patient puts foot to the ground first step in the morning; and gets less after some walking.



Calcaneal spur (Early)

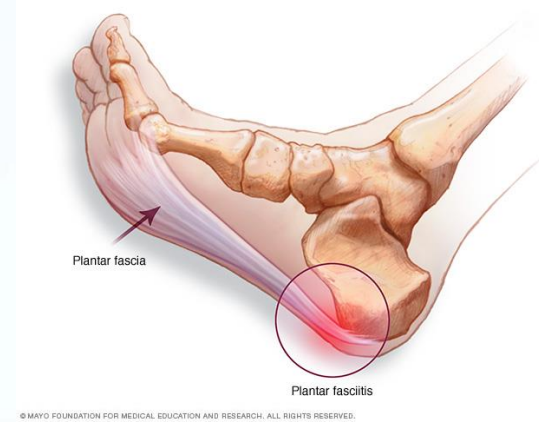


Calcaneal Spur (Advanced)



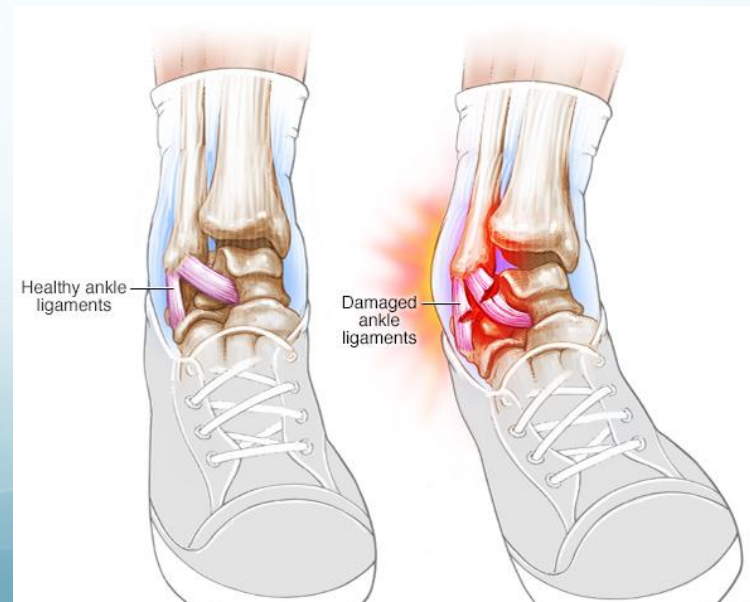
Management

- NO easy or simple management is available.
- Mainly conservative.
- Includes **stretching exercises** to plantar fascia: active and passive.
- Use of **soft heel insoles** (Silicone) may be helpful.
- **Shock wave therapy** (SWT) may be effective.
- **Local steroid injections** are helpful sometimes.
- Surgery: Last solution, very rare



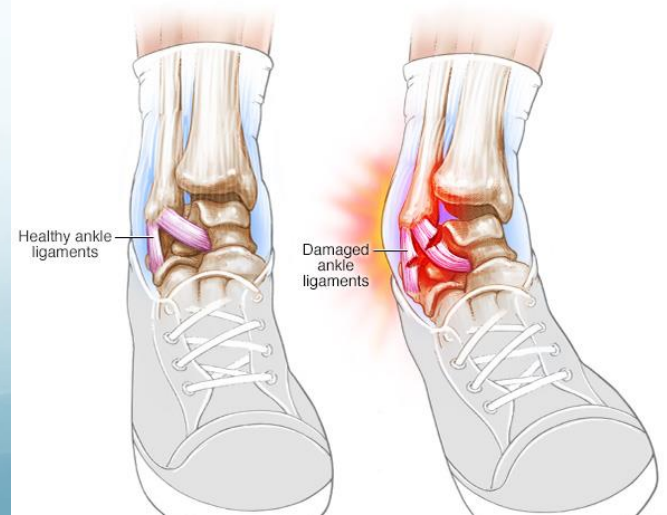
Ankle Sprains

- One of most common injuries.
- Usually occurs during sports activities.
- May occur at home or street.
- The injury is **partial or complete ligament rupture.**

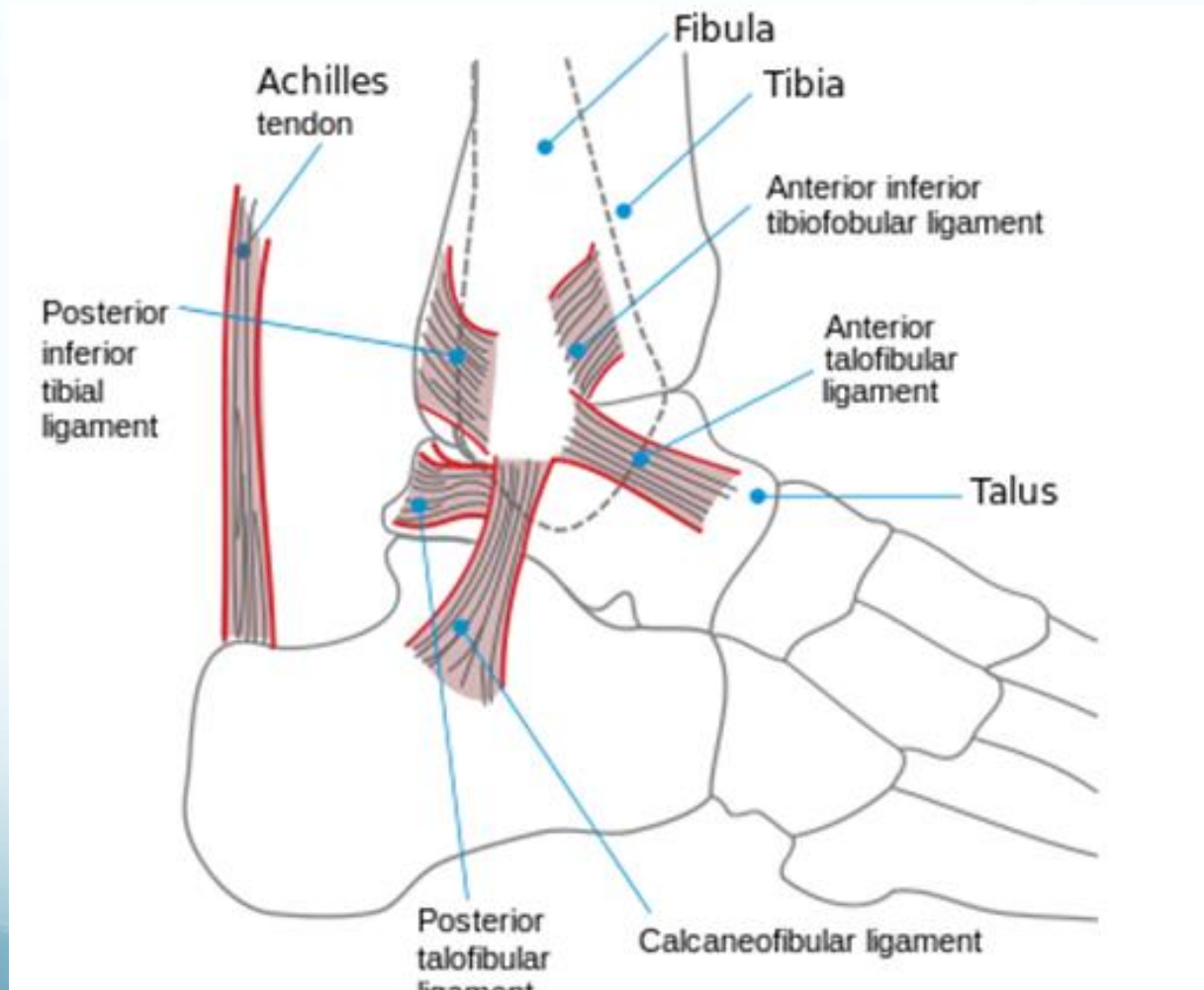


Clinical picture of Ankle Sprains

- History of **twisting** injury.
- Pain, swelling and bruising at and around ankle.
- No tenderness of lateral malleolus; but tenderness anterior, posterior or inferior to it i.e. over ligaments.
- Dorsi-flexion and plantar flexion possible; but inversion and eversion very painful.
- X-Rays : **NO fracture.**



Ankle Ligaments (Lateral)

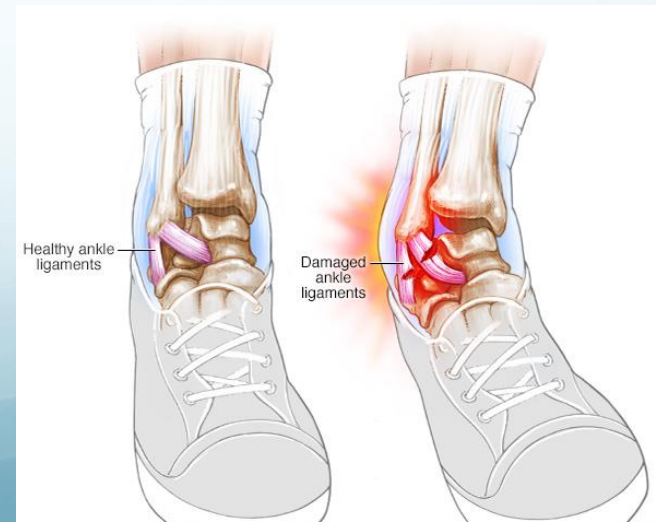


Ankle Sprain

- Most commonly injured ligament is the **Anterior Talo-Fibular Ligament**.
- **Ankle anterior drawer test** is positive.

Compare with normal side

- Other ligaments are Posterior Talo-Fibular Ligament and Calcaneo-Fibular ligament.



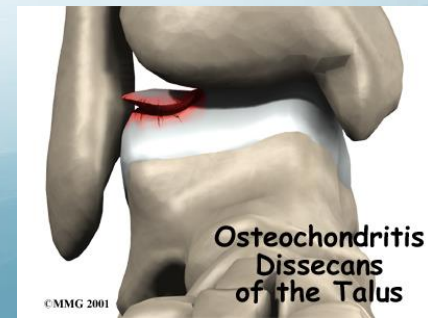
Management of Ankle Sprain

- **RICE**: **R**est, **I**ce, **c**ompressors, **E**levation.
- Apply **Back-slab splints** for few days: if not able to weight bear.
- Might use protection with **brace**
- **Early physiotherapy** and strengthening.
- Mostly heal with no surgery.
- **Surgery**: if physio fail and there is clear instability

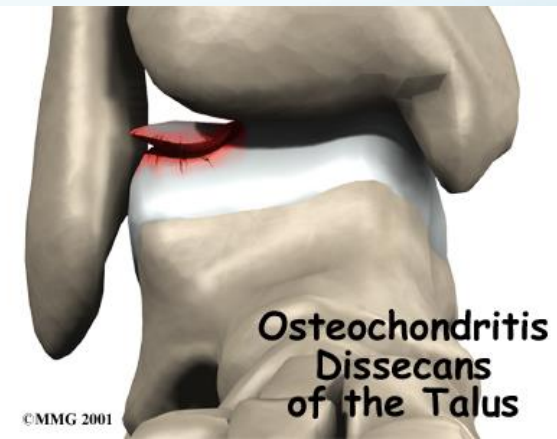


Osteochondral Defects of talus (OCD)

- Damage at localized areas of **Talar** articular cartilage
- Lack of blood supply is often **post traumatic**, but occasionally No cause can be found.
- A local cartilage & varying depth of underneath bone are involved and may separate of main talus inside the ankle joint.
- Usually **postero-medial** part of dome of talus.
- Localized pain on weight bearing and even at rest may present.



Plain AP X-ray : lesion is suspected



CT Coronal view; lesion highly suspected

Study Date:03/01/34
Study Time:10:06:49
MRN:KK1067745



[L]

MRI: lesion is confirmed

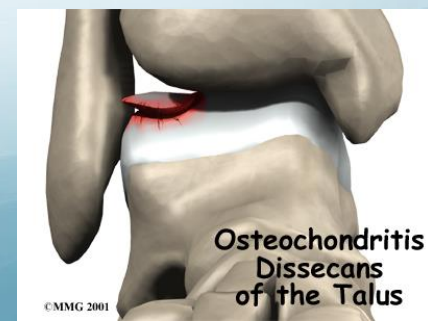


Management of OCD

- **Depends on:**
 - i. Symptoms: Pain and recurrent swelling
 - ii. Size OCD: large and
 - iii. Loose fragment
- **Arthroscopic debridement:**

of the lesion and drilling of its base
- **Fixation with headless screw:**

large OCD with large bony part



Diabetic Foot



© Healthwise, Incorporated

- **Neuropathy** (nerve damage)
 - i. Long term diabetes or
 - ii. Failure to control diabetes
- numbness, tingling and reduced sensation of the feet.
- Associated with **Decreased circulation** (neuropathy, calcification of vessels, CAD)
- may result in delayed healing, infections, **Gangrene** and **Amputations**

Care of Feet in DM

- Primary target: **Prevention**
 - i. Blood sugar control (best indicator)
 - ii. Daily self inspection of feet is mandatory
 - iii. Member of the family or assistant should do it.
 - iv. Regular inspections by healthcare personnel should be arranged
 - v. A visit to a doctor should take place immediately whenever any complication occurs.



Surgery in Diabetic Foot

- Skilled care of wounds and ulcers in diabetic foot is required.
- Wound debridement, antibiotics and repeated dressing should be done.
- **Amputations** may become necessary when there is **Gangrene**.
- Toe amputation or ray amputation, forefoot amputation, below or above knee amputation.



Charcot Foot

- **Significant nerve damage to the foot** leads to
 - i. Bones of the foot become weak
 - ii. Joints inflamed, swollen and lax
- walking on the foot leads to disintegration and collapse of the joints and **Deformity**: such as Rocker- bottom deformity.



Charcot Foot Causes

- Any disorder which lead to **Neuropathy**.
- There is decreased sensation and decreased ability to feel temperature, pain and trauma.



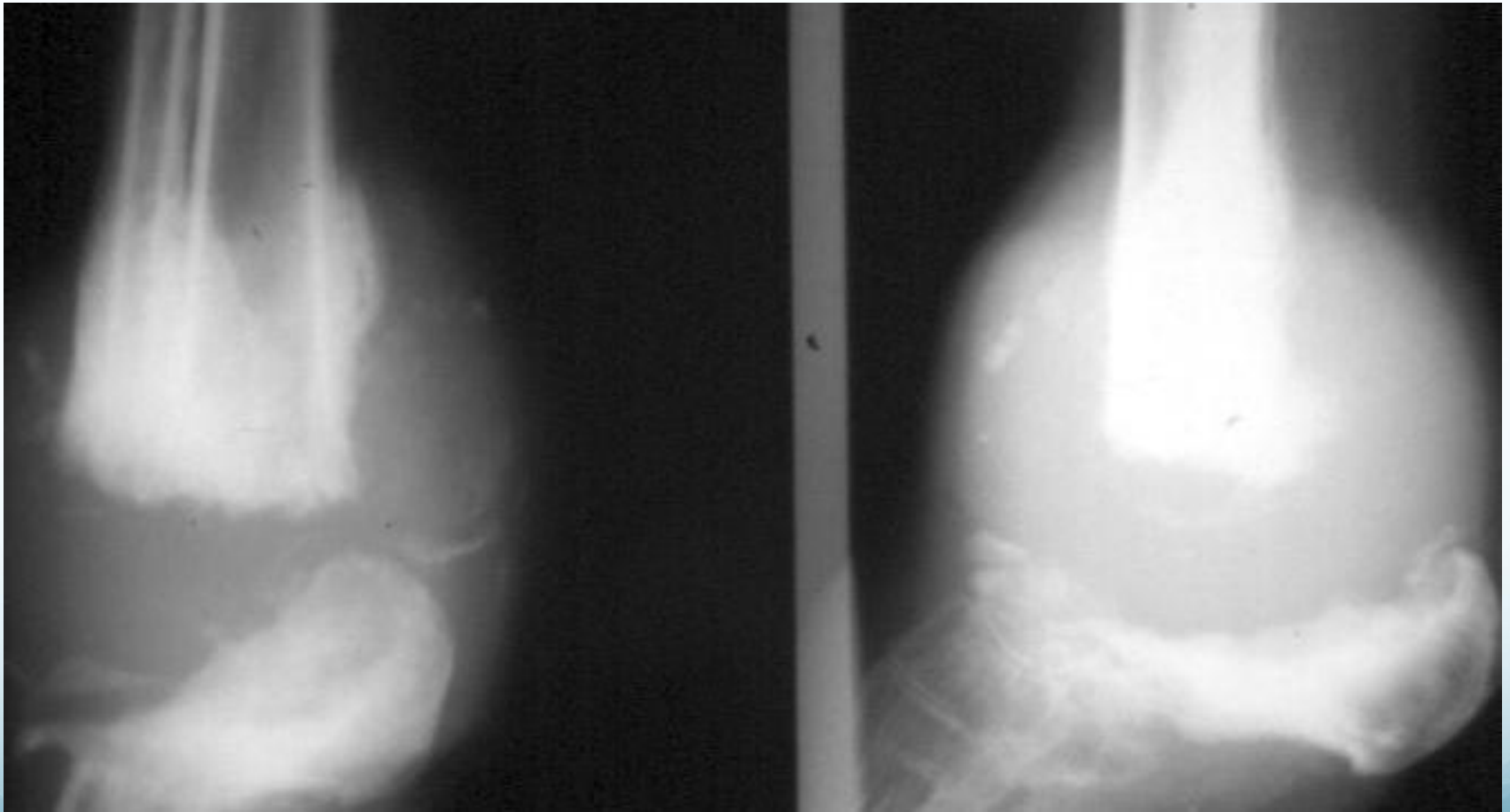
Clinical picture

- Look: Foot is red or dusky in color. Swelling in the area.
Deformity
- Feel: No Pain or soreness, Warmness of foot.
- Move: decreased ROM
- X-rays changes are important to detect and interpret:
 - i. Early X-rays: show NO changes.
 - ii. Later X-rays: haziness, osteopenia, irregular joint destruction, subluxation or even dislocation.

Diabetic foot 04/03/1428



Advanced Case of Charcot



Diagnosis of Charcot Foot

- Good history and clinical examination.
- Awareness.
- Exclusion of other causes which may give similar picture: like infection or tumour.
- MRI, bone scans can help.

Management of Charcot Foot

- Immobilization
- Custom Shoes and Bracing
- Activity modification

Surgery in Charcot Foot



Amputation in Charcot foot

- May be indicated as a last option.
- Mainly when there is severe instability which cannot be controlled by surgery or orthosis.
- Also when surgery fails to achieve stability.
- Recurrent infection increase the possibility of amputation.



Questions

Thank you