



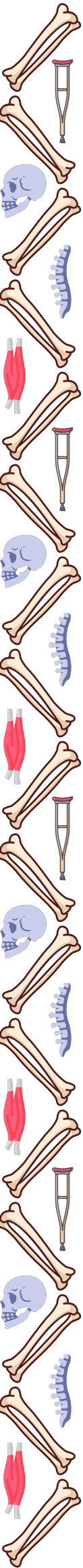
Common Foot & Ankle Problems

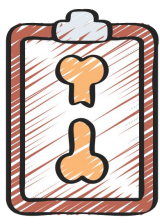
Dr. Abdulaziz Almaawi

Color Index:

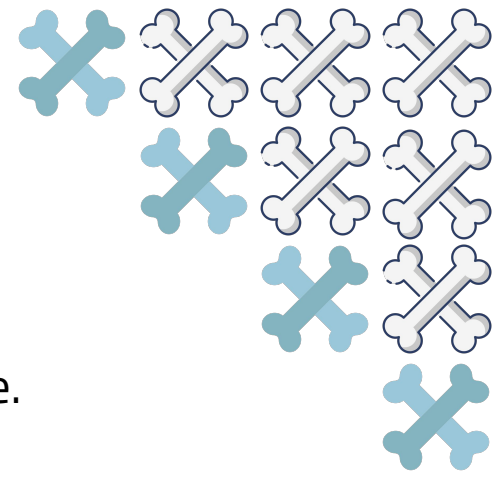
-  Main Text
-  Important
-  Old Notes
-  441 Notes
-  Extra
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Editing File





Objectives



To understand the anatomy of Foot and Ankle.



To get a concise idea on common Foot and Ankle disorders.



To differentiate from simple disorders and serious ones.



To learn about initial management and prognosis.



Common foot and ankle problems

1 Flat foot
very common
20-25% of population

2 Hallux Valgus

3 Plantar fasciitis

4 Ankle sprains & instability

5 Osteochondral lesion of talus

6 Diabetic foot

7 Charcot foot

Importance of Foot and Ankle

- Subject to most weight bearing (Loading) of the body 1 kg increase in trunk will increase weight bearing by 8 kg in ankle and 4 kg in knee
- Important proprioception function.
- Their appearance or deformity is easily noticeable while the patient is standing
- Faulty or improper shoe wear can cause symptoms.
- With advancing age; deformity becomes more symptomatic.
- Their sensory role is very important.

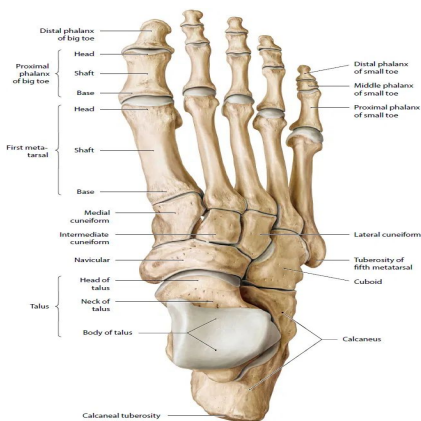
Anatomy of the Foot



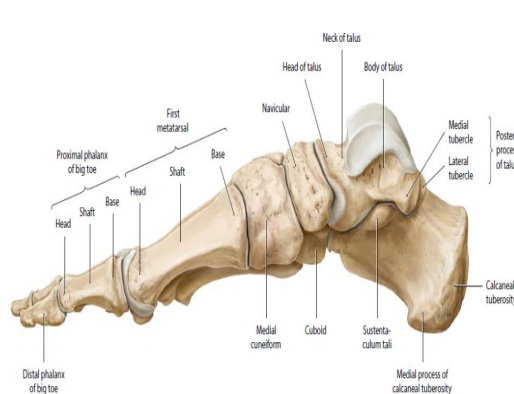
- Body of Foot consist of (26 bones) and divided into:
 1. Fore Foot: Phalanges + Metatarsals
 2. MidFoot : Navicular + Cuboid + 3 cuneiforms.
 3. Hind(rear) foot: Talus(articulate with tibia to form ankle joint) + Calcaneus(articulate with talus to form subtalar joint)

Foot Skeleton

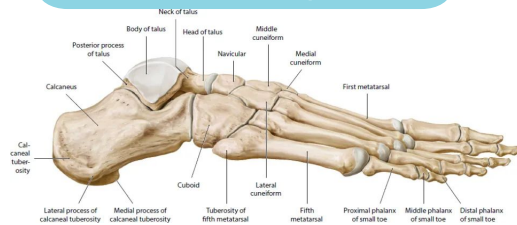
1- superior Aspect



2- Medial Aspect ¹



3- Lateral Aspect ²



X-ray (standing) ³

1- Talus and Calcaneus forms subtalar joint. We have more bones on the medial side than we have on the lateral side; that's because medial side gives stability while lateral gives flexibility.

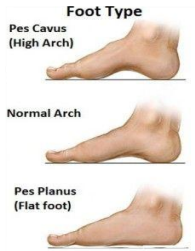
2- Mid Foot forms the arch of the foot.

3- If sitting shows no arch; Should be done in standing position since it's the function of the foot to bear weight . Standing to show any deformity



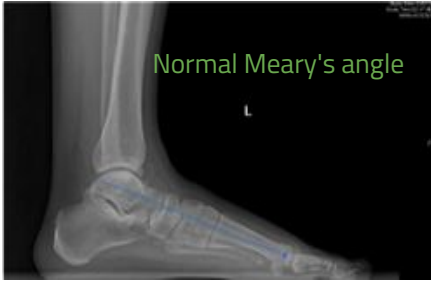
Flat Foot (Pes Planus)

- Reduction of longitudinal arches of the foot.
- Most cases are **developmental**¹: i.e. arches do not develop normally².
- Usually is painless³
- Rarely acute flat = loss of the arch in case of an injury of the **posterior tibialis tendon**, unilateral
- Rigid flat (painfull) foot can be the **result of tarsal coalition** (fibrous or bony cross union between bones of the foot) "abnormal connection between bones in the back of the foot"
- Hind foot > valgus, Mid foot > reduction of longitudinal arch of the foot, Forefoot > abducted foot
- X-ray should be taken in standing position to show deformities



Cavus foot: longitudinal axis of talus is pointing upwards exaggerated arch

Normal X-ray



VS

Flat Foot Lateral weight bearing X-ray



Blue line: along the talus all the way to the metatarsal bone should be continuous with a 0 degree, up to 4 degree is considered normal. If the angle is >4 degree → considered flat foot.

IMPORTANT

Rigid or flexible flat foot

This table is **important** To differentiate between flexible and rigid flat foot

	Normal	Flexible most common (can be corrected without surgery)	Rigid Rare worse and can come at early age with early complication (needs surgery)
Alignment	Straight or minimal valgus	Extreme valgus	
Standing on tiptoes	The heel moves inward (from valgus to varus) the arch is still present	The heel moves inward (from valgus to varus), The deformity will be corrected the arch will reconstruct in flexible flat foot Hind foot > straight, Mid foot > reconstruction of arch, Fore foot > no abduction	Does not move inward (stay in valgus), Not correctable deformity (still valgus) the arch will remain absent in rigid flat foot
Subtalar motion (inversion/eversion)	Normal ROM	Normal ROM	Reduced or absent
Etiology	-	Ligamentous laxity (Present in almost 20% of the population)	Tarsal coalition ⁴ : Fibrous or bony union between bones of foot for fibrous we need to do MRI

1-Could be acquired in elderly due to posterior tibialis weakness.
 2-Normally, the arch is formed within 4-6 years
 3-80:20 rule: 20% of the population has it, 80% of them are asymptomatic, with time its become painful, and might have knee and back pain.
 4-For tarsal coalition It has 2 type: 1-talocalcaneal and 2-calcaneonavicular



Too many toes sign

Flat foot:

- Hind foot: increased valgus
 - Midfoot: lack of arch
 - forefoot : abduction
- Flexible tested via Beighton test which tests the ligament laxity



Flexible



Rigid

for example patient has flat foot so they have valgus, if they stand on their tippy toes and the valgus goes to straight and the arch is formed its flexible, if it can't go to normal it rigid

Management

- Usually NO action is needed. (Asymptomatic)
 - If Symptomatic **Always start with conservative** (5steps)
 - **Foot exercises:** Strengthen muscles is important but will not correct deformity.
 - **Orthotics/insoles** الدعامات: Protective, correct Malalignment
 - **Good shoes:** beneficial on the long run.
 - **Surgery:**
1. Rigid¹ flat foot. **Removal of coalition for the risk of osteoarthritis**
 2. Painful flat foot with complication. Like arthritis
 3. Acute flat foot. **Fix it and the arch will come back**

always start with conservative:

1. Weight loss
2. Shoes
3. Orthotics (for arch support)
4. Activity modification
5. Physiotherapy



Imp to know difference between flexible and rigid flat foot because the rigid you need to do surgery it's usually show up at 12-14 if you catch it early it will be easy to fix but if you leave it until advanced age the pt will get arthritis

Hallux Valgus

- Means lateral deviation of big toe. it's associated with flat foot
- Usually at the metatarsophalangeal joint.
- Most cases are painless. (If painful, would be due to shoe pressure on large toe or an inflamed **bunion due to arthritis**.)
- Often is associated with a **bunion²** (swelling and protrusion at the medial aspect of big toe³)
- Severe HV interferes with shoe wear.
- Common at middle age and elderly⁴ mainly females⁵
- Possible causes for hallux valgus: 1-Flat foot "if pt is not using the arch the toe will deviate laterally"
- 2- Inherited bilateral 3- Shoe wear "heels" 4-Rheumatoid arthritis
- The pain isn't usually caused by the lateral deviation of the big toe, it's rather caused by the medial deviation of the 1st MTP joint.



1-Usually have gastrocnemius muscle tightness

2- Hallux valgus ≠bunion. **bunion** (swelling and protrusion at the medial aspect of big toe). Hallux valgus is the whole deviation of the big toe away from the central line. Sometimes people have a bunion without hallux valgus and we treat it by a bunionectomy; a surgery by which we remove the bunion. A bunion is not a growth instead it's exposure of the metatarsal head.

3-have many reasons most importantly the weight and the shoe.

4-Rheumatoid arthritis

5- Heels

Hallux valgus angle: (no. 2)

- Angle between line extending along 1st metatarsal and a line extending along proximal phalanx.
- **Normal:** $< 15^\circ$ **Mild HV:** 16-25 $^\circ$
- **Moderate HV:** 26-35 $^\circ$
- **Severe HV:** $> 35^\circ$



Normal Foot



Hallux Valgus

1st intermetatarsal angle: (no. 4) most common and very important

- Angle between 1st metatarsal long axis and 2nd metatarsal
- Normal $< 10^\circ$
- Moderate = 12 $^\circ$
- Severe $> 15^\circ$



Hallux interphalangeus angle: To assess if the deformity within the toe (no.1)

- Angle between long axis of proximal and distal phalanges
- Normal $< 8^\circ$
- Severe $> 13^\circ$



Management

- If painless (most common) reassure. **Never treat for cosmetic purpose**
- If painful (interfering with walking), always start with conservative (5-steps) →
- Correct and suitable **shoe wear. Wider shoes**
- Avoidance of **tight shoes.**
- Protection to the bunions. (by cushioning) **Using orthotics "like ring cover the toe" or using silicon**
- **Surgery** is reserved for symptomatic and disturbing cases. (if conservatives fail to relieve pain for 3-6 months)
 - Surgery is annoying (hardware on skin).
 - Removal of bunion is not cosmetic, patient has to be symptomatic "pain in the joint, pain in the 2nd toe, pain because of shoe wear".
- Following surgery; patient has to continue proper shoe wear.

always start with conservative:

1. Weight loss
2. Shoes
3. Orthotics
4. Activity modification
5. Physiotherapy



Metatarsus went medially
Phalanx went laterally

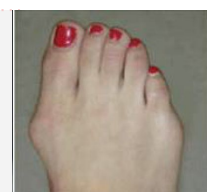
X-ray Hallux Valgus **pre-op**

X-ray Hallux Valgus **post-op**



There a lot of procedures, but in basic steps:

- 1- Correct deviated metatarsal.
- 2- Excise the part of the bunion not all of it.
- 3- Release Adductor hallucis longus tendon as it is a deforming force.





Plantar Fasciitis

- Common disorder at middle age and elderly. affect about 90% of the population
- Insidious in onset; unilateral or bilateral. Vague pain at heel region. You wake up with sudden pain
- **Localized tenderness** to insertion of plantar fascia into calcaneum.
- Plain lateral X-ray of heel frequently shows **calcaneal spur**¹ (مسمار القدم), (prominence or ossification at the site of anterior calcaneum at plantar fascia **insertion site**)²
- Commonly associated with flat feet. Also associated with increase weight, walking barefoot on hard surfaces
- 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.**³



- Some of the possible causes of Plantar Fasciitis:
- Weight (overweight)
 - Bad shoes (Too soft and flexible)
 - Walking barefoot
 - Tightness of the Gastrocnemius
 - Flat foot

Imaging

X-ray: Bilateral Calcaneal Spur (Early)



X-ray: Calcaneal Spur (Advanced)



The body compensates with formation of calcification

Management

"In many cases, patients will not be compliant with these steps"

- Most important; **proper shoes & weight reduction**
- 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)** الموجات الصدمية بالتنظير الخارجي may be effective⁴ . **Resistant cases only**
- Local **steroid** injections are helpful sometimes. **Very resistant cases**
- Surgery (very rare):last solution **Release of gastrocnemius muscle "NO surgery for plantar fascia itself"**
- **Surgery** if there's nerve compression as carpal tunnel syndrome "median nerve"

Always start with conservative:

1. Weight loss
2. Shoes
3. Orthotics
4. Activity modification
5. Physiotherapy
6. Steroids
7. Surgery

(435) If the first 5 steps of conservative didn't relieve the pain;

1. We do **MRI** to confirm diagnoses.
2. Give **steroid injection** if the steroidal injections didn't relieve the pain,
3. Do nerve conduction study to determine other causes. Other causes which although rare but give same symptoms of plantar fasciitis are: **tarsal tunnel syndrome** posterior to the medial malleolus compressing on lateral and medial plantar nerves (branches of posterior tibial nerve) and **nerve entrapment** due to large muscle in athletes.

1-No relation between the spike (spur) you see on x-ray and the pain. some patient have very large spikes with no pain and some have very severe pain with no spike, what we get from that is that it doesn't have to be removed to alleviate the pain.

2- It is an indication of inflammation for many years.

3-When we sleep or set for long periods our feet are in plantar flexion, making the achilles tendon short and when we step on the floor for the first time, we do dorsi flexion which stretches the achilles tendon stretching the plantar fascia with it causing pain.

4- To break down the thick tissue, which we don't know how it happens

Ankle Sprains



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



Clinical Features

- History of **twisting injury**. Most commonly inversion
- Pain, swelling and bruising at and around ankle. Swelling in look, tenderness in feel usually soft tissue not bone, sometimes can't walk
- No tenderness of lateral malleolus; but tenderness anterior, posterior or inferior to it i.e. over ligaments.
- Dorsiflexion and plantar flexion possible; but **inversion and eversion very painful**¹
- Positive anterior drawer test. If both sides positive its a laxity disease if only one side its ligamentous
- X-Rays: **NO fracture**. You have to rule it out.

IMPORTANT

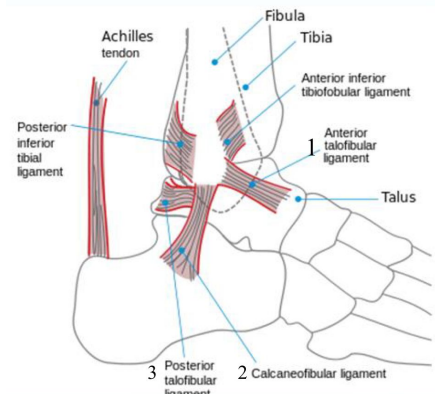
Lateral Collateral Ligament Complex

MRI is choice to determine which ligament is injured

Most commonly injured ligaments are :

1. **Anterior talofibular ligament (ATFL)** الرباط الكاحلي الشظوي الأمامي To test it do it with plantarflexion
2. **Calcaneofibular ligament (CFL)** الرباط العظمي الشظوي to test it do it with dorsiflexion
3. **Posterior talofibular ligament (PTFL)**.
4. "Anterior drawer test is +", Compare with normal side.

Most common cause of instability is Lateralization of the talus



Management²

RICE: Rest, Ice, Compression, Elevation

- Apply **Back-slab splints** for few days جبيرة جيس خلفية if not able to weight bear.
- Might use protection with **brace** رباط ضاغط.
- **Early physiotherapy** العلاج الطبيعي and strengthening. (complete tear or instability لو كان)
- Mostly heal without surgery (75% of cases)
- **Surgery:** if physiotherapy fails and there is clear instability or if there is complete tear
- PRICES: recent view = Protection³, relative Rest, Ice, Compression, Elevation and support
- After the Treatment, Do MRI to assess prognosis.
- In summary, We sometimes apply back-slab splint for few days (**10 days**), then start early physiotherapy immediately, but we try to minimize using this option due to complications of cast applying like stiffness and muscle weakness



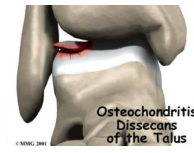
1- always compare, since it might be hyperlaxity

2- Always start with conservative, even if you are treating a professional athlete.

3- Splints are better than back slap casts because you can wear/remove splint anytime and splints allow dorsiflexion and plantar flexion movements



Osteochondral Defects of Talus¹ (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 and varying depth of underneath bone are involved and may separate of main talus inside the ankle joint.
- Usually² **postero-medial part** of dome of talus. Bcs commonest sprains happen in inversion, which leads the tibia to impact the talus.
- **Localized pain** on weight bearing and even at rest may be present. Joint line tenderness especially in plantar- flexion + on & off swelling with walking a lot. المريض يقول رجلي تنتفخ مع المشي وترجع طبيعية " العلامة المهمة

Imaging

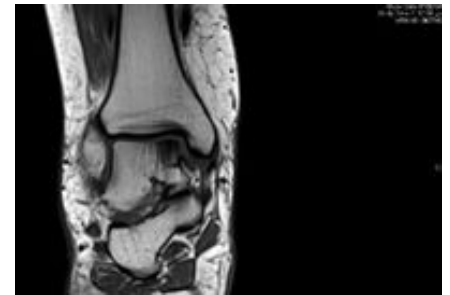
Plain AP X-ray:
lesion is suspected



CT (bony injury) Coronal view:
lesion highly suspected



MRI: lesion is confirmed



Bone is white highly sclerotic (marble-like) indicating loss of blood supply,
Very fragile and easily broken.

OCD you need to know

- > Most common area is **postero-medial part** of dome of talus
- > Best investigation to detect it is **MRI**

MRI with contrast the bone is white, and the lesion is black, due to loss of blood supply. **Modality of choice**

Management³

For size :

- 1- If less than 1 cm very good prognosis
- 2- Above 1 cm high risk of Arthritis, bad prognosis

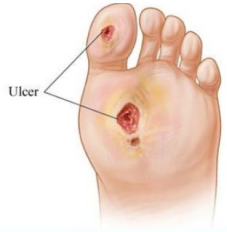
- **Depends on:**
 1. Symptoms: pain and recurrent swelling.
 2. Size of OCD: large and Loose
 3. Loose fragment (urgent surgery within few weeks "injury to cartilage *Calcaneum*")
- **Arthroscopic debridement⁴** تنضير المفصل of the lesion and drilling of its base. Better with minimally invasive + must be in certain site.
- **Fixation with headless screw** of large OCD with large bony part. For big pieces

1. Ankle injury resulting in loss of bone and cartilage in talus.
2. 50% of cases
3. doesn't heal by itself, since it's avascular
4. 90% of cases are managed by Arthroscopic debridement



Diabetic Foot

- **Neuropathy** (nerve damage): Long term diabetes or failure to control diabetes. Sign of poor control
- Numbness, tingling and reduced sensation of the feet.
- Associated **Decreased circulation** (neuropathy, calcification of vessels, CAD).
- May result in delayed healing, Infection, **Gangrene** and **Amputation**.
- How diabetes exactly causes neuropathy? By accumulation of sorbitol (sugar substitute)



in nerves, that's happening in UNCONTROLLED DM

Care of Feet in Diabetes

Primary target: **Prevention:**

1. **Blood sugar control.** Best indicator H1AC should be less than 7
2. Daily self-inspection of feet is mandatory.
3. Member of the family or assistant should do it.
4. Regular inspections by healthcare personnel should be arranged.
5. A visit to a doctor should take place immediately whenever any complication occurs
6. If there's ulcer, orthopedic surgeon, general surgeon, plastic surgeon and vascular surgeon are working as a team to treat it

Surgery in Diabetic Foot

You have to make sure the blood supply is good before do the surgery

- Skilled care of wounds and ulcers in diabetic foot is **required**.
- **Wound debridement** تنضير الجرح, antibiotics and repeated dressing should be done.
- **Amputations**¹ rare may become necessary when there is **Gangrene**.
- Toe amputation or ray amputation, forefoot amputation, below or above knee amputation.



Charcot Foot²

- **Significant nerve damage to the foot leads to:**
 1. The bones of the foot become weak.
 2. Joints inflamed, swollen as if infected and lax.
- Walking on the foot leads to disintegration and collapse of the joints and **deformity:** such as **Rocker-bottom deformity** قدم روجاء مقوسة.

Etiology³

- Any disorder which lead to **Neuropathy**.
- There is decreased sensation and decreased ability to feel temperature, pain or trauma
- no pain



After long standing diabetes

1- Our aim is to avoid amputation


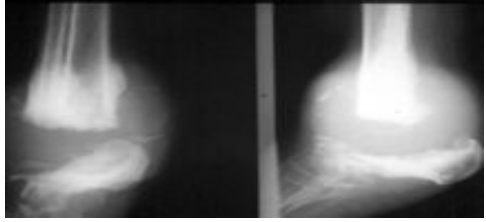
2-bone degeneration due to loss of blood supply, in diabetics تتفتت العظام مثل الطيشورة

3-Doctor said that it's a complex mechanism that we are NOT required to know, but in general it's neuropathy at first, then nerves send signals that they require more blood to regain function, so this will cause hyper perfusion of blood to the foot and will increase bone resorption as well, leading to new bone growth.

Charcot Foot Clinical Picture



- ❖ **Look:** Foot is red or dusky in color. There's swelling in the area and deformity. Often mistaken by osteomyelitis. To differentiate we do **elevation test** we raise the leg up for 20 minutes, If persistent redness and swelling it is infection if redness and swelling subside it is Charcot foot.
- ❖ **Feel:** NO Pain or soreness, warmth of foot.
- ❖ **Move:** decreased ROM.
- ❖ **X-ray** changes are important to detect and interpret;
 - **Early: NO changes.**
 - **Later:** haziness, osteopenia, irregular joint destruction, subluxation or even dislocation.
- ❖ **X-Rays: NO fracture.** You have to rule it out.

Diabetic Foot	Advanced Case of Charcot
	
Osteolysis of callus and talus ,There's amputation of big toe	Talus and calcaneus almost gone

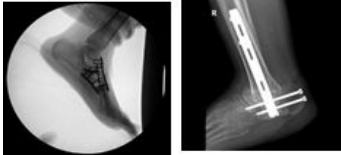
Diagnosis

Staging: development (little osteopenia), then destruction, then absorption then reconstruction.

- ❖ Good history¹ and clinical examination.
- ❖ Awareness.
- ❖ Exclusion of other causes which may give similar picture: like infection or tumor.
- ❖ MRI, bone scans can help.
- ❖ MRI/ CT to differentiate between Charcot and osteomyelitis

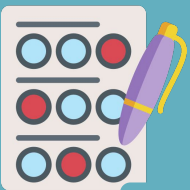
Management

In early stages avoid doing anything other than immobilization if you do the pt may end up with infection and osteomyelitis and amputation

Non-Surgical Management of Charcot Foot	Surgery in Charcot Foot Goal: 90 degree Foot	Amputation in Charcot foot
<ul style="list-style-type: none"> ● Immobilization ● Custom Shoes and Bracing we don't do cast because it might cause ulcers in a diabetic patient with neuropathy ● Activity modification 	<p>Usually we wait for 1.5 or 2 years (because the bone is already متفتت that why not benefit)until reach last stage(by bone scan) then we do reconstruction of ankle or foot depending on area</p>  <p>[we don't do surgery until blood sugar is controlled]</p>	<ul style="list-style-type: none"> ● May be indicated as a last option. ● Mainly when there is severe instability which cannot be controlled by surgery or orthosis تقويم العظام. ● Also when surgery fails to achieve stability. ● Presence of refractory infection increase the possibility of amputation.

439 SUMMARY

<p>Flat foot</p>	<p>-Reduction in longitudinal arches of the foot,Painless. -Injury of the posterior tibialis tendon causes acute flat foot. -Hind foot:increase valgus, midfoot:lack of arch, forefoot:abduction.</p> <p>-Management:always start conservative,foot exercises,orthotics and good shoes. -Surgery:Rigid foot, painful flat foot with complications or acute flat foot.</p>	<table border="1"> <tr> <td></td> <td>Flexible</td> <td>Rigid</td> </tr> <tr> <td>Alignment</td> <td>Extreme valgus</td> <td>Extreme valgus</td> </tr> <tr> <td>Standing on tiptoes</td> <td>Valgus to varus</td> <td>Not move</td> </tr> <tr> <td>Subtalar motion</td> <td>Normal</td> <td>Reduce or absent</td> </tr> <tr> <td>Etiology</td> <td>Ligament laxity</td> <td>Tarsal coalition</td> </tr> </table>		Flexible	Rigid	Alignment	Extreme valgus	Extreme valgus	Standing on tiptoes	Valgus to varus	Not move	Subtalar motion	Normal	Reduce or absent	Etiology	Ligament laxity	Tarsal coalition
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Subtalar motion	Normal	Reduce or absent															
Etiology	Ligament laxity	Tarsal coalition															
<p>Hallux valgus</p>	<p>-Lateral deviation of big toe,usually at the metatarsal joint, associated with bunion,severe if interferes with shoe wear. -Hallux valgus angle:between 1st metatarsal and proximal phalanx, normal <15 -1st intertarsal angle:between 1st metatarsal and 2nd metatarsal,normal <10 -Hallux interphalangeus: between proximal and distal phalanges,normal<8 -Management:suitable shoe wear,avoidance tight shoe wear and protection to the bunions. -Surgery is reserved for symptomatic and distributing cases</p>																
<p>Plantar fasciitis</p>	<p>-Localized tenderness to insertion of plantar fascia into calcaneum. -Xray shows calcaneal spur at plantar fascia insertion site. -stabbing heel pain when patient puts foot to the ground first step in the morning and gets less after some walking -Management:mainly conservative, stretching exercises,soft heel insoles, shock wave therapy and local steroid injection. -No surgery</p>																
<p>Ankle sprains</p>	<p>-History of twisting injury, pain swelling and bruising around ankle,dorsiflexion and plantar flexion possible, but inversion and eversion very painful. -Positive anterior drawer test. -Xray: rule out fracture -Most common injured ligaments are :anterior talofibular ligament and calcaneofibular ligament. -Lateralization of the talus is the most common cause of instability. -Management: Start with RICE apply back slab splint Might use brace for protection Early physiotherapy -Surgery:if physiotherapy fails and there is clear instability.</p>																
<p>Osteo-chondra Defect Of Talus</p>	<p>- damage at localized areas of talar articular cartilage,caused by lack of blood supply is often post traumatic,usually postero-medial part of dome of talus. -Localized pain on weight bearing and even at rest may be present. Joint line tenderness especially in plantar-flexion + on & off swelling with walking a lot. -Best investigation is MRI -Management depends on: symptoms, size and loose fragment Arthroscopic debridement fixation with headless screw</p>																
<p>Diabetic foot</p>	<p>caused by Neuropathy,by accumulation of the sorbitol Numbness, tingling and reduce sensation of the feet Prevention:Blood sugar control(H1AC < 7) Surgery:wound and ulcer in diabetic foot require surgery ,wound debridement</p>																
<p>Charcot foot</p>	<p>Significant nerve damage to foot leads to:weak bones,inflamed and swollen,caused by any disorder leads to neuropathy. To differentiate between infection and charcot we do elevation test. X Ray:early no changes,late:haziness, rule out fracture. Management: We start with non surgical: immobilization, custom shoes and bracing and activity modification, we wait for 1.5 or 2 years until reach last stage,then we do reconstruction of ankle (we don't do surgery until blood sugar is controlled), last choice is amputation.</p>																



Quiz

Q1: Which of the following movements is reduced in rigid pes planus?

A

Plantarflexion/Dorsiflexion

B

Inversion/Eversion

C

Internal/External rotation

D

All of the above

Q2: At which angle is Hallux Valgus considered moderate?

A

$\leq 15^\circ$

B

16-25°

C

26-35°

D

$\geq 36^\circ$

Q3: What's the modality of choice used to diagnose Osteochondral defects of the talus?

A

U/S

B

X-ray

C

CT-scan

D

MRI

Q4: Tightness in which of the following muscles is associated with Plantar Fasciitis?

A

Soleus

B

Gastrocnemius

C

Posterior tibialis

D

Flexor hallucis longus

SAQs

1:B 2:C 3:D 4:B

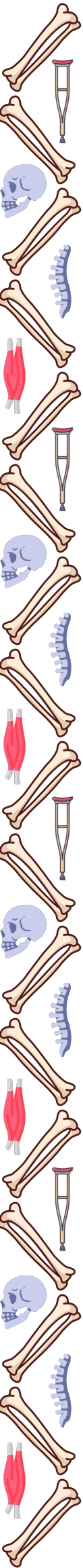
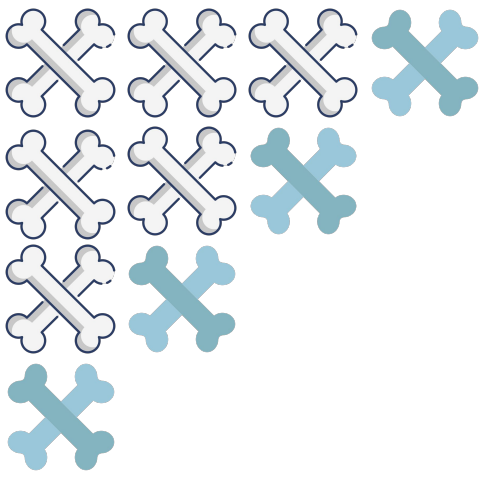
439 & 441 F1 & A:

1. Name Two tests used to differentiate between flexible and rigid flat foot?

Standing on tiptoe
Subtalar movement

2. What are the angles used to assess the severity of Hallux Va

Hallux Valgus angle
Intermetatarsal angle
Hallux Interphalangeal angle



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وَفَقِّمُوا لِلَّهِ



This work was originally done by team 438 & 439