HEEL PAIN

Differential diagnosis

1. Insertional Plantar fascitis
2. Enthesis
3. Heel pad atrophy
4. Tarsal tunnel syndrome
5. Calcaneal stress fracture
6. Haglund’s syndrome
7. Posterior ankle impingement syndrome
8. Posterior subtalar or ankle arthritis
9. Os Trigonum
10. Sever’s osteochondrosis
11. Insertional Achilles
   - Posterior tibial tendonitis
   - FHL tendonitis
   - Peroneal tendinopathy
12. Bursitis
I PLANTAR FASCITIS [POLICEMAN HEEL]

Aetiology

Unknown aetiology.
?
Degeneration: in the plantar fascia

Entrapment theory: the first branch of the lateral plantar nerve to the abductor digiti minimi has been proposed.

Relevant anatomy

Plantar fascia is attached to the antero-medial plantar aspect of the calcaneal tuberosity. It is inserted through several slips into the plantar plates of the MTPJ. This is the basis of the windlass mechanism of the plantar fascia as the toes are dorsiflexed, there is elevation of the longitudinal arch. [Hicks]

It is more common in individuals who spend the majority of their workday on their feet. It is also more common in people whose body-mass index is >30 kg/m²

Clinical

Most tender spot is the medial calcaneal tuberosity
Pain more first thing in the morning on barefoot weight bearing
No correlation between heel pain and calcaneal spurs [may be present in 50%]

Non-operative

Soft cushion and insole
Stretching of Achilles tendon is very effective
Physiotherapy: ultrasound may work
NSAID; Corticosteroid injections; Shock wave therapy not useful
Recalcitrant cases: Walking cast

Surgery

Reserved for patient who has failed conservative treatment for a period of one year.

Oblique incision is important to avoid transaction of the medial calcaneal nerve branches.

The medial and lateral borders of the proximal plantar fascia are then identified 1-2 cm distal to its origin from the calcaneus

The medial 2/3 of the plantar fascia is then cut sharply taking care not to violate the intimately underlying intrinsic musculature. Lateral one third of the plantar fascia is left intact to prevent soft tissue flatfoot deformity.
Complications

II HAGLUND’S DISEASE [Winter heel ; Pump bump]

Prominent posterior superior border that compressed the Achilles tendon and causing bursitis.

X ray

Pavlov’ line

Treatment

Non-operative
Physo, anti-inflammatory drugs, shoe changes.

Operation
A lateral incision 1cm anterior to Achilles tendon
Protect the sural nerve
Demonstrate posterosuperior corner of the calcaneus
Excision the bone taking care not to damage Achilles tendon
Open the tendon sheath and look for any tendinoses
In the presence of tendinoses, make multiple tendon incision
If any problem with the tendon stability: immobilize in a cast

Outcome
65- 89% improvement.

Disadvantages Skin problem
Sural nerve damage.
III INSERTIONAL TENDINITIS

May be associated with Haglund deformity

Diagnosis
No History or trauma; Insidious in onset

Pain on wearing shoes

Clinical
Tenderness just anterior to the insertion of the tendo calcaneus.

Treatment
Prolonged conservative treatment is necessary. Simple measures include a heel lift placed in the shoe, NSAID, comprehensive stretching exercises for the calf, ice applied to the region daily, and a protective silicone pad to allow the patient to wear closed-backed shoes.

Surgical
Make a longitudinal incision 1 cm lateral to the Achilles 4 cm proximal and 2 cm distal to superior tuberosity

Incise the paratenon in the area and plantar flex the ankle. Retract the tendon: expose the bursa and bone prominence. Remove the bursar and bony prominence with osteotome. Vertical incision on the tendon and excise any diseased segment

When MRI involvement: More than 50% of tendon, Excise tendon and transfer is required. FHL tendon is used.
Tarsal tunnel syndrome involves inflammation of the tibial nerve or any of its terminal branches (medial plantar, lateral plantar, calcaneal) and it may result from a space-occupying lesion: Ganglion, Venous plexus, Lipoma, Neurilemoma, Exostoses.

**Clinical**
It has a highly variable presentation.

Provocative tests such as percussion along the course of the nerve (Tinel's sign)

X ray, MRI, EMG

**Treatment**

NSAID
Steroid injection

MRI +ve: Surgical release

**Surgery**

A curved incision starting, 10 cm proximal to the tip of the medial malleolus.

Divide the flexor retinaculum (laciniate ligament).

Open the retinaculum from proximal to distal.

Trace the medial plantar nerve distally to where it enters into a fibrous tunnel.
V REITERS [LOVER’S HEEL]

Is a reactive process that is initiated by a genital or Gastro-intestinal infection.

**Classic presentation**

Urethritis
conjunctivitis
oligoarticular arthritis
Keratoderma blennorhagica, Hyperkeratosis of the Nail, Balanitis circinata

**Clinical**

Young man; abrupt onset; asymmetric swelling and pain in weight bearing joints
60% with chronic disease have sacroilitis
Recalcitrant pain in the heel: X rays may show enthesis or normal

**Investigations**

80% HLA-B27 positive
Urethral culture. Clamydia trachomatis is often clinically silent.

**Treatment**

Physio
NSAIDs
Rheumatology opinion
VI PLANTAR WART

Painful lesion in the skin on the weight bearing area

Papillomavirus

Shaving the lesion: punctate bleeding from the base

Treatment

Soft cushion or pads

Salicylic acid [keratolytic agent]

Surgical treatment: last resort
VII TARSAL COALITION

Clinical

Pain is usually medial side in case of talo-calcaneal coalition [TCC] and in the sinus tarsi with Calcaneo-navicular coalition [CNC]

Classical deformity is Valgus heel. In a large series: 22% had typical valgus deformity; 70% Neutral position; 10% varus deformity.

Limitation of subtalar and midtarsal movement with pain and spasm in the peronie is classical

There may be disuse atrophy of the calf.

Spasm of the Peroneal muscle may be apparent.

X ray

AP, Lateral, 45° medial oblique, Harris Beath view

X ray: May demonstrate coalition

- Ball socket ankle joint
- Beaking: Head and neck of talus
- Apparent narrowing of Talo-Calcaneal joint (Posterior)
- Elongation of the anterior calcaneal Process (TNC)
  [Ant eater nose sign]

CT  Coronal  CT with hips and knees in 20° flexion. Gold standard

Bone scan: used as screening when symptoms are equivocal

MRI  more sensitive than CT for fibrous or cartilagenous but it’s role is yet to be defined

Natural course  untreated cases: 50% of CNC and 20% of TCC are asymptomatic
Treatment

Non-operative: One third may respond

1. Shoe modification
2. Cast immobilizing 6 wks
3. Activity modification
4. NSAID’s

Operative treatment

Informed consent: May need arthrodesis later

1. 10-14 years Calaneo-navicular bar: Excise

    Talo-calcaneal bar

    Excise or Triple arthrodesis

2. Over 14 year

    Triple arthrodesis

Prognosis

25% recurrence

Persistence of symptoms

If degenerative joint, arthrodesis is indicated.