

club foot

By Ass. Prof.

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TALIPES EQUINOVARUS (IDIOPATHIC CLUB-FOOT)

- The term 'talipes' is derived from **talus (Latin = ankle bone)** and **pes (Latin = foot)**. Equinovarus is one of several different talipes deformities;



Club foot

- In the full-blown equinovarus deformity the heel is in equinus, the entire hindfoot in varus and the mid and forefoot adducted and supinated.
- The abnormality is relatively common,
- the incidence ranging from **1–2 per** thousand births;
- boys are affected **twice** as often as girls
- the condition is bilateral in **one-third** of cases.

Etiology

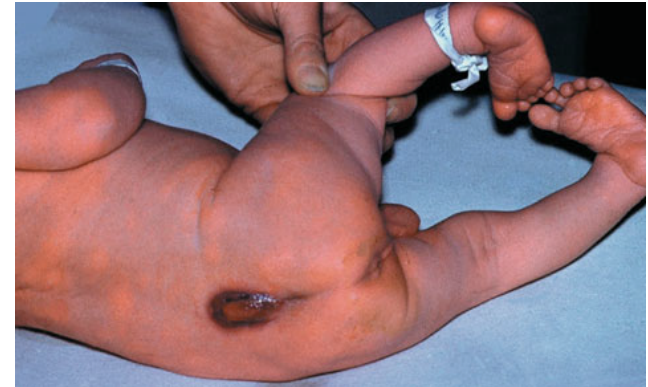
- The exact cause is **not known**, although the resemblance to other disorders suggests several possible mechanisms.
- It could be a **germ defect**, or a form of arrested development.
- It occurs in **neurological disorders** and neural tube defects (e.g. myelo - meningocele and spinal dysraphism) points to a neuromuscular disorder.
- Severe examples of club-foot are seen in association with arthrogryposis, tibial deficiency and constriction rings.
- In some cases it is no more than a **postural deformity** caused by tight packing in an overcrowded uterus.

Clinical features

- The deformity is usually **obvious at birth**; the foot is both turned and twisted inwards so that the sole faces posteromedially. **More precisely, the ankle is in equinus, the heel is inverted and the forefoot is adducted and supinated; sometimes the foot also has a high medial arch (cavus), and the talus may protrude on the dorsolateral surface of the foot.**
- The heel is usually **small and high**, and **deep creases** appear posteriorly and medially; some of these creases are incomplete constriction bands. In some cases the **calf is abnormally thin**.
- **Diagnosis.** New-born infants should be



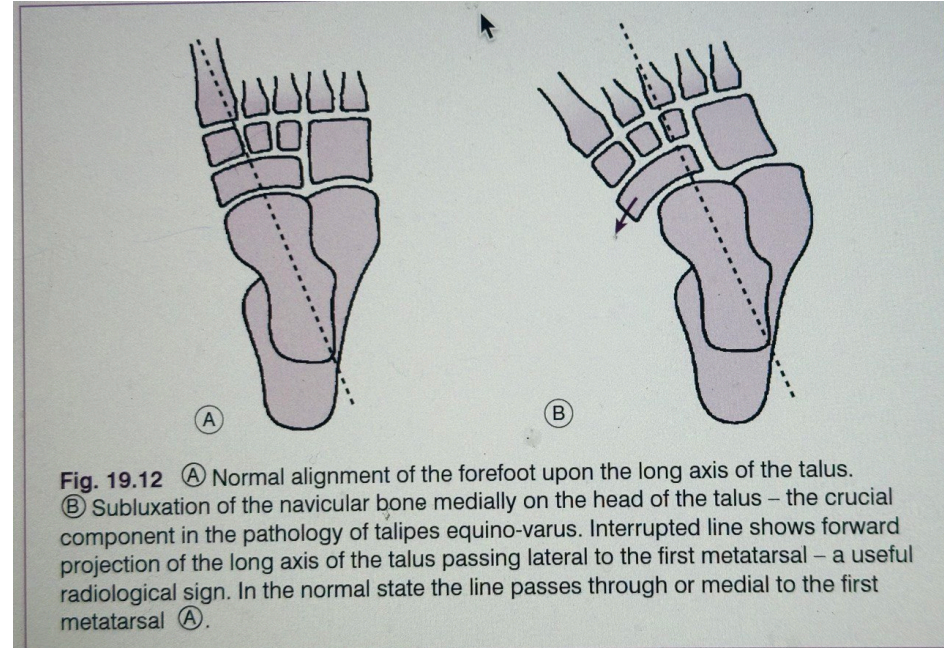
- The infant must always be examined for associated disorders such as **congenital hip dislocation and spina bifida**.
- The absence of creases suggests **arthrogryposis**; look to see if other joints are affected.



**Spina
bifida**

X-ray

In the antero-posterior radiograph of a normal foot a line projecting the long axis of the talus forwards passes medial to the first metatarsal bone or coincides with it. In uncorrected or incompletely corrected club foot the line passes lateral to the metatarsal.



Treatment

- Treatment should begin early, preferably within a few days of birth. This consists of repeated **manipulation** by application of plaster of Paris casts which will maintain the correction (**PONSETI METHODS**).
- **Plaster of Paris** casting requires serial changes and manipulations in a clinic setting.
- Sometimes **percutaneous tenotomy** of the Achilles tendon is needed to complete the correction.
- After correction has been achieved a strict regime of splintage in de-rotation boots is followed until the child is 3 years old.



Percutaneous tenotomy



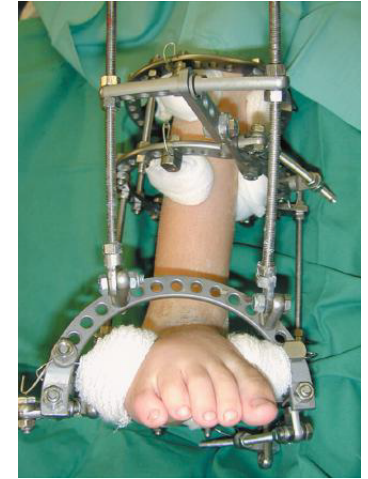
Post pop splint



Operative treatment

Resistant cases will need surgery. The objectives are:

- (a) the complete release of joint tethers (capsular and ligamentous contractures and fibrotic bands); and
- (b) lengthening of tendons so that the foot can be positioned normally without undue tension.
- After operative correction the foot is immobilized in its corrected position in a plaster cast. Kirschner wires (K-wires) are sometimes inserted to augment the hold. The wires and cast are removed at 6–8 weeks, after which a customized orthosis (**AFO SPLINT**) is used to maintain the correction.
- In exceptional circumstances, a more radical approach is needed: the **Ilizarov type of external fixation** with tensioned wires permits gradual repositioning of the foot and ankle .
- Late presenters often have severe deformities with secondary bony changes, and the relapsed club-foot is further complicated by scarring from previous surgery. A deformed, stiff and painful foot in an adolescent is best salvaged by corrective osteotomies and fusions (triple arthrodesis).



Hallux Valgus

- Hallux valgus is the commonest of the foot deformities (and probably of all musculoskeletal deformities).
- The elements of the deformity are lateral deviation and rotation of the hallux (big toe), together with a prominence of the medial side of the head of the first metatarsal (a bunion);



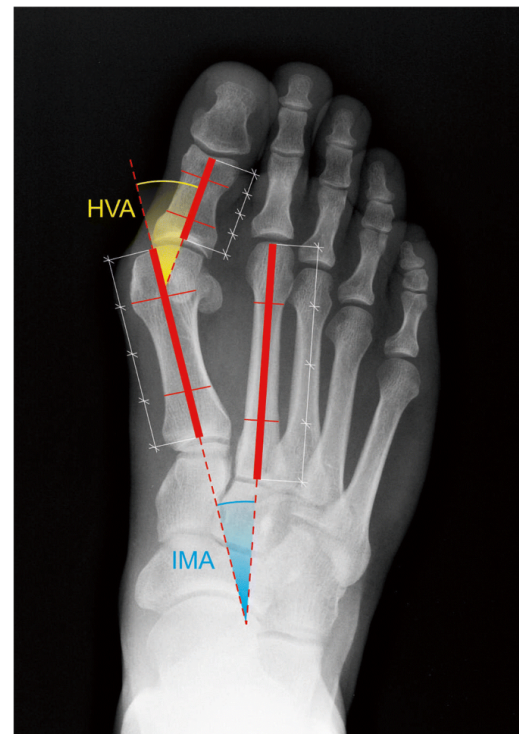
Clinical features

- Hallux valgus is most common in women between 50 and 70 years, and is usually bilateral.
- Often there are no symptoms apart from the deformity.
- Pain, if present, may be due to:
 - (1) shoe pressure on a large or an inflamed bunion;
 - (2) splaying of the forefoot and muscle strain (metatarsalgia);
 - (3) associated deformities of the lesser toes; or
 - (4) secondary osteoarthritis of the first metatarsophalangeal joint.



X-rays

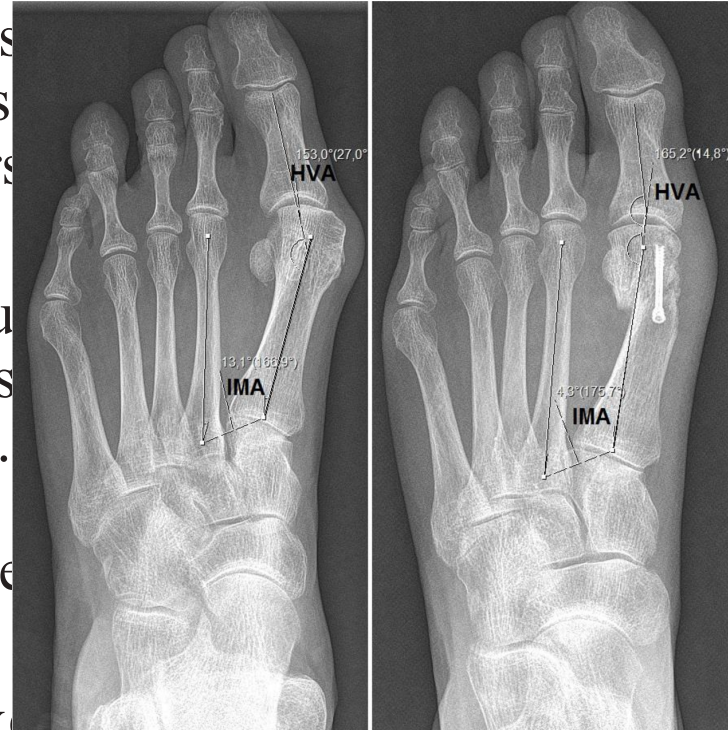
- Standing views will show the degree of metatarsal adduction and hallux angulation.
- Normally the first intermetatarsal angle (IMA) is less than **9 degrees** and the hallux valgus angle(HVA) at the MTP joint less than **15 degrees**.
- Any greater degree of angulation should be regarded as abnormal.



Treatment

Adolescents and young adults

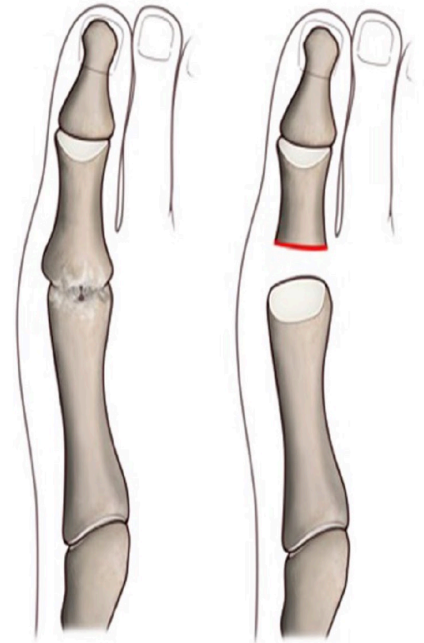
- If the deformity is mild (less than 25 degrees MTP joint), it can be corrected by either a soft tissue rebalancing operation or by a metatarsal osteotomy
- In moderate and severe deformities the hallux valgus angle may be greater than 30 degrees, intermetatarsal angle wider than 15 degrees. If the MTP joint is congruent, a distal osteotomy combined with a corrective osteotomy of the proximal phalanx is recommended.
- For greater deformities, if the joint is subluxed, a soft tissue adjustment is needed as well as a



Adults

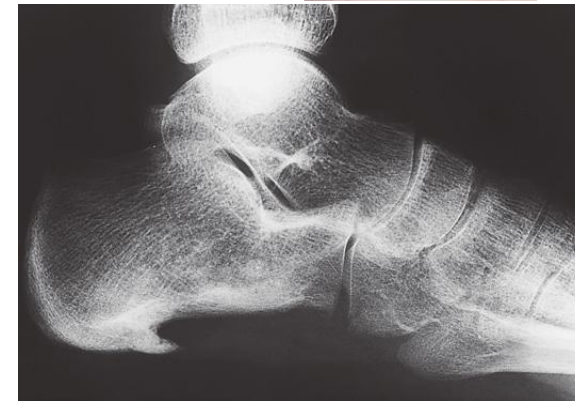
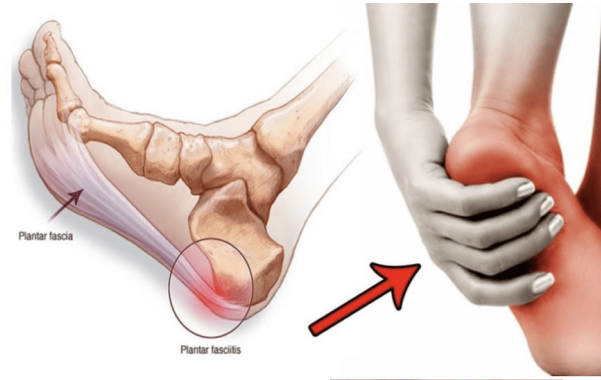
- Surgical treatment is more readily offered to older patients by of **excision of the bunion**, **metatarsal osteotomy** and soft-tissue rebalancing.

However, if the metatarsophalangeal joint is frankly osteoarthritic, **arthrodesis** of the joint may be a better option Or **Keller's operation** (excision of the proximal proximal third of the proximal phalanx, as well as the bunion prominence) for Hallux valgus in aged patients with limited mobility is best treated by shoe modifications and or .



Plantar fasciitis

- Pain under the ball of the heel, or slightly forwards of this, is a fairly common complaint in people (mainly men) aged 30–60 years.
- It is worse on weightbearing and there is marked tenderness along the distal edge of the heel contact area.
- A lateral x-ray of this site often shows a bone ‘spur’ extending distally on the undersurface of the calcaneum; this is an associated not a causative – feature.
- Plantar fasciitis is sometimes encountered in patients with **inflammatory disorders** such as gout, ankylosing spondylitis and Reiter’s disease.



Treatment

- Treatment is conservative:
 - 1-anti-inflammatory drugs
 - 2-local injection of corticosteroids,
 - 3-pad under the heel to off-load the painful area
 - 4-stretching exercises.
- The condition can take 18–36 months or longer to resolve but it is generally self-limiting.



TAKE HOME MESSAGE

