TIBIALIS POSTERIOR DYSFUNCTION SYNDROME [TPDS]

Anatomy

Tibialis posterior originates from tibia, fibula and from the interosseous membrane. There is no mesotenon. This tendon at the level of medial malleolus is hypovascular. This leads to tendinoses.

In a normal gait, the contraction of the tibialis posterior causes subtalar inversion and locks the midfoot and helps in forward propulsion of the foot.

.**Predisposing factors**

Obesity in females
Local steroid
Hypertension or diabetes
Acute trauma is not a cause
In over55, tendinoses is the main cause for rupture

Pathogenesis

Basic problem is weak tibialis posterior with overacting Peroneus Brevis. There is no inversion at heel strike and the transverse tarsal remained unlocked.

There is shift of Achilles force lateral. Because of loss of inversion, there is drop in longitudinal arch. This stretches the Spring ligament and the deltoid ligaments. At later stages, the talus begins to tilt in the ankle joint causing osteoarthritis of the ankle joint.

Johnson staging

Stage I Tenosynovitis
No deformity
Single leg heal rise normal

Stage II Flexible Valgus [Passively correctible]
Attenuation of spring ligament
Single heel rise is not possible
Tibialis Posterior weak
Positive too many toes sign

Stage III Fixed Valgus deformity
Osteoarthritis of subtalar joint
Single limb heal rise is not possible
Lateral pain

Stage IV Like stage III + arthritis of the ankle
Stretching of Deltoid ligament
Valgus of the ankle [talus]

Assessment

Define deformity: Valgus hindfoot; flatfoot; too many toe sign
Check whether valgus is fixed or not
Check ankle movements
Test for Tibialis posterior [check under clinical examination]
Look for achilles contracture
Test FDL
Single leg stance
Hold the hindfoot in neutral: look at the forefoot for supination deformity

Radiological assessment

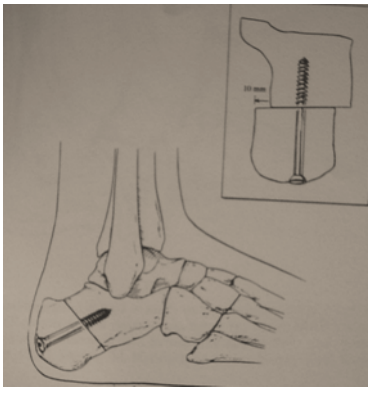
Define flatfoot
Look for osteoarthritis changes in the subtalar and ankle joint
Look for any evidence of rheumatoid or fracture calcaneum
Charcot's arthropathy

Treatment

I. NSAID
2. Custom moulded orthotic insole or AFO
UCBL [Univiversity of California at Berkeley lab] rigid material to stabilise the hindfoot in a neutral position
3. Early stages: Tenosynovectomy
4. Stage II
FDL transfer to navicular bone with a Calcaneal osteotomy
+/- Distraction Calcaneo-cuboid arthrodesis [lateral column lengthening]
+/- Achilles lengthening

5. When arthritis of the subtalar joint: Triple arthrodesis or subtalar arthrodesis

6. Late stages with ankle arthritis: Tibio-talo-calcaneal arthrodesis

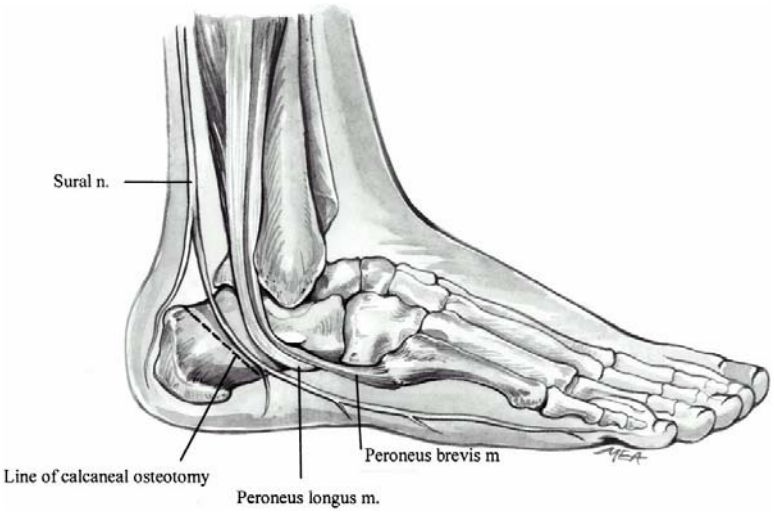


CALCANEAL OSTEOTOMY

Principle: Medial displacement Osteotomy alters the mechanical axis and redirects the pull of Achilles [Myerson]

Indication Advanced I or II

Incision
Posterior and parallel to peronie tendons over the calcaneum.
Protect the Sural Nerve in the anterior flap
Subperiosteal dissection
Osteotomy of the calcaneus at 90º to the lateral surface and 45º to the sole
Shift the distal part of the calcaneum medially by 1 cm
Fix with a 7.3 cannulated screw



CALCANEO-CUBOID ARTHRODESIS

Lengthening of lateral column using a tricortical graft in the Calcanio-cuboid joint

TENDON TRANSFER

Indicated Stage II

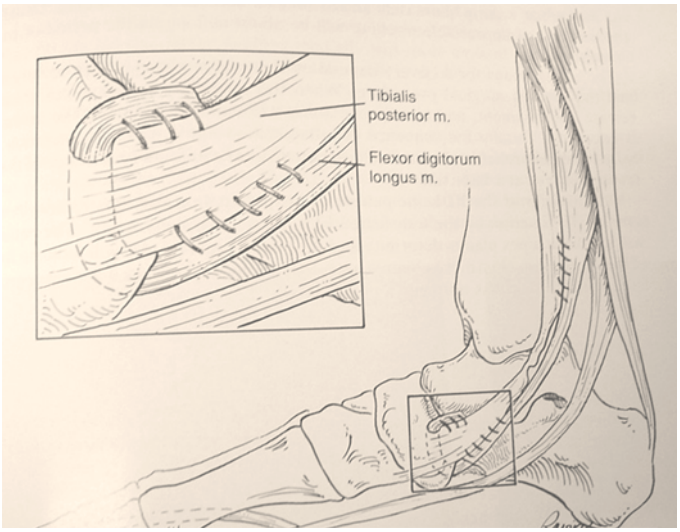
Stage I or II [Flexible]

FDL is better than FHL

Reroute through under surface of navicular bone

There is no need to stitch distal stump of FDL to

FHL as there are many slips connecting these two



LATERAL COLUMN LENGTHENING (Evans)

The calcaneus is osteomized at 4 mm proximal to the calcaneo-cuboid joint.

The osteotomy is opened with the use of a lamina spreader.

A wedge shaped bicortical iliac crest bone graft is placed in the osteotomy site laterally.