

TALIPES EQUINOVRUS [IDIOPATHIC CLUB- FOOT]

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WHAT'S IN THE NAME

- TELIPES — derived from talus {Latin=ankle bone} and pen {Latin=foot}
- Equinovarus is one of several different talipes deformities: others are talipes calcaneus and talipes valgus

- The heel is in equinus , the entire hindfoot is in varus and the mid foot and forefoot adducted and supinated .
- Incidence : One to two per thousand births .
- Boys are affected twice as often as girls .
- Condition is bilateral in 1/3 of cases .

- Exact cause is unknown .
- Possible mechanisms would be germ defect , or a form of arrested development .
- Possible neuromuscular disorder seen in association with arthrogryposis , tibial deficiency and constriction rings .

Pathological Anatomy

- Neck of the talus points downwards and deviates medially .
- Body is rotated slightly outwards in relation to calcaneum and the ankle mortise .
- Posterior part of calcaneum is held close to the fibula by a tight calcaneo - fibular ligament .
- Calcaneum is tilted into equinus and varus and rotated medially beneath the ankle .

- The navicular and entire forefoot are shifted medially and rotated into supination .
- The skin and soft tissues of the calf and the medial side of foot are short and under-developed .
- If left uncorrected , secondary growth changes occur in the bone are permanent .

Clinical Features

- Deformity is usually obvious at birth .
- Foot is turned and twisted inwards .
- Sole faces posteriorly medially .
- Ankle is in equinus .
- Heel is inverted .
- Forefoot is adducted and supinated .

- Sometimes associated with cavus .
- Heel is usually small and high .
- Deep creases posteriorly and medially .
- Some of these creases are incomplete constriction bands .
- Calf is abnormally thin .

- In a normal baby , the foot can be dorsy flexed and everted until the toes touch the front of leg .
- In CTEV this manoeuvre meets with varying degrees of resistance .
- Associated disorders must be looked for like CDH , Spina Bifida , Artrogryposis .

X-rays (AP view)

- AP film is taken with the foot 30 degrees plantar flexed and the tube likewise angled 30 degrees perpendicular .
- Lines can be drawn through the long axis of the talus parallel to its medial border and through that of the calcaneum parallel to its lateral border .
- The angle (Kite's Angle) is 20-40 degrees .
- In CTEV the two lines may be almost parallel .

X - rays (Lateral view)

- It is taken with the foot in forced dorsiflexion .
- Lines drawn through the mid - longitudinal axis of the talus and the lower border of the calcaneum should meet at an angle of about 40 degrees .
- Anything less than 20 degree shows that the calcaneum cannot be tilted up into true Dorsiflexion .

Treatment

- AIM : To produce and maintain a plantigrade , supple foot that will function well .
- Types of treatment : 1. Conservative 2. Operative

Conservative Treatment

- Historically various methods were used to correct the deformity .
- Currently Ponseti technique is almost universally accepted method of conservative treatment .

Ponseti Technique

- It is divided into two phases : 1. The Treatment Phase during which time the deformity is corrected 2. Maintenance Phase during which time a brace is utilised to prevent recurrence .
- First phase starts as soon as skin condition permits the use of plaster cast .

- First cast aims to align the forefoot with the mid foot and the hind foot .
- Stabalising the talus by placing the thumb over the lateral part of its head .
- Elevating the first ray to achieve supination of the forefoot in respect to the mid foot and hind foot .
- Putting a well padded plaster cast by holding this position and moulding It well .
- The caves is thus corrected typically after 1 cast .

- One week later the 1st cast is removed and if cavus has been corrected then a short manipulation next toe to groin cast is applied .
- By stabilising the talus as in 1st cast .
- Holding the supinated foot in abduction while applying the cast .
- Weakly plasters are applied till we get 70 degree of abduction in supination .

- In some patients equinus deformity at ankle persists which is corrected by percutaneous surgical release of tendon and application of final cast with foot in 70 degrees of abduction and 10 - 15 degrees of dorsiflexion . This cast is retained for 3 weeks .
- Foot is evaluated for deformity using Pirani score .

Maintenance Phase in Ponseti's method

- After the final cast children are given orthosis to maintain correction .
- It is applied for 23 hours per day for the first 3 months and then at night time for only 2 - 4 years .
- Once the child starts walking custom made clubfoot shoes are used .

Operative Treatment

- Objectives are :
 - 1. Complete release of ‘ joint tethers ‘ viz capsular and ligamentous contractures and fibrotic bands .
 - 2. Lengthening of tendons so that the foot can be positioned normally without undue tension .

- Turco's method of extensive posterio medial release is used or
- Cincinnati method : a posterior curved traverse incision extended inertially on both medial and lateral sides .
- Carroll method : postero lateral incision combined with a separate curved medial incision .

- Z plasty of tendo Achilles and other tendons is carried out .
- Capsular release is done .
- A complete sub talar release is performed .
- Superficial delitide ligament is freed but deep part is preserved to prevent ankle instability .
- The foot is held in correction by k-wires and casts which are changed subsequently .
- After casts are removed foot is kept In Orthrosis .

Late or Relapsed clubfoot

- They have severe deformities , secondary bony changes and scarring .
- Treatment involves soft tissue. Release and bony procedures (Dilwyn - Evans operation), tendons transfers .
- Gradual correction by means of Ilizarov circular external fixator .
- A deformed , stiff and painful foot in an adolescent is best salvaged by corrective osteotomies and fusions .

THANKS