PEDIATRIC FOOT

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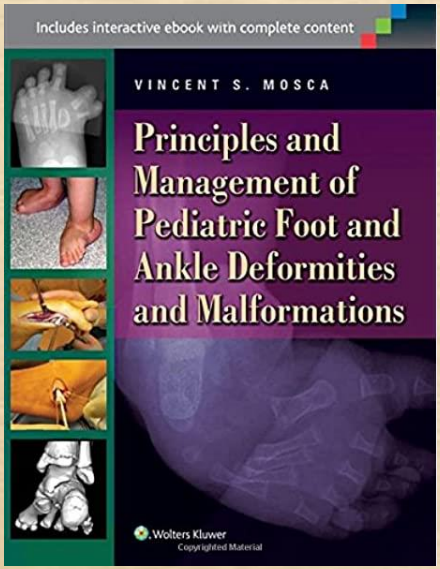
PEDIATRIC FOOT

Data & Photos in this seminar

1. Our Pedi. Ortho. Clinic pt
2. Mosca textbook provided below



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Rule 1: Age –related anatomic variations

Rule 2: In all congenital and developmental deformities and most malformations of the child's foot, there are at least two segmental deformities that are often in rotationally opposite directions from each other

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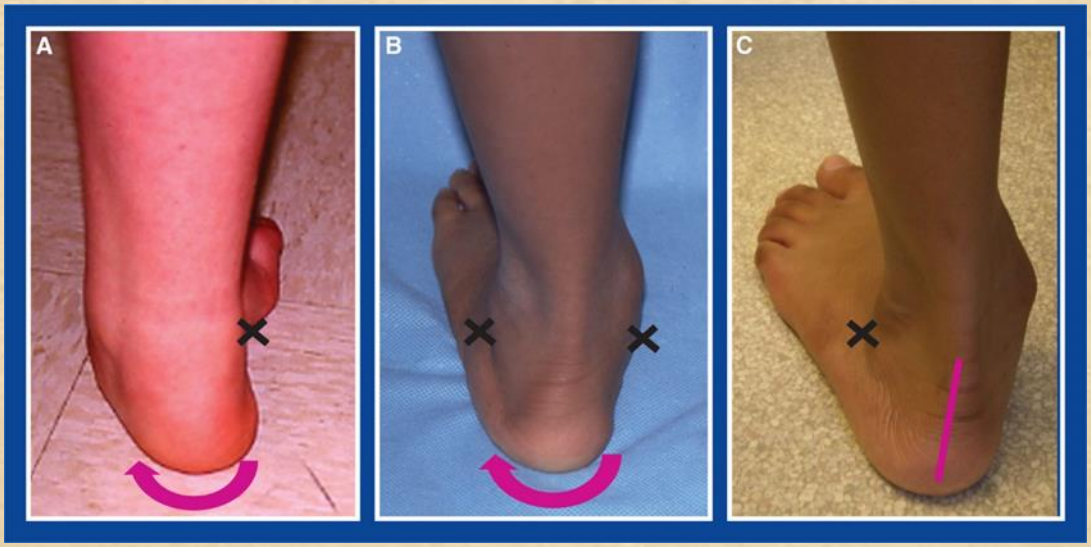
Rule 3: The default position of the subtalar joint is valgus/everted



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Rule 3:

The clinical importance

Whereas medial soft tissue release is an important first step in correcting **cavovarus** deformity, lateral soft tissue release does nothing to correct **flatfoot** deformity

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Rule 4:

I. Cavus deformity means hollow or excavated foot .

II. It is manifested by plantar flexion of the forefoot on the hindfoot.

III. The plantar flexion may be along the medial column of the foot or across the entire midfoot.

IV. The subtalar joint may be in varus, neutral, or valgus. The ankle joint may be in plantar flexion (equinus), neutral, or dorsiflexion (calcaneus).

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Rule 4:

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Rule 5:

The foot deformity may be the primary problem or the result of the primary problem, So differentiation is important

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Rule 6:

The clinical foot assessment must be in weight-bearing, not just in supine or sitting positions

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Rule 7:

All radiological assessment of foot deformities should be in weight-bearing, or simulated Wt-bearing positions

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Rule 8:

Examine the whole child, and do not focus only on the foot.

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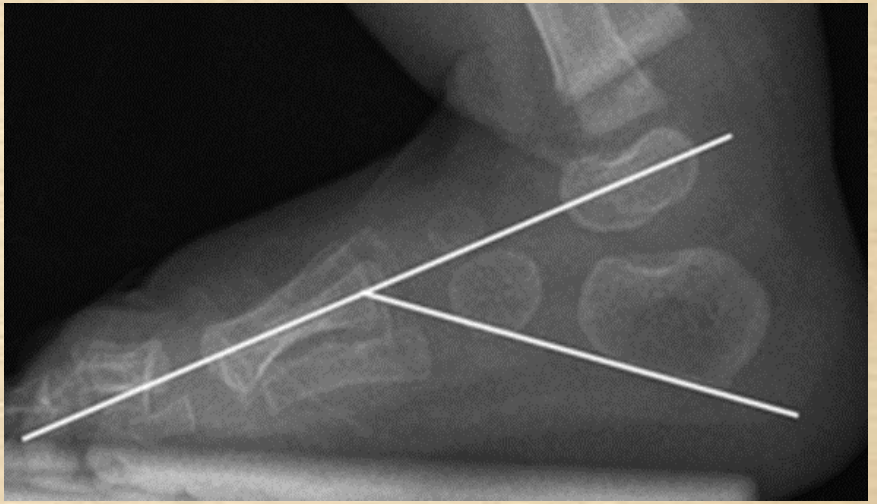

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Calcaneovalgus:

Positional

Hyper-dorsiflexion

and valgus deformity

of the hindfoot

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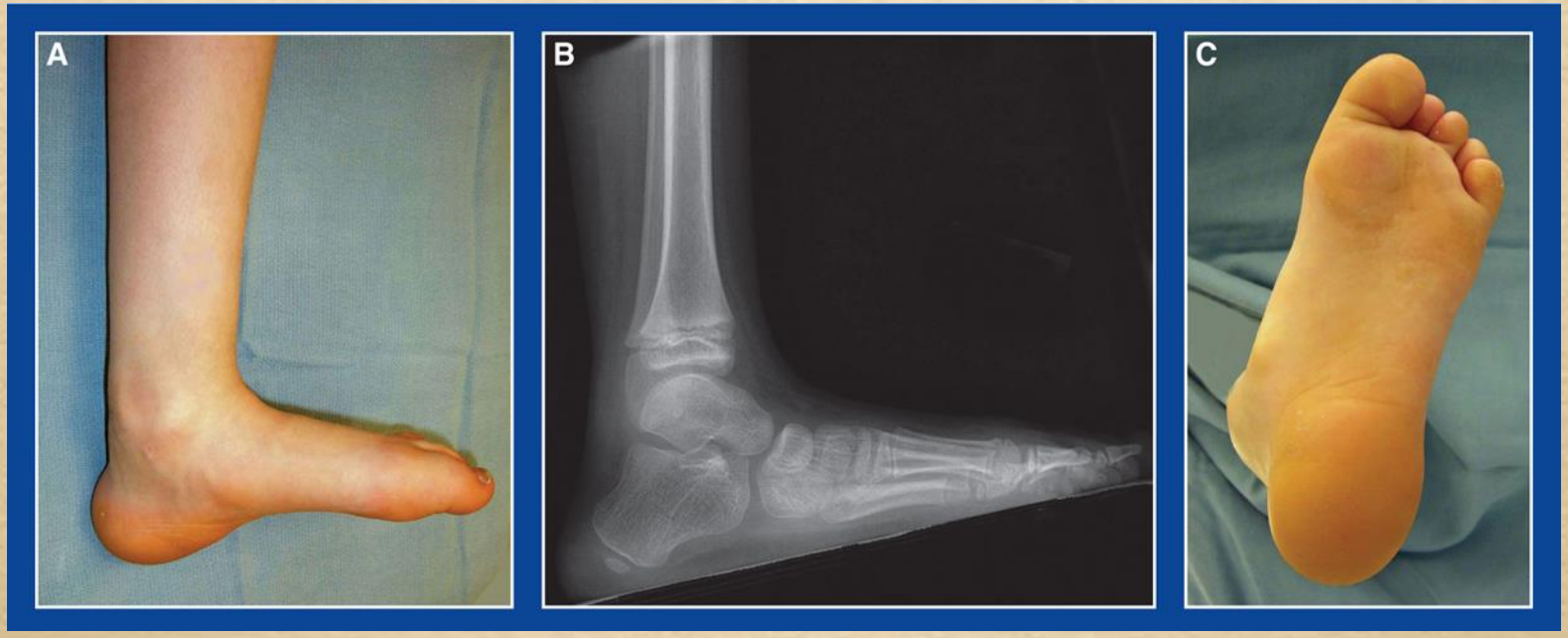
Acquired Calcaneus deformity:

Hyper-dorsiflexion

Deformity of the ankle

(Weak Triceps Surae so Strong Tib. Ant.)



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Cavus deformity:

Progressive pronation deformity of the forefoot on the hindfoot that creates cavus deformity of the medial midfoot

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Cavus deformity:

Progressive pronation deformity of the forefoot on the hindfoot that creates cavus deformity of the medial midfoot

Manifestation of a neuromuscular disorder

Natural hx.:
Progressive increase in the severity and rigidity of the deformities with pain. Gait instability and skin pressure injuries

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Cavovarus Foot in CP :

Progressive varus def. of the hindfoot with

2ndry pronation of the forefoot on the hindfoot that creates cavus deformity of the midfoot

Contracture of GC or Triceps is always a persistent feature

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Cavovarus Foot in CP :

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Nonoperative treatment

1. **Physical therapy—stretching**
2. **Bracing—AFO**
3. **Injection of botulinum toxin (BOTOX) into the most spastic muscles**
4. **Serial below-the-knee (short-leg) stretching casts**
5. **Tone-reducing medications, such as baclofen**

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Operative treatment

1. **Tendon transfer**
2. **Tendon lengthening**
3. **Muscle recession**
4. **Bone osteotomy**
5. **Ilizarov correction**

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Clubfoot (Talipes Equinovarus):

Mostly idiopathic cavus, adductus, varus, and equinus deformities that are not passively correctable

Natural history

Persistence of deformity with pain, functional disability, and inability to wear normal shoes

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Clubfoot (Talipes Equinovarus):

Treatment: Ponseti method of serial stretching and casting

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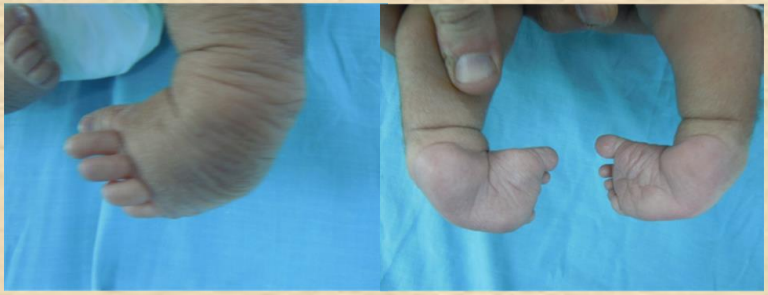

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Clubfoot (Talipes Equinovarus):

Ponseti method is still valid for late presenting & recurred cases of CTEV

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Congenital Vertical Talus

Congenital **dorsolateral dislocation** of the navicular on the talus with severe eversion of the subtalar joint and rigid plantar flexion of the talus, creating a rocker-bottom appearance of the foot. The talus is vertically aligned with the tibia

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Congenital Vertical Talus

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Flatfoot

Flexible Flatfoot

Congenital physiologically normal foot shape with valgus alignment of the hindfoot, supination of the forefoot, a low or depressed longitudinal arch, and no contracture of either the gastrocnemius or the entire triceps surae

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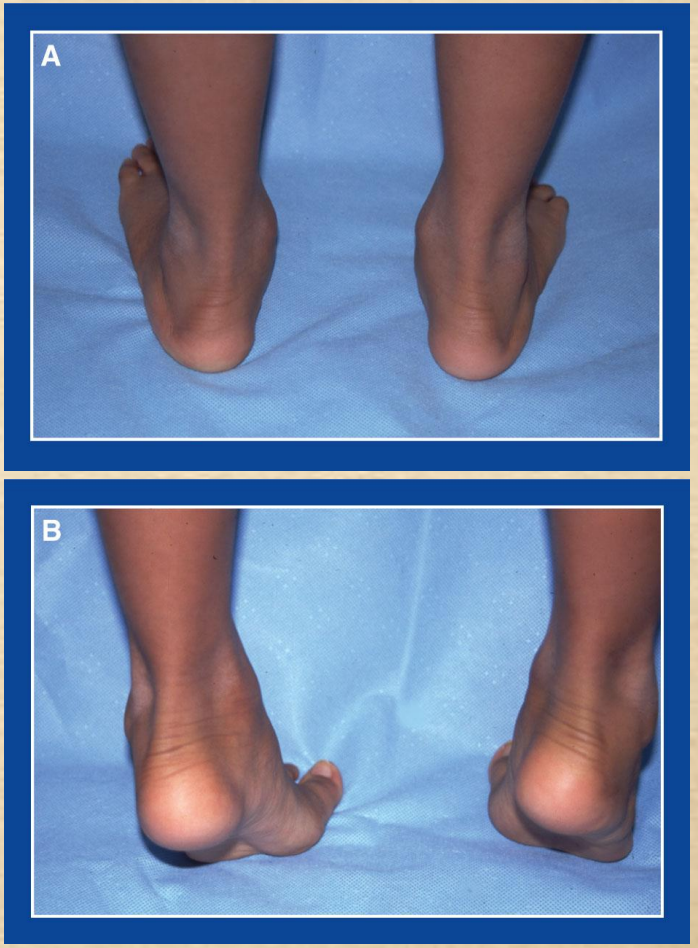
Flatfoot

Flexible Flatfoot

The arch elevates
and the hindfoot valgus
changes to varus
with toe-standing and
with the Jack toe-raise test
The ankle dorsiflexes
at least 10° above neutral
with the subtalar joint inverted
to neutral (locked) and
the knee extended.



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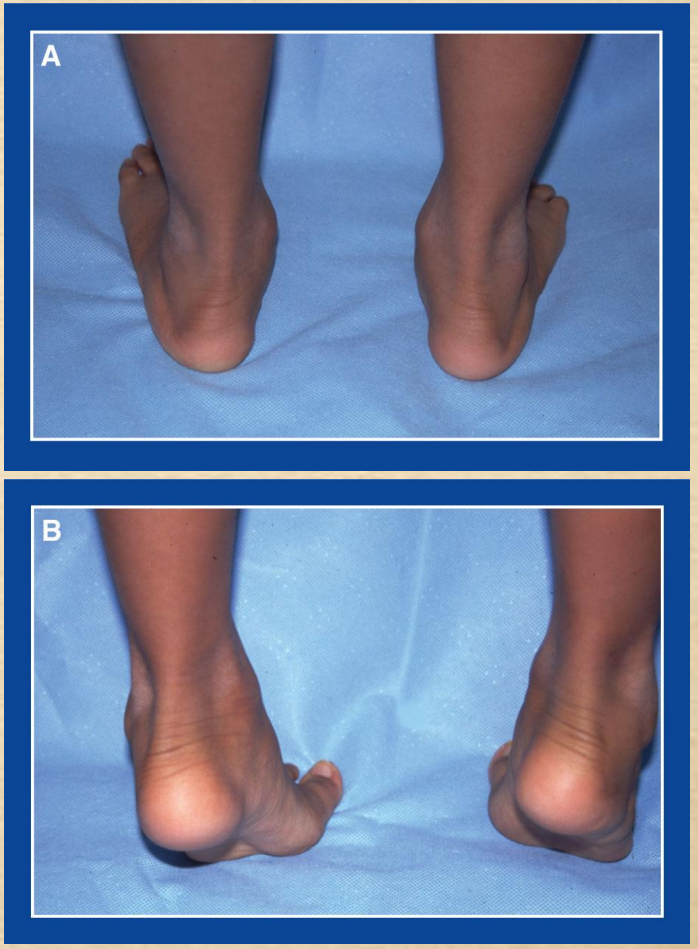
Flexible Flatfoot

Natural history

Gradual elevation of the longitudinal arch in most children through normal growth and development from birth until early adolescence
For those flatfeet that remain flat, comfort and function are equal to that of feet with average height longitudinal arches



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Flatfoot

Flexible Flatfoot with Short (Tight) Achilles or Gastrocnemius Tendon

The arch elevates and the hindfoot valgus changes to varus with toe-standing and with the Jack toe-raise test The tendo-Achilles or gastrocnemius tendon is contracted, thereby limiting ankle dorsiflexion—accurately tested with the subtalar joint in neutral alignment and the knee extended

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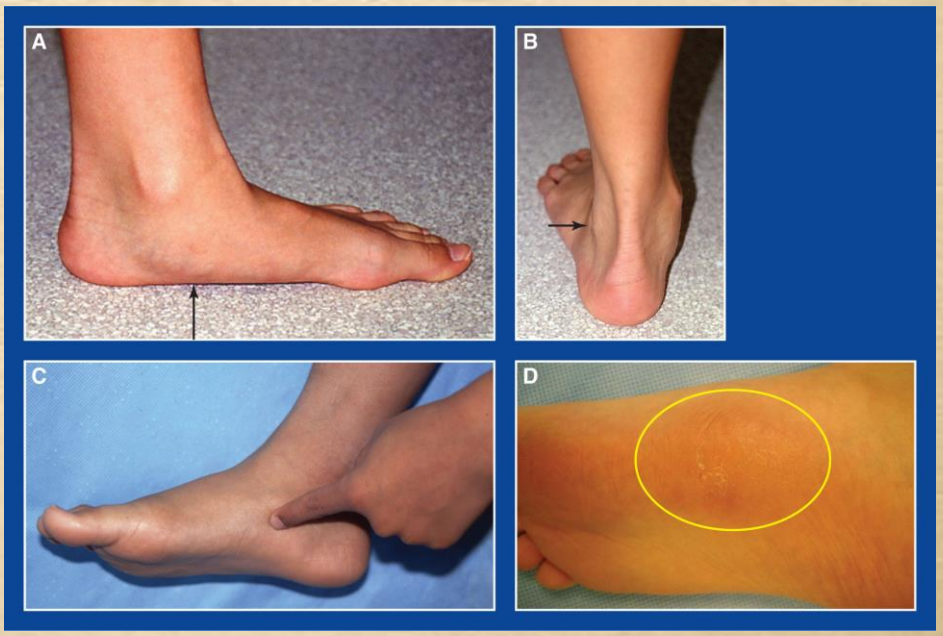
Flatfoot

Flexible Flatfoot with Short (Tight) Achilles or Gastrocnemius Tendon

Natural history

Pain under the head of the talus and/or impingement-type pain in the sinus tarsi area in many/most cases occurring with, or exacerbated by, weight-bearing



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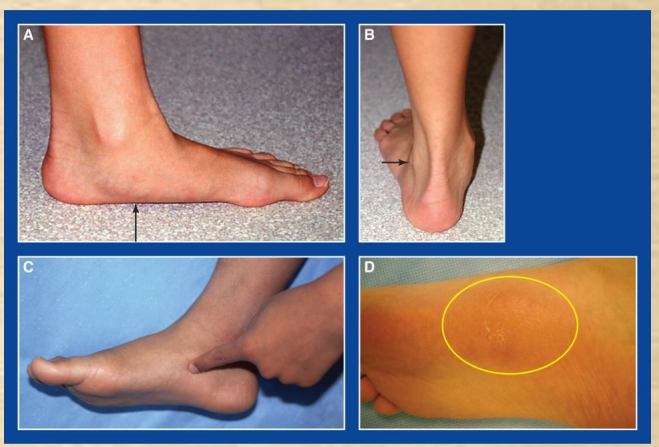

Nonoperative treatment

1. Heel cord stretching exercises performed with the subtalar joint inverted to neutral and the knee extended
2. Soft, cushioned FLAT orthotics/shoe inserts

Operative indications/treatment

Failure of prolonged nonoperative treatment to relieve the pain under the head of the talus and/or in the sinus tarsi area

Calcaneal lengthening osteotomy

Gastrocnemius recession

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Flatfoot

Rigid Flatfoot
Tarsal Coalition

Autosomal dominant failure of mesenchymal differentiation and segmentation that leads to a progressive, postnatal synchondrosis-to-synostosis of the middle facet of the subtalar joint

with the gradual development of a rigid flatfoot usually between the ages of 8 and 16 years

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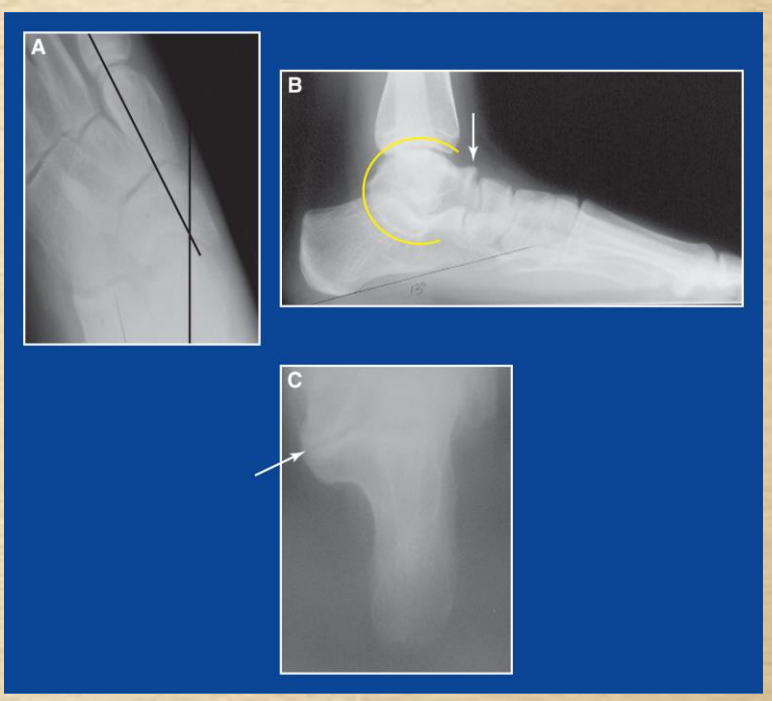

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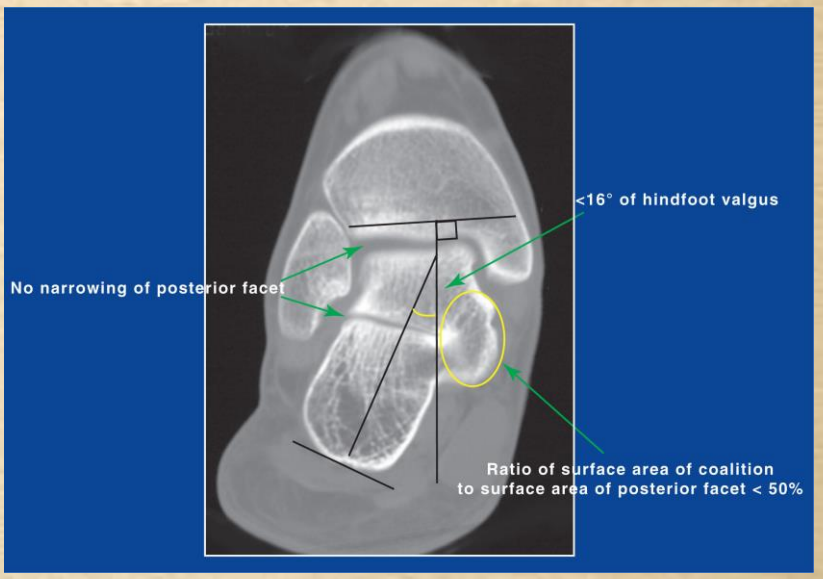

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Flatfoot

Rigid Flatfoot

Tarsal Coalition (Talocalcaneal)

Natural history

Pain, in less than 25% of cases, which is located at one or more of the following locations:

1. the site of the coalition
2. under the head of the talus
3. in the sinus tarsi area
4. in or around the ankle joint

Nonoperative treatment

Asymptomatic coalitions (75% of cases)—None indicated

For activity-related pain
Activity modification,
Drugs (NSAIDs)
Immobilization in a cast for at least 6 weeks

Operative indications

Failure of nonoperative treatment
to relieve pain
Failure of nonoperative treatment to prevent recurrent ankle sprains

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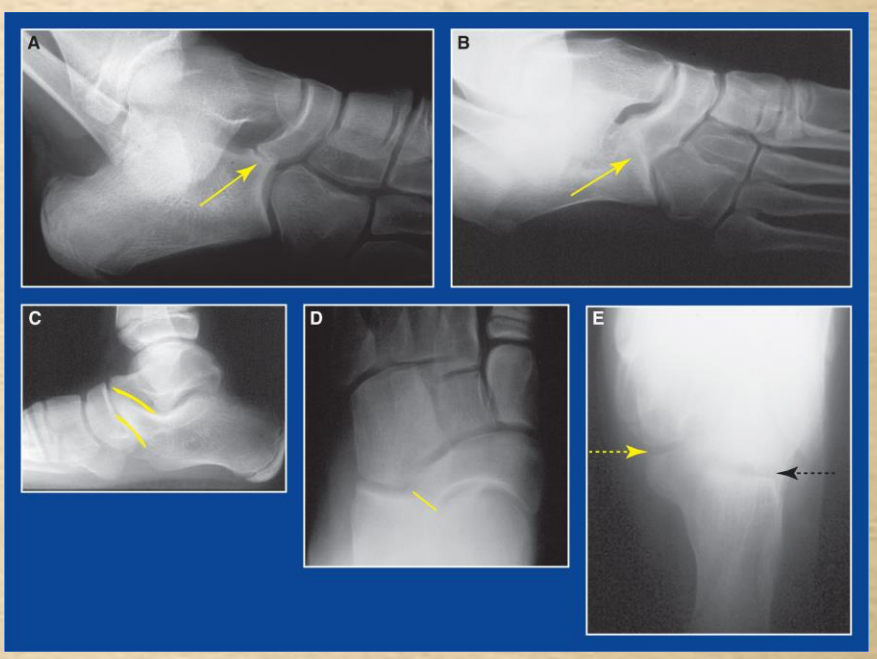

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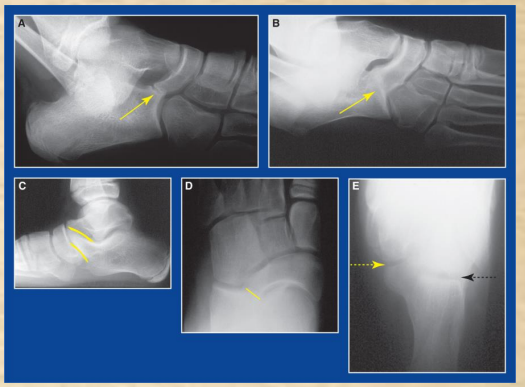

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