Leg and foot deformities in children

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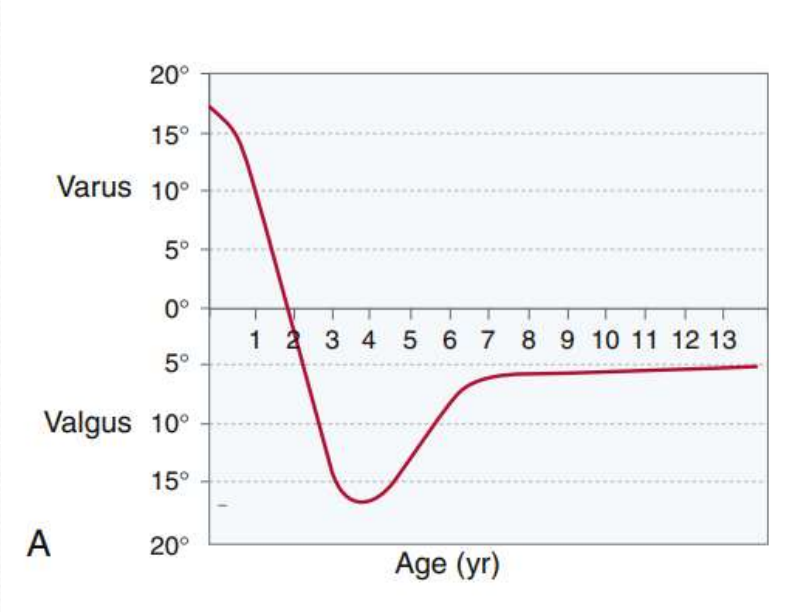
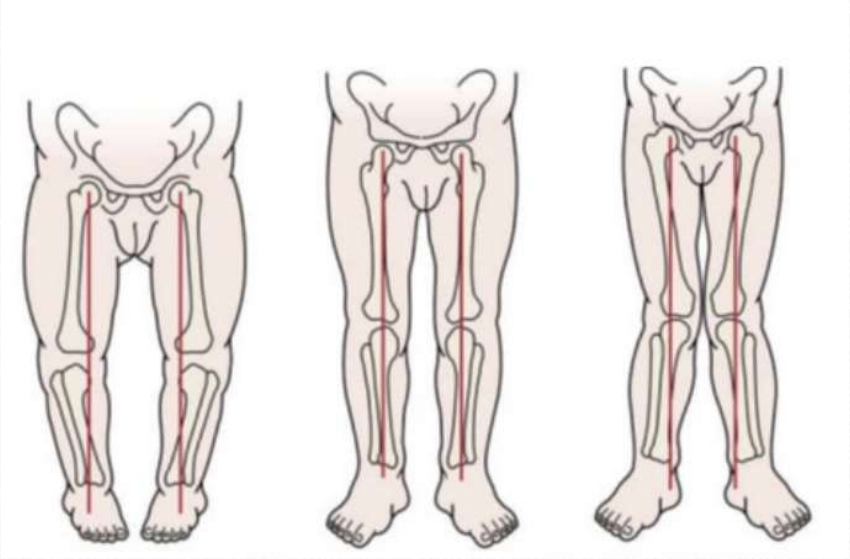
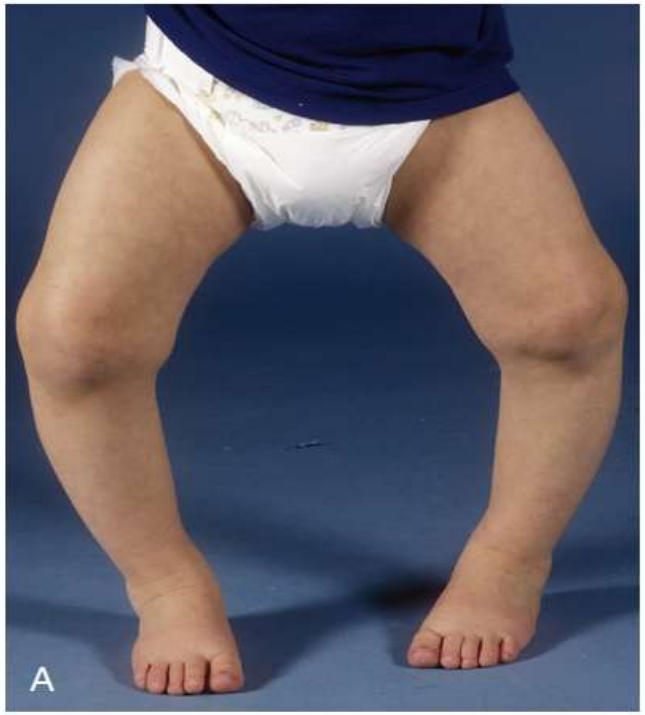
Normal Development





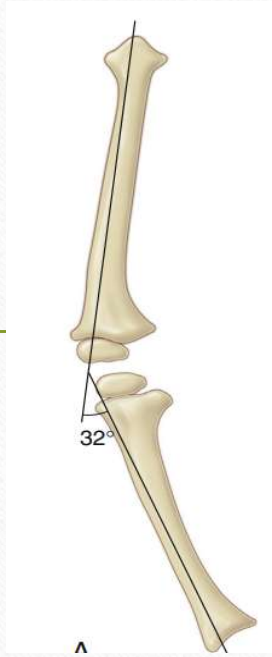
Genuvarum



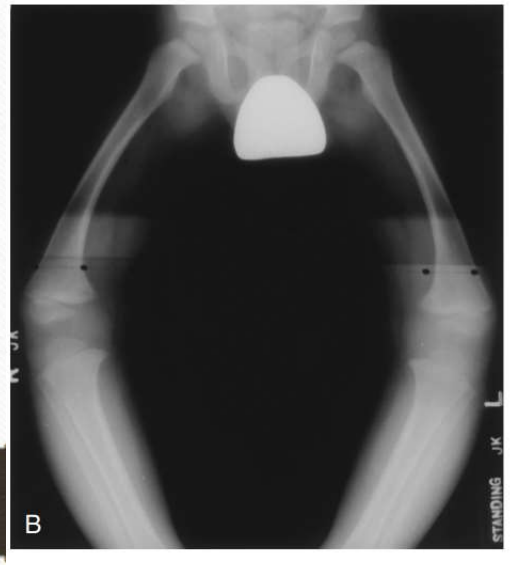
Differential diagnosis

- -physiologic genuvarum
- Infantile tibia vara(Blount disease)
- Skeletal dysplasia
- Renal osteodystrophy
- Rickets
- Infection
- FFCD

Physiologic genuvarum



- Physiologic genu varum :
- tibiofemoral angle of at least ١٠ degrees of varus
- a radiographically normal physis
- and apex lateral bowing of the proximal end of the tibia and often the distal end of the femur
- Concomittent tibia internal torsion exacerbate it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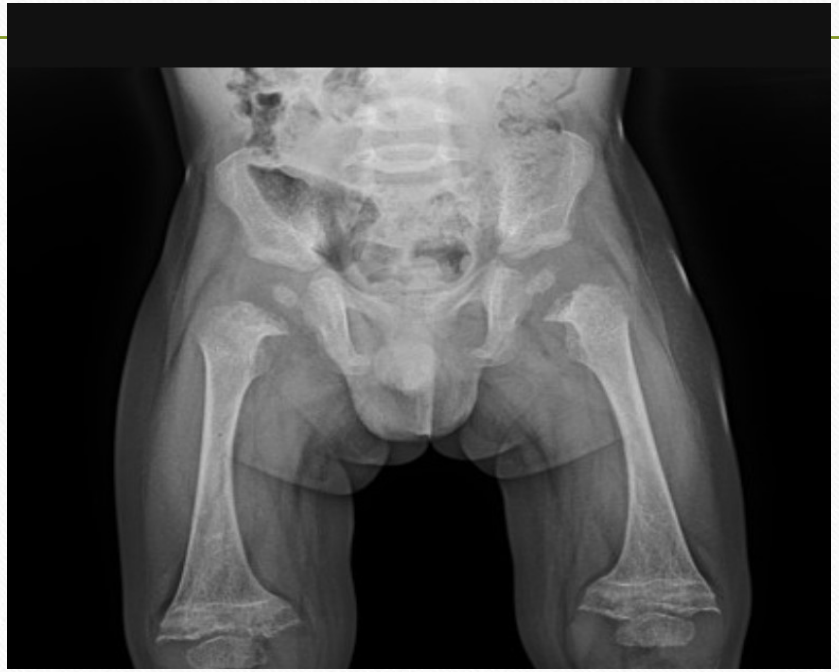

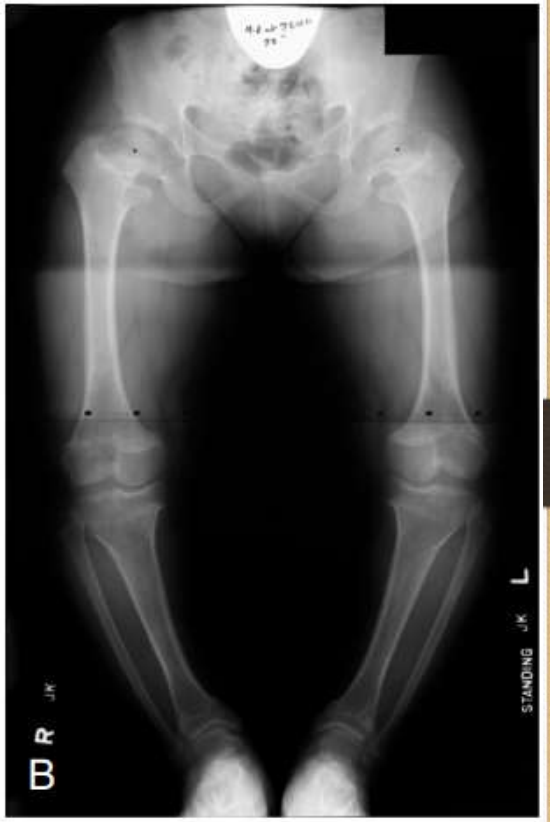
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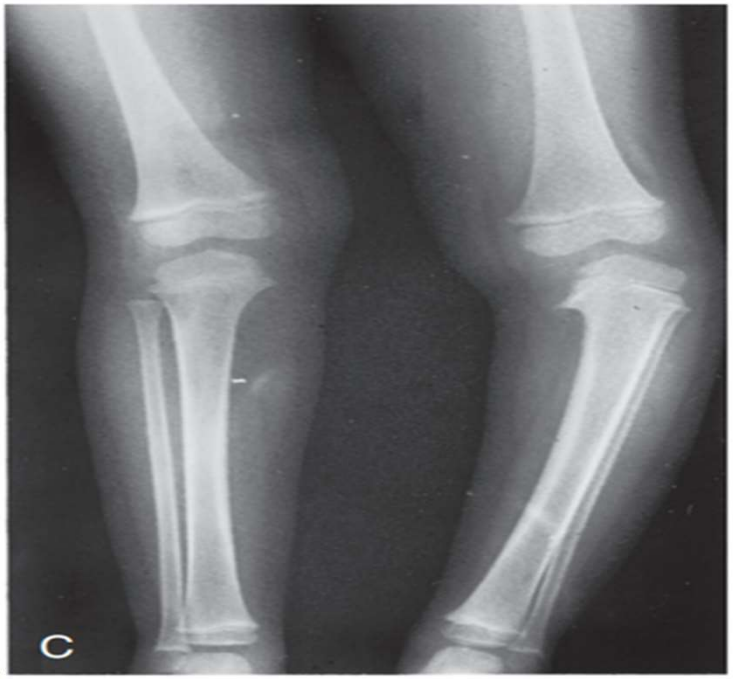
Radiography indication:

- if the Varus deformity persists or progresses beyond ۲۴ months .
- asymmetrical Varus changes.

Tibia Vara

- infantile tibia vara (blount disease):if present in patients younger than ۳ years
- adolescent tibia vara: more than ۸ years of age between ۳ and ۱۰ years of age, a third category has been defined as juvenile in onset.



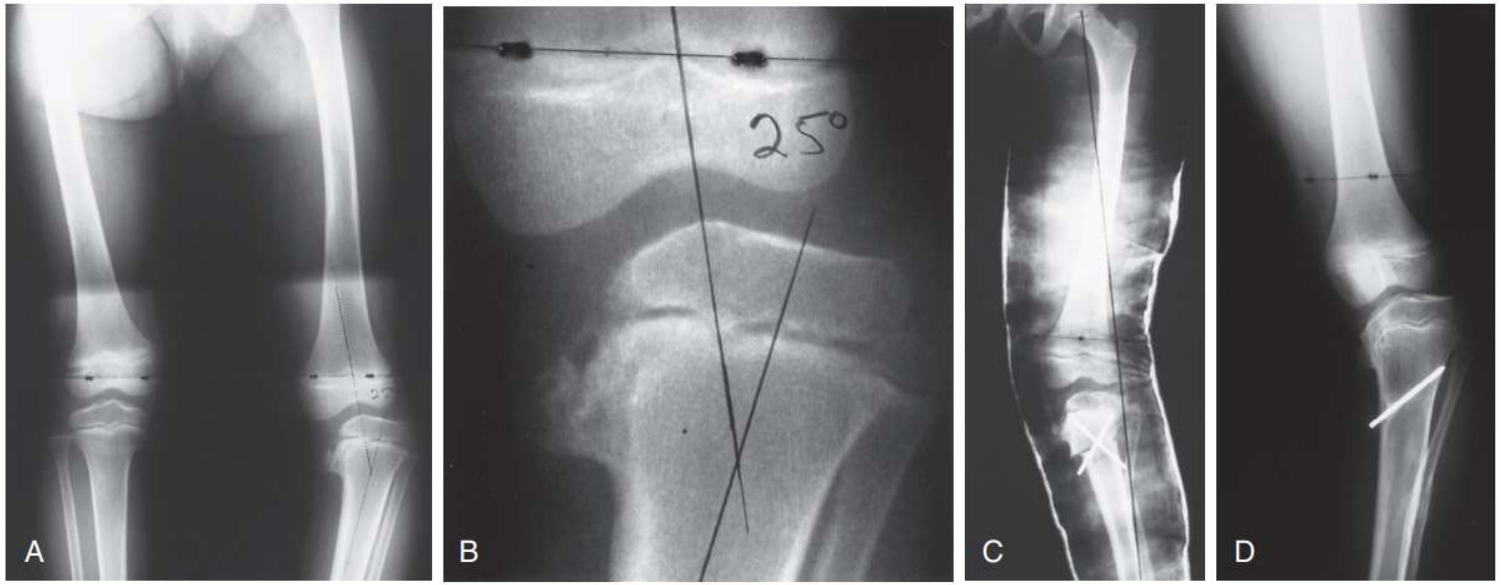
Clinical feature

- patients with true infantile tibia vara are often obese and present with a **lateral thrust in gait**
- **Treatment:** once the diagnosis of infantile tibia vara is certain, treatment should quickly commence,
- Observation of a known infantile tibia vara is an inappropriate

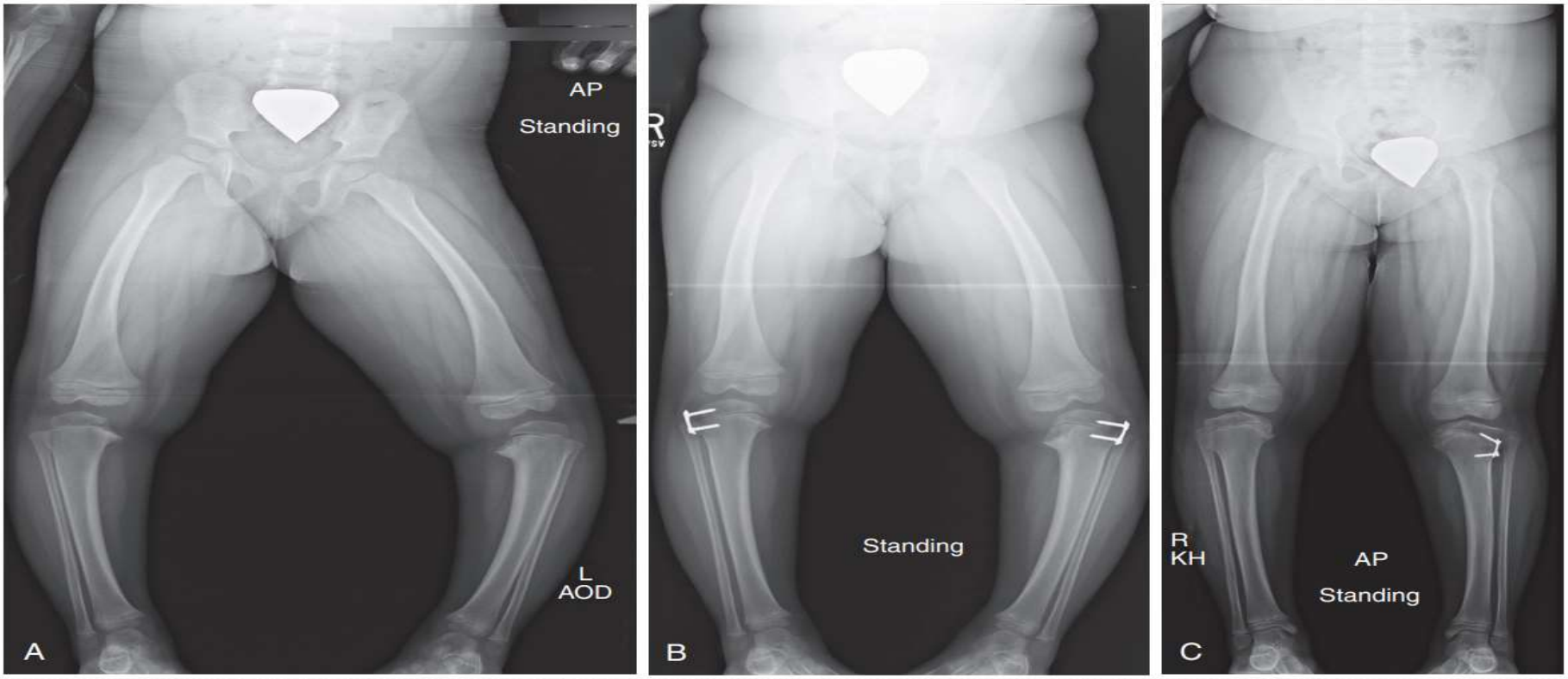
- # Orthoses.
- Literature suggests that for children younger than ٣ years
- ٥٠% success rate
- A maximum trial of ١ year to correct the varus deformity
- if not achieved within ١٢ months, a definitive osteotomy before ٤ years

FIG. 18.22 Elastic Blount braces. Note the medial upright with a drop-lock knee hinge that can be locked to increase the effectiveness of valgus pressure during weight bearing.

Osteotomy:



- -Growth modulation

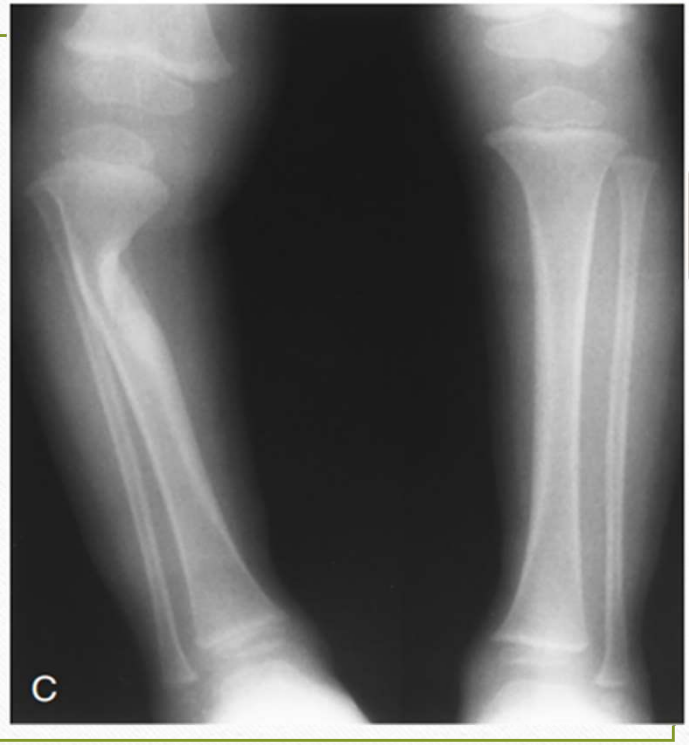


Tibia Vara Secondary to Focal Fibrocartilaginous Dysplasia

- abrupt varus at the metaphyseal-diaphyseal junction of the tibia, clearly not involving the physis.

TREATMENT: may resolve spontaneously.

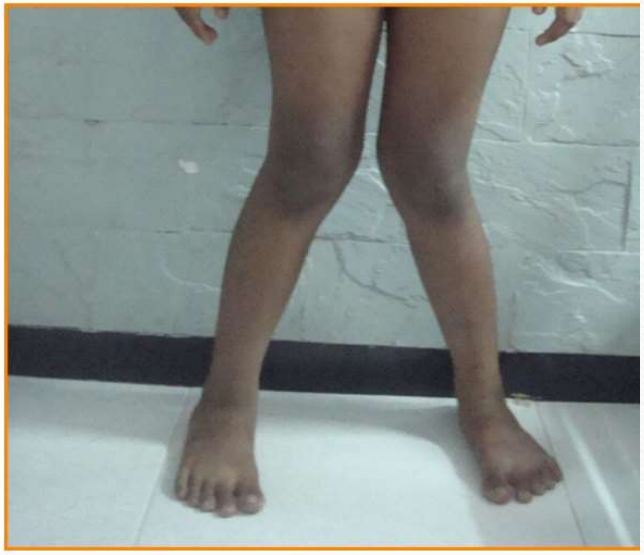
Surgical treatment may be necessary if the deformity progresses or fails to resolve



Genuvalgum

- Valgus alignment of the lower extremities is normal in a child between ۲ and ۸ years old

- Radiography indication: short stature; a history of trauma, infection, or metabolic bone disease; asymmetry



Idiopathic Genu Valgum

After ۸ years old, correction of excessive physiologic genu valgum may be indicated when

۱-gait disturbance ,difficulty running

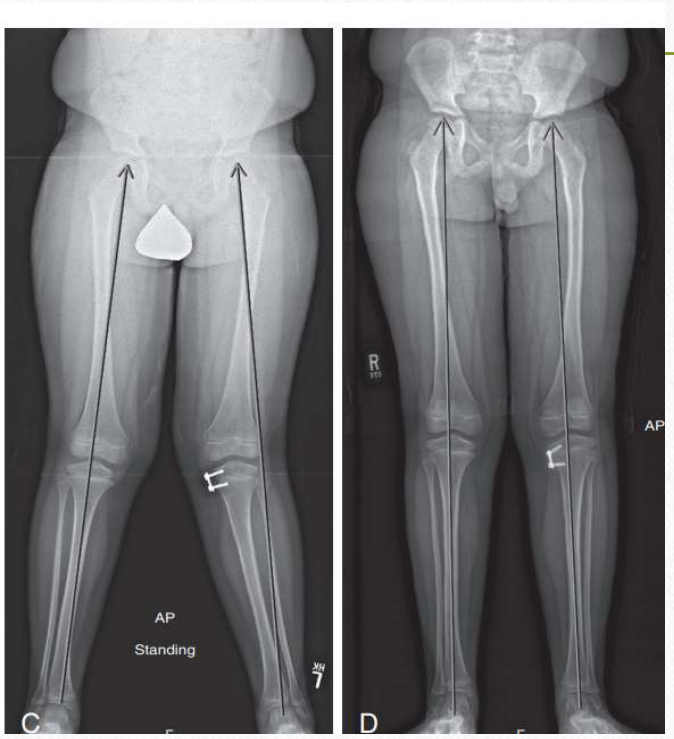
۲-knee discomfort and patellar malalignment,

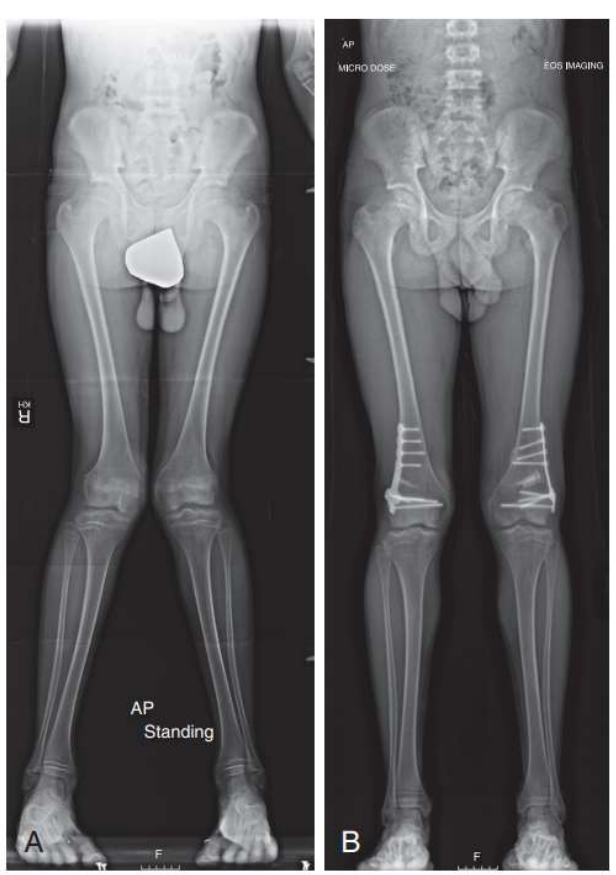
۳-evidence of ligamentous instability

۴- cosmetic concern

Treatment option:

- Growth modulation
- Osteotomy



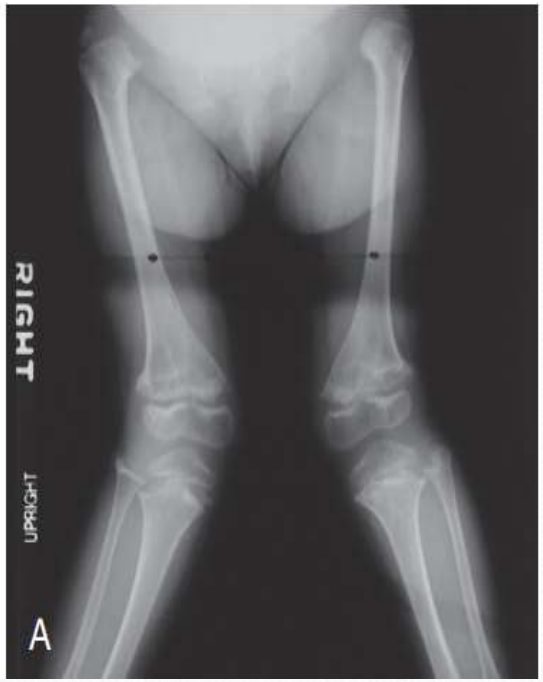


Rickets:

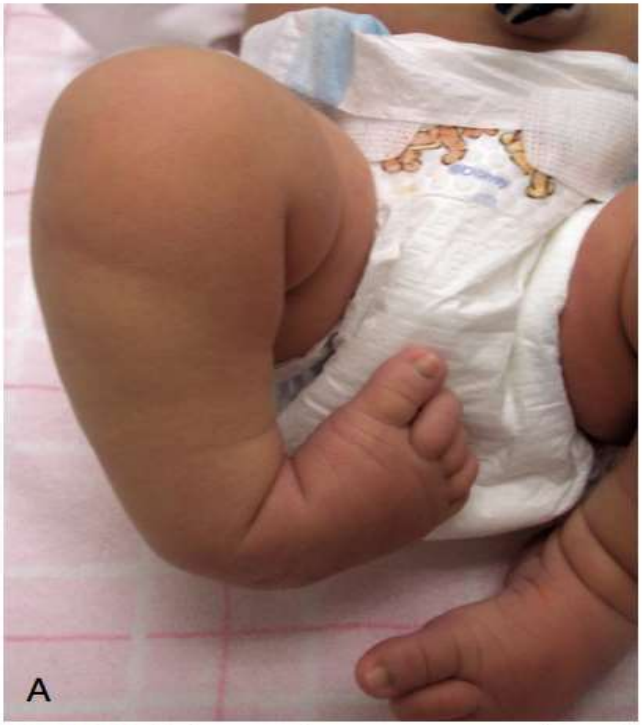
- Marked genu valgum can result from any of the types of rickets, although classically, renal osteodystrophy is most likely to produce valgus
- Treatment: growth modulation
- without medical treatment the surgery will not be seccesful.

Spondyloepiphyseal and Metaphyseal Dysplasias

- Management of limb alignment in these conditions
- is often complicated by marked joint laxity
- and some times unpredictable correction rate



Club foot



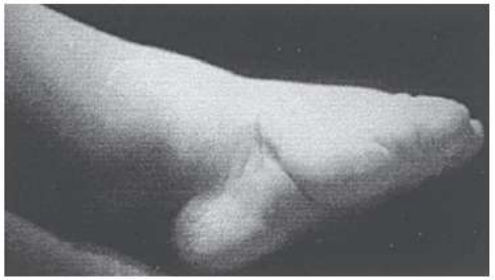
- the most common (١–٢ in ١٠٠٠ live births) congenital orthopaedic condition requiring intensive treatment.

- It most likely represents congenital dysplasia of all musculoskeletal tissues (musculotendinous, ligamentous, osteoarticular, and neurovascular structures) distal to the knee
- clubfoot has long been associated with neuromuscular diseases and syndromes, and therefore an underlying neuromuscular or syndromic/dysmorphic etiology for all "idiopathic" clubfeet has always been suspected

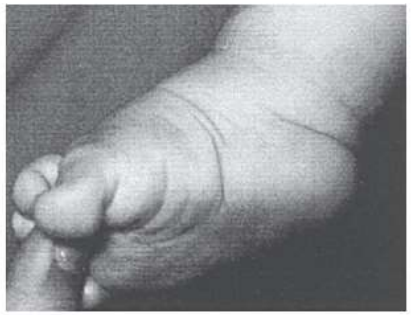
Differential diagnosis

- Postural clubfoot .The milder manifestations represent an in utero postural deformity, fully (or nearly fully) correctable; absence of the significant contractures and deep skin creases of a true clubfoot.

Posterior crease: 1 point



Medial crease: 1 point



reducibility to 0^0: 2 points

Cavus foot: 1 point (for this foot, 1 more point for the medial crease and another point for the posterior crease)

C

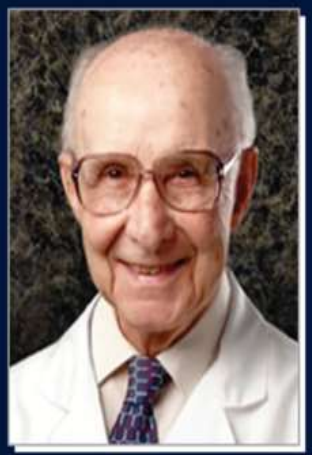
Tibial hemimelia(club foot appearance)

Treatment :

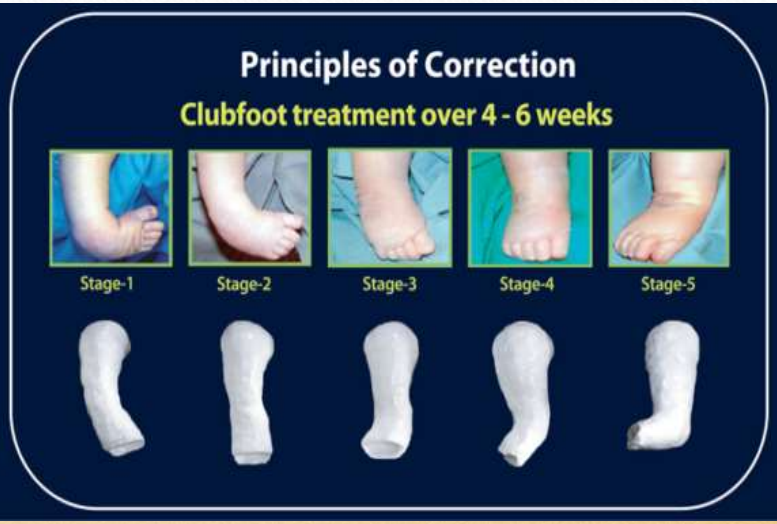
- Serial casting (Ponseti method);casting should be started within ١ month .
- ٣ to ٧ times of casting is needed every ١ or ٢ weeks

Then brace for ٣-٤ years.

The most common cause of recurrence is the not adherence to brace.



Ignacio Ponseti (1914 – 2009)



If not successful or recurred surgical treatment indicated.

- Posteromedial release
- Midfoot and hind foot osteotomies