Ortho Paeds Term

Overview

Apley, Orthopaedic Knowledge Update

Paediatric Orthopaedics

What is normal - what is not?
How to commence management?

William Bliss 6th April 2009

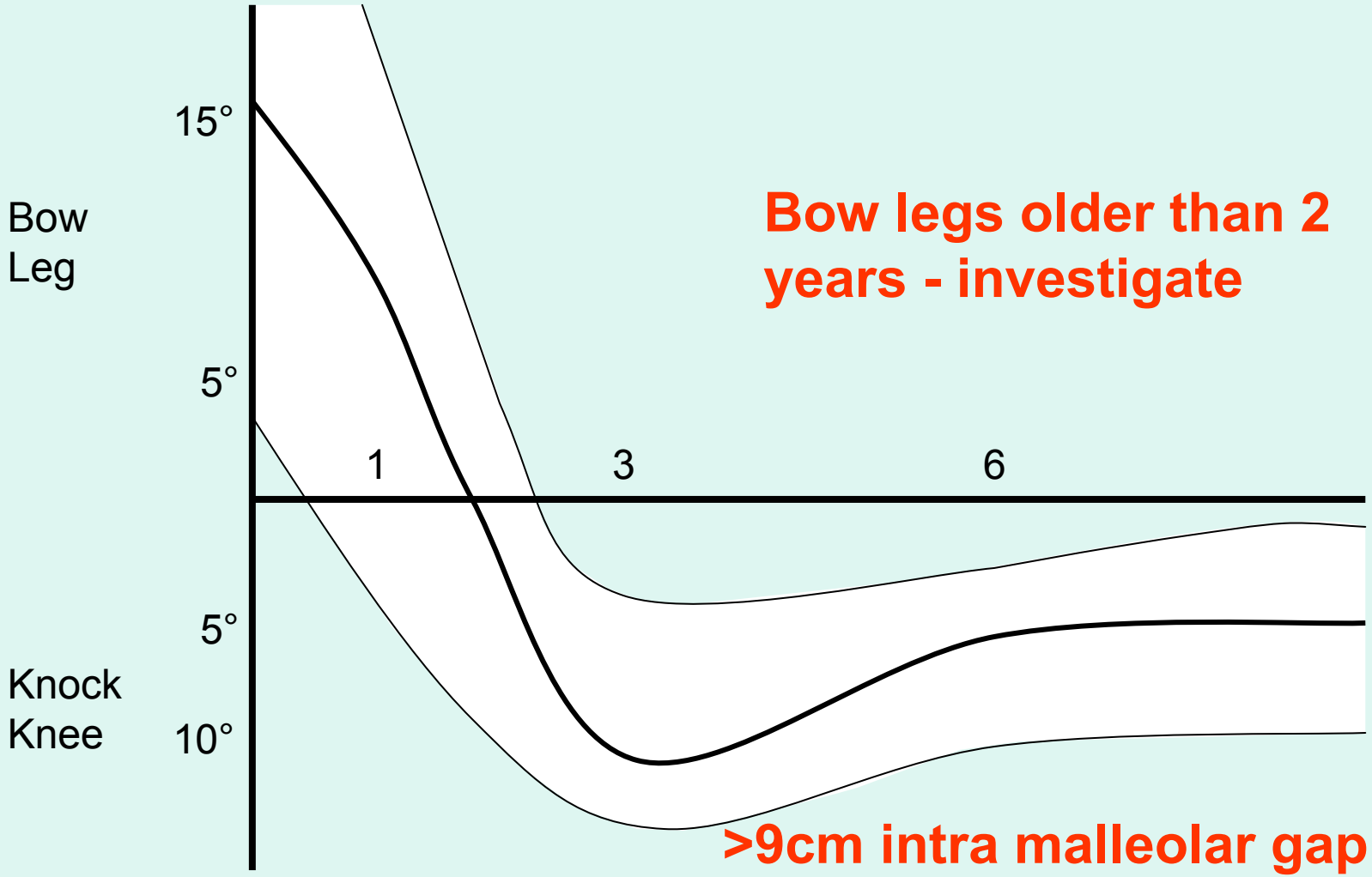
Knock Knees & Bow Legs

Think about

- Developmental milestones sit 6/12 walk 1y
- Child Short or disproportioned
- Asymmetric or Unilateral
- Syndromic family history
- Degree of deformity suspicious
- Expected physiological pattern for age
- Pain

Tibio – Femoral angle ± 2 Standard Deviations with Age (years)

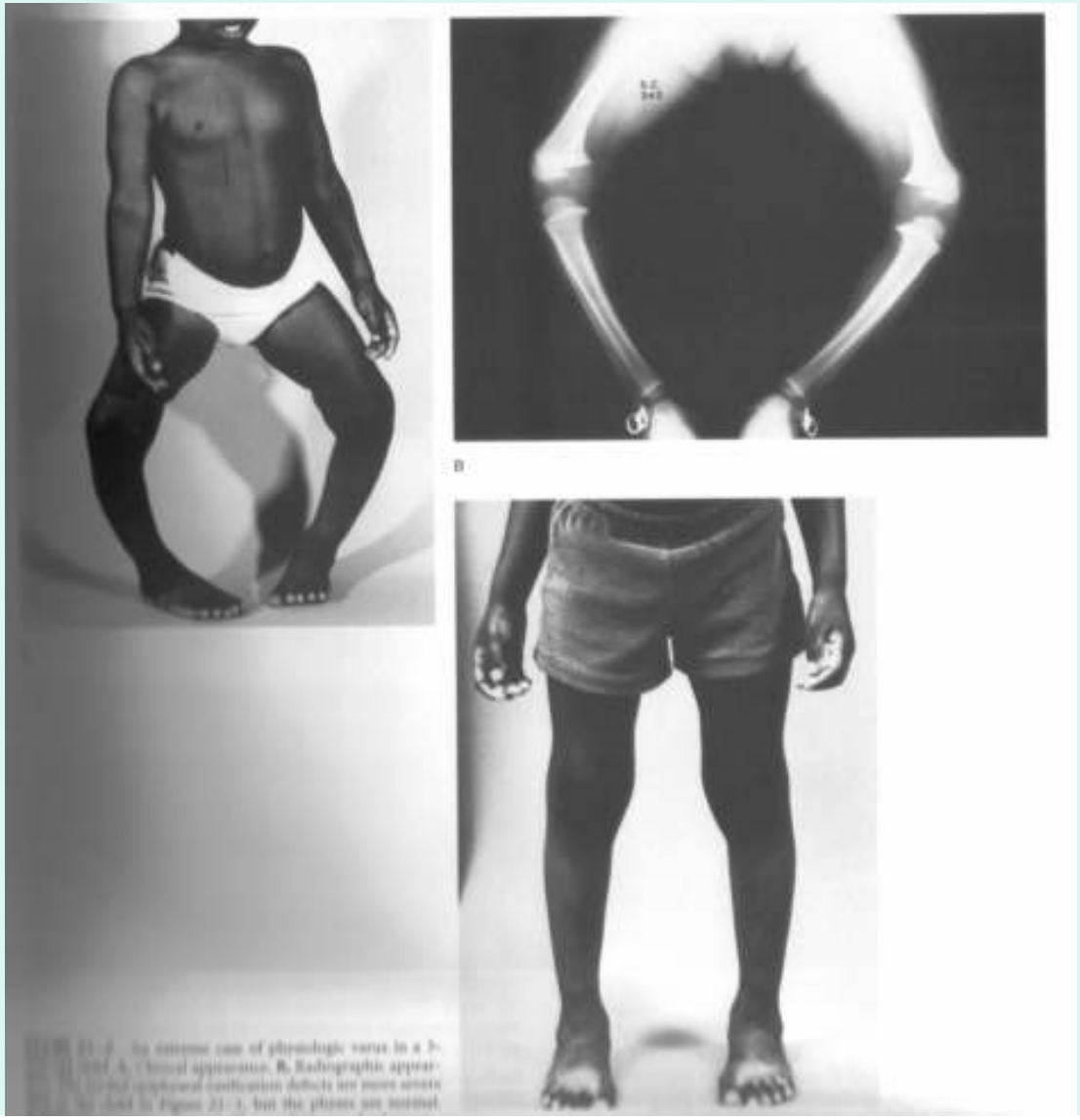
From Salenius 1975



Bow legs older than 2 years - investigate

>9cm intra malleolar gap - investigate

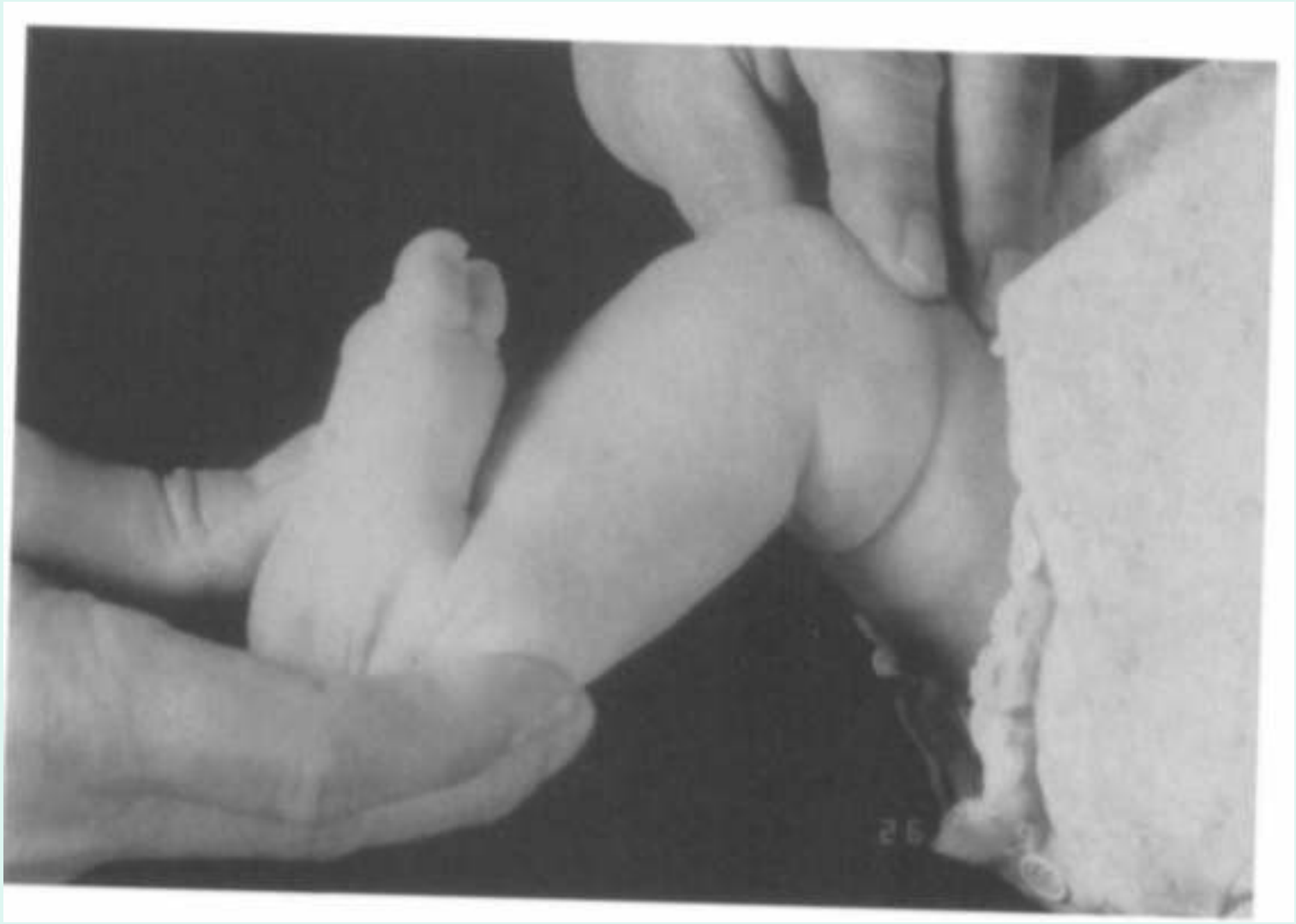
Physiological Bow – Conservative Tx



Abnormal Bowing

- Physiological bowing involves tibia + femur
- Anterolateral apex – tib pseudarthrosis, fibula hemimelia
- Posteriomedial apex with calcaneal valgus usually resolve – occ leg length problem

Posterio-medial Bow



Rickets

- Rickets decrease calcium or phosphate
- Bow legs, growth retardation,systemic effects reduced Ca
- Widened, cupped metaphysis on x ray
- Increased height of maturation zone and width of osteoid seam
- Needs nutrition/endocrine work up
- Tx Vit D and Ca usually sufficient

Rickets x ray and histology

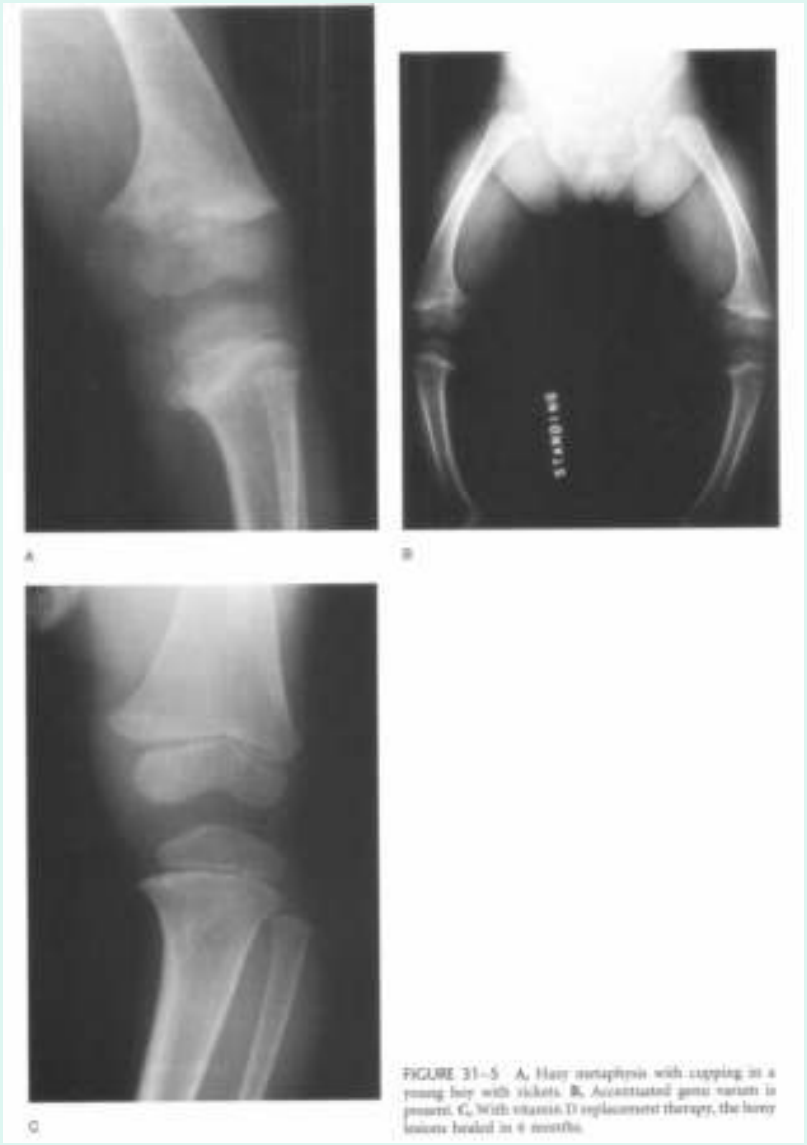
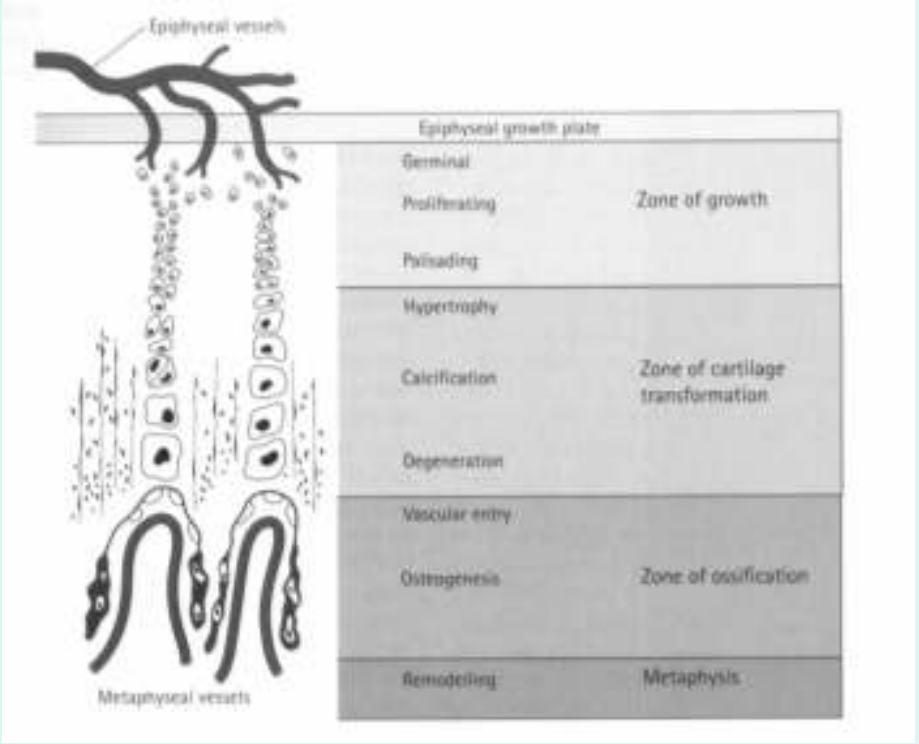


FIGURE 31–5 A, Hazy metaphysis with cupping in a young boy with rickets. B, Accentuated genu varum is present. C, With vitamin D replacement therapy, the bony lesions healed in 4 months.



Blounts (Tibia Vara)

- **Infantile** and **Adolescent**
- Posterio –medial prox tib physis
- Idiopathic ?obesity, ethnic

Blounts X ray

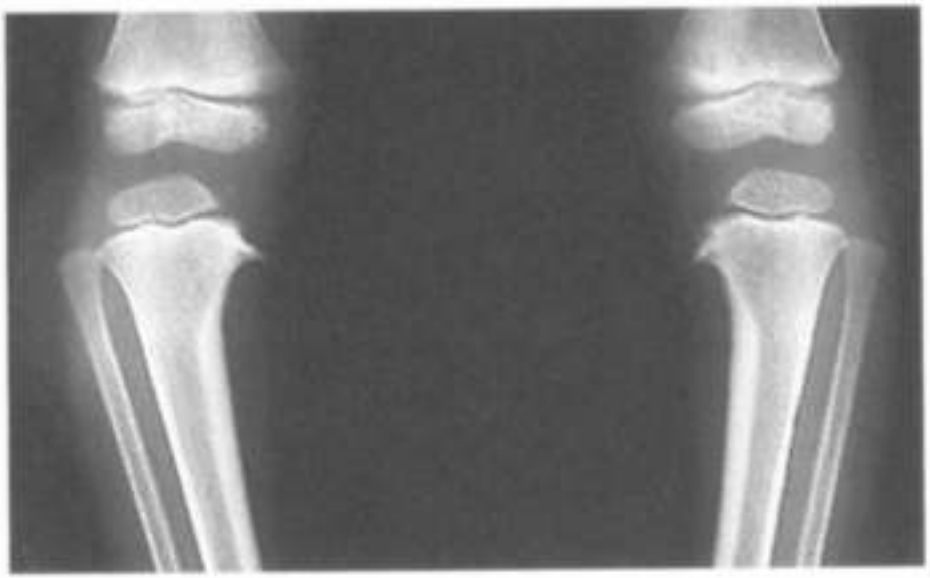


Figure 10 Radiograph of a 2-year-old child with bilateral mild infantile tibia vara. Note the beaking of the proximal medial tibial metaphysis.

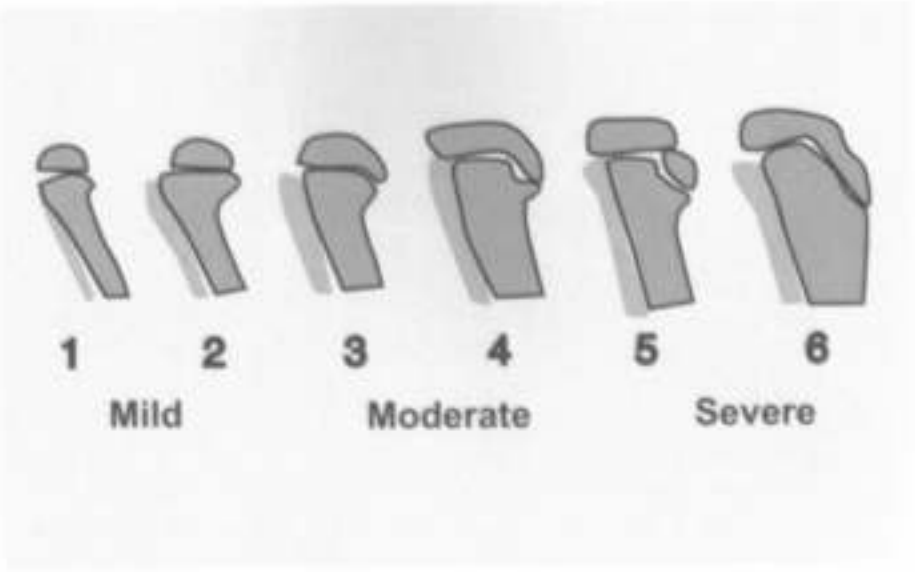


Figure 11 The Langenskiöld classification system categorizes tibia vara as mild (stages 1 and 2), moderate (stages 3 and 4), or severe (stages 5 and 6).

Blounts (Tibia Vara)

- **Infantile** early walker, usually bilat, mild resolve
- **Adolescent** unilat, progress

- Metaph – diaph angle greater 16deg

- Tx Brace, osteotomy (?rotation, femur, frame)

In-toeing presentation

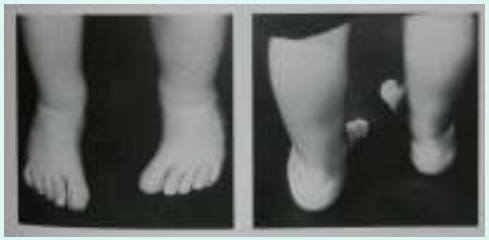
- Parental complaint, NOT child's
- Looks intoed
- Trips and falls
- Clumsy
- Sits in W position

Children grow in curves and spirals

In-toeing

- Caused by
  1. Femoral neck ante version (forwards projection of femoral neck)
  2. Internal tibial torsion
  3. Metatarsus varus/adductus

     Treat if not correctable



- Majority self correct

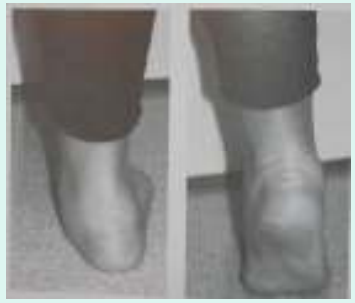
Children grow in curves and spirals

Out-toeing – ? Bilateral DDH

Flat Feet

Medial arch starts to appear 2-3y

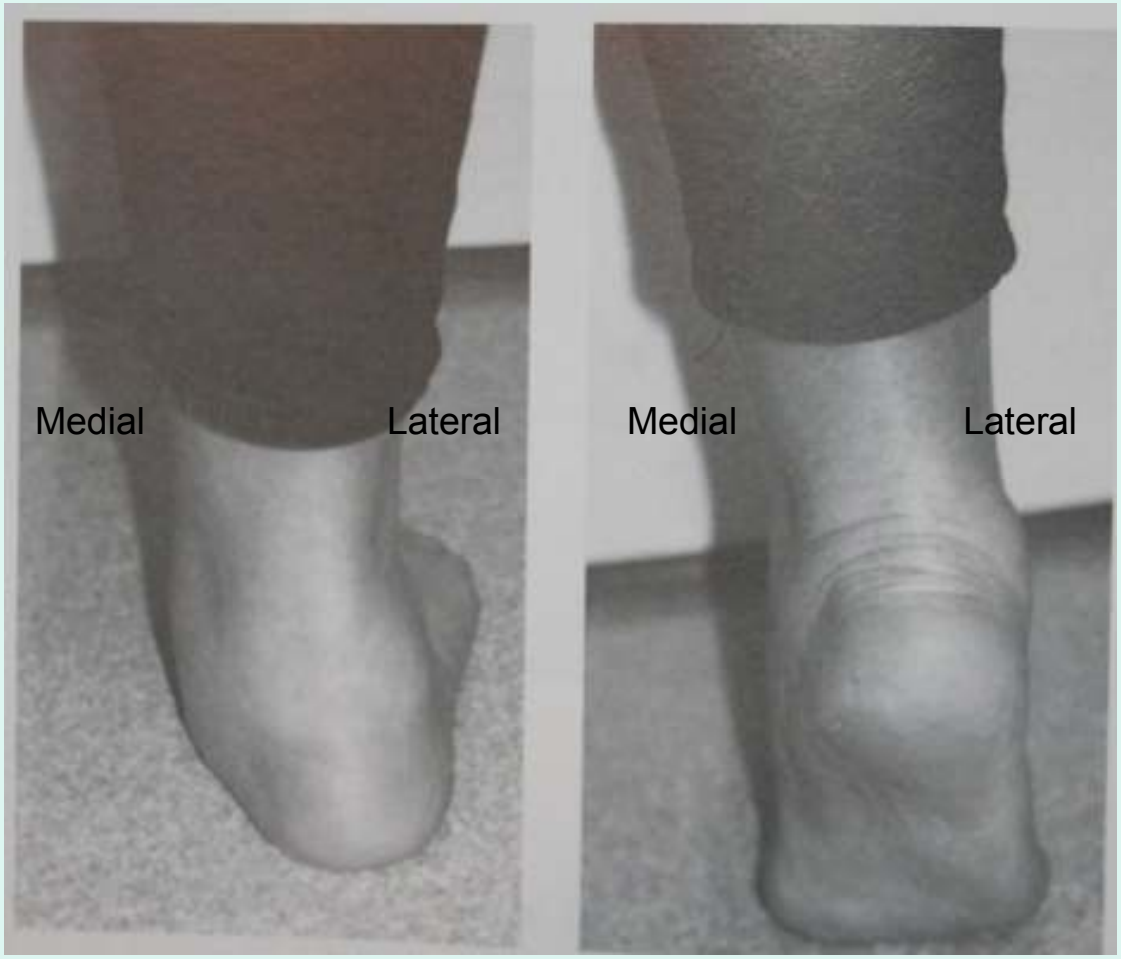
1. Flexible flat foot - no treatment required
   - Tip toe test restores arch
   - Painless



2. Pathological flat foot – needs investigation
   - Pain
   - Excessive movement or rigidity, tight muscles – stretch and cast

Flexible (right) flat foot
Walk toes, heels, outside, inside

No arch, heel in valgus



On toes; arch seen, heel goes into varus

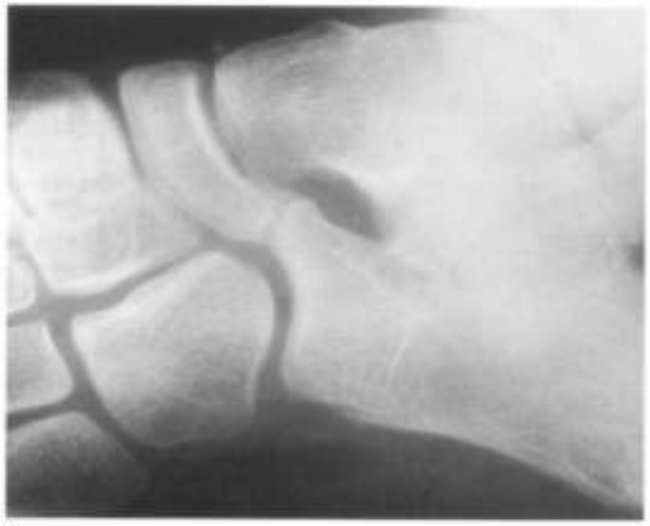
Foot examination

- Start with a walk
- Normal, toes, heels, outsides, (insides)
- Questions so far

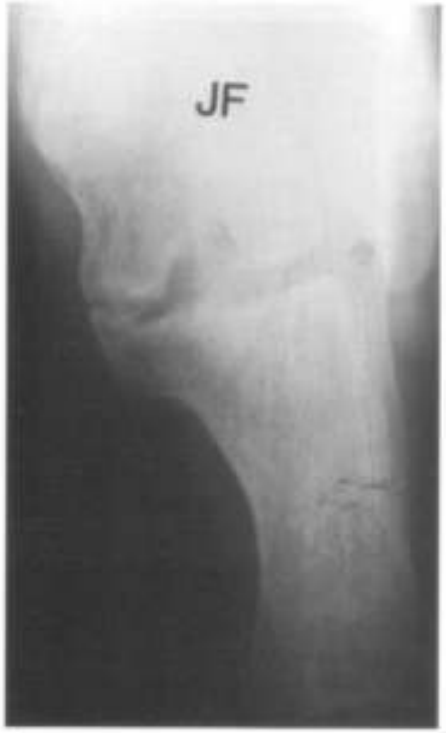
Tarsal Coalition

- Painful flat foot, limping. 50% bilat
- Talocalcaneal – early 2nd decade
- Calcaneonavicular – earlier
- Pain when cartilage tx to bone

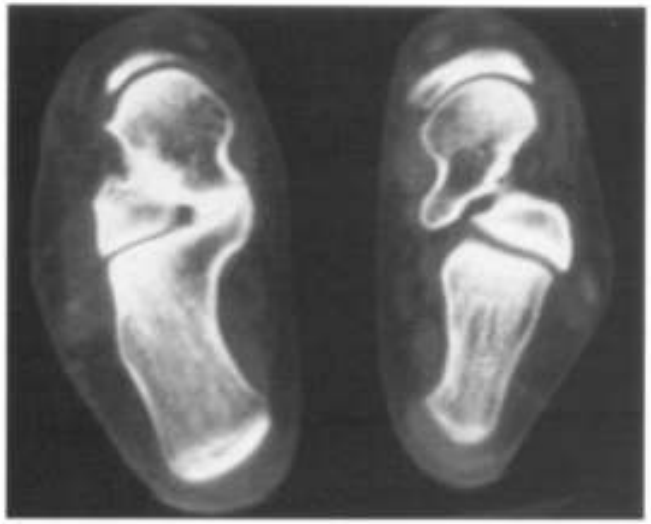
Tarsal Coalition X Ray



A



B



C

FIGURE 22–81 Tarsal coalition: imaging findings in a 14-year-old boy who presented with foot pain. Inversion and eversion were severely limited, and there was peroneal spasm on attempted range of motion. **A**, Oblique radiograph demonstrating a calcaneonavicular coalition. **B**, Harris view showing irregular surfaces and narrowing of the medial facet, suggesting a talocalcaneal coalition. **C**, CT scan showing a large bar across the medial facet of the subtalar joint, confirming the subtalar coalition.

Tarsal Coalition Treatment

- Analgesics, activity mod, cast
- Resect if min deformity,<50% subtalar joint affected, calcaneonavic do better
- Osteotomy – arthrodesis option

Toe Walkers and High Arches

Fatigue?

Refer to exclude neurological cause and treatment

Habitual toe walkers - always been on toes since started walking – conservative mx

Serial casting 3 X 2/52 FWB B/K

Polydactyly and Webbing

- Webbing is cosmetic issue, surgery will scar and not normalise.
- Polydactyly – Orthopaedics if for simple removal and skin closure, plastic surgery for complex
- Upper limb – function most important, orthotic and computer aids, plastic surgery

Curly Toes

- Most babies flexed but reducible lateral 3 toes
- Fixed deformity may require surgery once walking – flexor tenotomy
- Flexible deformity may resolve. Surgery delayed until 6 years
- Strapping not helpful

Hammers, Mallets and Nails

- If conservative measures fail, similar ages as for curly toes
- Ingrowing toe nails – podiatrist
- Nail deformities – exclude underlying exostosis

Bunions – Hallux Valgus

- Child otherwise normal?
- Shoes
- Insoles or splints for pain or shoewear problems – do not alter outcome
- Surgery normally delayed until skeletal maturity (14-21y) due to recurrence and problems from over correction

Knee

Think of **HIP pathology**

- Perthes, Slipped Upper Femoral Epiphysis

Mechanical symptoms – as adult

Overuse conditions (Tibial tubercle, distal patella) – initially activity review

Popliteal cysts – conservative. Investigate if abnormal location / enlarging / pain

Reactive (transient) synovitis hip

- 3-10y, recent infection
- Limps or not walking, reduced ROM, mild pyrexia, WCC<12,000, ESR<40, CRP<20
- U/S shows fluid
- NSAIDS – should resolve 1-3 days

- In doubt – manage for pyogenic arthritis
  - Anterior approach

Torticollis

- Congenital (3/12) & Acquired (older)
- Congenital – check for DDH
- Physio – earlier the better, surgery if persists after 6/12 Tx. Spinal accessory and greater auricular nerves
- Acquired – ENT infection, tumour, trauma
- Treat cause, traction, CT guided fixation if unstable C1-C2 facet

That's It

- Couriers required please

- Carlisle/Malawi – Claire Barlow, Maple C
- North Tees – Chris Tulloch