

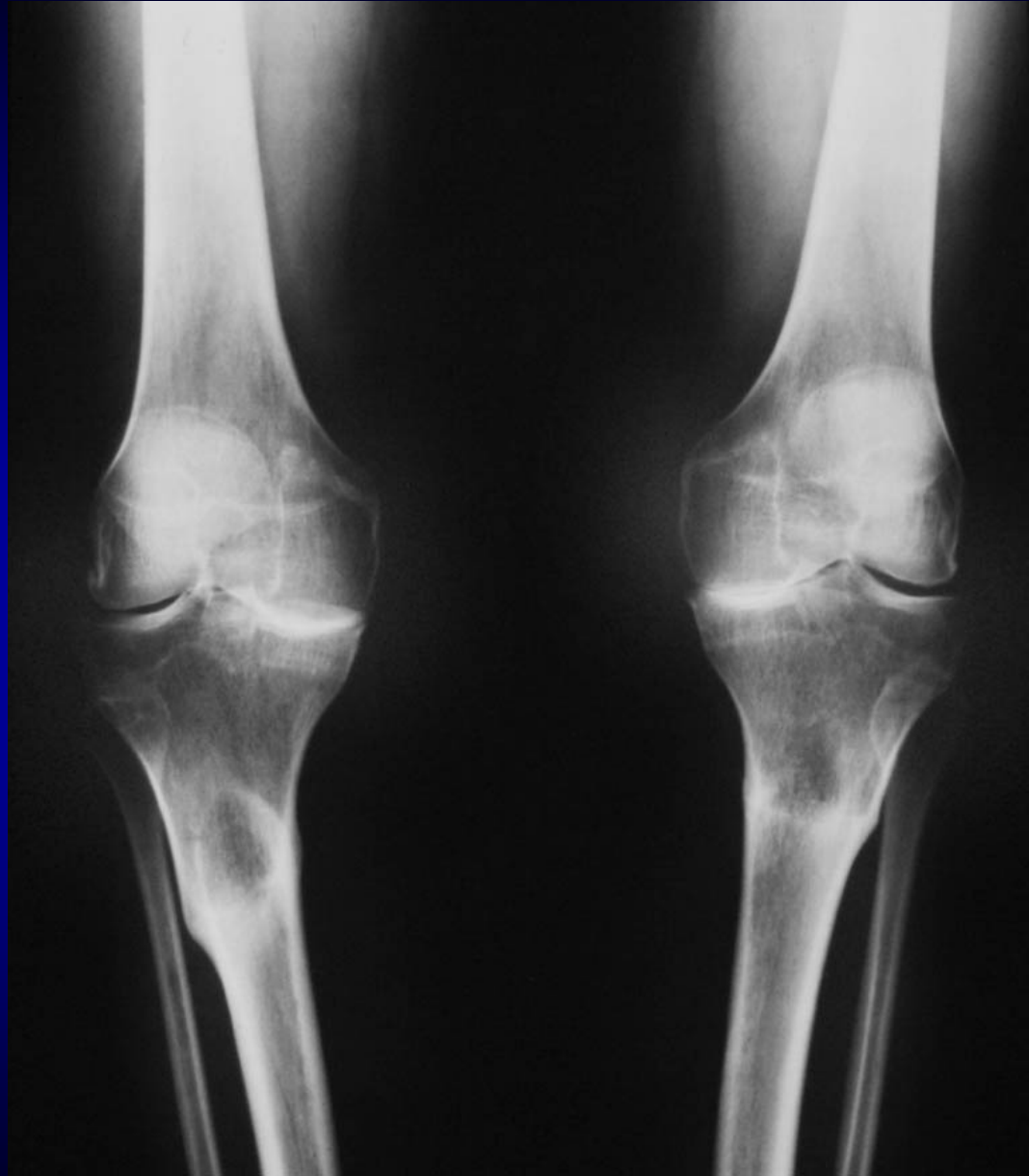
# **Realignment Osteotomy of the Knee**

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# Realignment Osteotomy of the Knee

## Principles

- i. diagnosis
  - ii. follow up
  - iii. level of deformity
    - a) femoral
    - b) tibial
  - iv. ligament laxity and bone strength
- } natural history







# Realignment Osteotomy of the Knee

## Imaging

- i. radiographs (including standing, full-length views)
- ii. arthrograms
- iii. MR scans
- iv. CT scans
- v. photographs

# Realignment Osteotomy of the Knee

## Operative Techniques

- i. osteotomy
- ii. stapling
- iii. epiphysiodesis
- iv. distraction/compression

# Realignment Osteotomy of the Knee

## Osteotomies

transverse closing or opening wedge (Morrissey 1992)

inverted arcuate (Miller et al 2000)

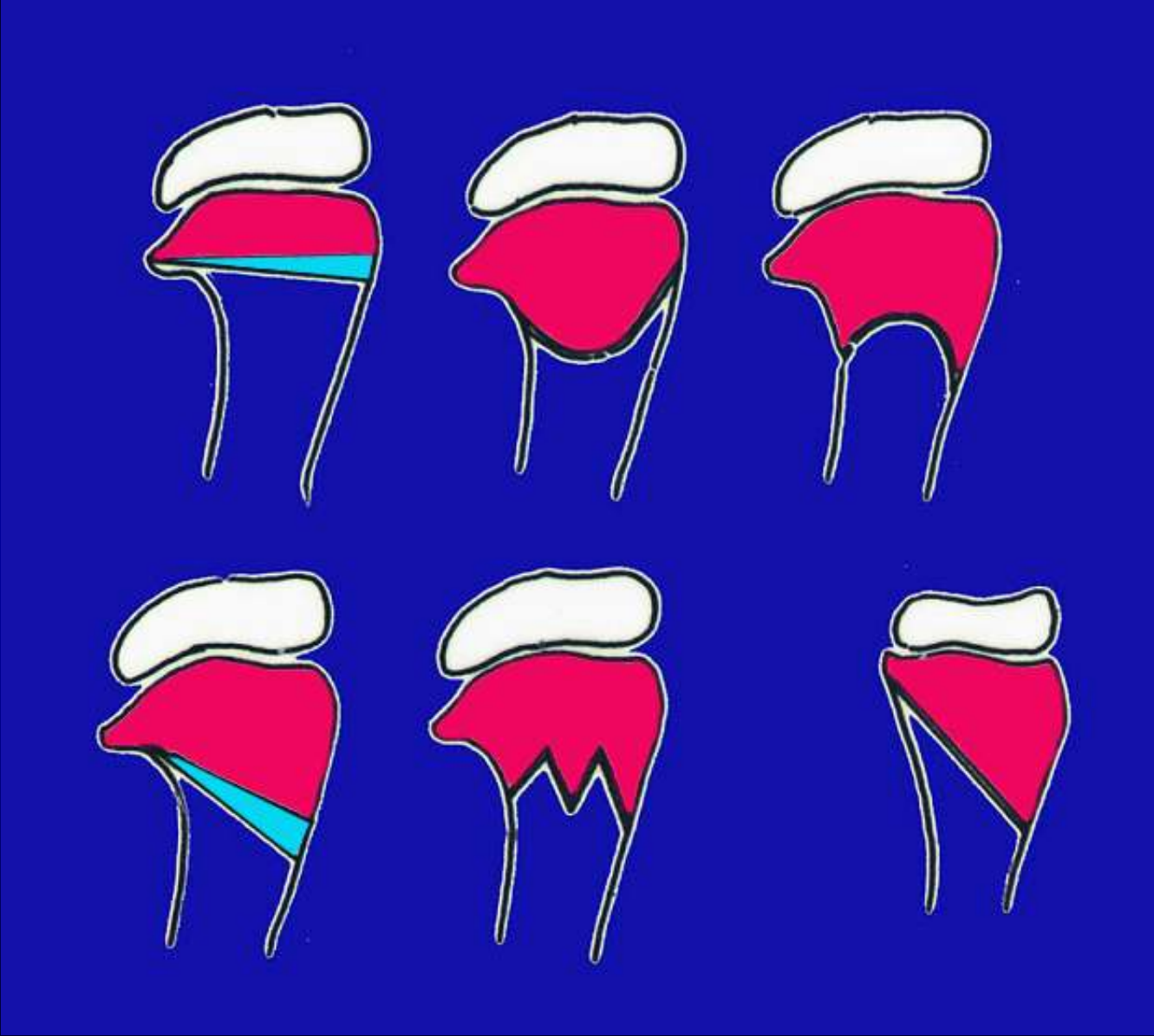
dome or arcuate (Van Olm & Gillespie 1984:  
Roy & Robinson 1988)

oblique coronal (Rab 1988)

serrated W-M (Hayek et al 2000)

oblique sagittal (Lauencin et al 1999)

spike (Dietz & Weinstein 1988)



# Realignment Osteotomy of the Knee

## Fixation methods

- i. plaster of Paris cast
- ii. K wires or Steinmann pins
- iii. inter-fragmentary screws
- iv. plates
- v. external fixation

# Realignment Osteotomy of the Knee

## Varus deformity

- i. constitutional (symmetrical)
- ii. Blount's disease (asymmetrical and progressive)
- iii. renal rickets
- iv. infection or trauma
- v. skeletal dysplasia (unifocal or widespread)





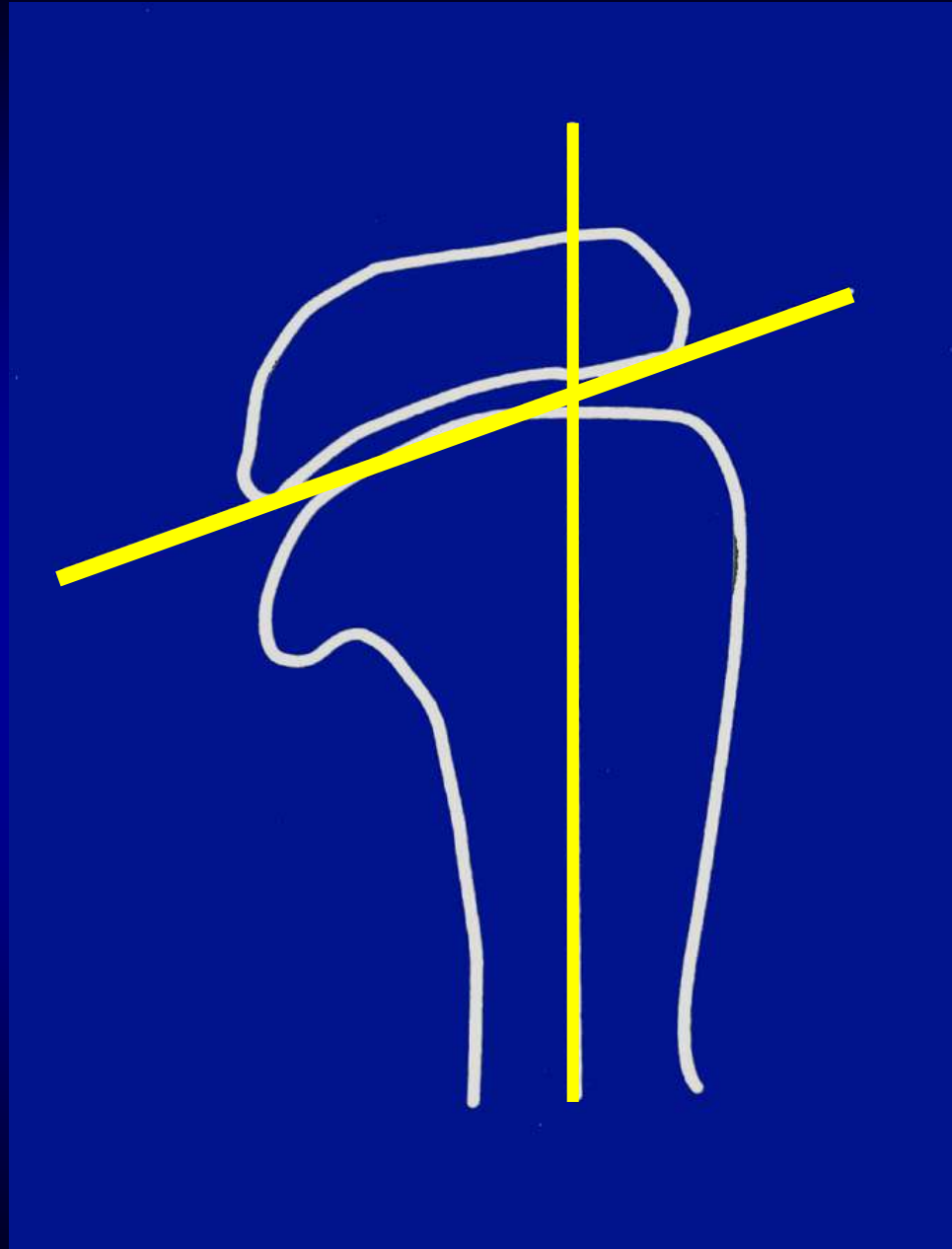


# Realignment Osteotomy of the Knee

## Radiographic angles

- i. tibiofemoral (Salenius & Vankka 1975)
- ii. metaphyseal-diaphyseal (Levine & Drennan 1982)

(The “Drennan angle” is difficult to measure accurately, but suggests a pathological rather than a physiological varus when it exceeds 15 degrees)











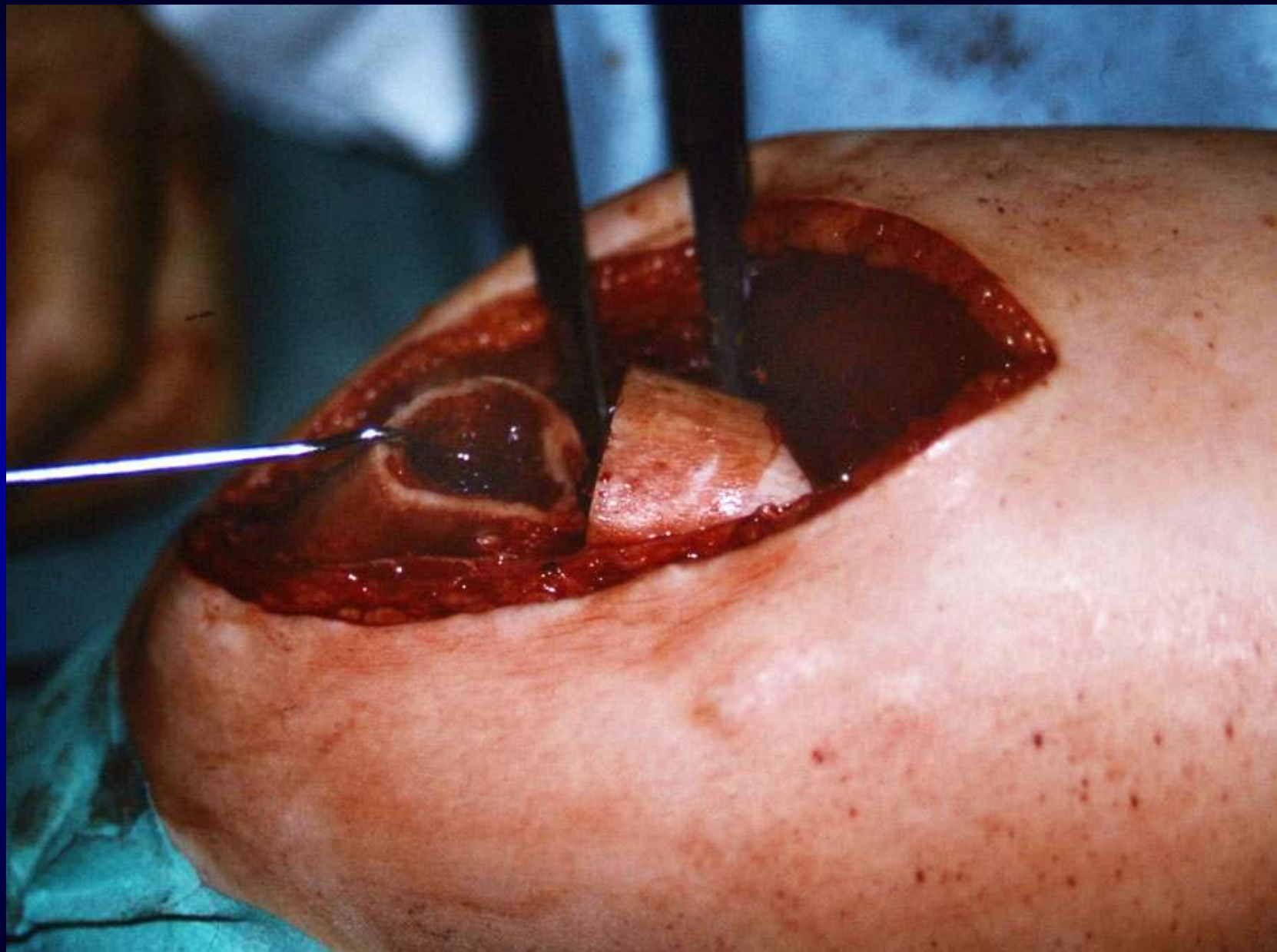








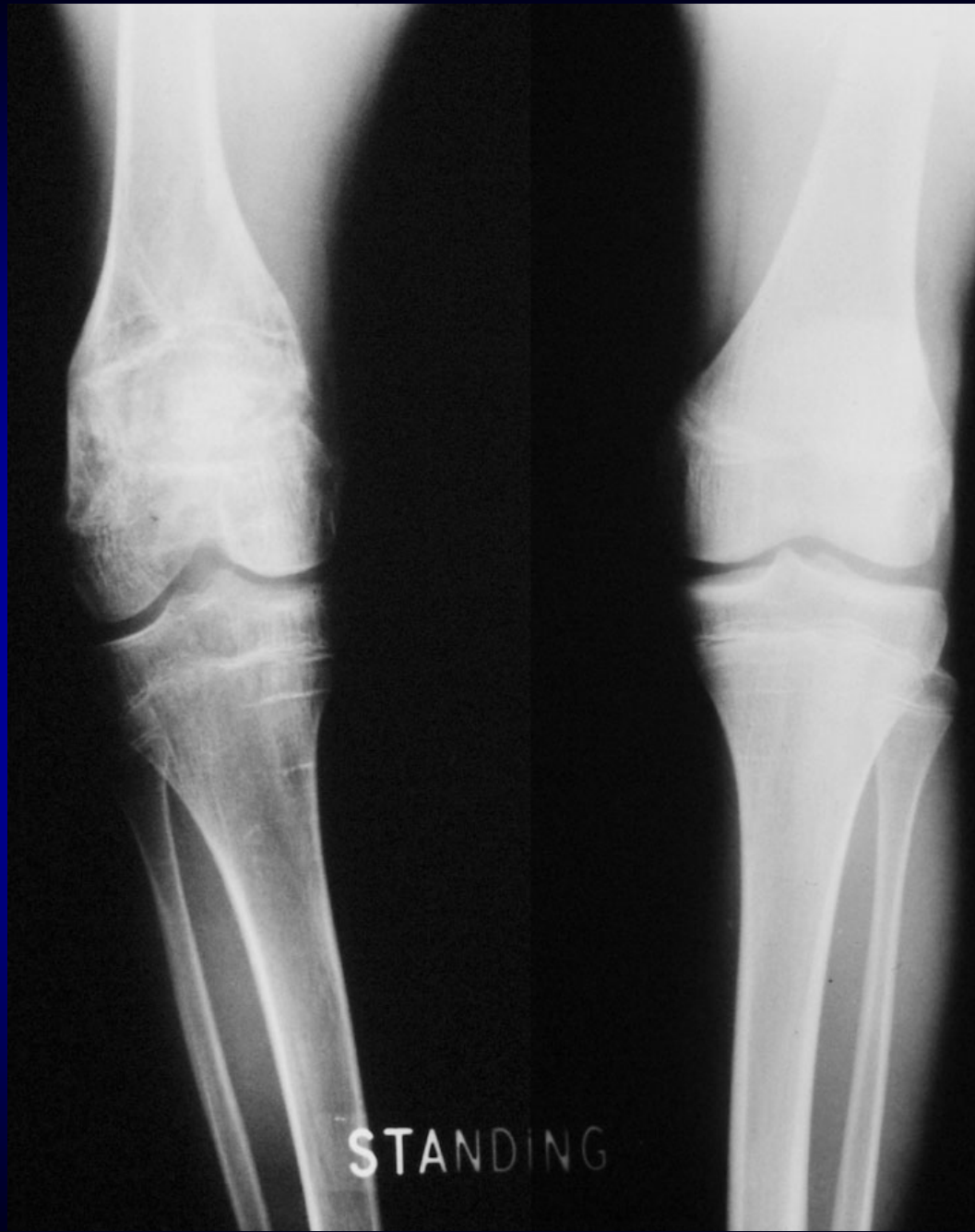












STANDING

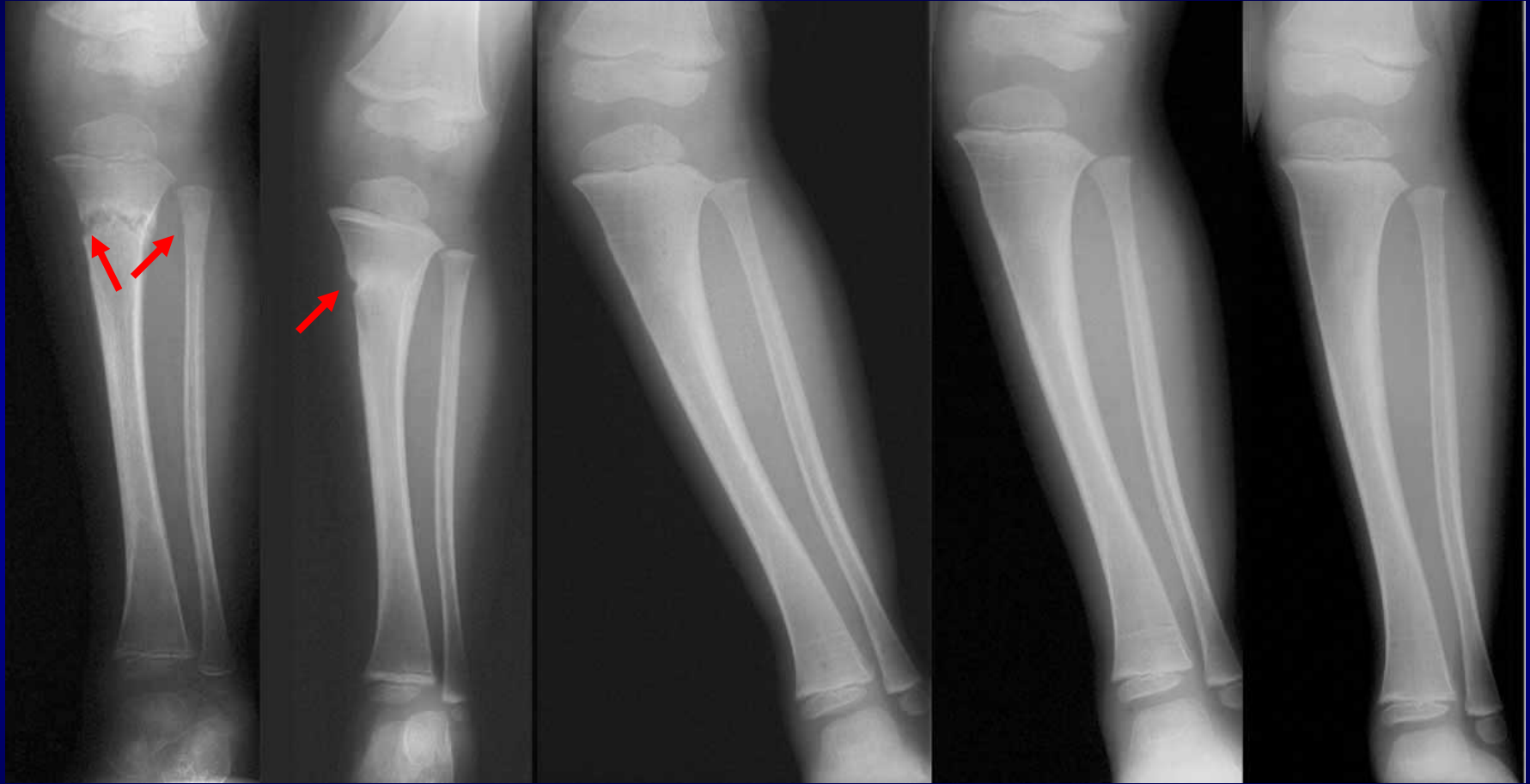


# Realignment Osteotomy of the Knee

## Valgus deformity

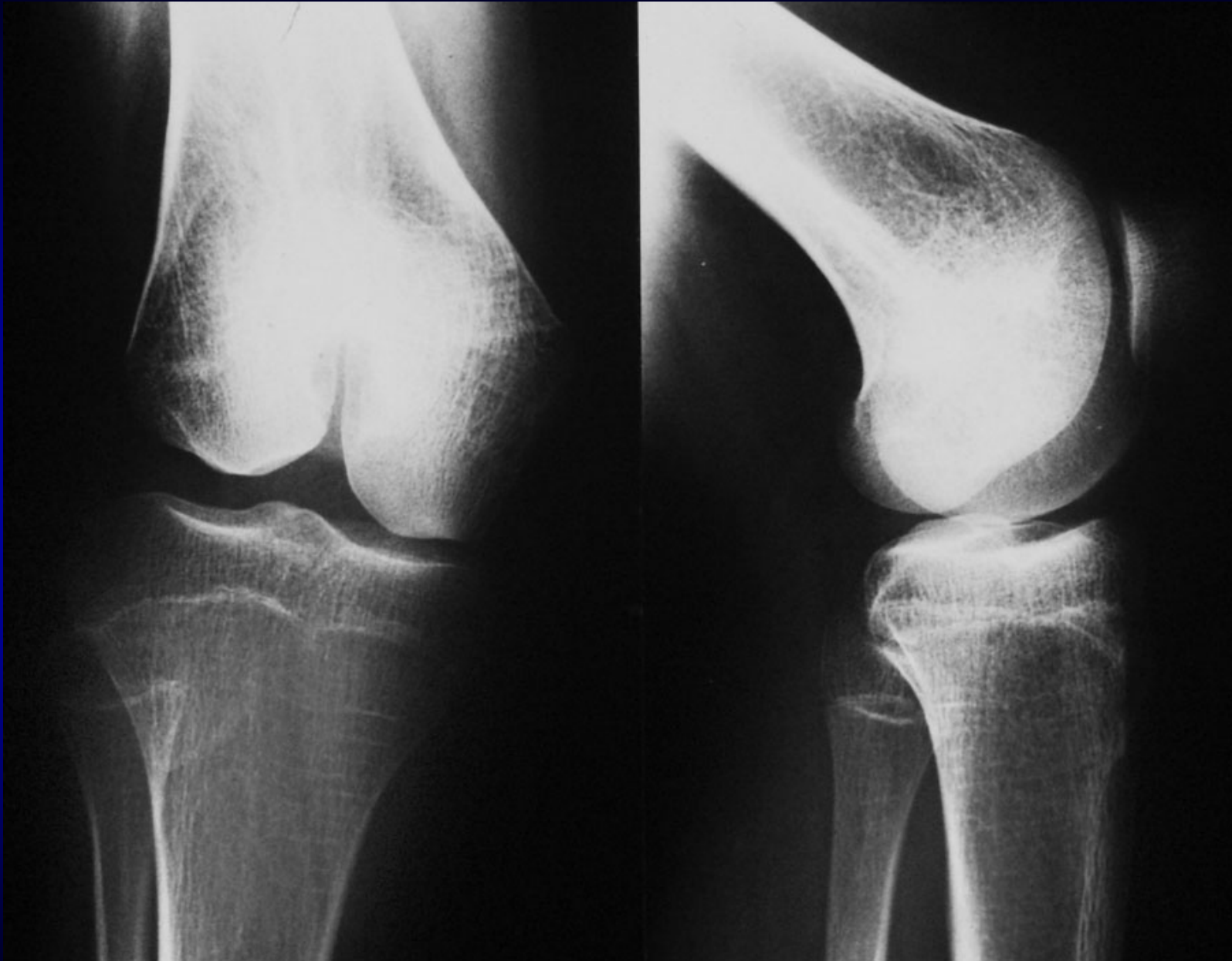
- i. constitutional
- ii. trauma
- iii. infection
- iv. skeletal dysplasia

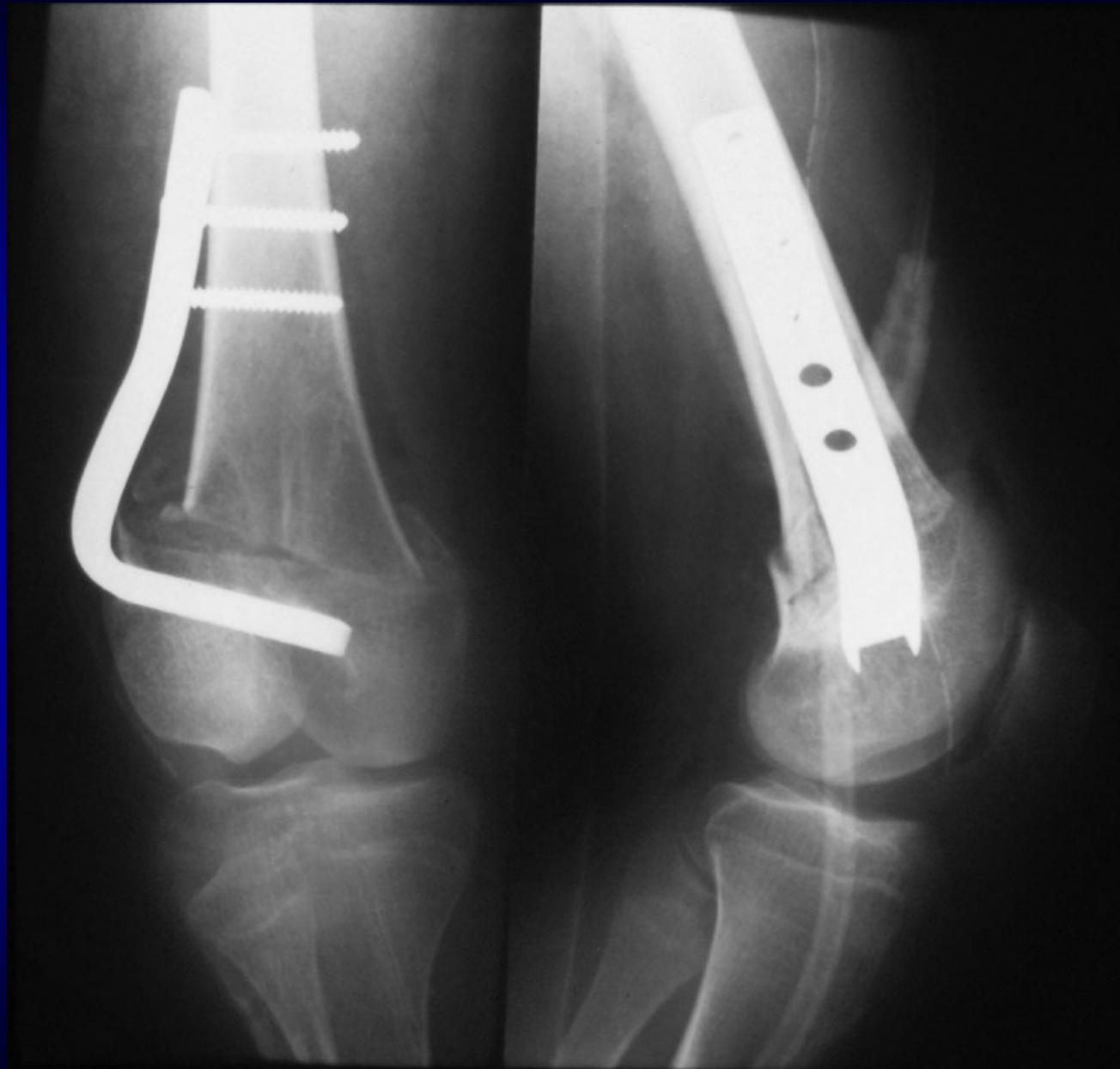




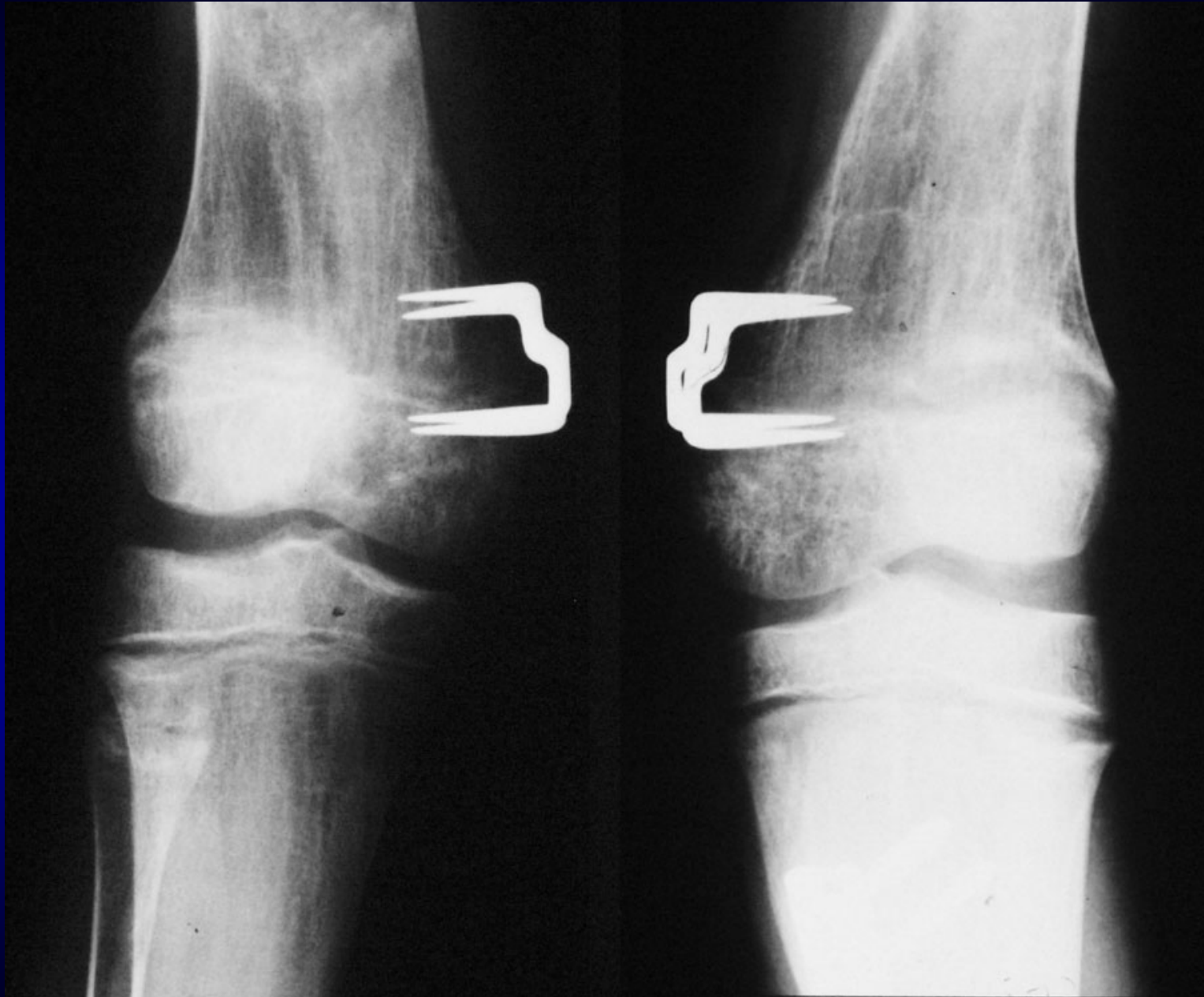


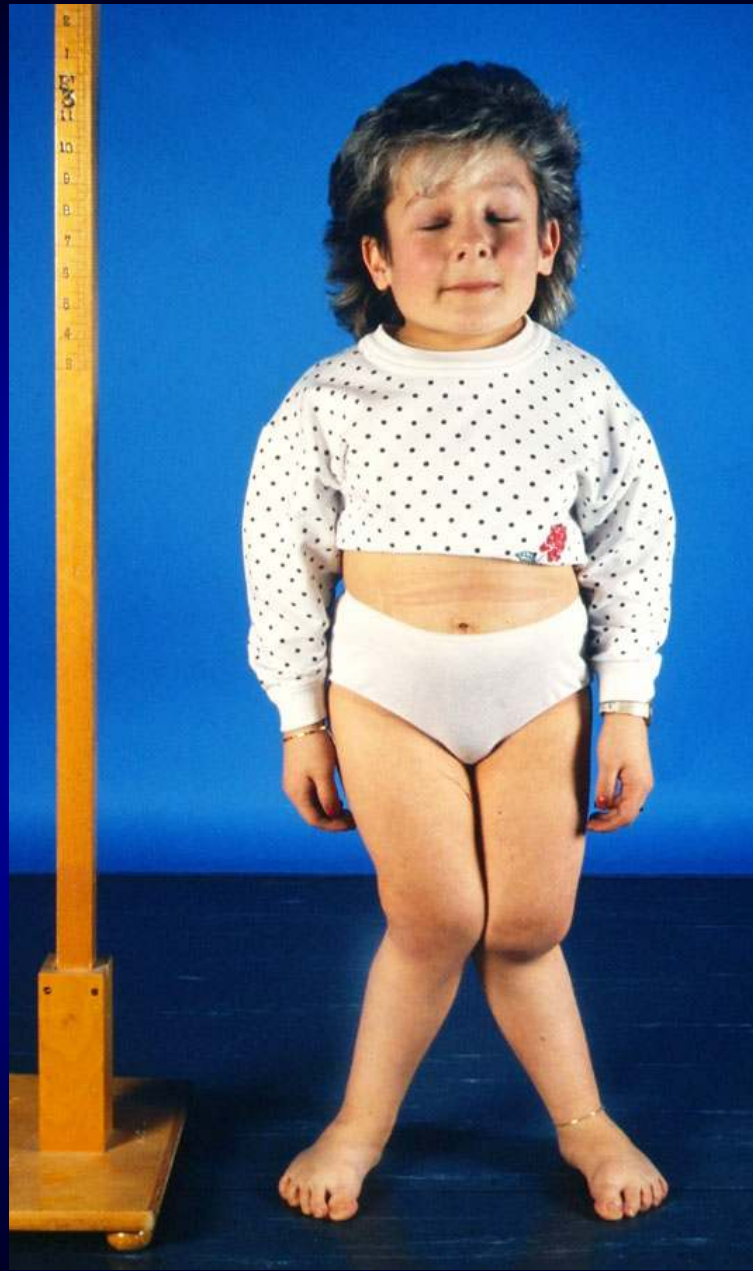












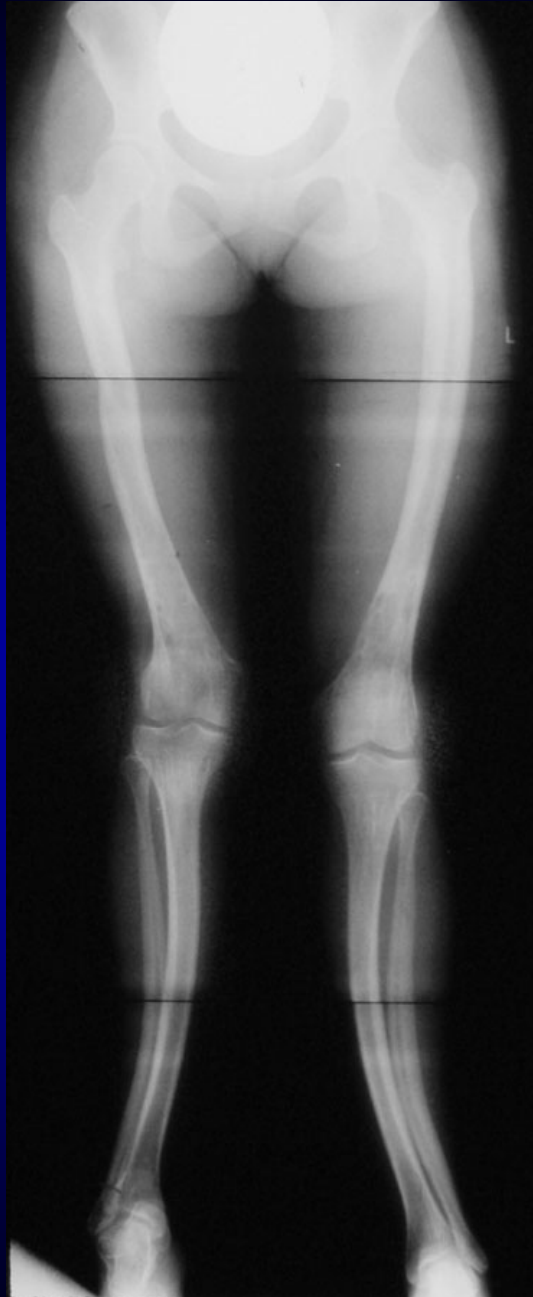




# Realignment Osteotomy of the Knee

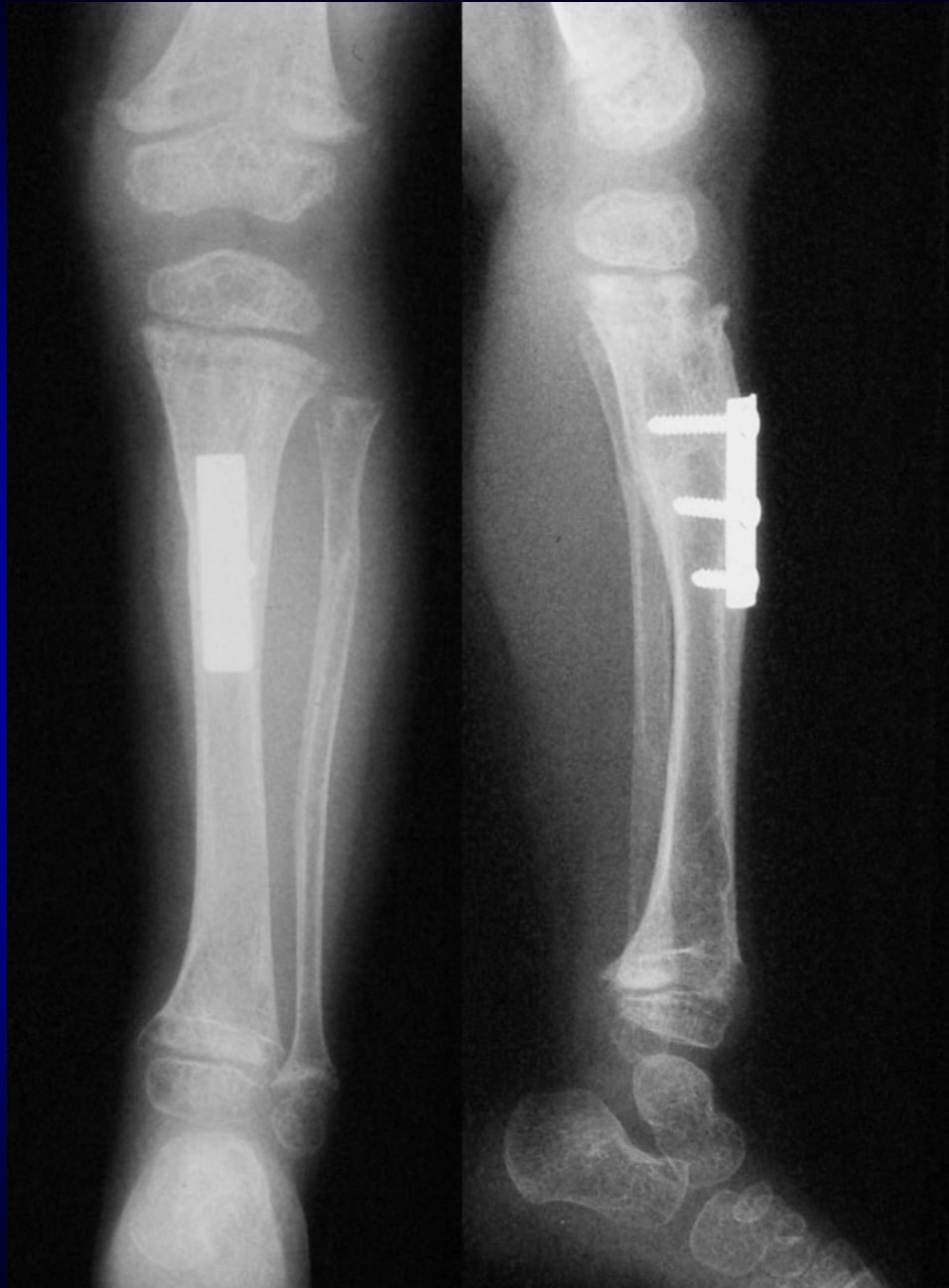
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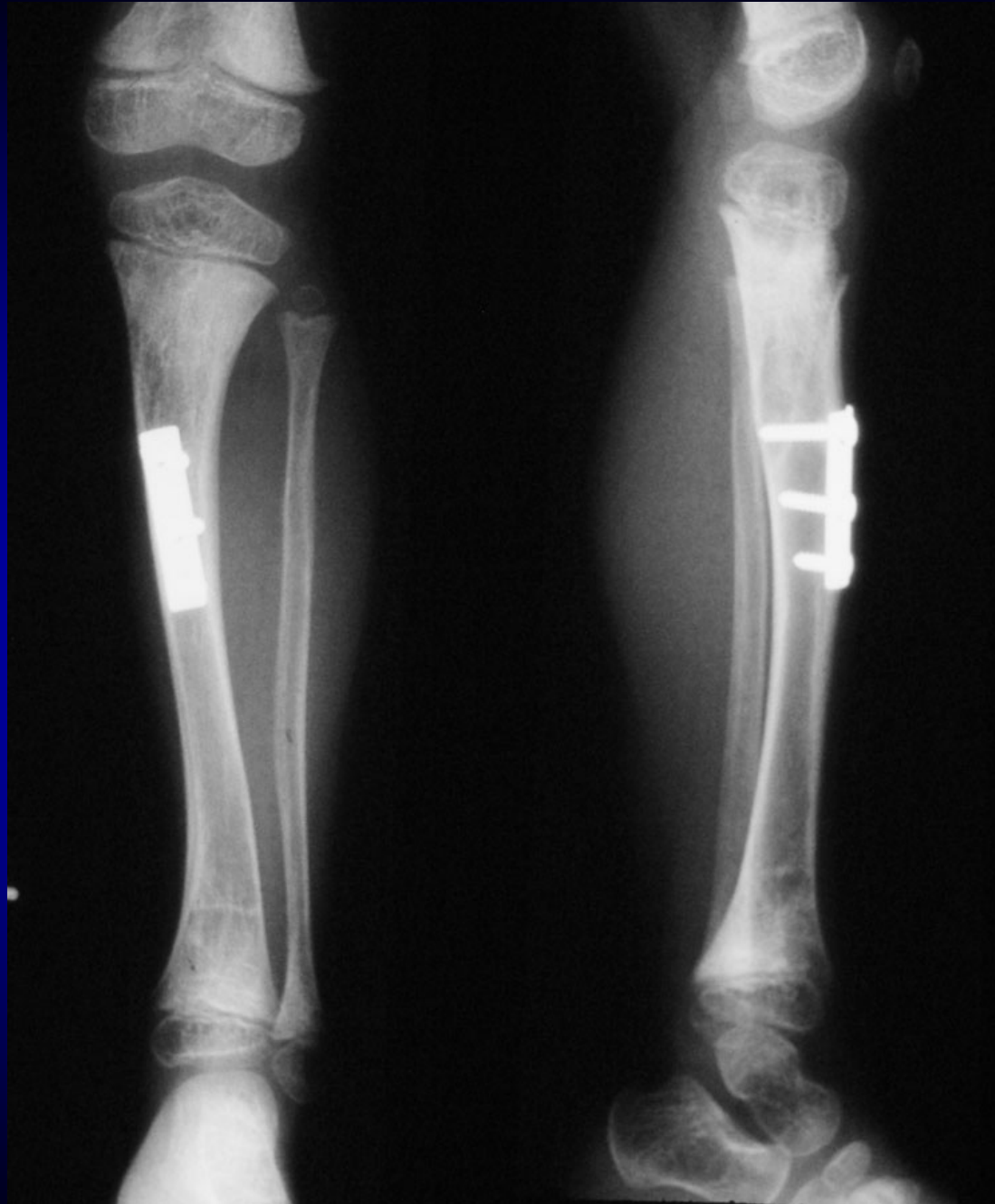
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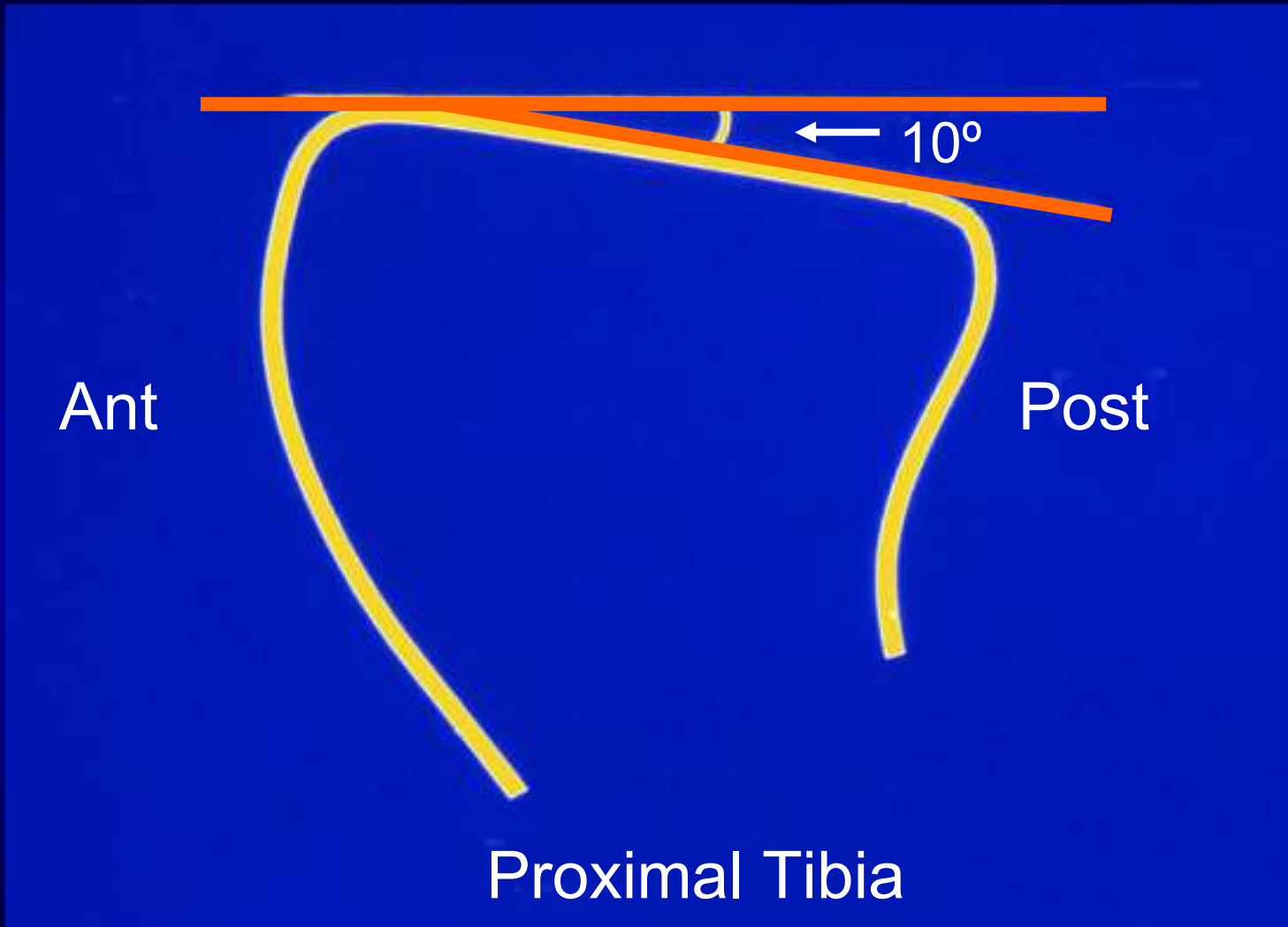


# Realignment Osteotomy of the Knee

## Recurvatum

- i. trauma (including iatrogenic causes)
- ii. traction (“frame knee”)
- iii. skeletal dysplasia





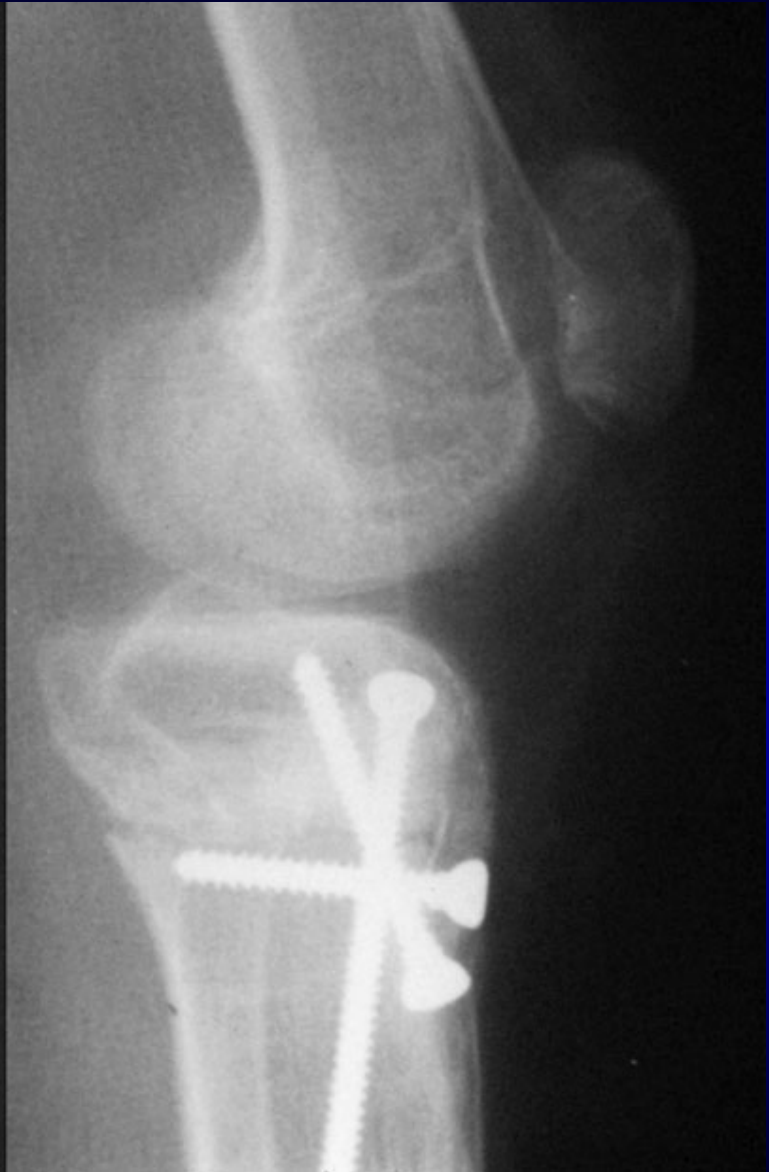


# Correction of Proximal Tibial Recurvatum

opening wedge osteotomy - supratubercular  
- infratubercular

closing wedge osteotomy  
(problems - ligament laxity, compartment  
syndrome, tuberosity placement  
shortening)

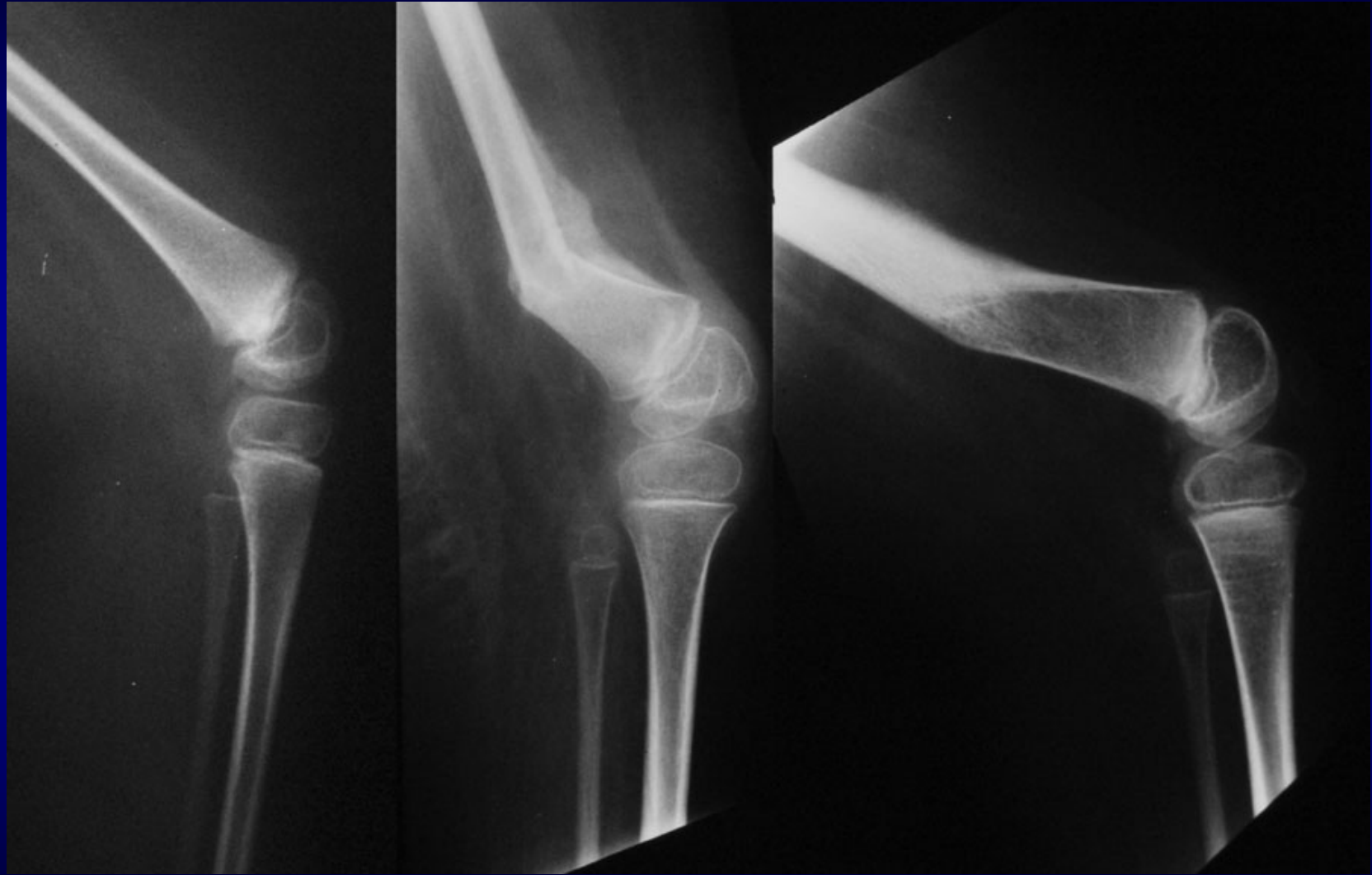
Moroni et al (1992)

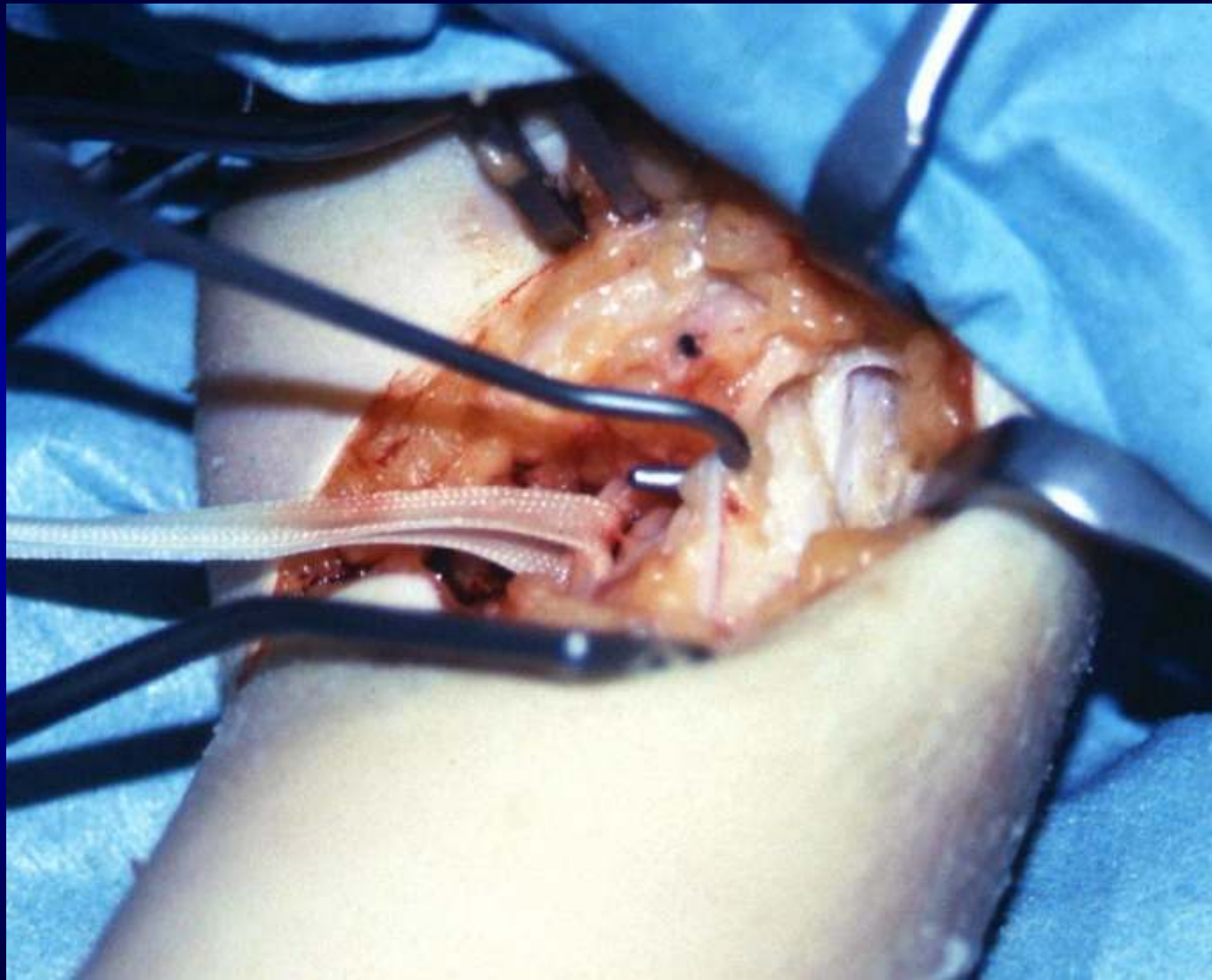


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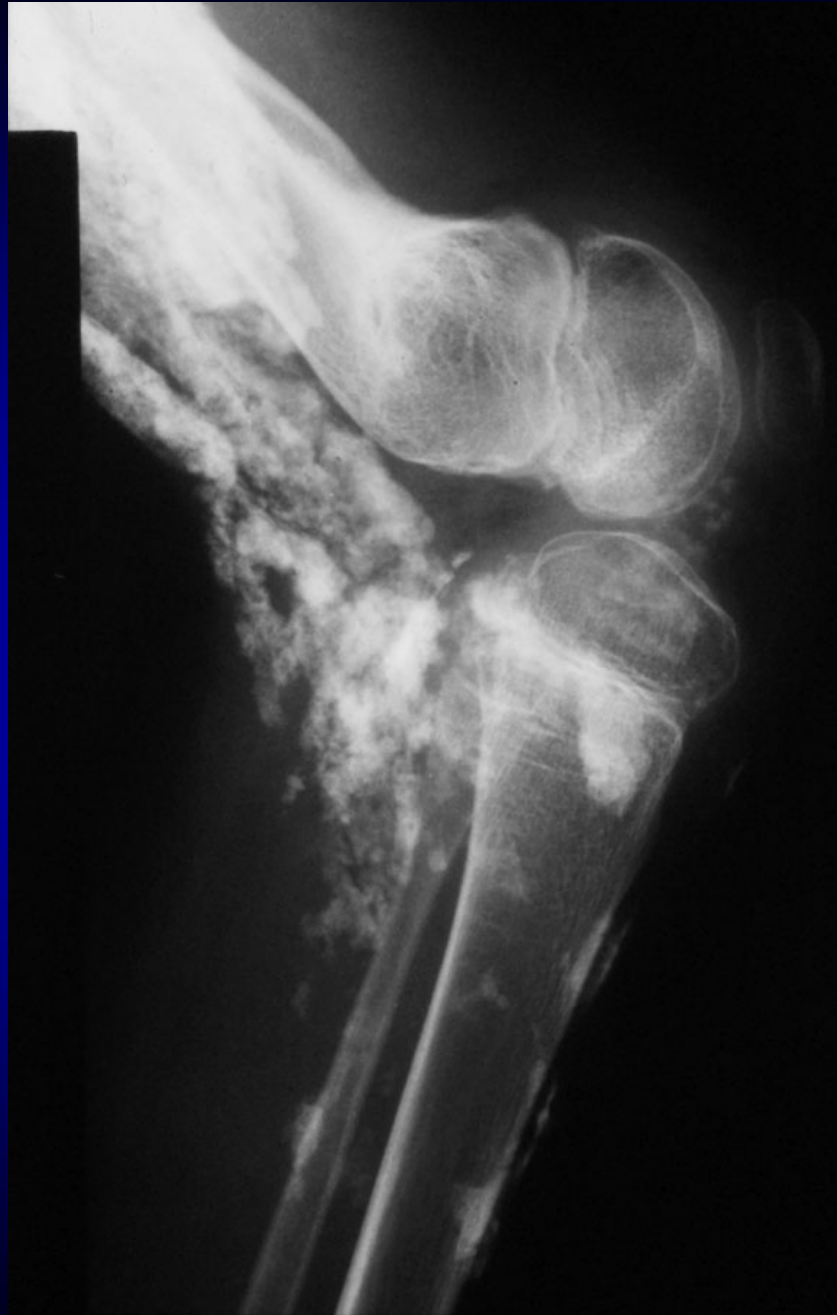
## Flexion deformity

- i. arthrogryposis
- ii. neuromuscular conditions
- iii. skeletal dysplasias
- iv. TAR syndrome
- v. popliteal webbing









# TAR Syndrome

Knee dysplasia in 90 per cent

severe instability

stiffness (varus)

patellar dislocation



# The Knee in Arthrogryposis (AMC or Total)

flexed knee

extended knee

four limbs

# Treatment of Arthogryptic Knee Deformity

extended knee - serial splintage

flexed knee - posterior release (double or S incision)  
repeat posterior release (shortening)  
(PCL release may cause posterior  
subluxation)  
distraction with external fixator  
(extension osteotomy)

# Surgical Considerations

retardation of sucking,feeding,language

anaesthetic problems (intubation, iv access)

operate on feet before knees

achieve community walking

(with flexed knees less than 50 per cent  
become community walkers)



