

Imaging in Patellofemoral Instability

Arthro CT Scan vs Arthro MRI

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What is the purpose of imaging in patellofemoral instability?

- Along with the clinical assessment
 1. To confirm the **diagnosis** and understand the cause of patellofemoral instability and therefore to guide the treatment decision
 2. **If surgery required**, to know which anatomical factors must be corrected.

What is the purpose of imaging in patellofemoral instability?

- Assess the factors of instability

Factors of Patellofemoral Instability

- Trochlear dysplasia
- Abnormal patellar height
- Pathological tibial tubercle-trochlear groove (TT- TG) distance.
- Soft tissue (MPFL)
- Others:
 - Patellar dysplasia
 - Varus/Valgus malalignment, Genu recurvatum
 - Pathological (femoral/tibial) torsion angle

X-Rays

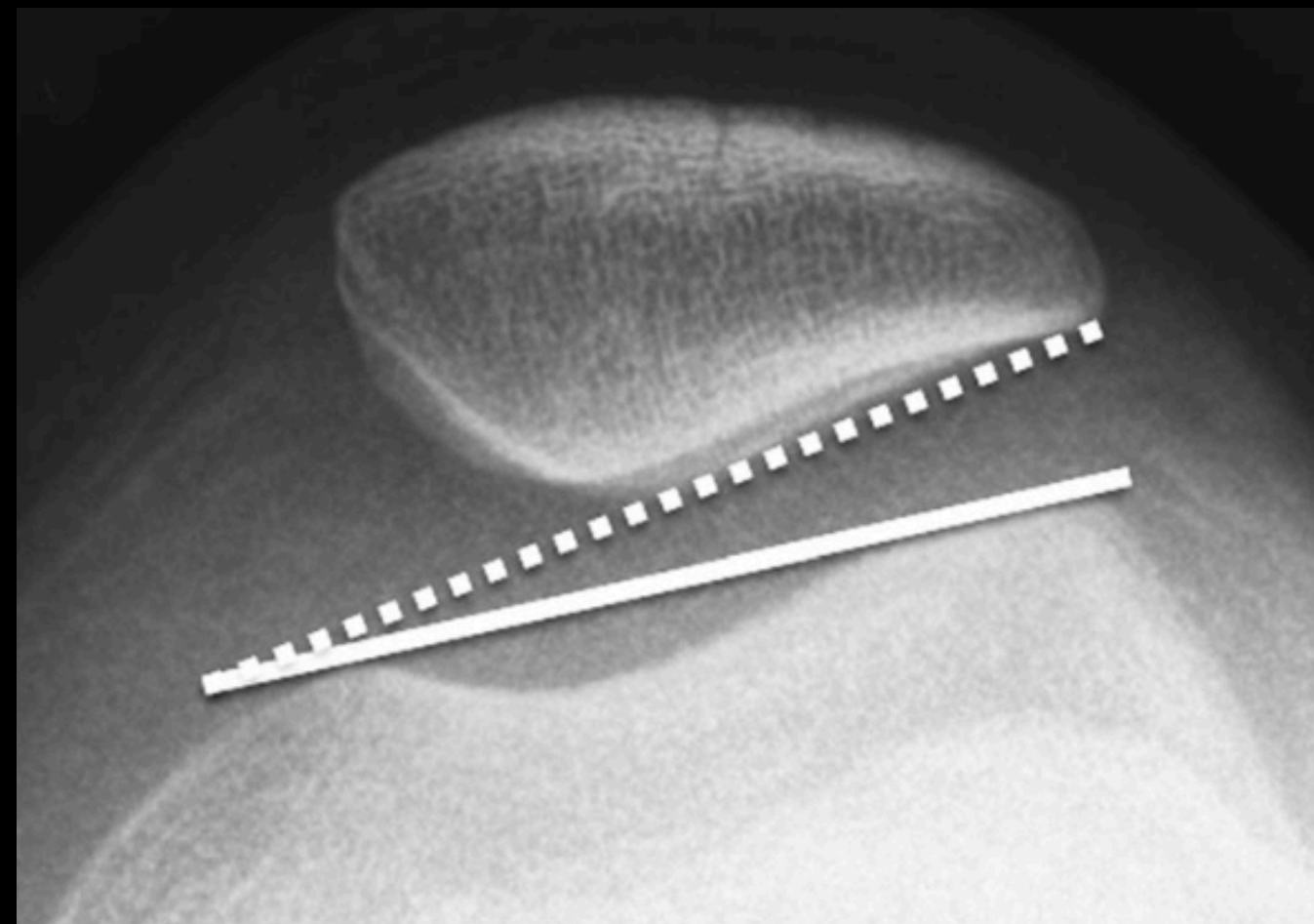
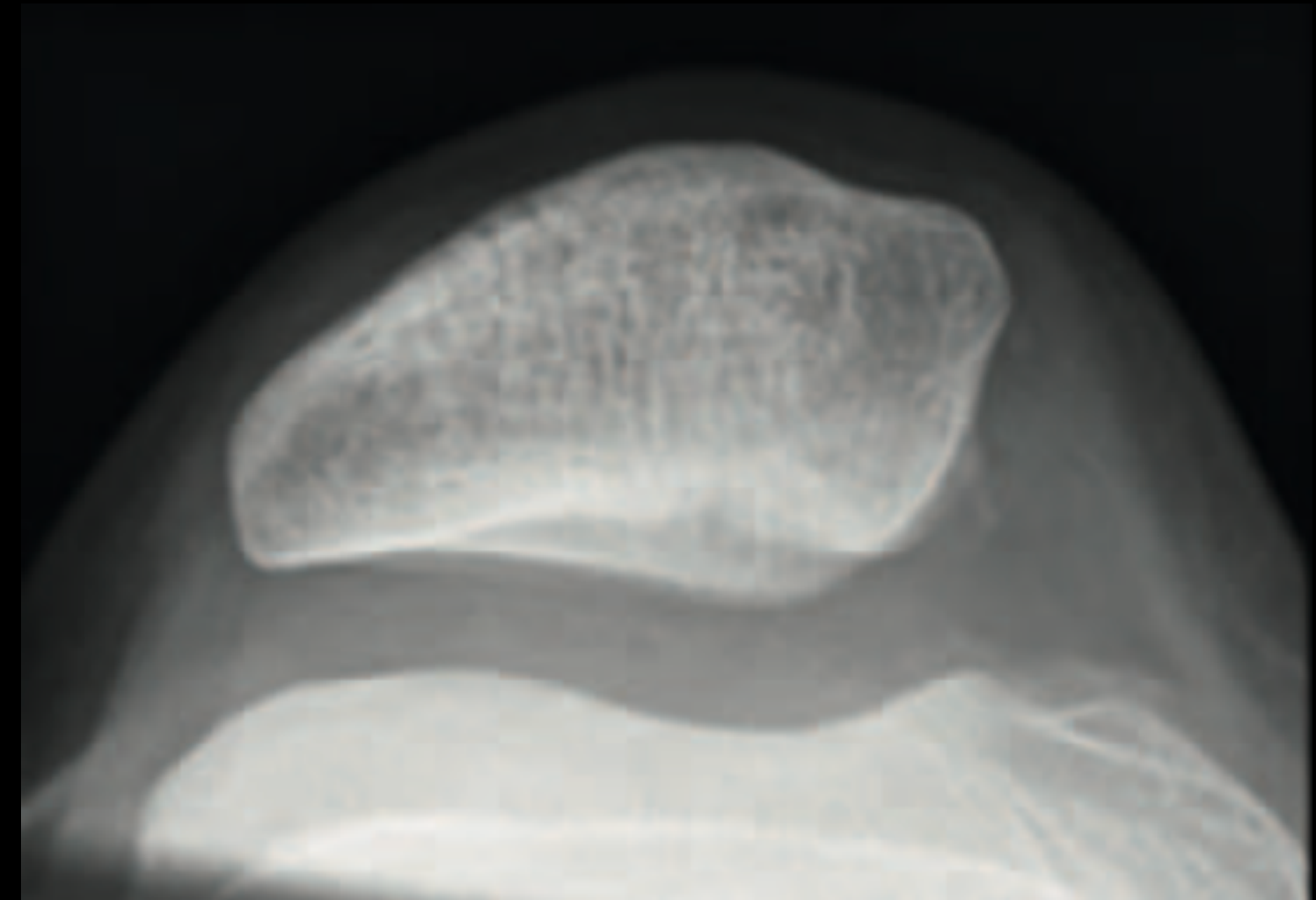
- AP view, **Axial view** and **Lateral view**



Axial view

Merchant, Laurin

- Patellar shape
- Patellar tilt

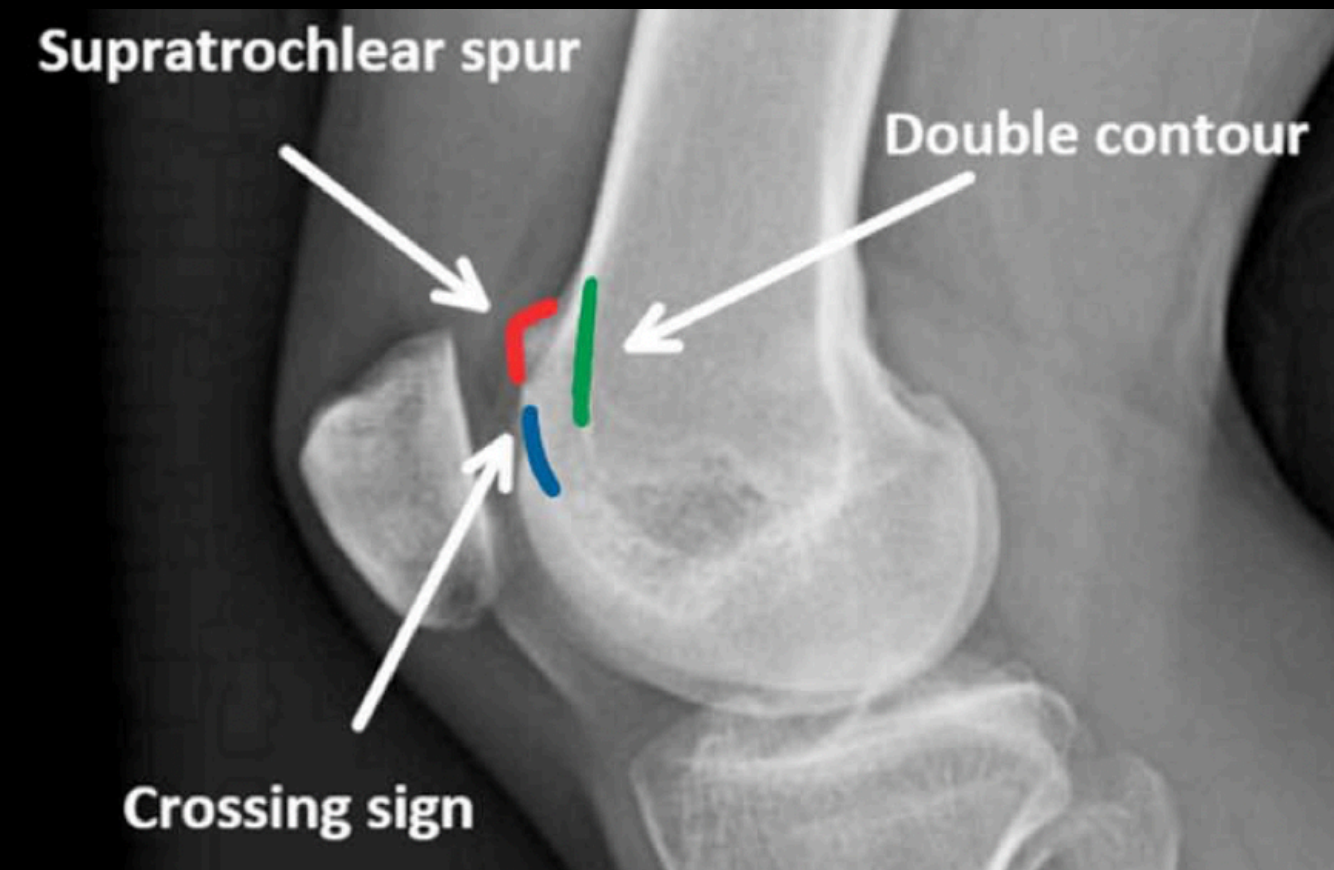


Lateral view

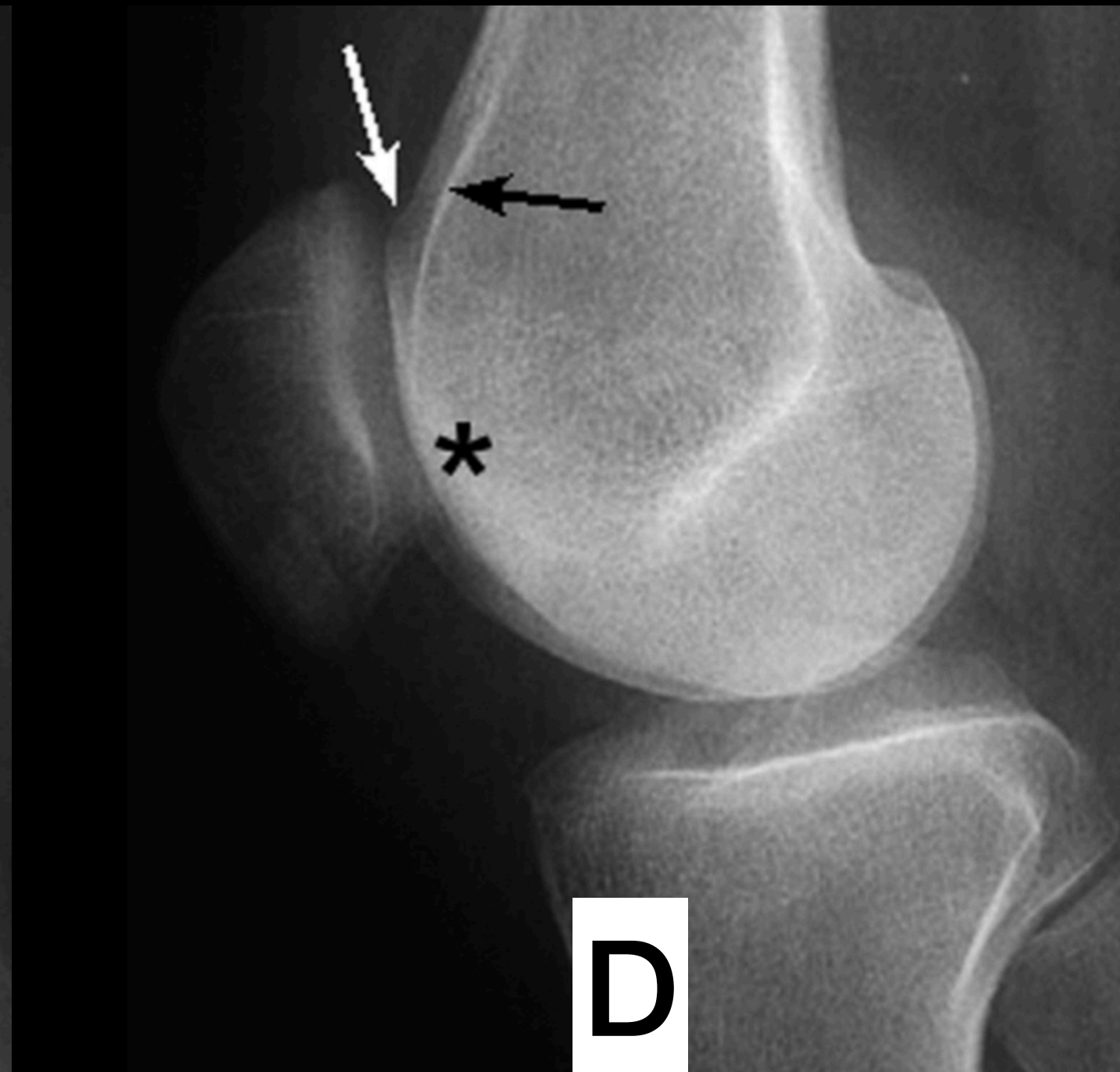
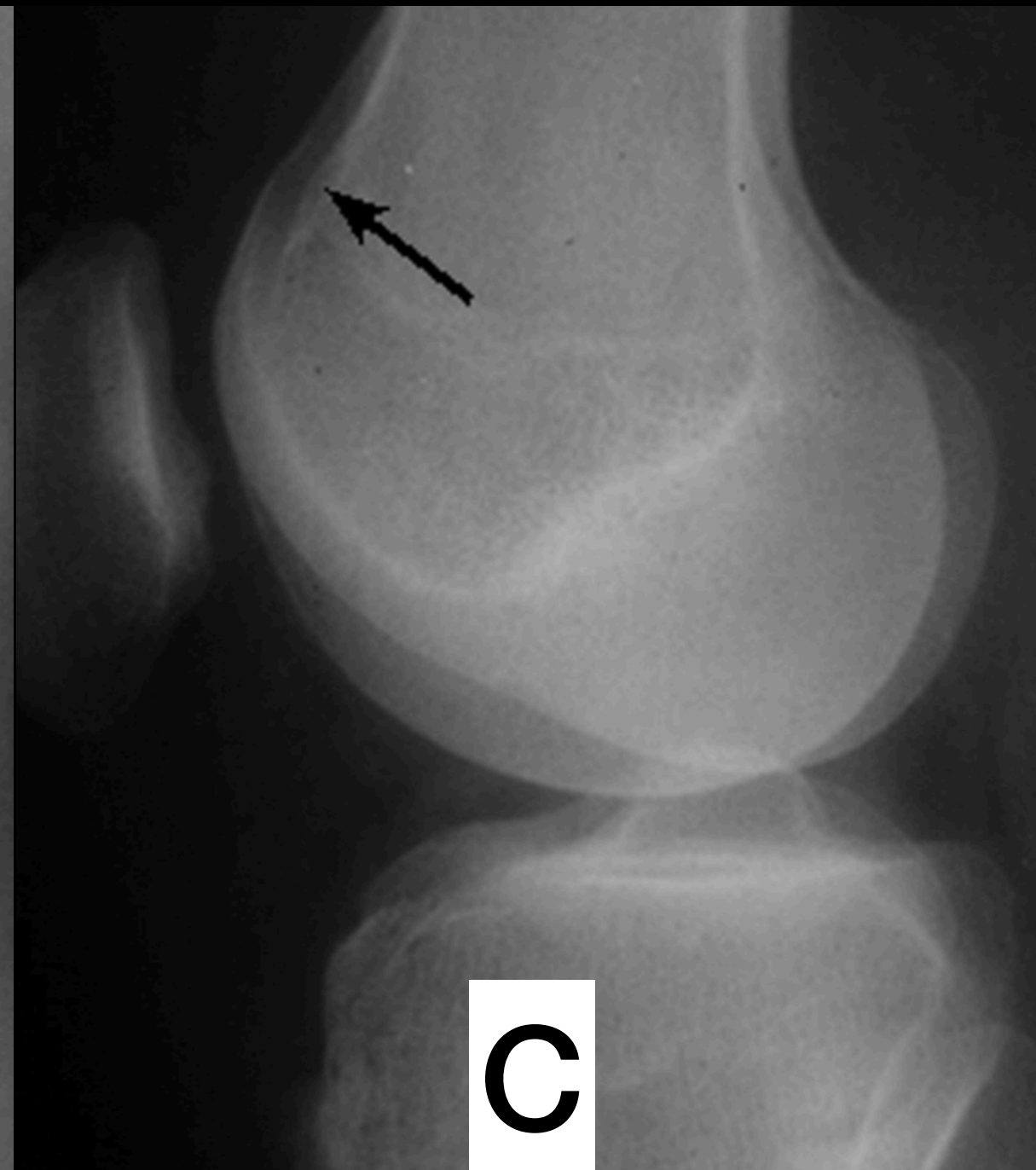
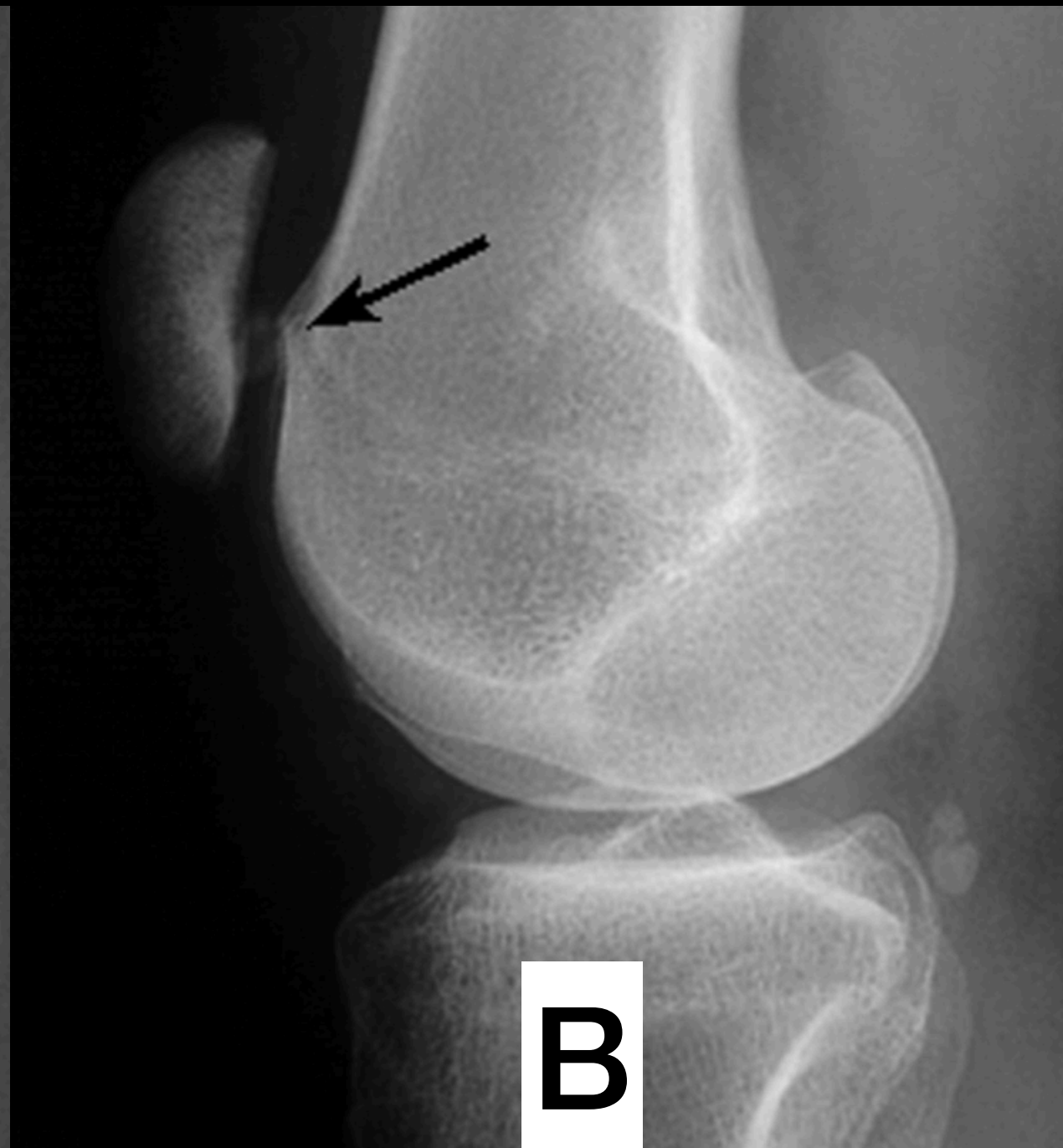
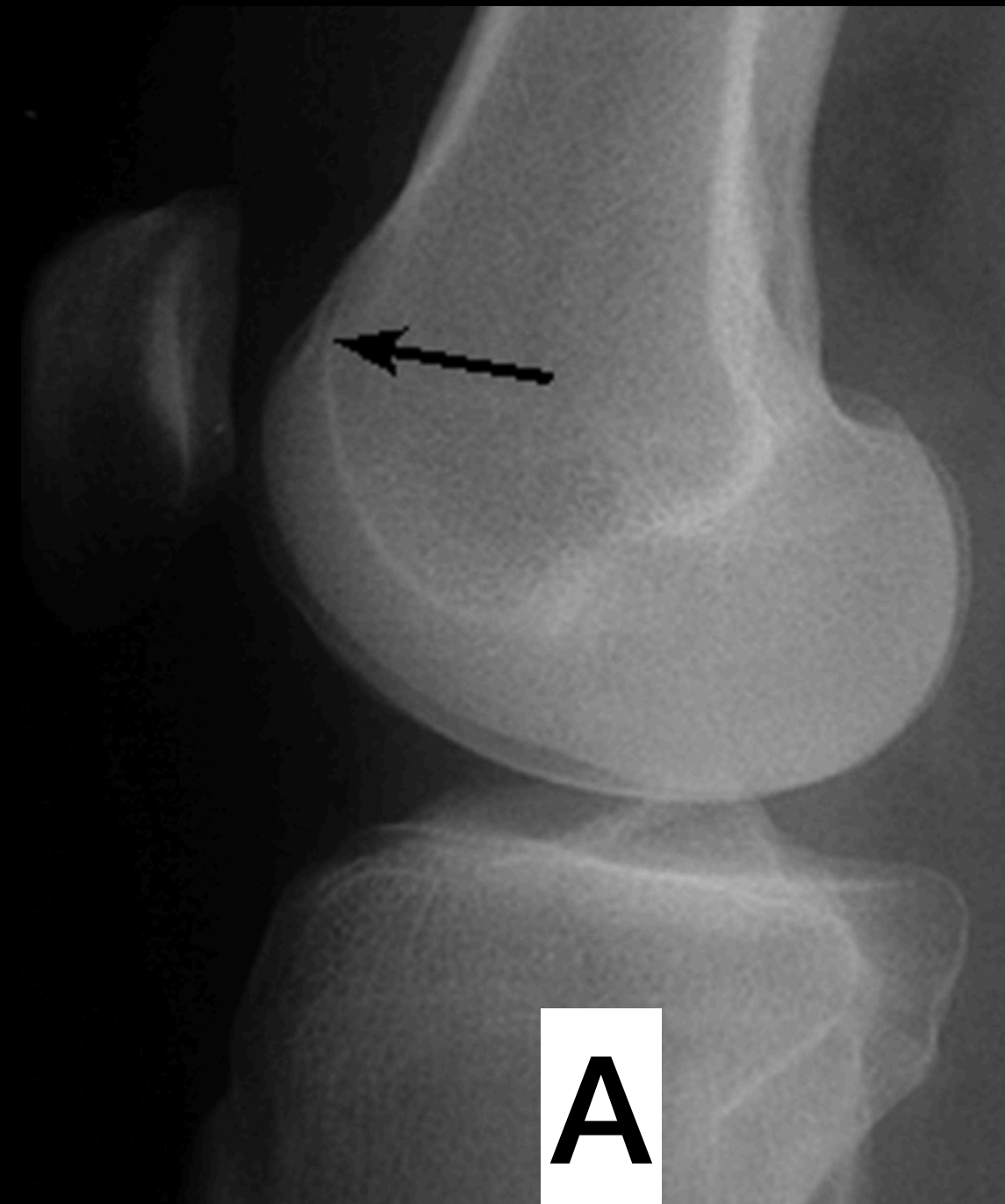
- Trochlea dysplasia
- Patella height

Lateral view

- Trochlea dysplasia



Kazley et al.

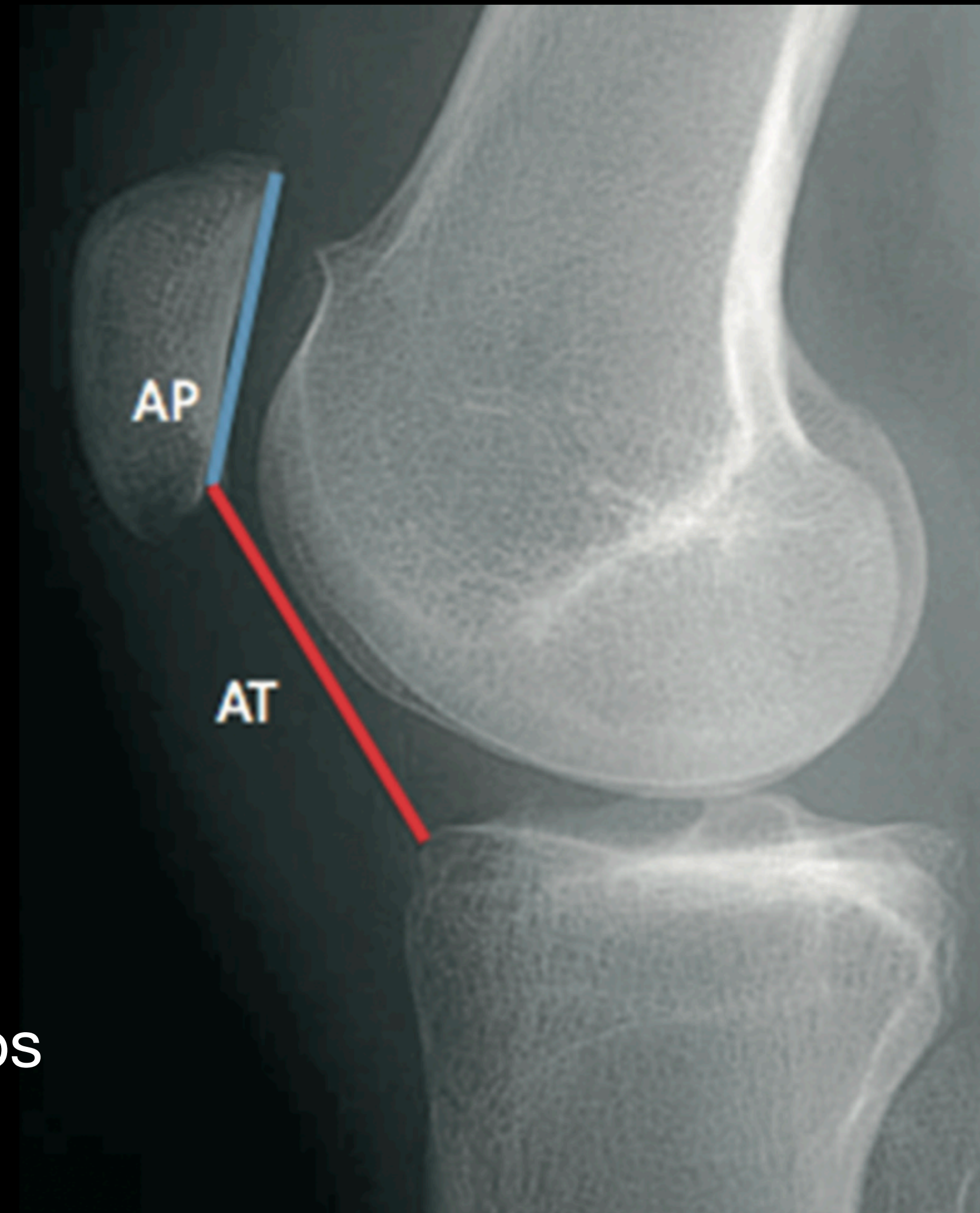


Berruto et al.

Dejour et al.

Lateral view

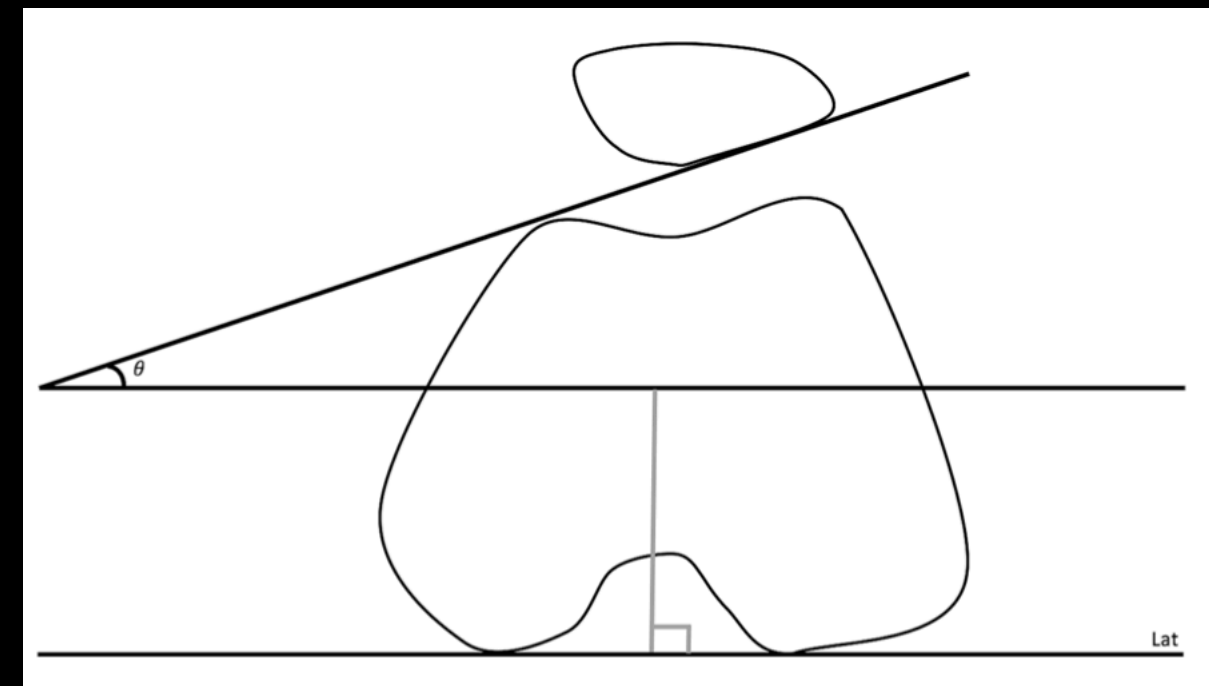
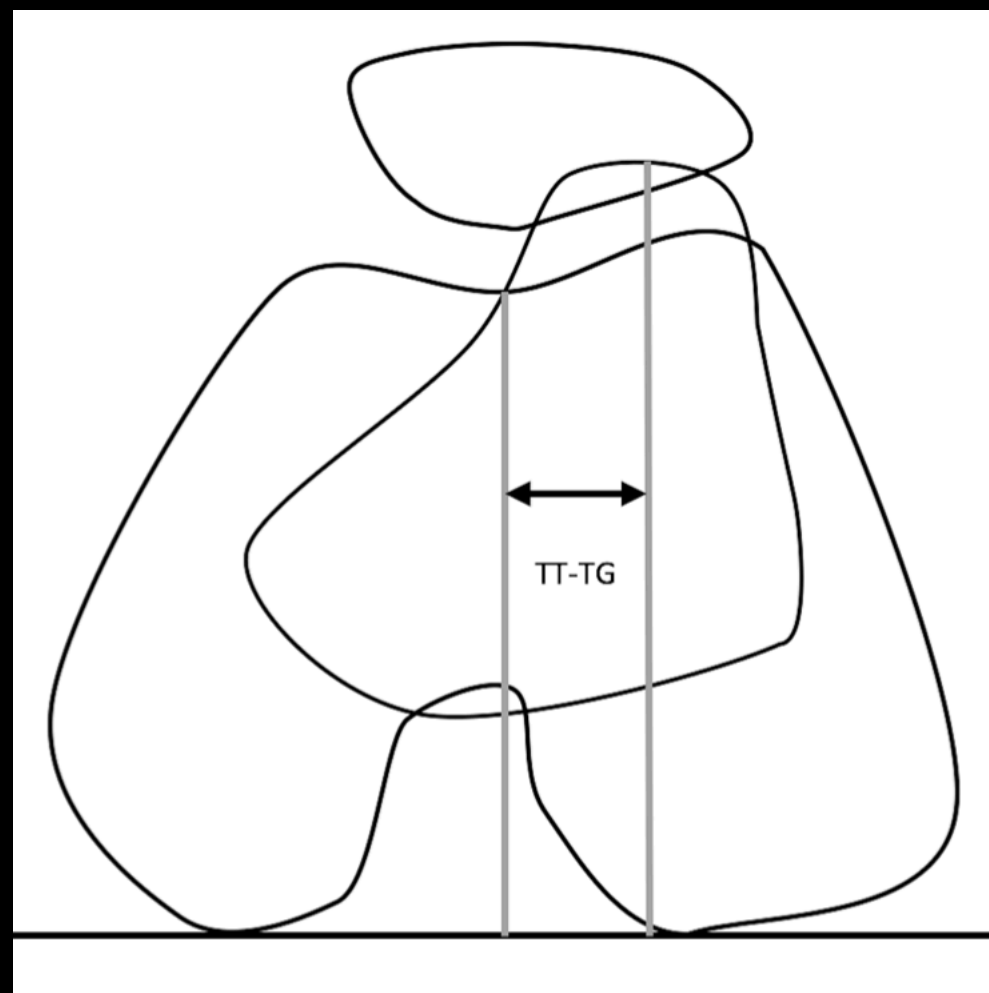
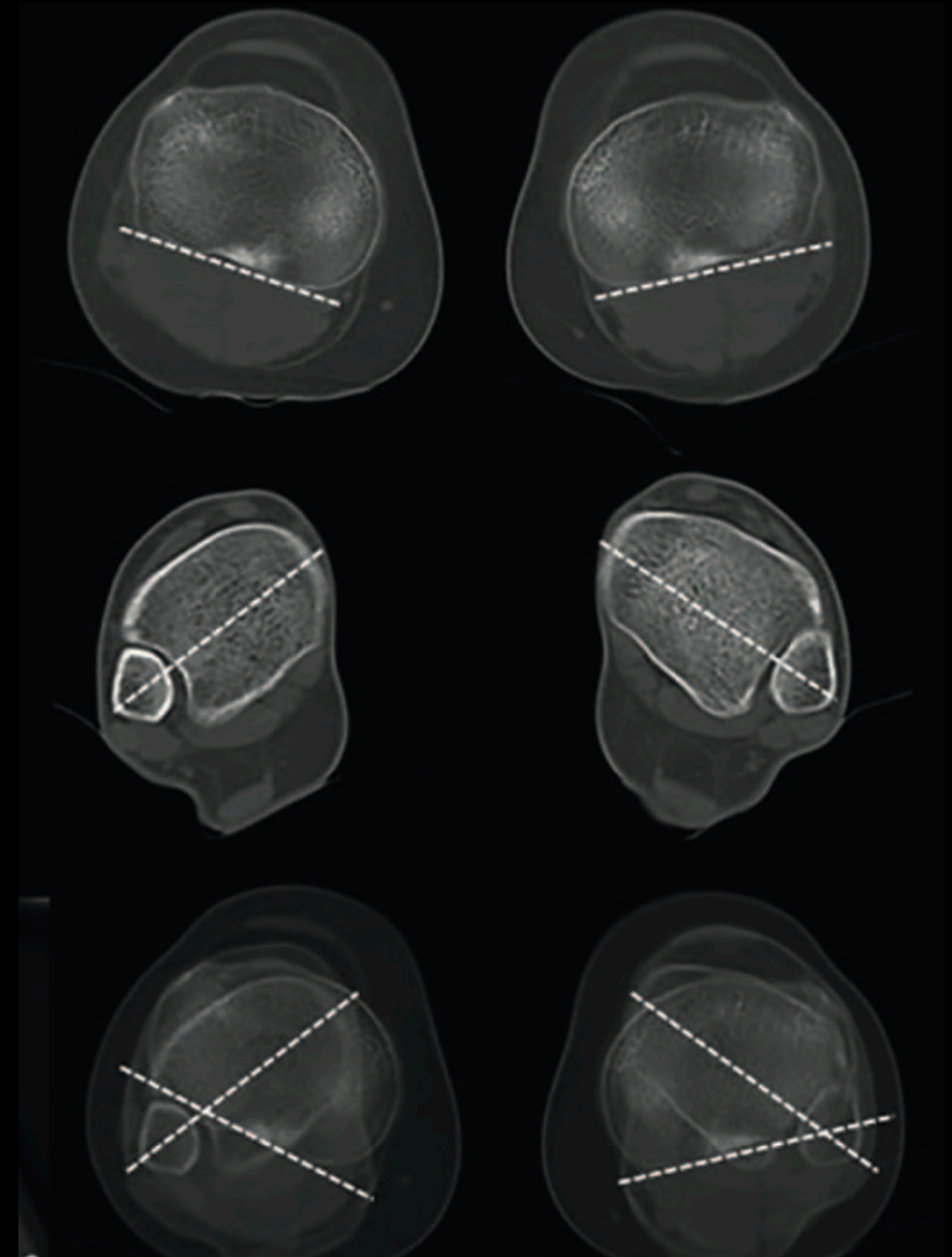
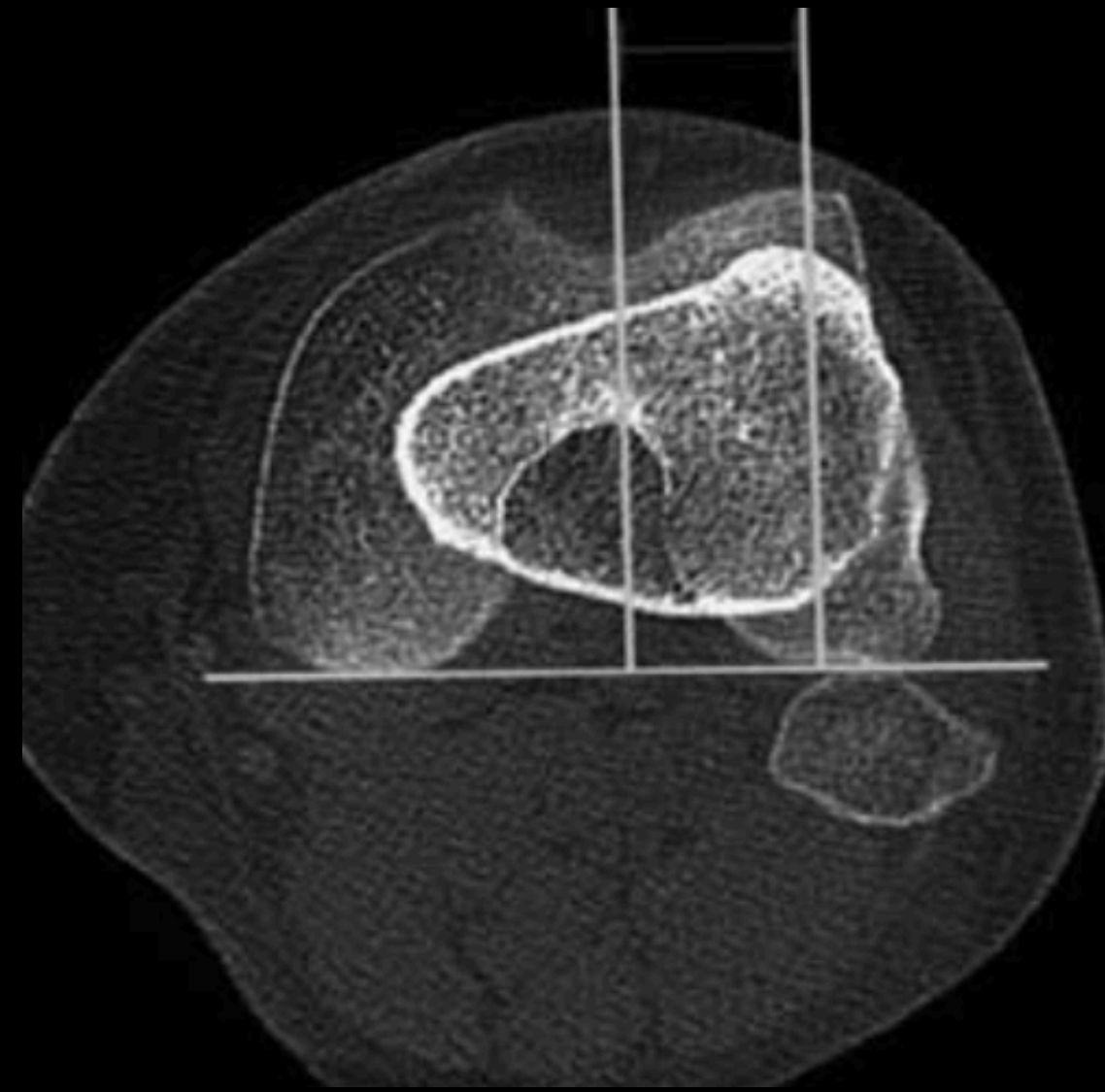
- Patella height



Caton-Deschamps

CT Scan

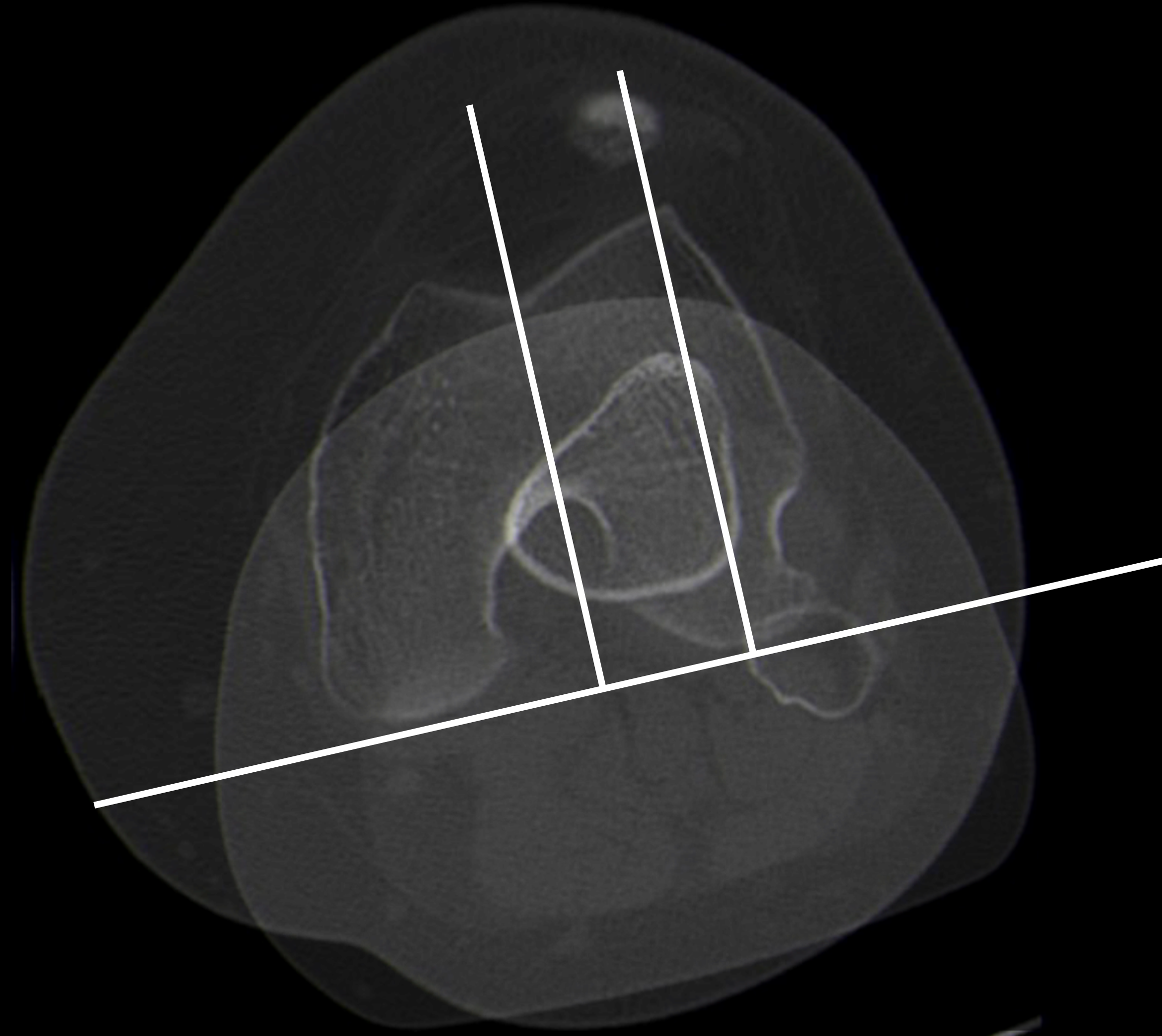
- **TT-TG distance**
- Patellar tilt
- Femoral and tibial torsion



CT Scan

TT-TG distance

normal: <15 mm
borderline: 15-20 mm
abnormal: >20 mm

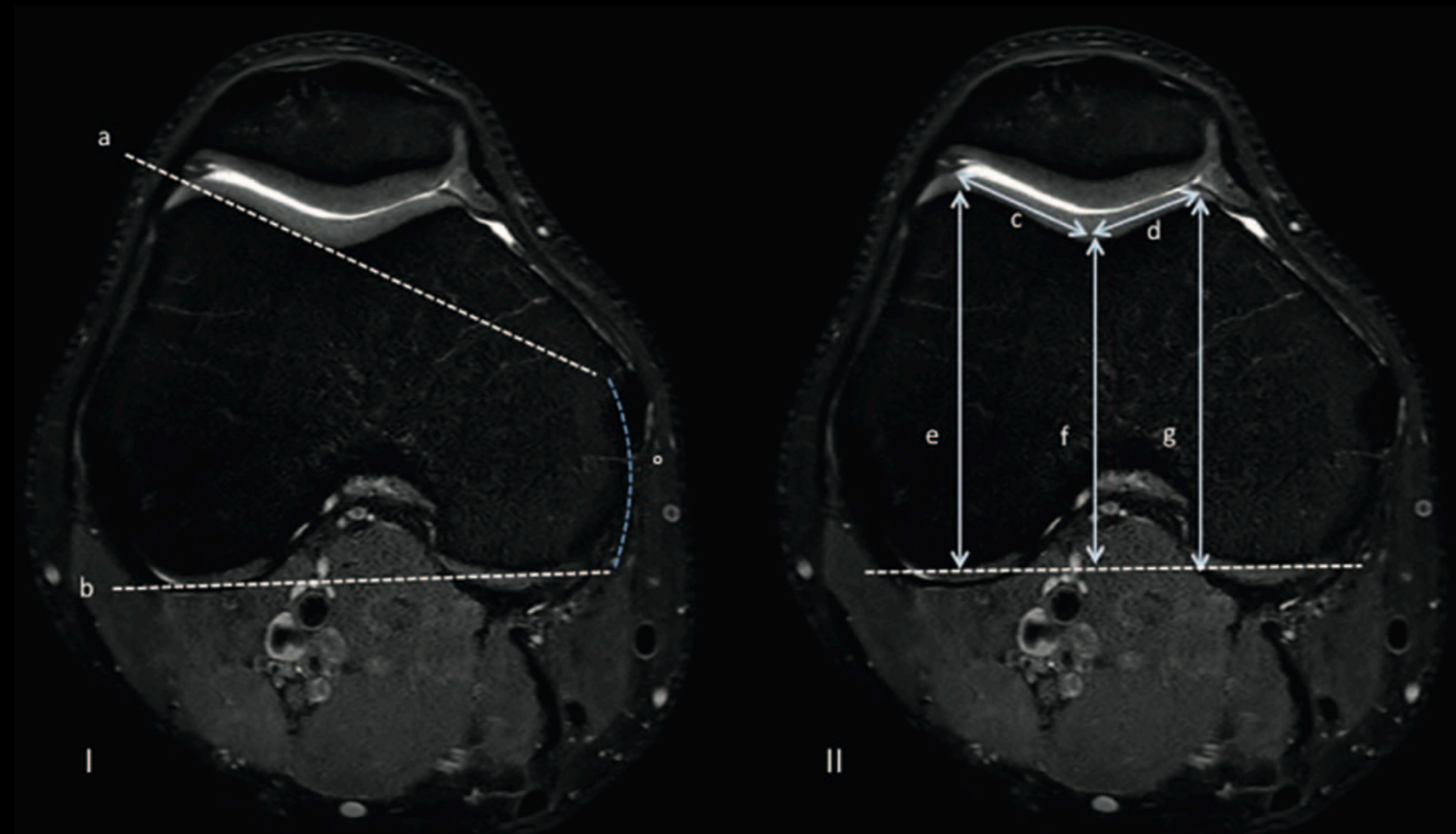
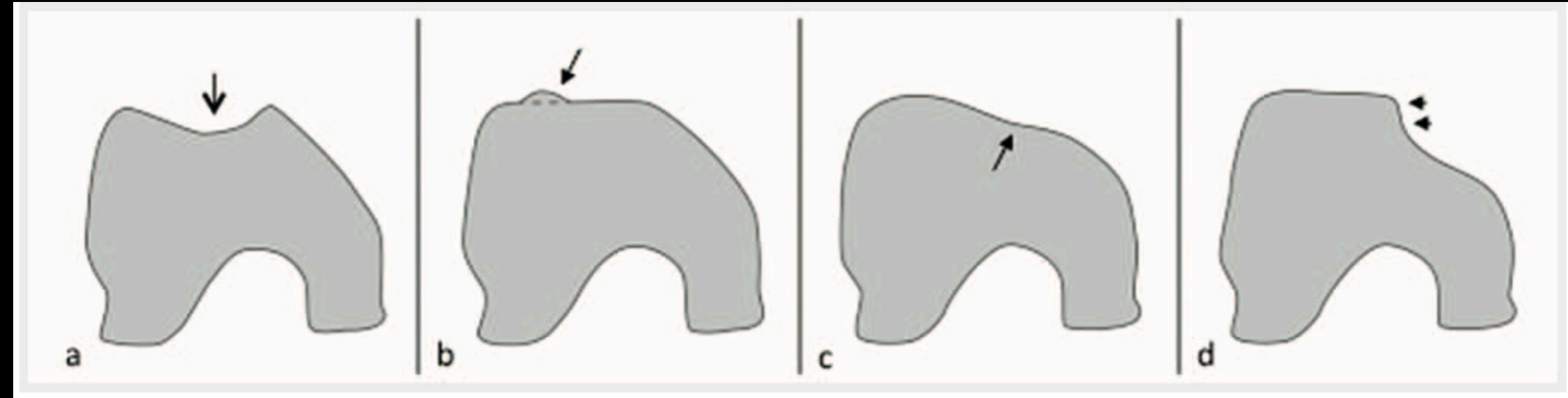


MRI

- Trochlea dysplasia
- Soft tissues: Medial Patello-Femoral Ligament MPFL
- Cartilage surface
- TT-TG distance
- Patella tilt

MRI

Trochlea dysplasia

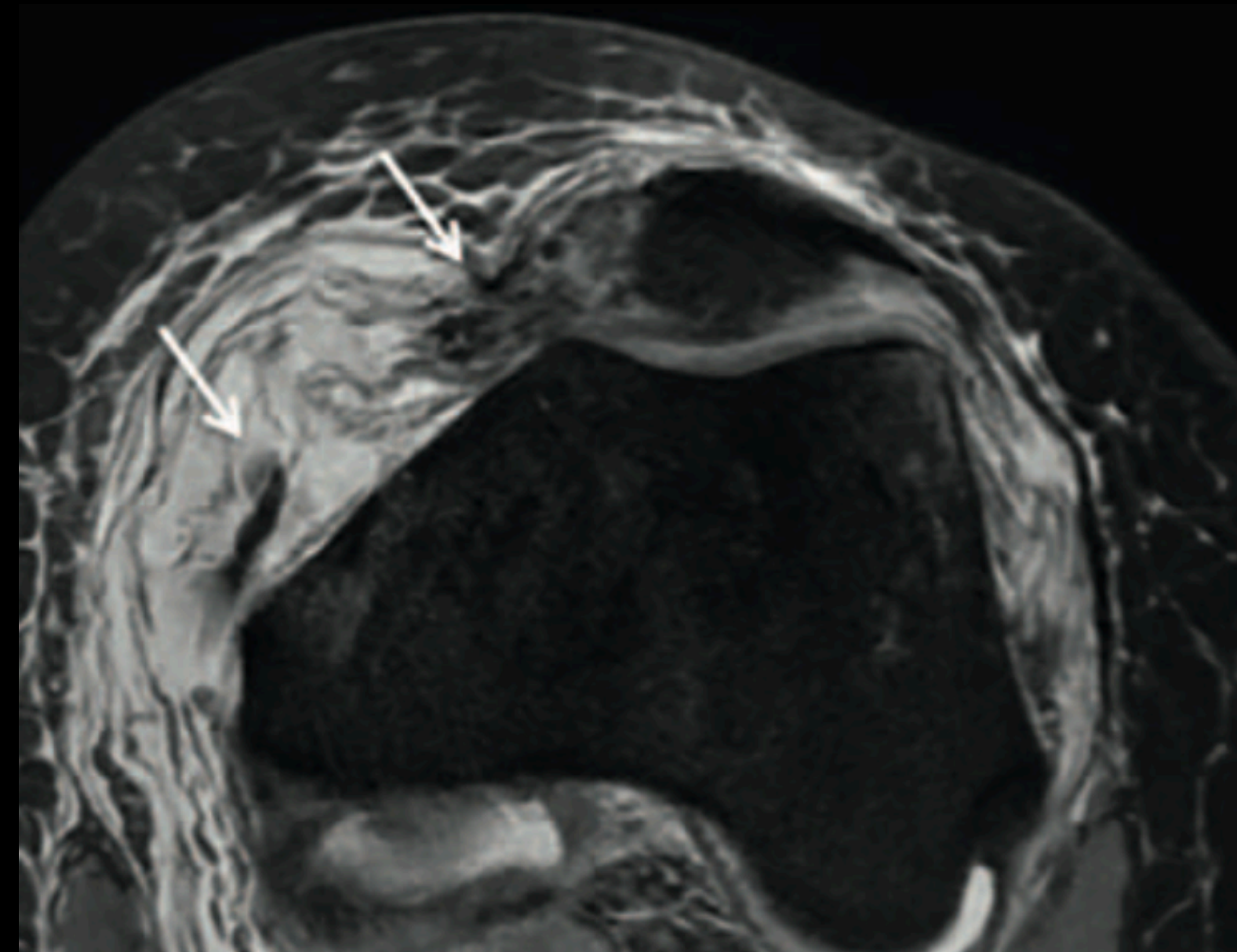


Lateral trochlear inclination

Trochlear facet asymmetry
and trochlear depth

MRI

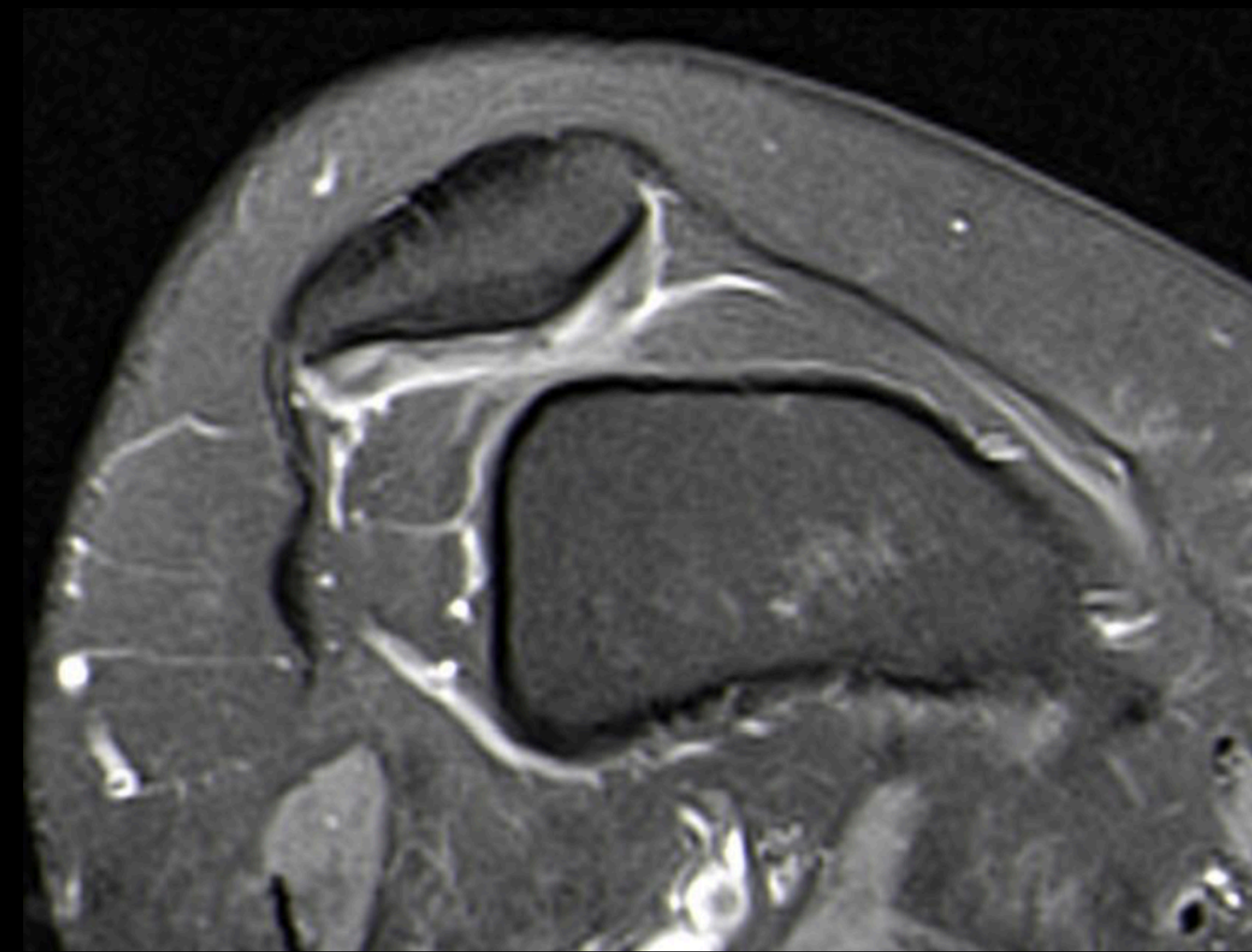
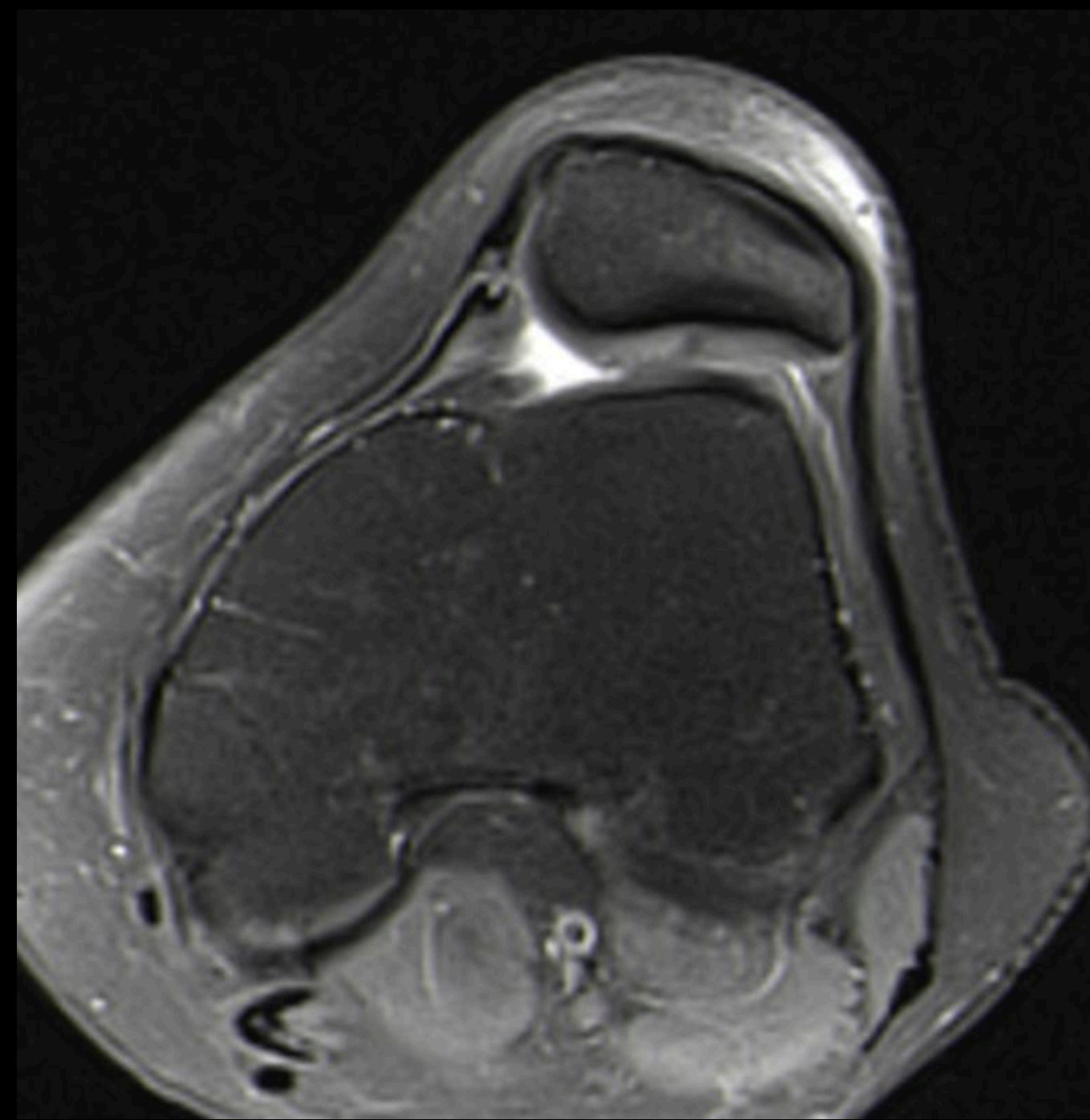
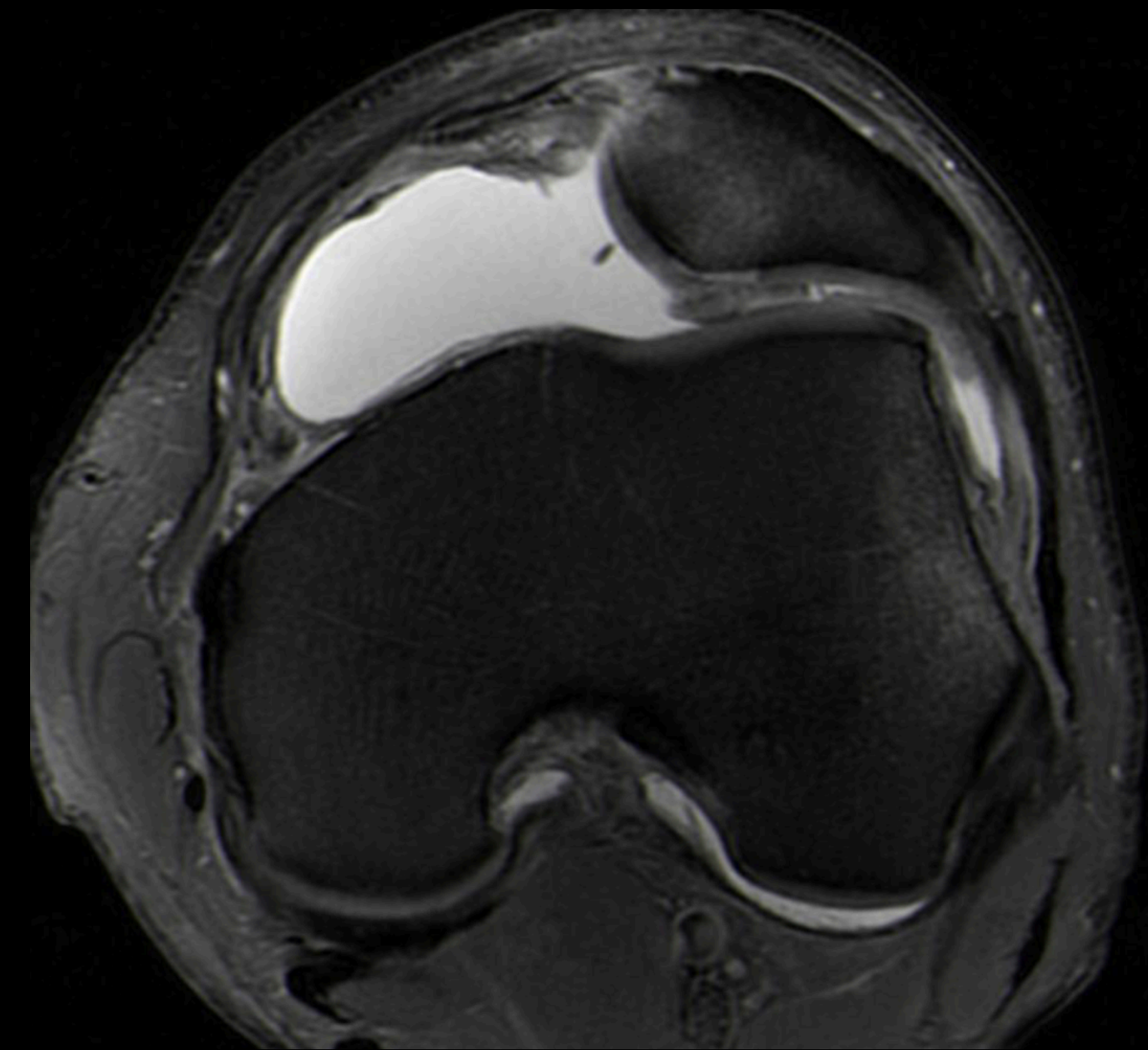
Soft tissue and bone edema



MPFL tear
Lateral femoral condyle edema

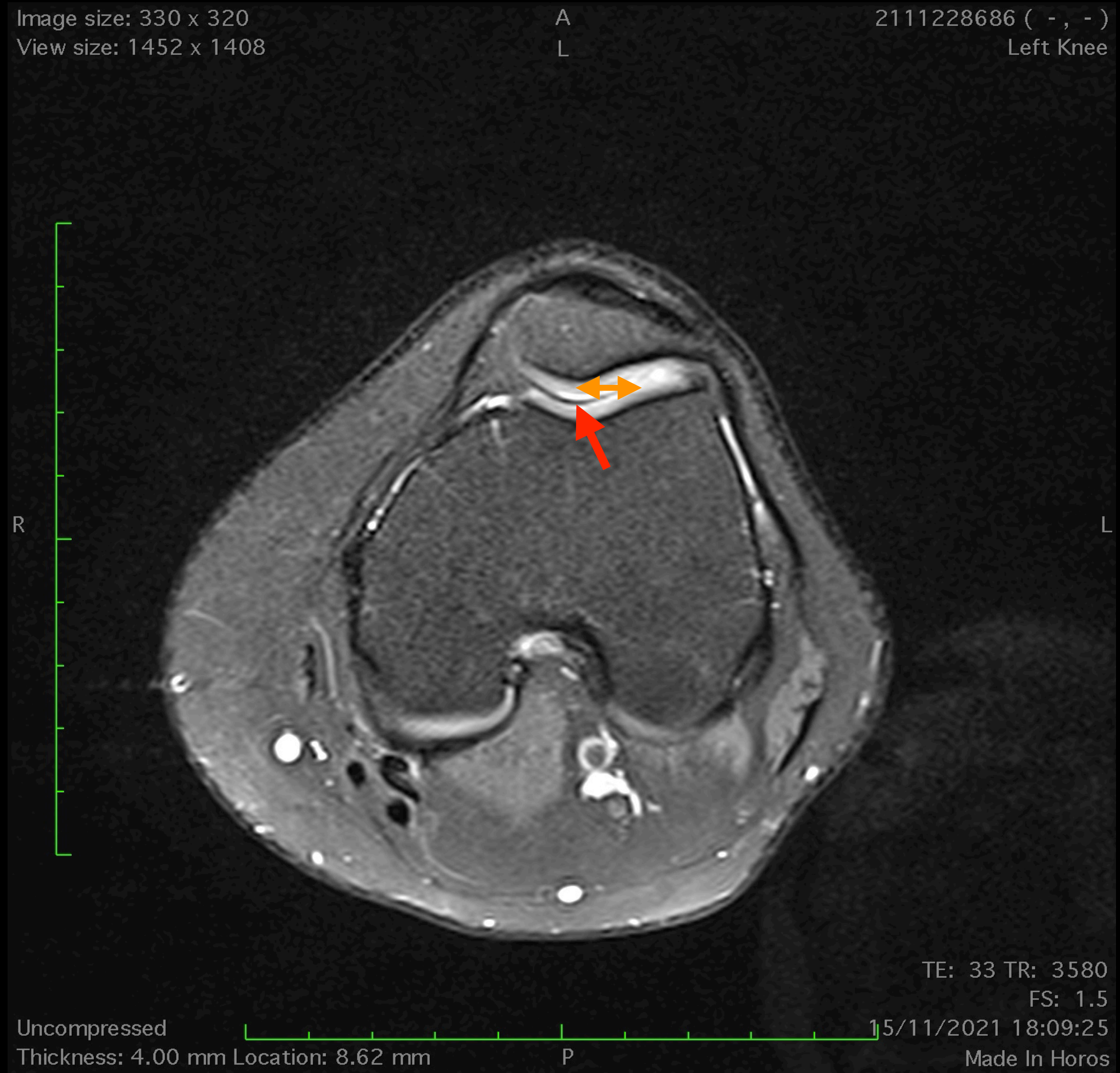
MRI

Cartilage



MRI

TT-TG distance



CT Scan vs MRI?

- **Femorotibial torsion** in favor of CT Scan
- **Radiation** during CT Scan (young patients)








MRI

Arthro CT Scan? Arthro MRI?

- More accurate cartilage evaluation
 - Can improve the use of CT Scan
- Invasive

No injection

X-Rays and MRI = Standard imaging

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Thank you

