

## ACL Tears

By Raymond Kuan

MBBS FRANZCR

ACL tears are one of the most common knee injuries encountered. The ACL plays a major role in the stability of the knee joint and is comprised of 2 components, a smaller anteromedial bundle and a larger posterolateral bundle. The mechanism of injury is often related to deceleration coupled with cutting, pivoting and sidestepping manoeuvres.

X-Rays are commonly the first imaging test ordered and they may demonstrate a post-traumatic joint effusion (fig1). Rarely, a Segond fracture (fig 2) or avulsion fracture involving the tibial footplate of the ACL (fig 3) may be present. The latter is usually only seen in the paediatric population. When these fractures are present, they are highly suggestive of an underlying ACL injury.

Ultrasound findings are non-specific, usually demonstrating a joint effusion and sometimes, an associated MCL injury. Being a deep intra-articular structure, the ACL itself is poorly visualised on ultrasound. As such, ultrasound is not recommended for the routine assessment of ACL injuries.

MRI is the non-invasive imaging modality of choice for the assessment of ACL tears (fig4a and 4b). Apart from assessment of the ACL, MRI allows for assessment of associated injuries which commonly occur with ACL tears. These include bone bruising/fractures, meniscal and ligamentous injuries. ACL pattern bone bruising usually involves the subchondral region of the posterior aspect of the lateral tibial plateau and the lateral femoral condylar notch/sulcus (fig 5). Meniscal tears may involve either meniscus (fig 6). Associated ligamentous injuries include the MCL and FCL (fig 6).

In the setting of acute trauma, GPs may order Medicare rebatable MRs on certain approved machines if there is suspicion of an ACL injury. In the paediatric population (under 15), this must be preceded by plain radiographs to be eligible.





FIG 2. Segond Fracture

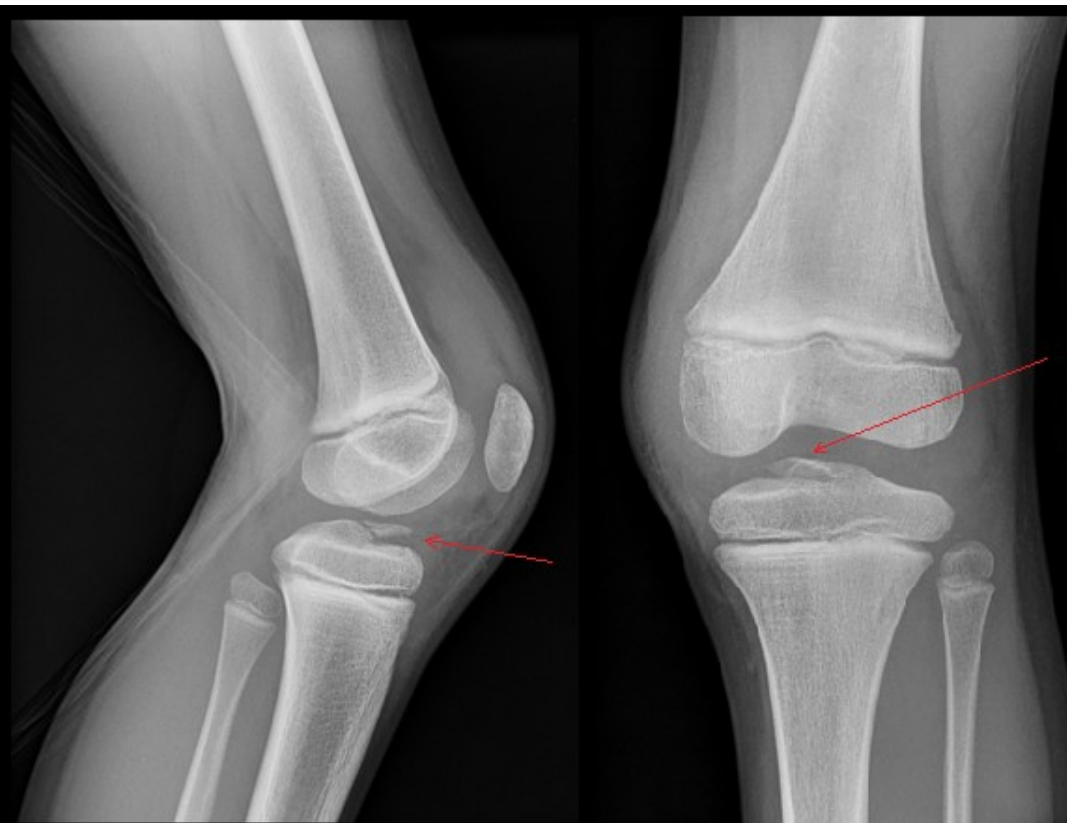


FIG 3. ACL Tibial Footplate Avulsion Fracture



FIG 4a. Normal ACL

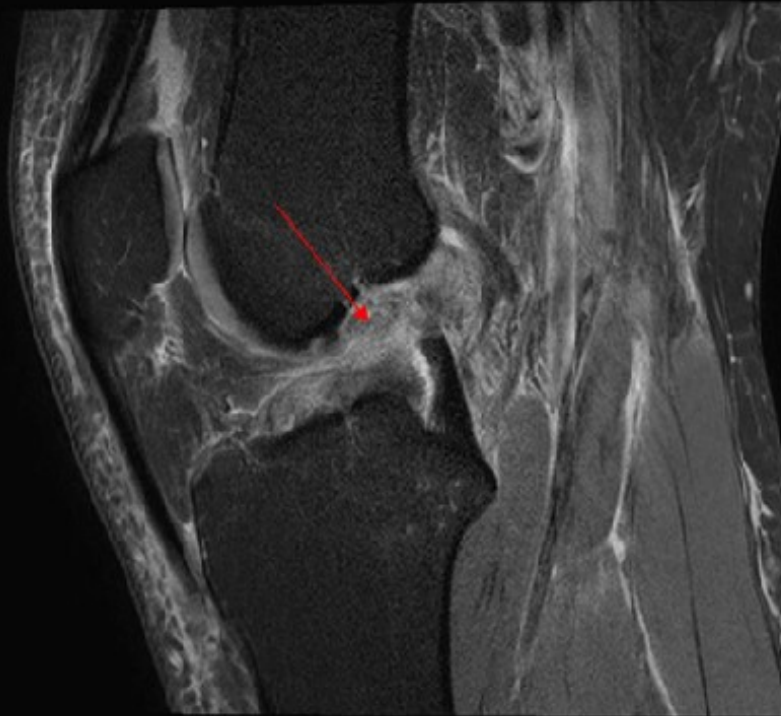


FIG 4b. ACL Tear



FIG 5. ACL Pattern Bone Bruising & Fracture



FIG 6. Meniscal, MCL & FCL Injuries