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**Skiing Knee Injury: The relevance of subtle radiographic findings**

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**CLINICAL PRESENTATION**

A 24 year old lady sustained a knee injury whilst skiing and underwent plain knee radiographs. Subtle features were identified on the knee radiograph which warranted further imaging with MRI.

**IMAGES**

![Figure 1a](image1.png) **Figure 1a:** AP knee radiograph shows subtle avulsion fracture from the lateral margin of the lateral tibial plateau, termed a Segond fracture (arrow)

![Figure 1b](image2.png) **Figure 1b:** Lateral knee radiograph shows an intra-articular bone fragment (short arrow) and moderate joint effusion (arrow)
Segond Fracture and avulsion of the anterior cruciate ligament from the tibial plateau. Avulsion fracture from the lateral margin of the lateral tibial plateau indicating a Segond Fracture; also referred to as the Lateral Capsular Sign. Avulsion of the tibial spine indicating ACL avulsion injury.

DIAGNOSIS
Segond Fracture and avulsion of the anterior cruciate ligament from the tibial plateau.

RADIOGRAPHIC FEATURES
Avulsion fracture from the lateral margin of the lateral tibial plateau indicating a Segond Fracture; also referred to as the Lateral Capsular Sign.

Avulsion of the tibial spine indicating ACL avulsion injury.

SEGOND FRACTURE
The Segond fracture was initially described by a French surgeon Paul Segond in 1879. Anatomically it indicates cortical avulsion of the lateral capsular ligament of the knee. The mechanism of this injury involves internal rotation of the knee with varus stress. The importance of this injury which warrants further imaging with MRI is the high incidence of associated anterior cruciate ligament injury and meniscal tears. It is also possible to sustain a reverse Segond fracture, which as its name implies, comprises an avulsion of the medial margin of the medial tibial plateau and is associated with injury to the posterior cruciate ligament and medial meniscal tears.

It is slightly unusual in this case that there is avulsion of the ACL rather than a midsubstance tear of the ACL which is a more common occurrence with Segond fractures. ACL avulsion injuries are generally more common in children than adults and tend to occur via different mechanisms in these groups, with a hyperextension mechanism proposed in adults. Radiographically, they appear as a tiny bony fragment within the intercondylar notch with some irregularity of the tibial plateau donor site.

In summary this case highlights the importance of identifying subtle bone avulsion injuries on radiographs of the knee following trauma, and the importance of performing further MRI imaging to identify underlying ligamentous or meniscal injury.

REFERENCES

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