Case Report: Segond Fracture

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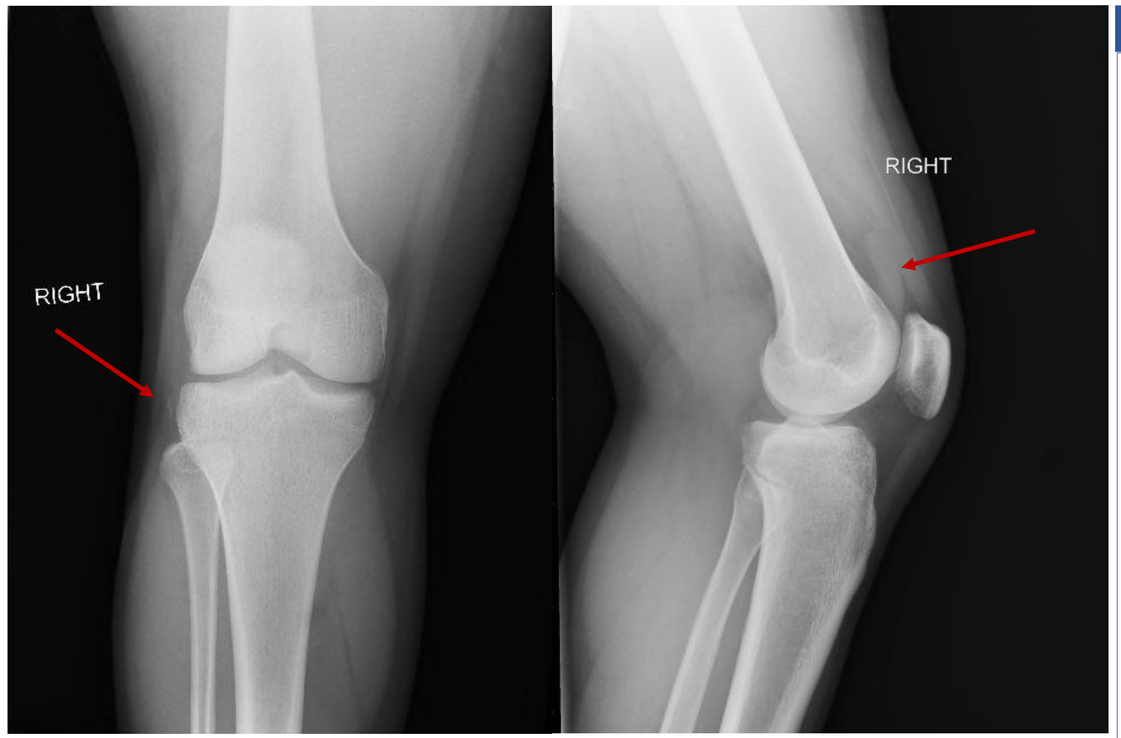
Introduction

Injuries of the anterior cruciate ligament (ACL) are common and represent the most common knee ligament injury. Diagnosis of an ACL tear is typically made by MRI. However, upon presentation patients frequently first undergo radiographic evaluation of the injured knee. Some associated injuries and secondary signs of ACL tear can be detected by plain radiographs of the knee including the Segond fracture, joint effusion, the deep lateral sulcus sign, arcuate fracture, and the anterior tibial translocation sign.

Case

The patient is a 21 year old male presenting with knee pain. He reports a popping sensation while playing football and the inability to bear weight. He also had the sensation of knee instability. Upon arrival to the emergency room, radiographs of the knee were obtained.



AP view of the right knee demonstrates an avulsion fracture of the lateral tibial plateau—the Segond fracture. A Lateral view shows a joint effusion.

Discussion

The Segond fracture is only seen in 9-12% of ACL ruptures[1], but when present is highly associated with 75-100% of cases demonstrating ACL injury[2]. The Segond fracture is an avulsion fracture of the lateral tibial plateau attributed to internal rotation and varus stress to the knee. Common presentation is knee pain and joint instability[3]. Other associated injuries include medial meniscus tears and injury to the biceps femoris and other supporting ligaments of the knee[4]. Segond fractures are best visualized on anteroposterior views of the knee, and appears as a crescentic or curvilinear bone fragment lateral to the lateral tibial plateau[4]. An accompanying joint effusion is usually present and represents hemarthrosis. MR is indicated to evaluate the full extent of the injury. No treatment is necessary for the Segond fracture itself, however, repair of the ACL or other injuries is necessary.

Sagittal proton density and T1 images demonstrate a complete anterior collateral ligament tear

Lateral meniscus tear and effusion

Lateral tibial plateau and femoral condyle bone edema

Fibular collateral ligament injury

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