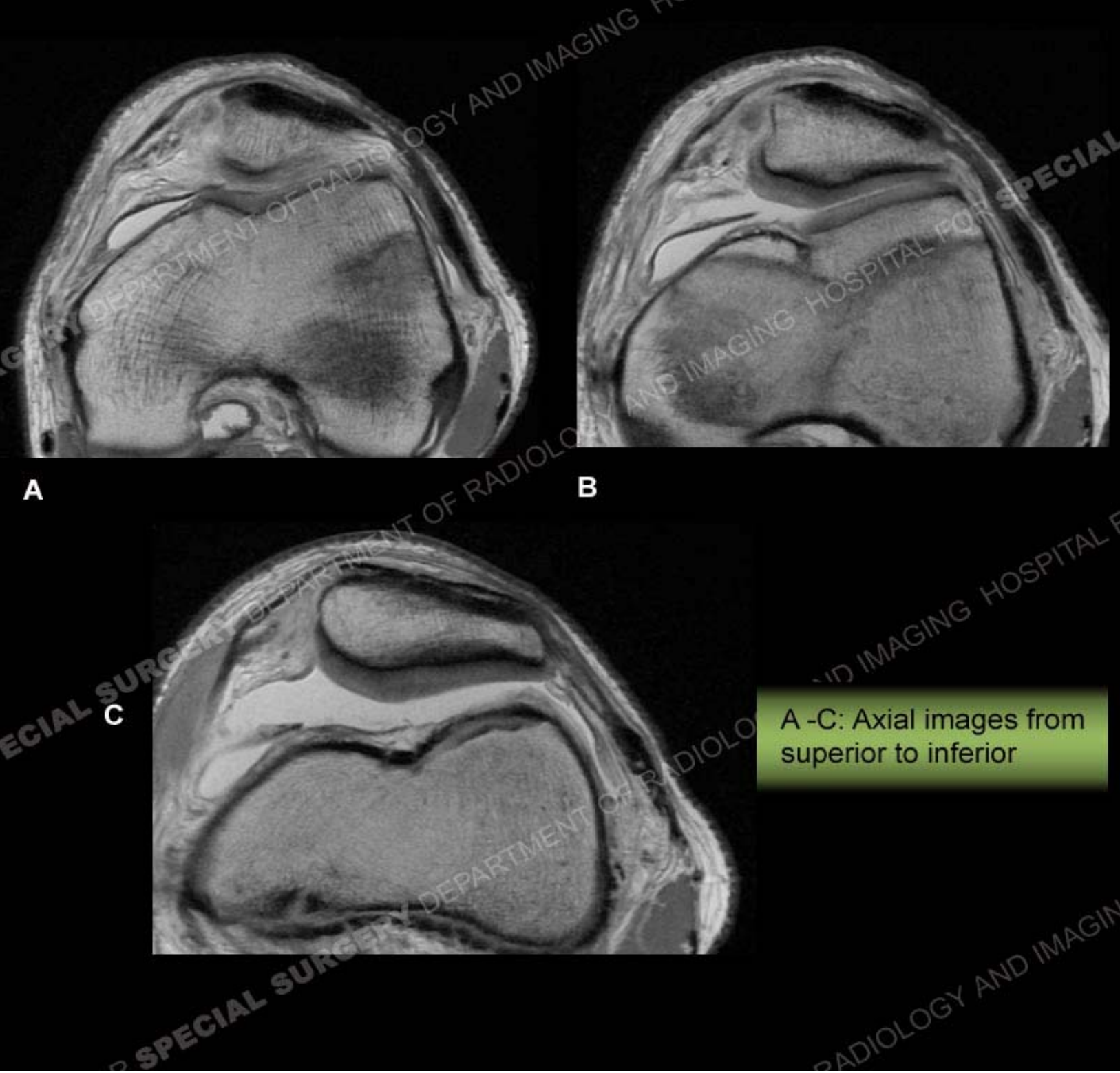

LEF
History: 17 Year old man with recent knee trauma


L
Axial PD and IR Sagittal images


A
B
C
A -C: Axial images from superior to inferior

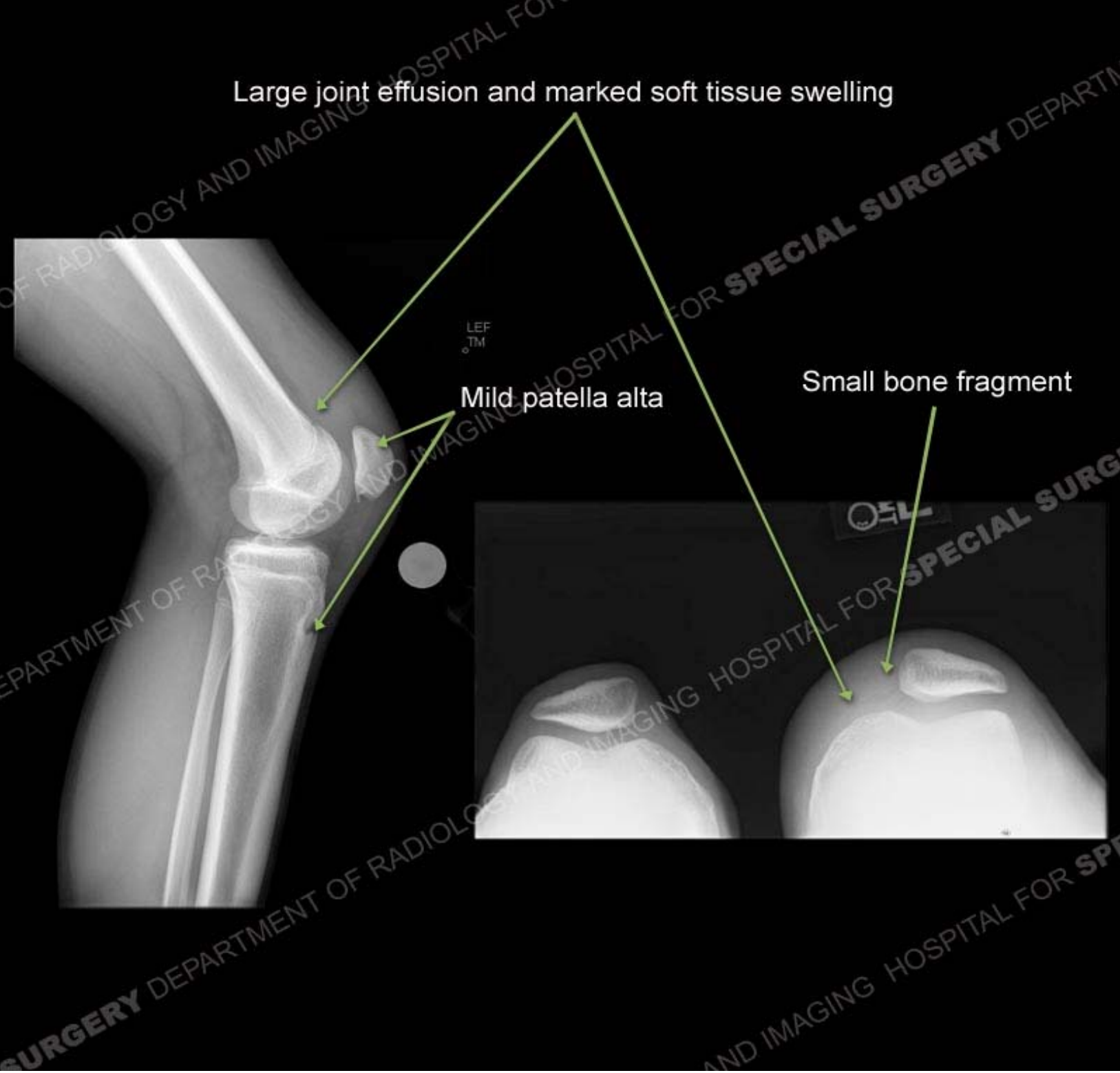
PD Coronal

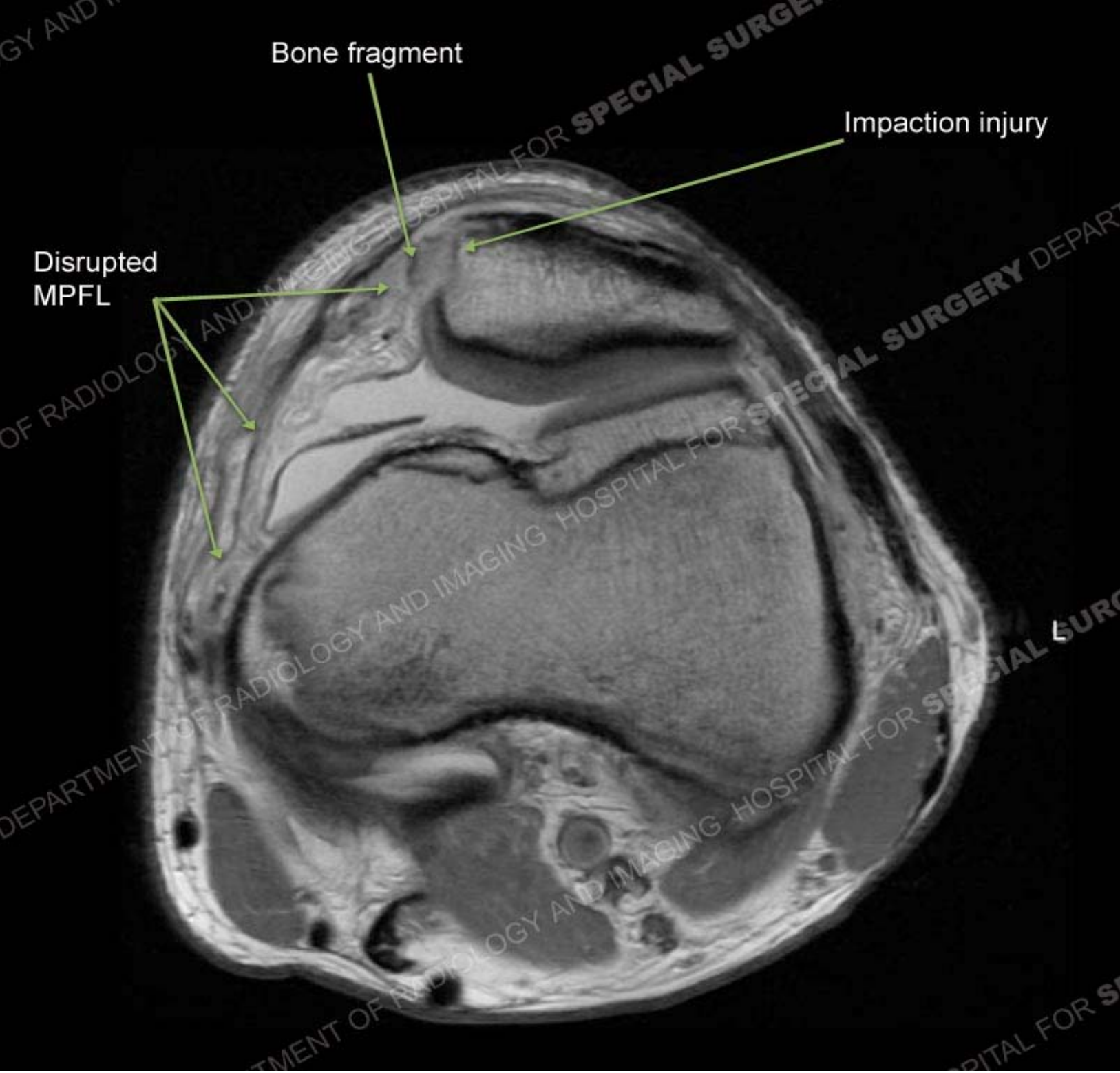
PD Sagittal

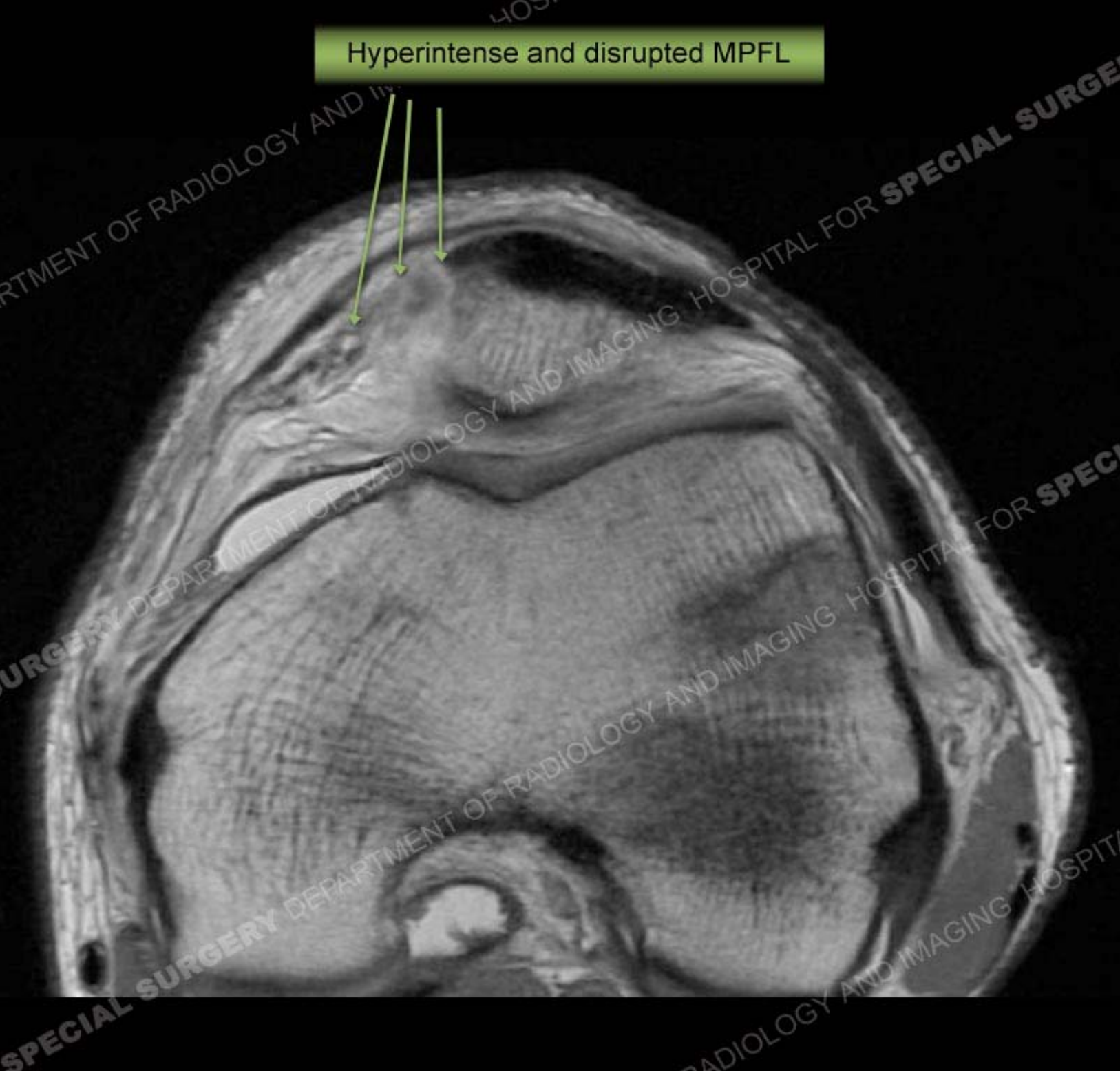
IR Sagittal

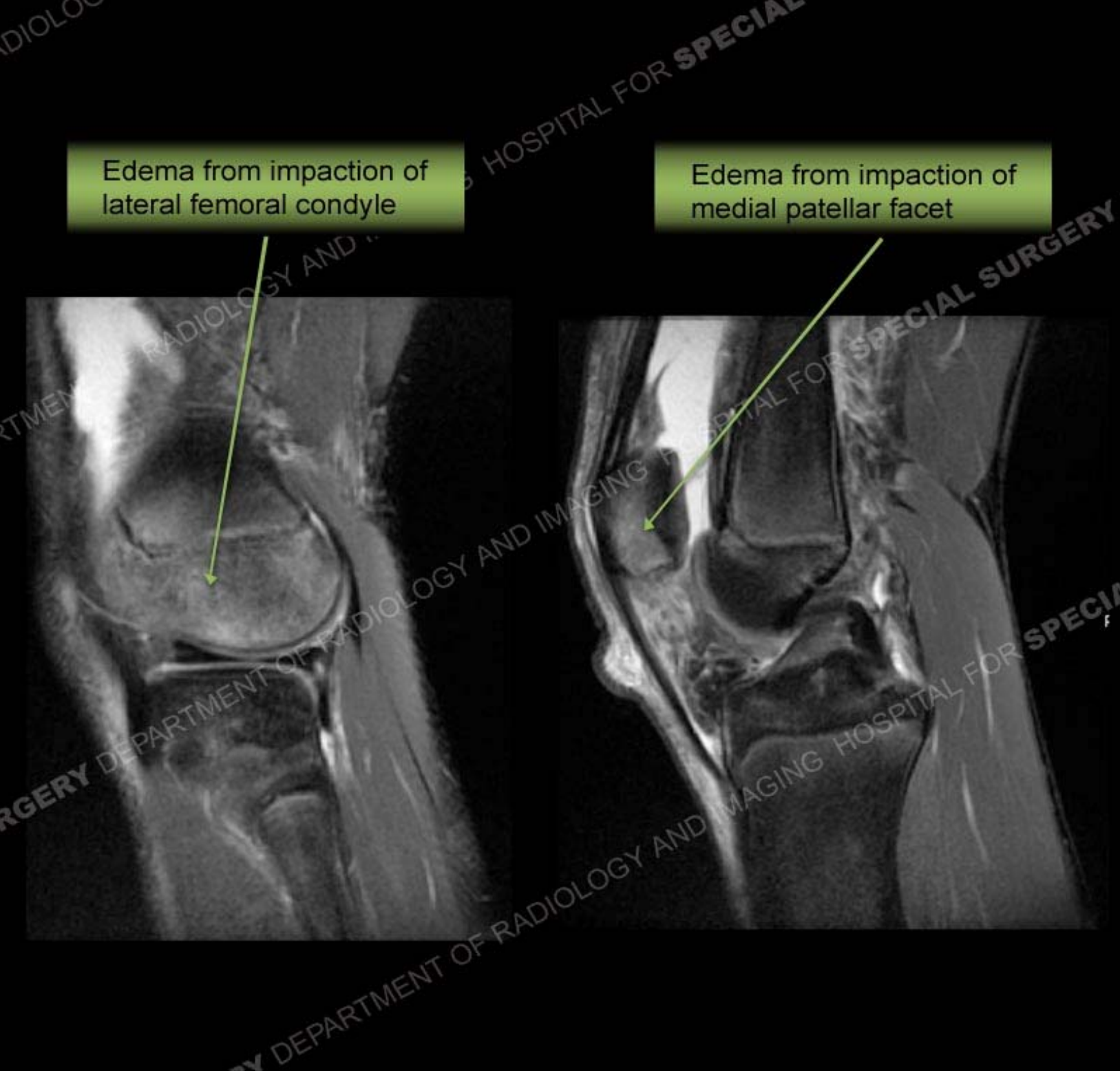
Findings

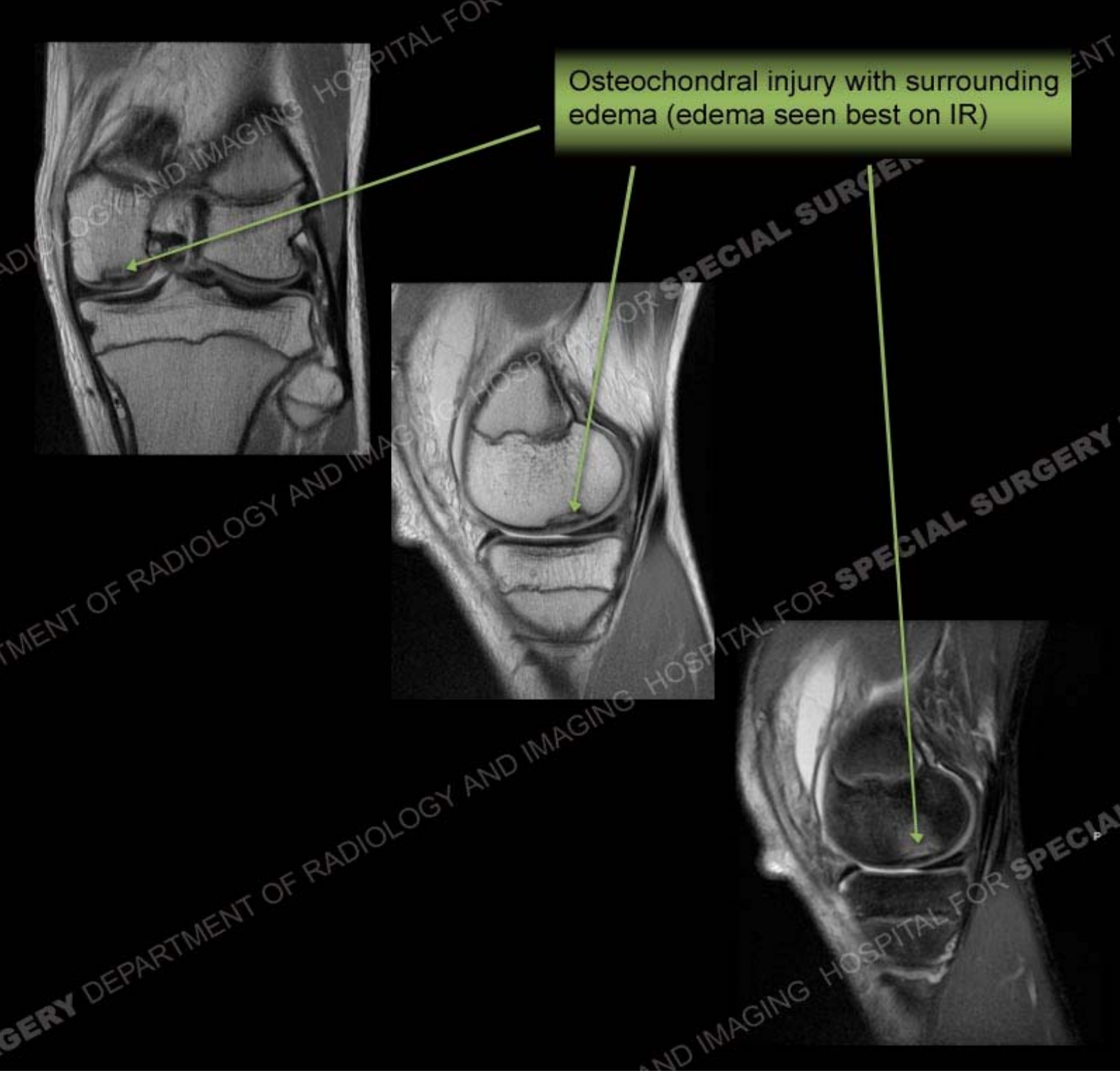
Radiographs demonstrate a large joint effusion with a small bone fragment seen adjacent to an elongated lateral patellar facet. Mild degree of patella alta is present. MRI demonstrates prominent marrow edema pattern of the mid to inferior aspect of the medial patellar facet with an impaction injury and an impaction injury of the anterior aspect of the lateral femoral condyle. Small bone fragment is seen adjacent to the medial patellar facet where medial patellofemoral ligament (MPFL) disruption has been sustained. Further images of the medial condyle demonstrate an osteochondral injury.


Large joint effusion and marked soft tissue swelling
Mild patella alta
Small bone fragment


Bone fragment
Impaction injury
Disrupted
MPFL


Hyperintense and disrupted MPFL


Edema from impaction of lateral femoral condyle
Edema from impaction of medial patellar facet


Osteochondral injury with surrounding edema (edema seen best on IR)

Diagnosis

Transient lateral patellar dislocation (LPD) is a well documented injury caused by internal rotation of the femur on a fixed tibia with flexion of the knee and firing of the quadriceps mechanism. This leads to a laterally imparted force on the patella. With relocation of the patella, impaction fractures are seen of the anterior aspect of the lateral femoral condyle and the medial patellar facet. Positioning of the impaction along the central to inferior aspect of the medial patella relates to the degree of flexion of the patella at the time of injury. Along the medial aspect of the knee is a documented trilaminar structure that supports the medial aspect of the knee but with the medial patellofemoral ligament being the key stabilizer along the medial

Diagnosis

aspect of the knee. The disruption of the MPFL may be at the patellar, midsubstance, or femoral attachment. Often, as in this case force is transmitted through the entire ligament yielding diffuse injury. Recently, direct MPFL reconstruction has become a more routine procedure for some of these patients. Underlying osseous architecture is a known predisposition for recurrent LPD including trochlear hypoplasia, patella alta, patella tilt, elevated quadriceps angles, and others. Treatment often relates to reconstituting normal osseous relationships to help prevent recurrent LPD and subsequent early cartilage loss. In this case, the additional OCD of the medial condyle is not a classic finding although often MCL and medial meniscal injuries are seen in the setting of LPD.

Resources

http://emedicine.medscape.com/article/90068-overview

Medial patellofemoral ligament: cadaveric investigation of anatomy with MRI, MR arthrography, and histologic correlation.Dirim B, Haghighi P, Trudell D, Portes G, **Resnick** D. **AJR Am J Roentgenol**. 2008 Aug;191(2):490-8.

The supporting structures and layers on the **medial** side of the knee: an anatomical analysis.**Warren** RF, **Marshall** JL.**J Bone Joint Surg Am**. 1979 Jan;61(1):56-62