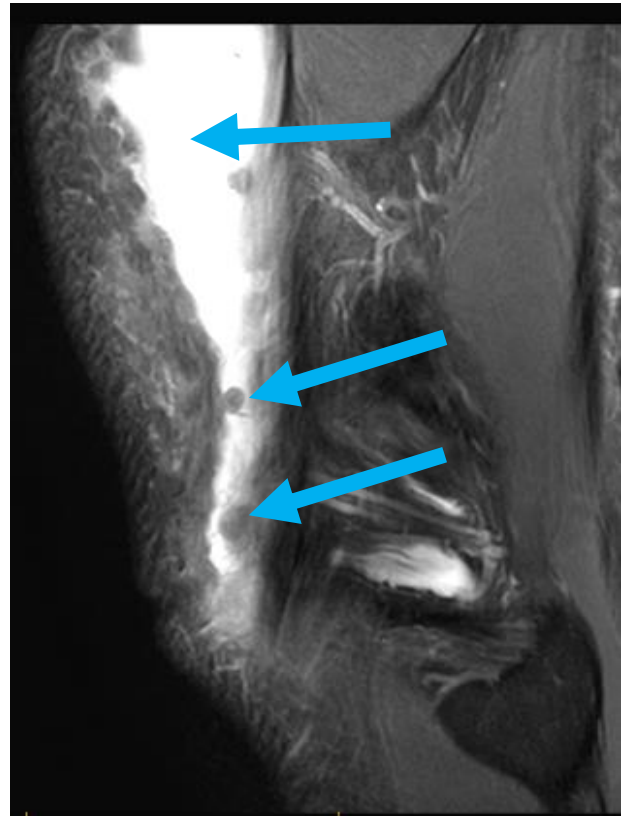


25 M footballer with persistent right knee swelling 3/52 post direct impact during game

MRI Findings:

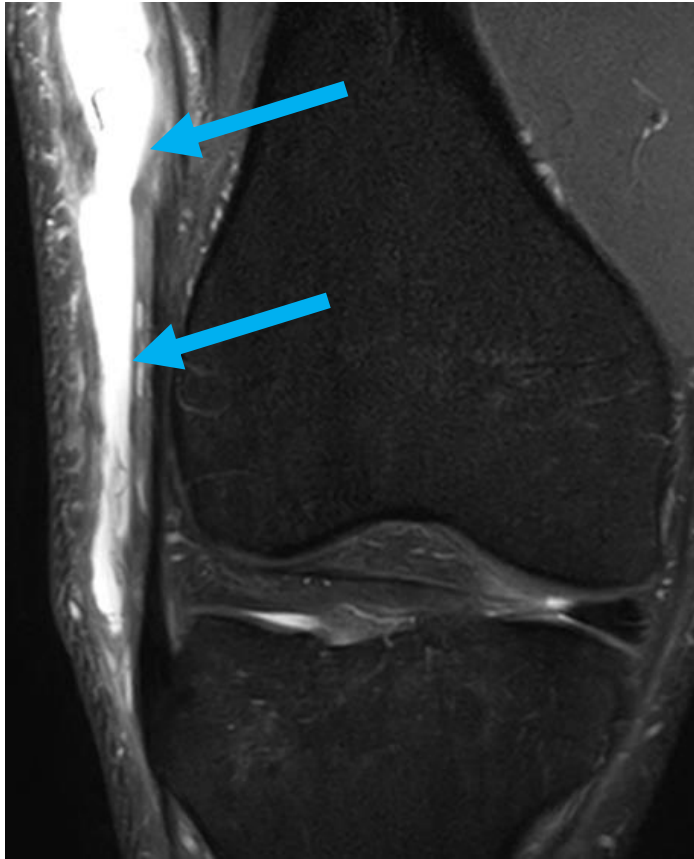
- Moderate prepatellar soft tissue thickening
- Shearing / separation of skin and subcutaneous fatty tissue from underlying fascia with resultant large discrete fluid collection centred over anterolateral aspect distal thigh and knee measuring 75 x 10mm (axial) x ~11cm in craniocaudal dimension (extends beyond the proximal imaging parameters of the distal thigh)
- Collection extends well beyond the expected pre-patellar bursal boundaries - consistent with a **Morel-Lavallee lesion**



Sagittal PD SPAIR: Discreet large fluid collection in the anterolateral soft tissues extending well beyond the expected prepatellar bursal boundaries – consistent with a Morel-Lavallee lesion. Right image illustrates globules of fat within the collection



Longitudinal Ultrasound image nicely illustrates the septated collection overlying the patella and vastus lateralis



Cor PD SPAIR: further delineates the soft tissue plane lesion and intact deep structures

Discussion

- **Morel-Lavallée lesion** is a closed soft-tissue shearing / degloving injury commonly associated with high-energy trauma
- First described by French physician Victor-Auguste-François Morel-Lavallée in 1863
- Characterized by separation of hypodermis from underlying fascia -> insult disrupts perforating vascular and lymphatic structures of soft-tissue envelope, resulting in characteristic haemolymphatic fluid collection between tissue layers
- Thigh, hip, and pelvic region most commonly affected locations
- Occurs in the knee as a result of shearing trauma during contact sport and is a distinct lesion from prepatellar bursitis and quadriceps contusion
- Study of knee lesions in the NFL (Tejwani et al.) - most a result of direct contact / shearing blow with the playing surface and motion deficit was active flexion
- Excellent prognosis in terms of return to play / training / competition
- Elite athletes typically able to return to training and game play long before complete resolution of the lesion
- Recurrent fluid collections can occur, necessitating aspiration
- Recalcitrant fluid collections can be treated with doxycycline sclerodesis
- **MRI**
 - Delineates soft tissue anatomy and structures involved
 - Allows accurate assessment in terms of excluding additional injuries / internal derangement
- **Ultrasound**
 - Accurately delineates collection. Limitation is in assessing internal knee structures

Further Reading:

Tejwani SG et al: Management of Morel-Lavallee lesion of the knee: Twenty-seven cases in the national football league. *Am J Sports Med* 2007;35(7):1162–1167

Scolaro, J et al. The Morel-Lavallée Lesion: Diagnosis and Management *JAAOS - Journal of the American Academy of Orthopaedic Surgeons*: 2016 - Volume 24 - Issue 10 - p 667–672.

Dawre S et al. The Morel-Lavallée lesion: A review and proposed algorithmic approach. *Eur J Plast Surg* 2012;35(7):489–494.

Bonilla-Yoon I, Masih S, Patel DB, et al. The Morel-Lavallée lesion: Pathophysiology, clinical presentation, imaging features, and treatment options. *Emerg Radiol* 2014;21(1):35–43.