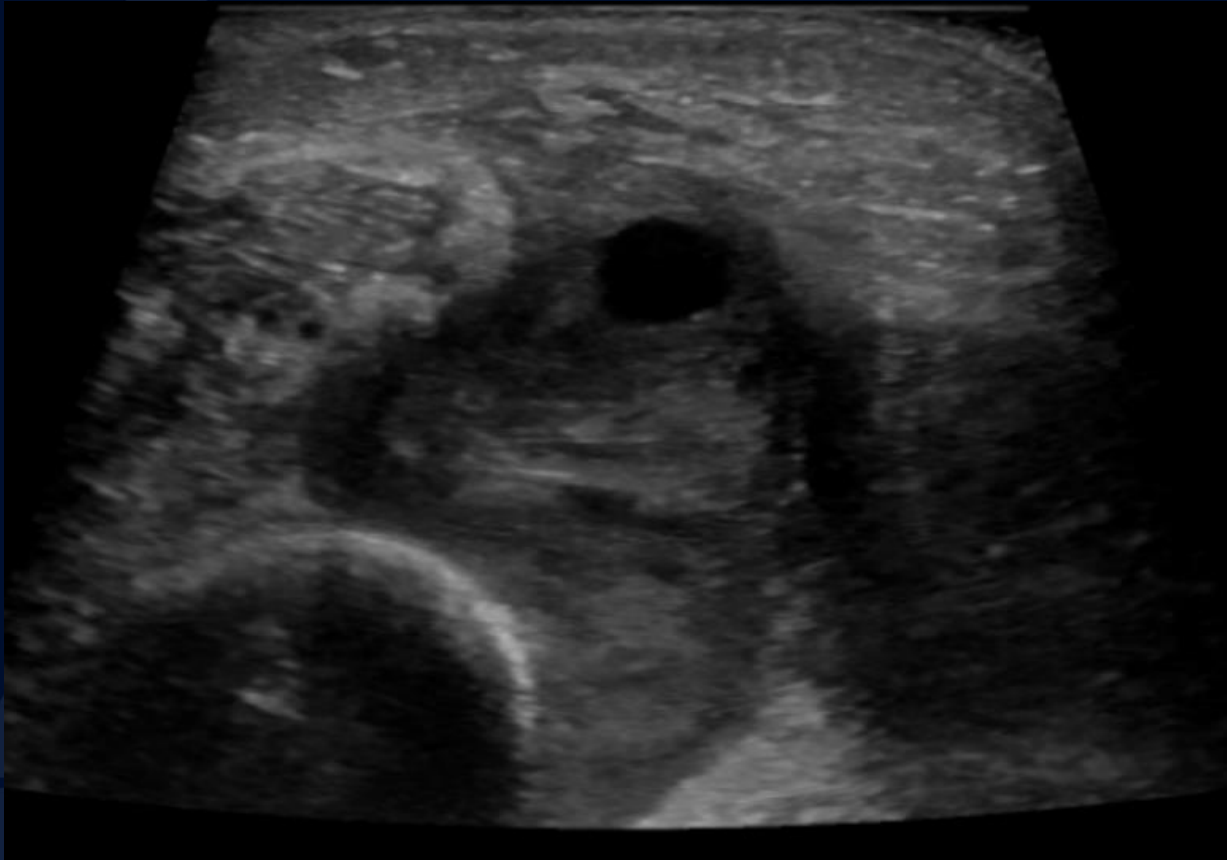


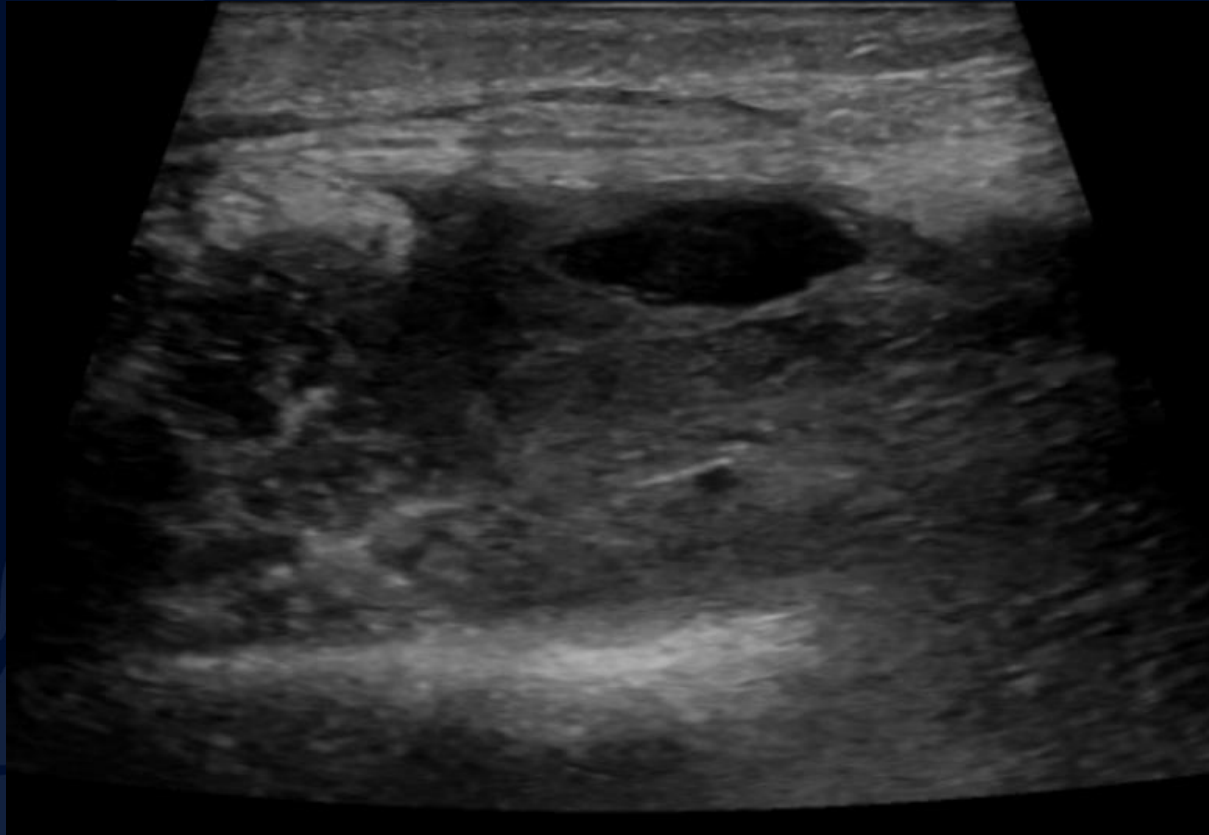
11-year-old male presenting with 3-month history of left lateral leg pain and swelling with limping gait

Maxime Braun, MS4
University of Connecticut
School of Medicine

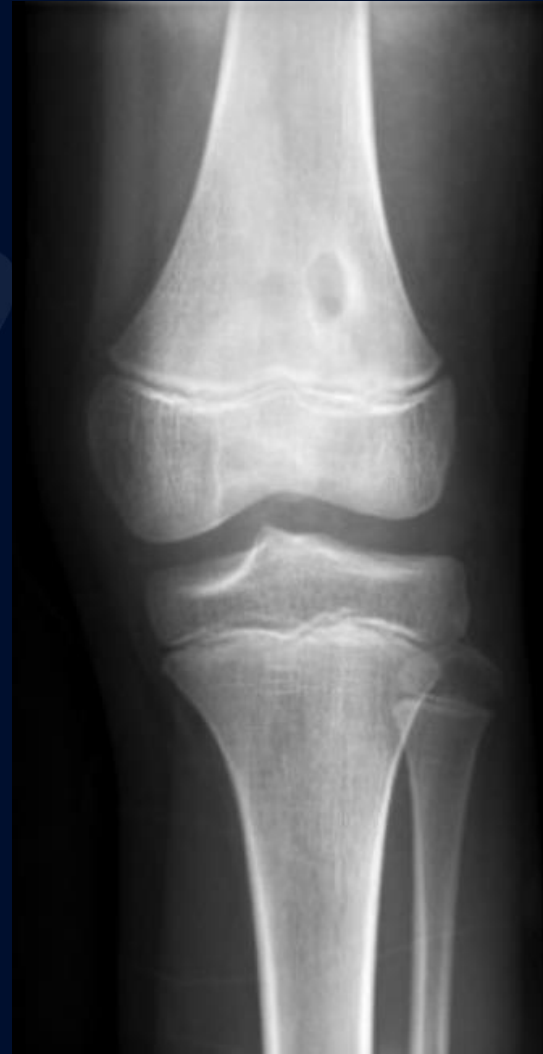
Ultrasound Grey-Scale



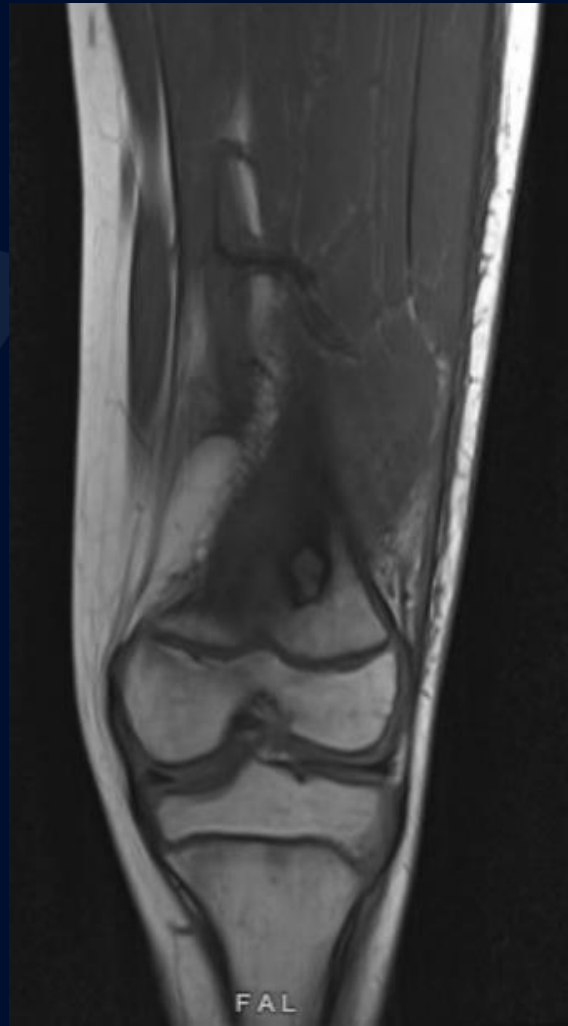
Ultrasound Grey-Scale



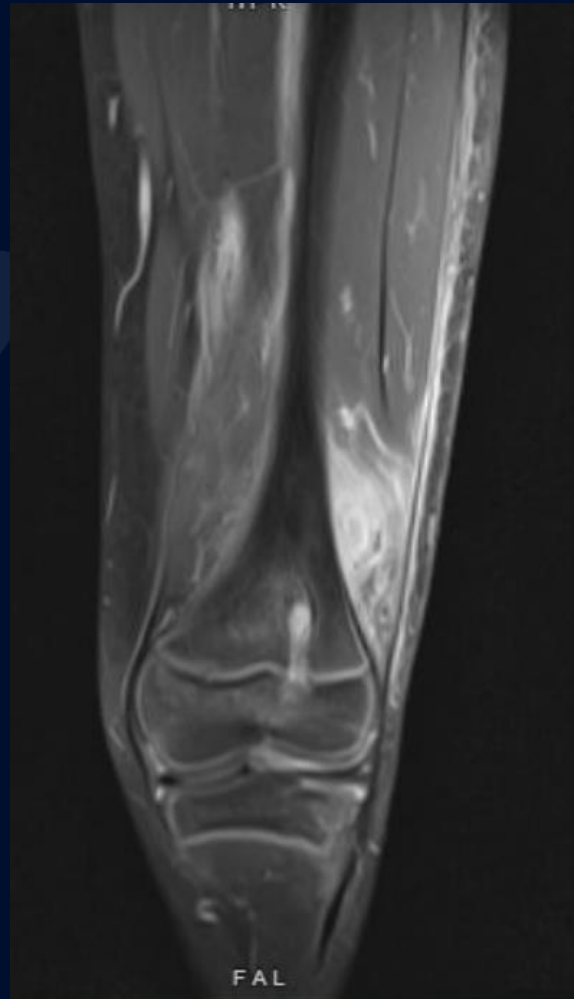
AP Radiograph



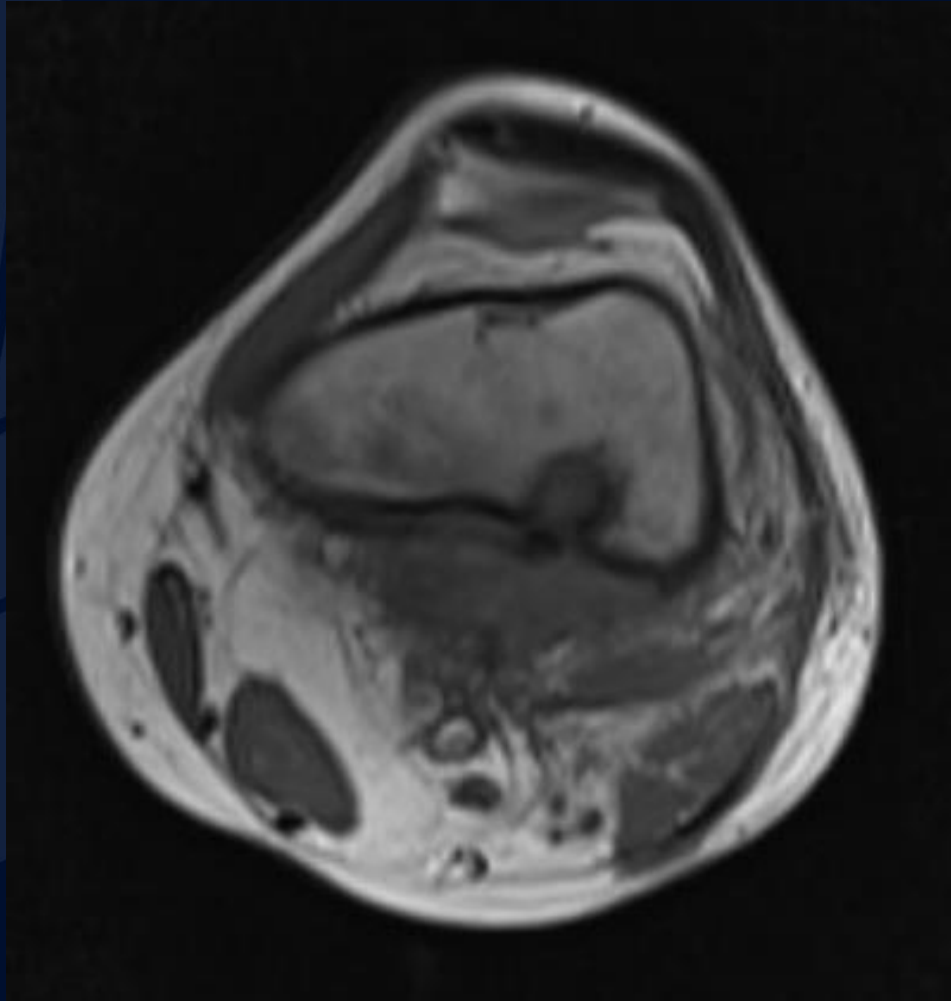
MR T1 - Coronal



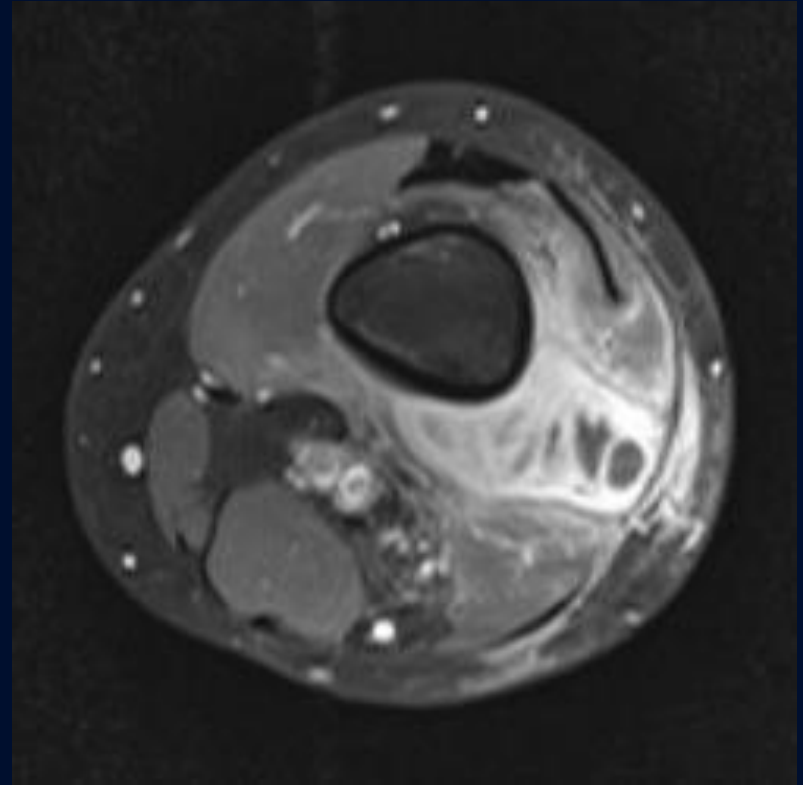
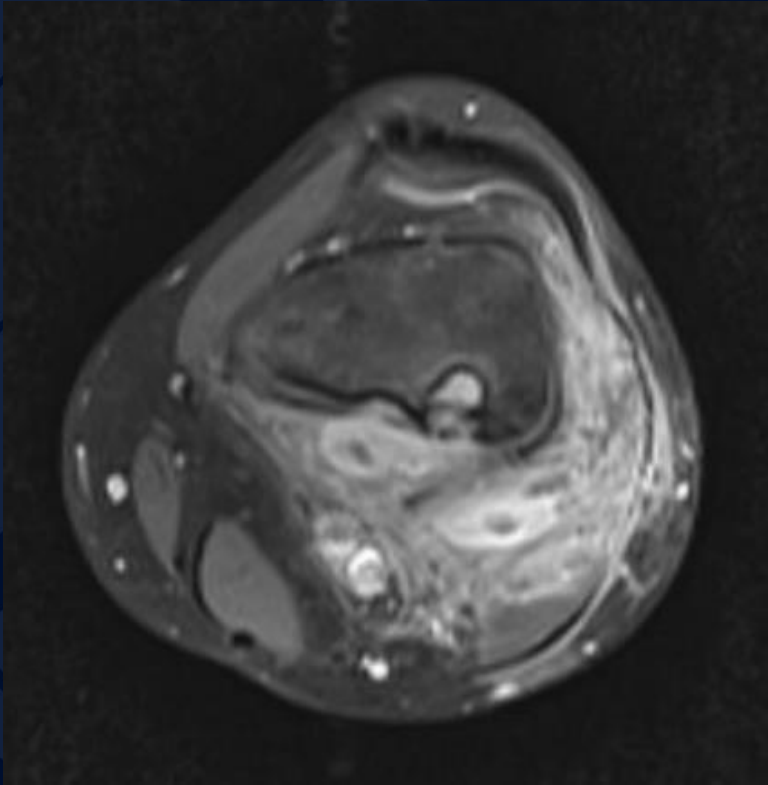
MR T1 FS Post Gad - Coronal



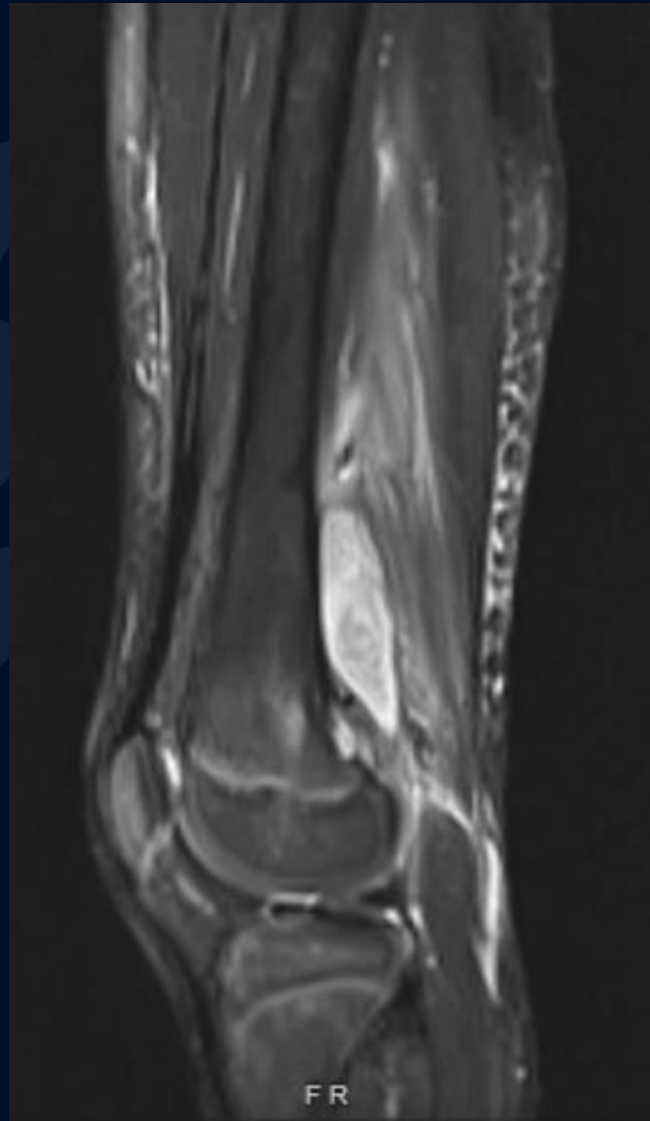
MR T1 - Axial



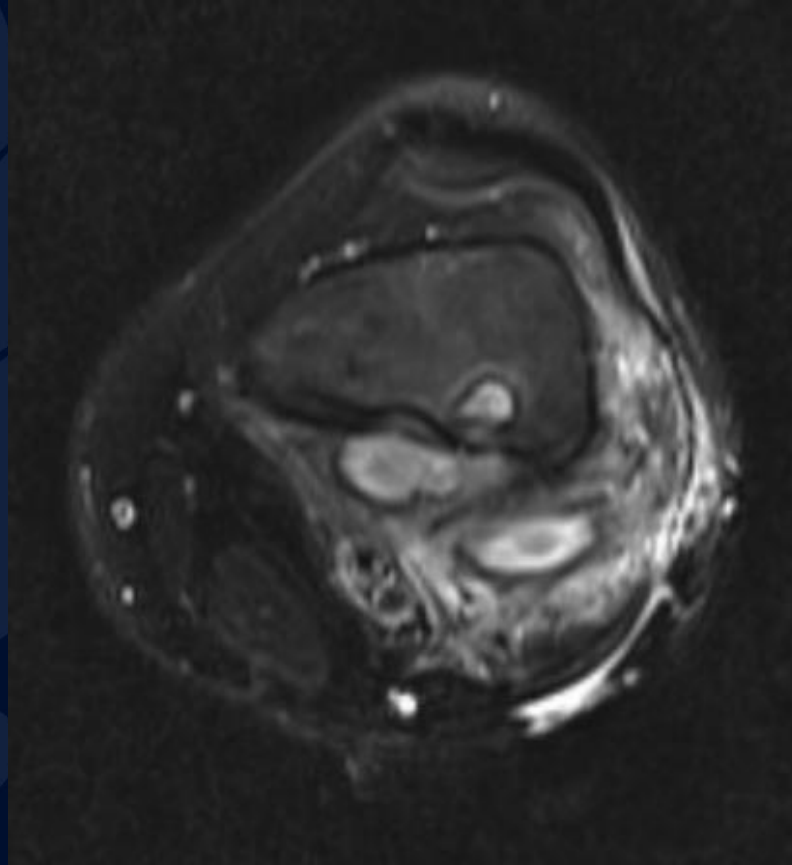
MR T1 FS Post Gad - Axial



MR T2 FS - Sagittal



MR T2 FS - Axial



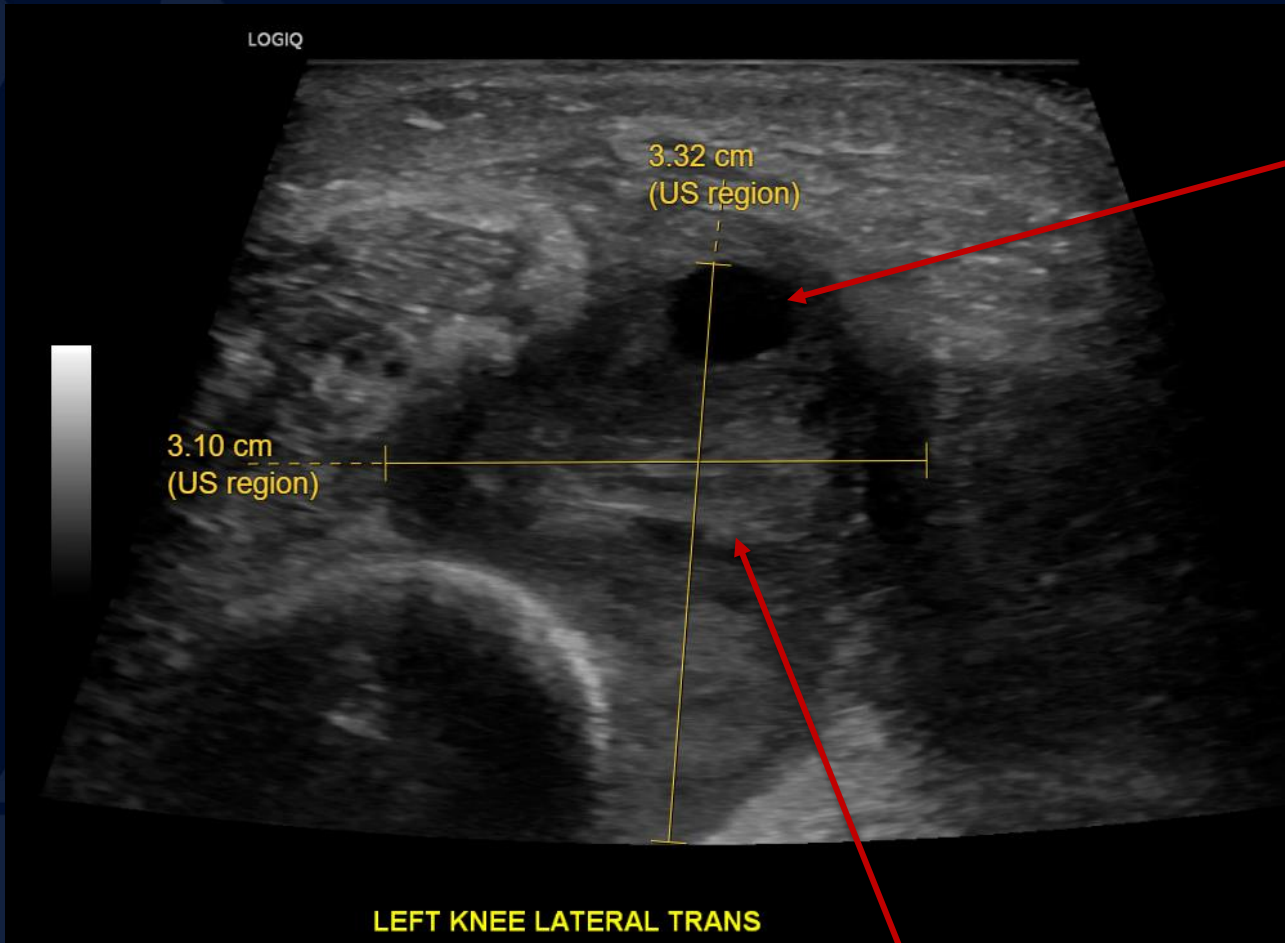
A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

?

A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide, partially overlapping the text.

Brodie's abscess of the left distal femur

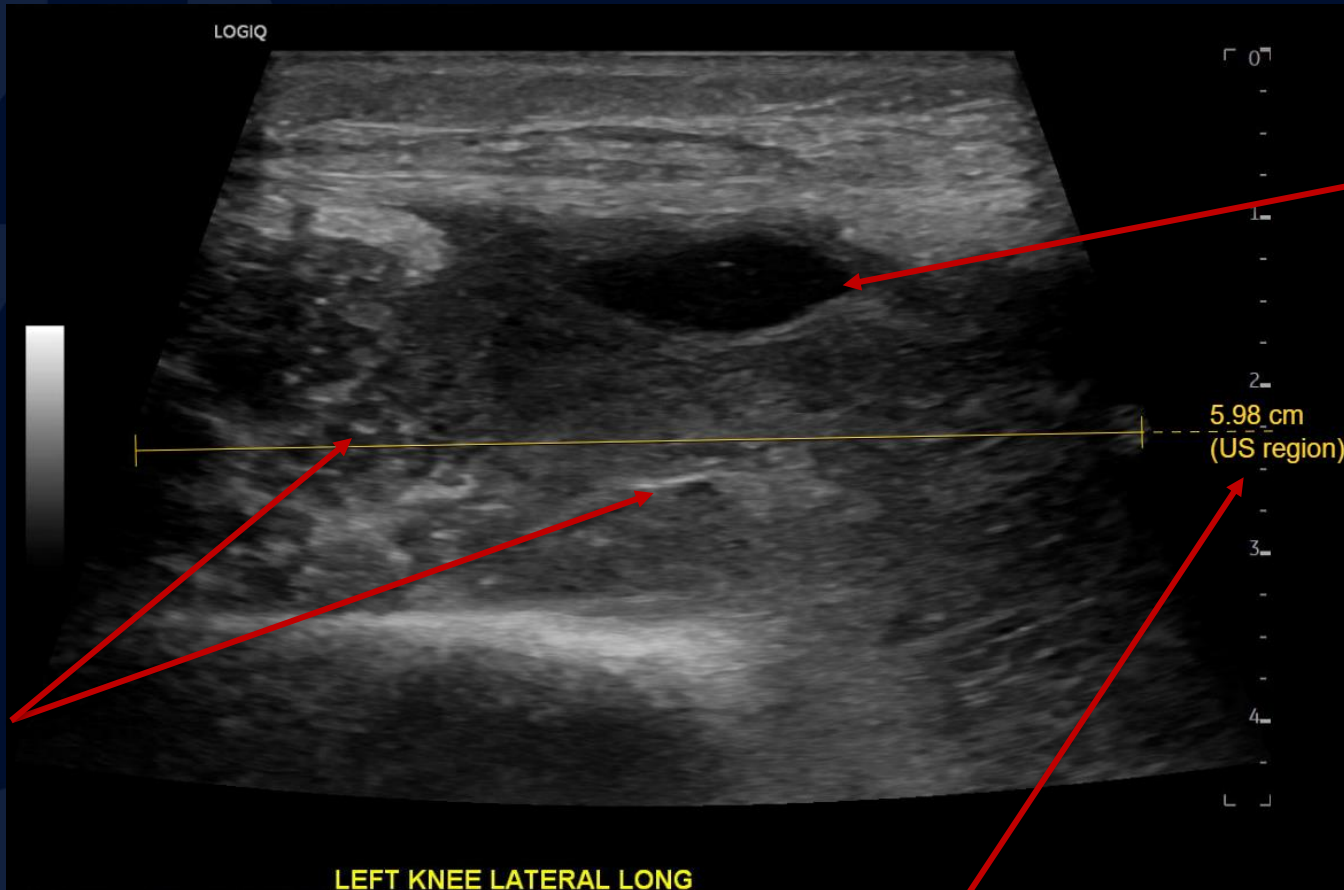
Ultrasound Grey-Scale



Anechoic cyst with imperceptible wall

Heterogenous lesion measuring without evidence of joint effusion

Ultrasound Grey-Scale



Anechoic cyst with imperceptible wall and mild posterior acoustic enhancement

Shadowing calcifications

Heterogenous lesion without joint effusion

AP Radiograph



Hypodense lytic lesion
with sclerotic borders
in the metaphysis of
the left distal femur

MR T1 - Coronal



T1 hypointense lesion in
the dorsal aspect of the
L femoral metaphysis

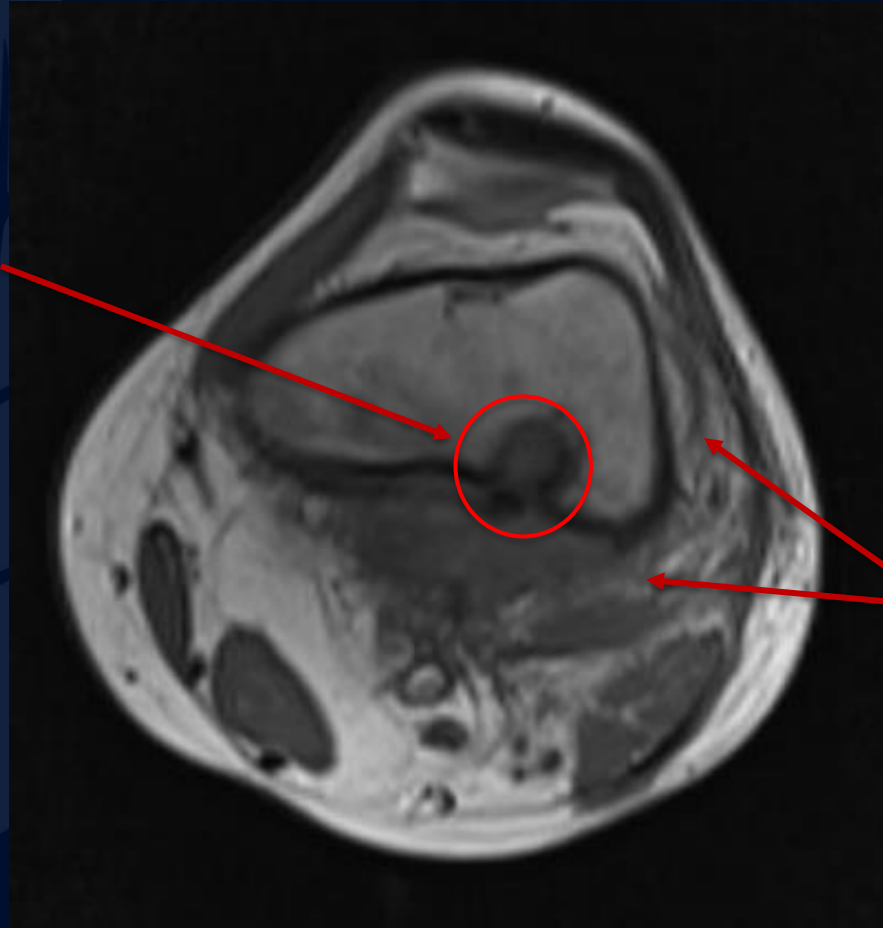
MR T1 FS Post Gad - Coronal



Contrast-enhancing lesion in the dorsal aspect of the L femoral metaphysis extending to the distal femoral physis

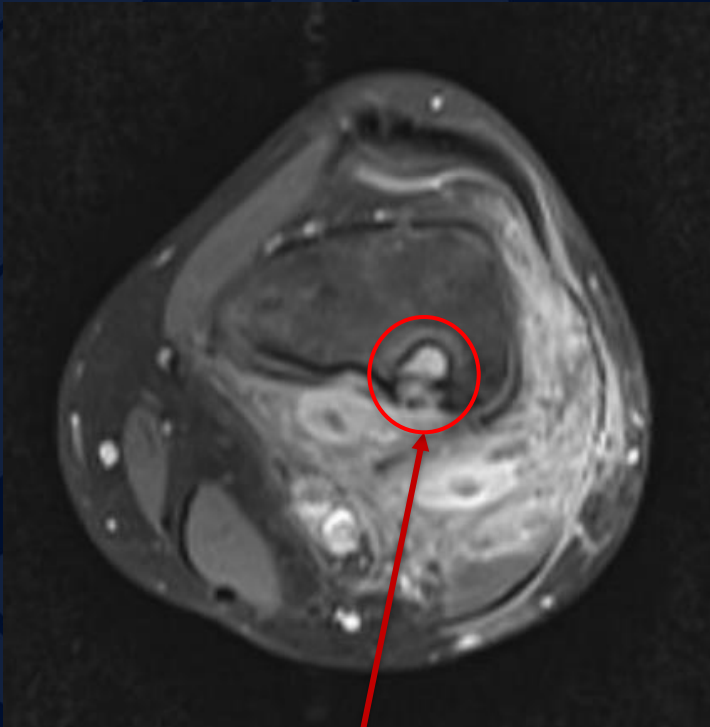
MR T1 - Axial

T1 hypointense lesion in the dorsal aspect of the L femoral metaphysis

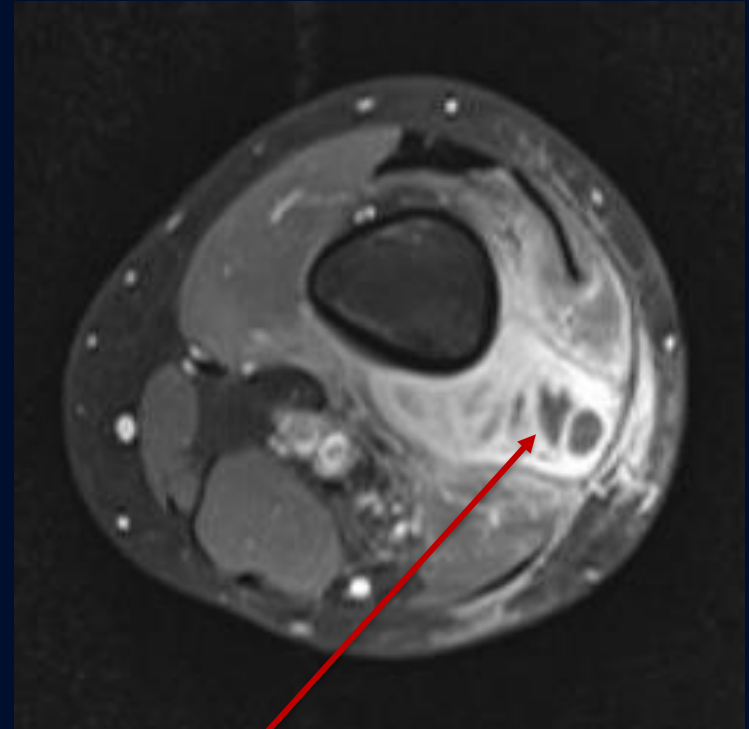


Vasogenic edema within the biceps femoris and vastus lateralis musculature

MR T1 FS Post Gad - Axial



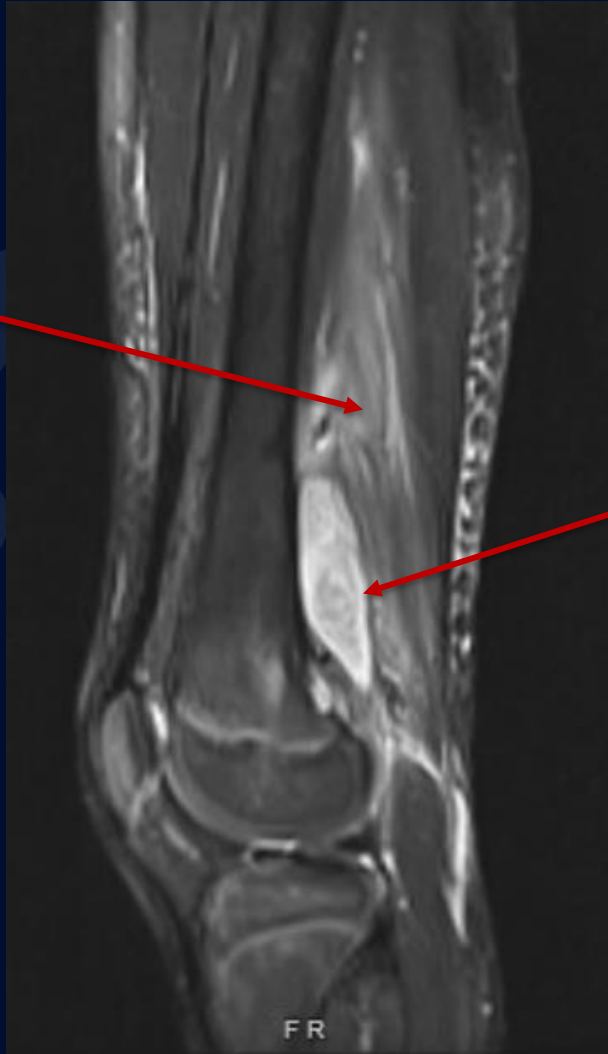
Contrast-enhancing lesion in the dorsal aspect of the L femoral metaphysis



Complex fluid collection with post-contrast enhancement of multiple septations

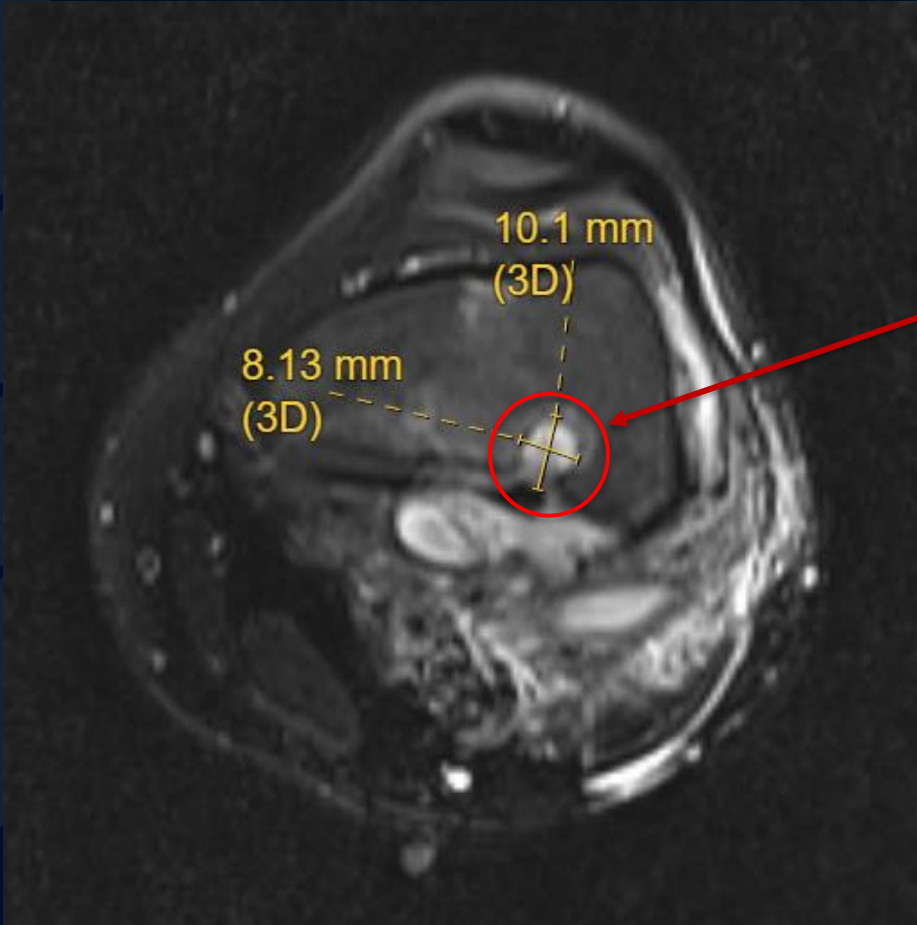
MR T2 FS - Sagittal

Vasogenic edema of
the subcutaneous
tissues



T2 fat saturated
hyperintense complex
fluid collection along
the posterolateral
aspect of the distal L
femur

MR T2 FS - Axial



T2 fat saturated hyperintense lesion in the dorsal aspect of the L femoral metaphysis

Brodie's abscess

Definition

An intraosseous abscess related to a focus of subacute or chronic pyogenic osteomyelitis. Often presents without systemic signs of inflammation or infection.

- Named after Sir Benjamin Collins Brodie (1783-1862) → initially described a chronic inflammatory process affecting the tibia without acute precipitating factors in the 1830s

Pathophysiology & etiology

- Staphylococcus aureus = most commonly associated pathogen
 - Cultures are often negative
- Preferred locations:
 - Proximal/distal tibial metaphysis (most common)
 - Femur
 - Carpal and tarsal bones

Brodie's abscess

Epidemiology

- A Brodie's abscess will typically present in children with unfused epiphyseal plates
- Occurs more frequently in males than females

Differential diagnosis

- Osteoid osteoma
 - Location of lesion is often cortical with nocturnal pain relieved by aspiri.
- Eosinophilic granuloma
- Sarcoma
 - Usually more aggressive with an associated soft tissue mass.
- Skeletal metastasis
- Lymphatic or vascular malformation

Brodie's abscess

Treatment & Management

- *If concerning radiographic features are present, a biopsy is mandated to rule out malignancy*
- The recommended treatment is surgical curettage or excision of the lesion and postoperative antibiotic treatment for 6 weeks
 - The antibiotics are typically a combination of
 - Penicillinase-resistant synthetic penicillin + 3rd gen cephalosporin
 - Vancomycin or clindamycin + 3rd gen cephalosporin

Complications

- Sinus tracts, fistulas, or bone fractures if treatment is delayed
- Growth impairment due to growth plate disturbance

References

Gaillard F, Vadera S, Bickle I, et al. Brodie abscess. Reference article, Radiopaedia.org <https://doi.org/10.53347/rID-1019>

Lalani, T., & Schmitt, S. K. (2022, October 18). Nonvertebral osteomyelitis in adults: Clinical manifestations and diagnosis. UpToDate.

Shih, Hsin-Nung MD; Shih, Lih-Yuann MD; Wong, Yon-Cheong MD. Diagnosis and Treatment of Subacute Osteomyelitis. The Journal of Trauma: Injury, Infection, and Critical Care 58(1):p 83-87, January 2005. | DOI: 10.1097/01.TA.0000114065.25023.85

Stephenson , L., Epps , H., & Rosenfeld, S. (n.d.). Subacute osteomyelitis. Subacute Osteomyelitis | Pediatric Orthopaedic Society of North America (POSNA). <https://posna.org/physician-education/study-guide/subacute-osteomyelitis>