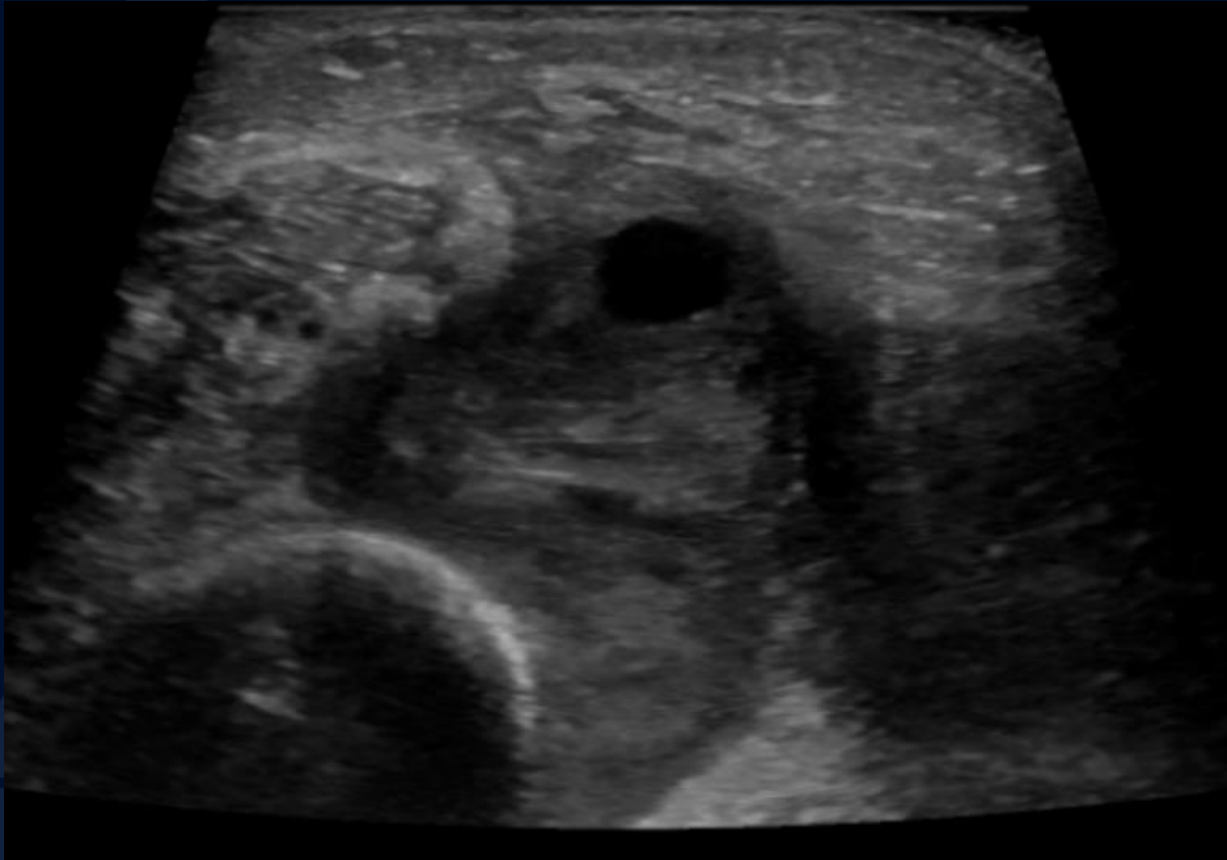


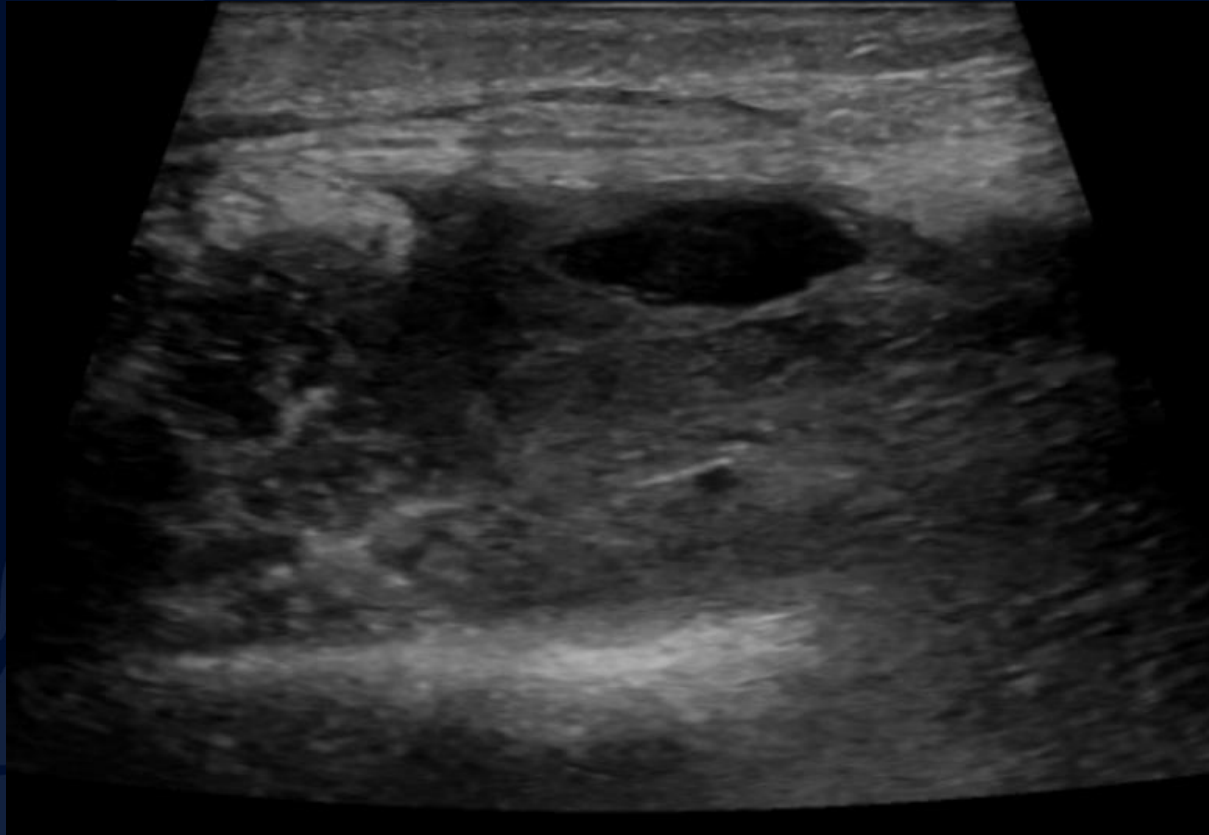
# 11-year-old male presenting with 3-month history of left lateral leg pain and swelling with limping gait

Maxime Braun, MS4  
University of Connecticut  
School of Medicine

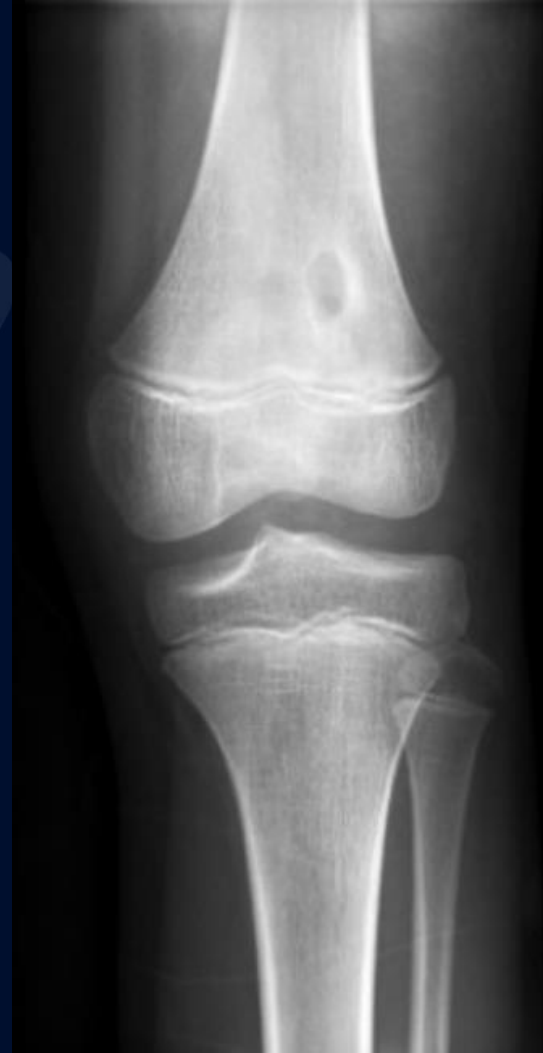
## Ultrasound Grey-Scale



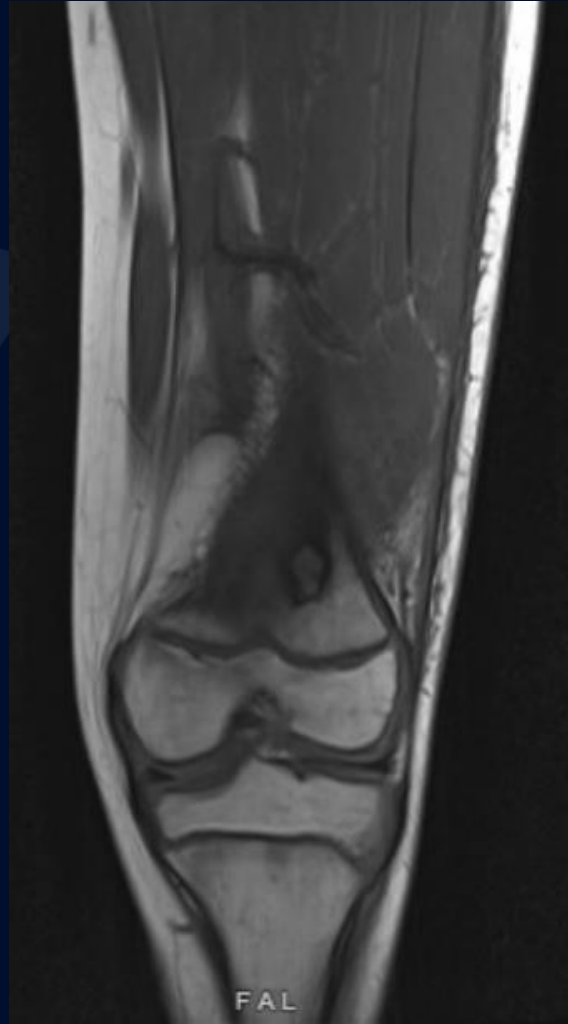
# Ultrasound Grey-Scale



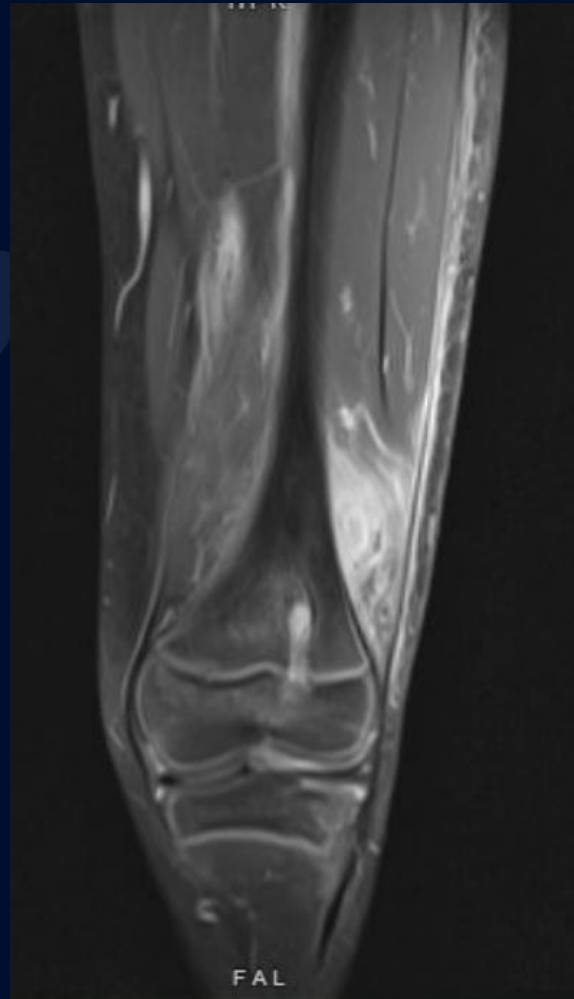
# AP Radiograph



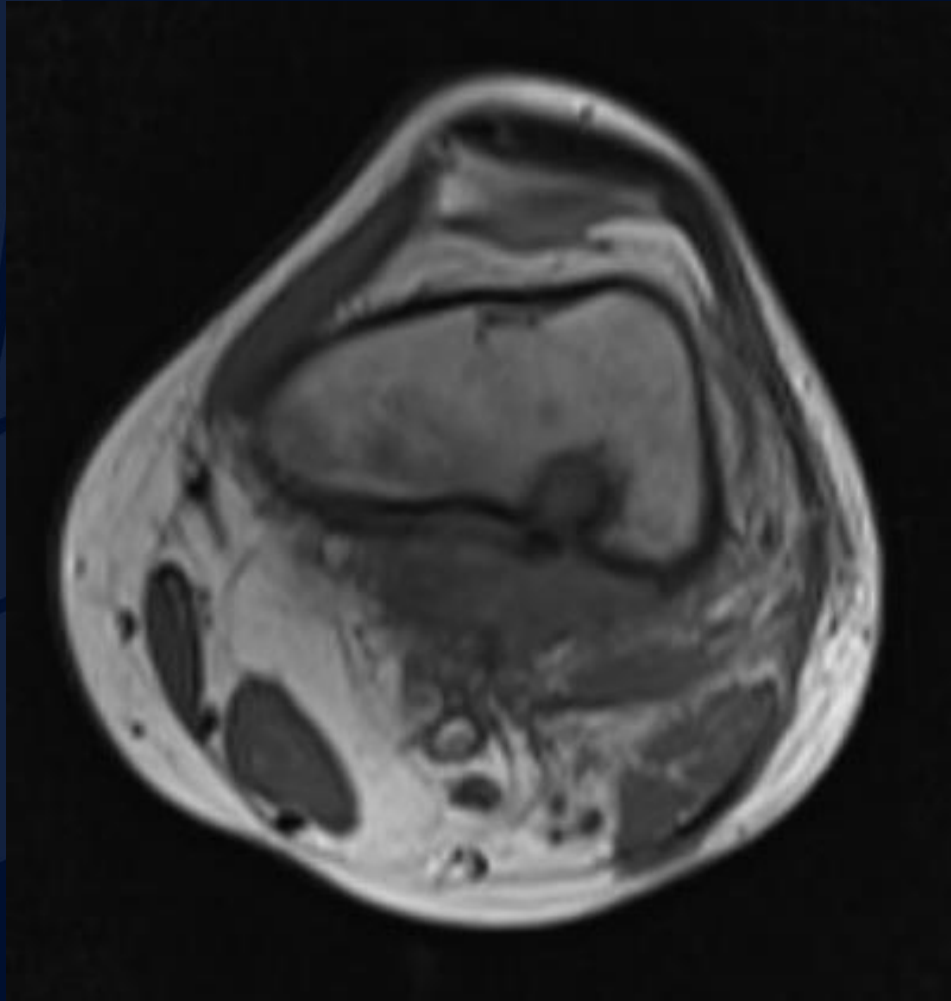
## MR T1 - Coronal



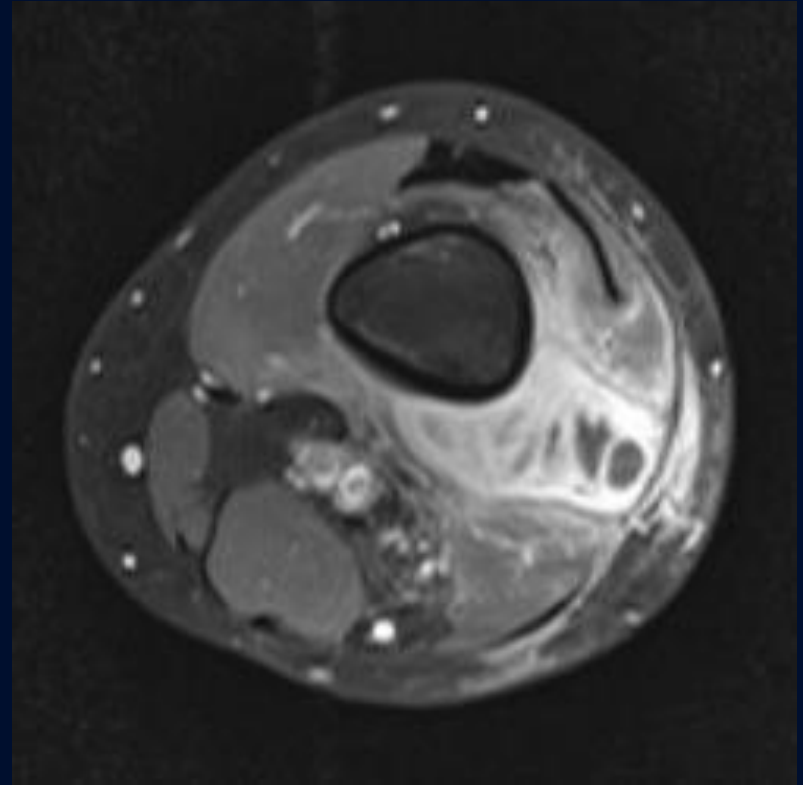
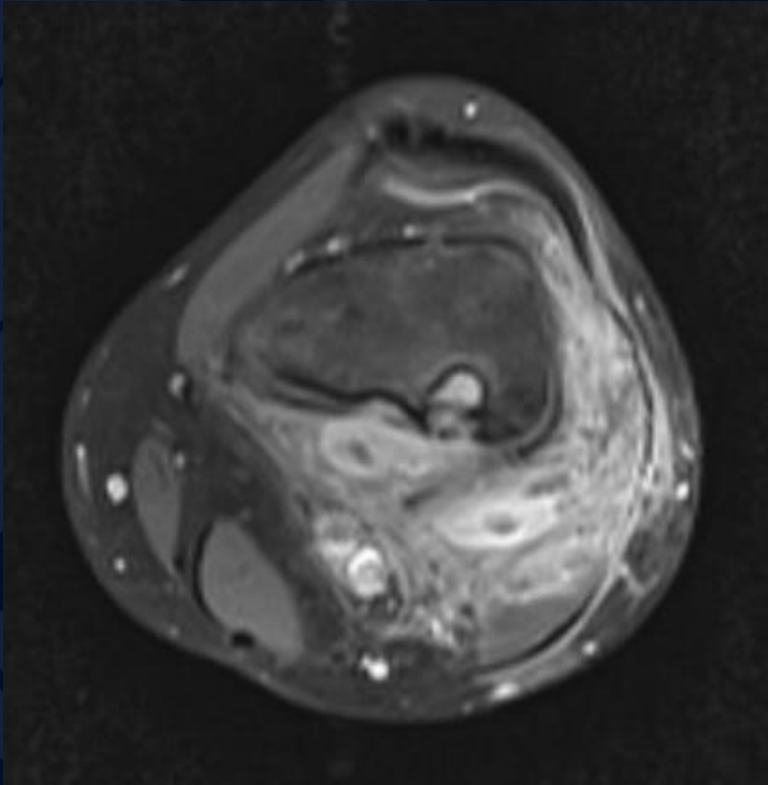
# MR T1 FS Post Gad - Coronal



MR T1 - Axial

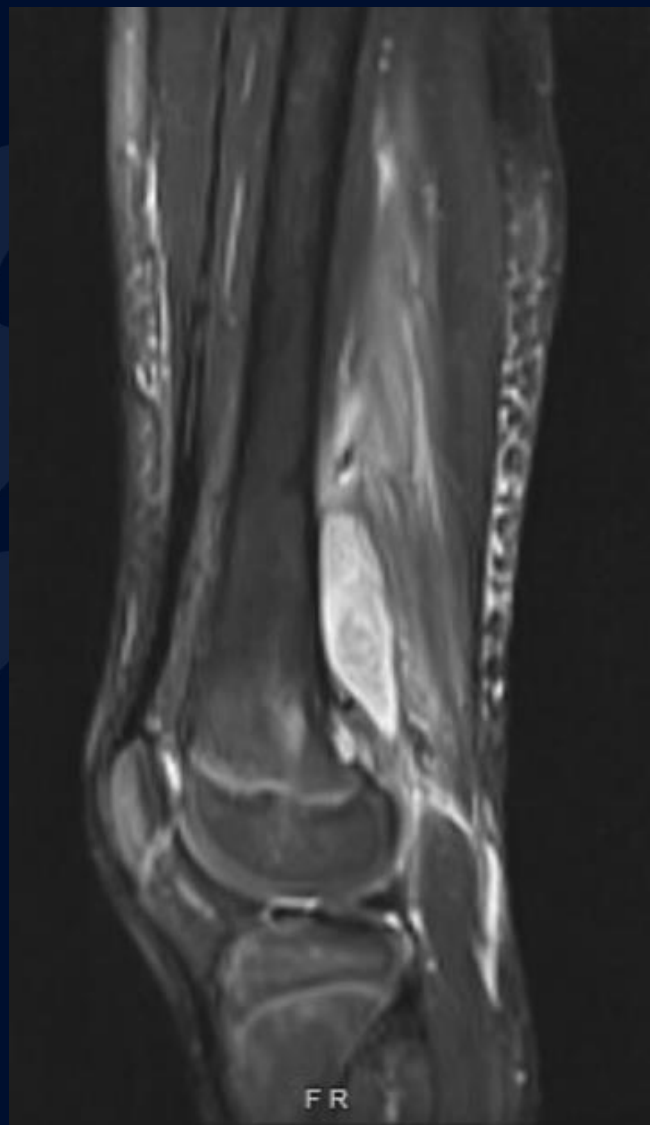


MR T1 FS Post Gad - Axial

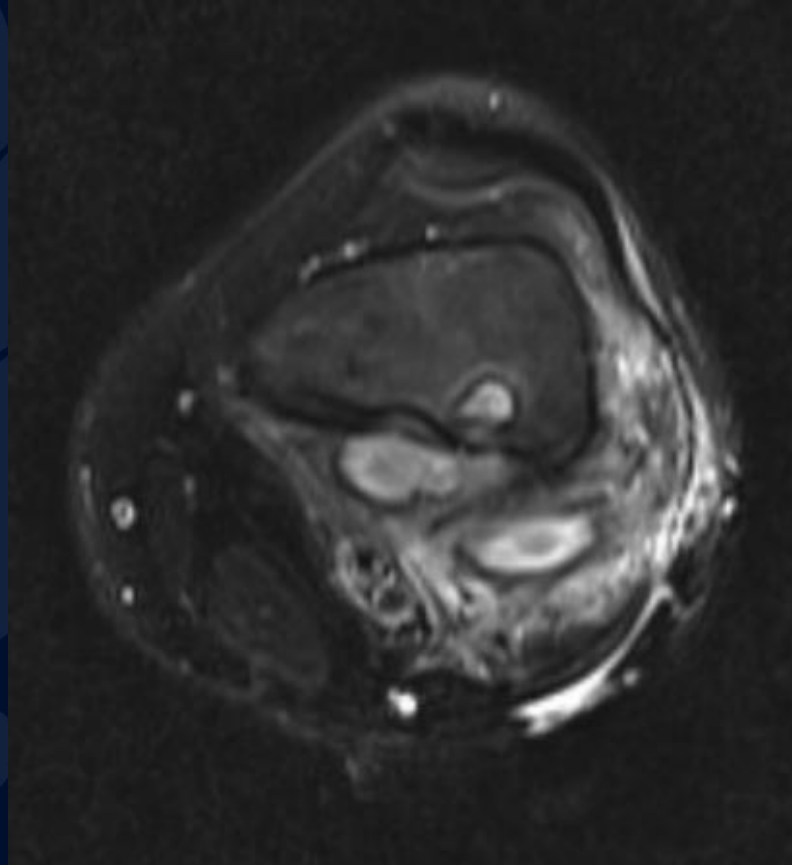




# MR T2 FS - Sagittal



MR T2 FS - Axial



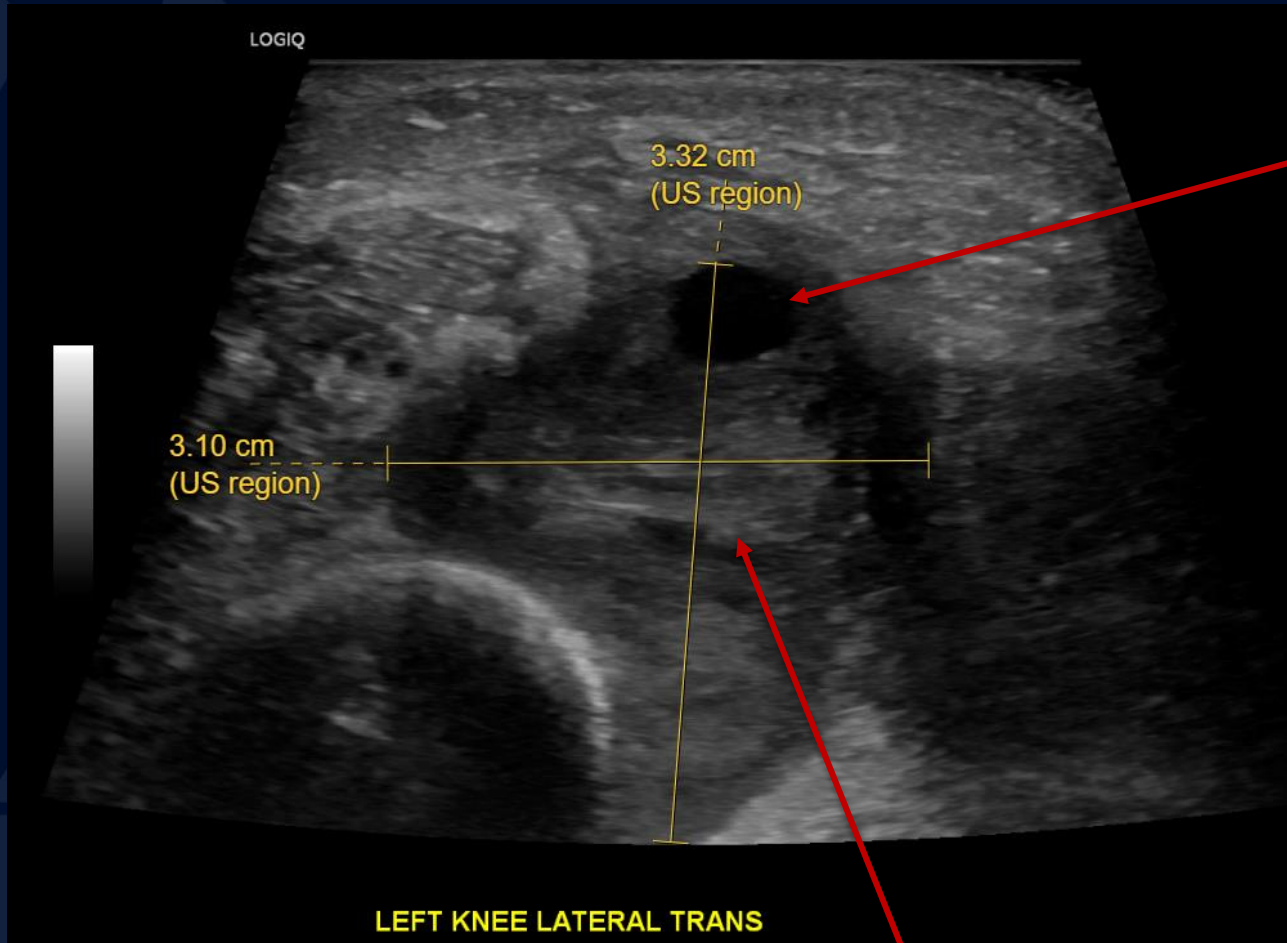
A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

?

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 background of the slide is a solid dark blue.

# Brodie's abscess of the left distal femur

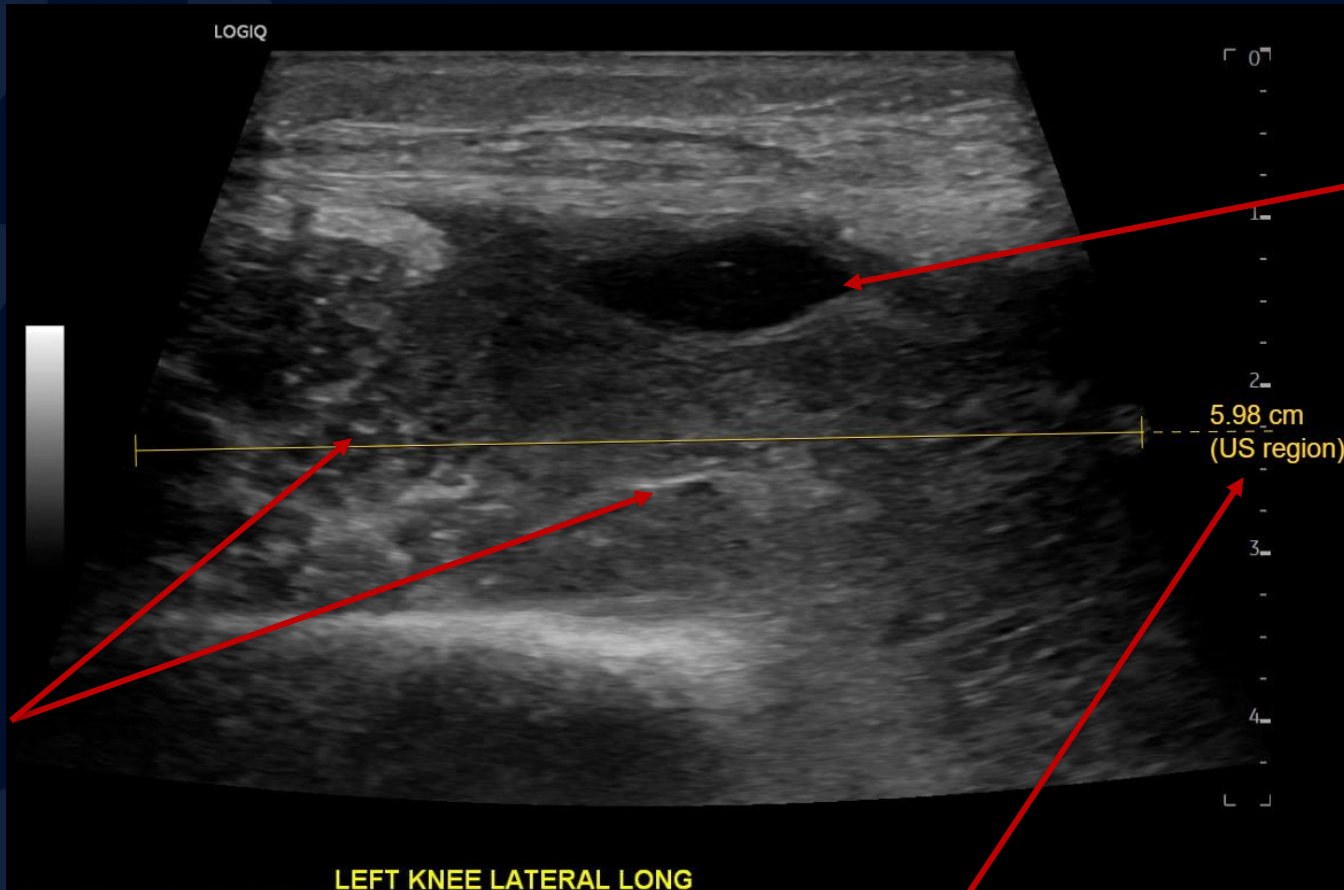
# Ultrasound Grey-Scale



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



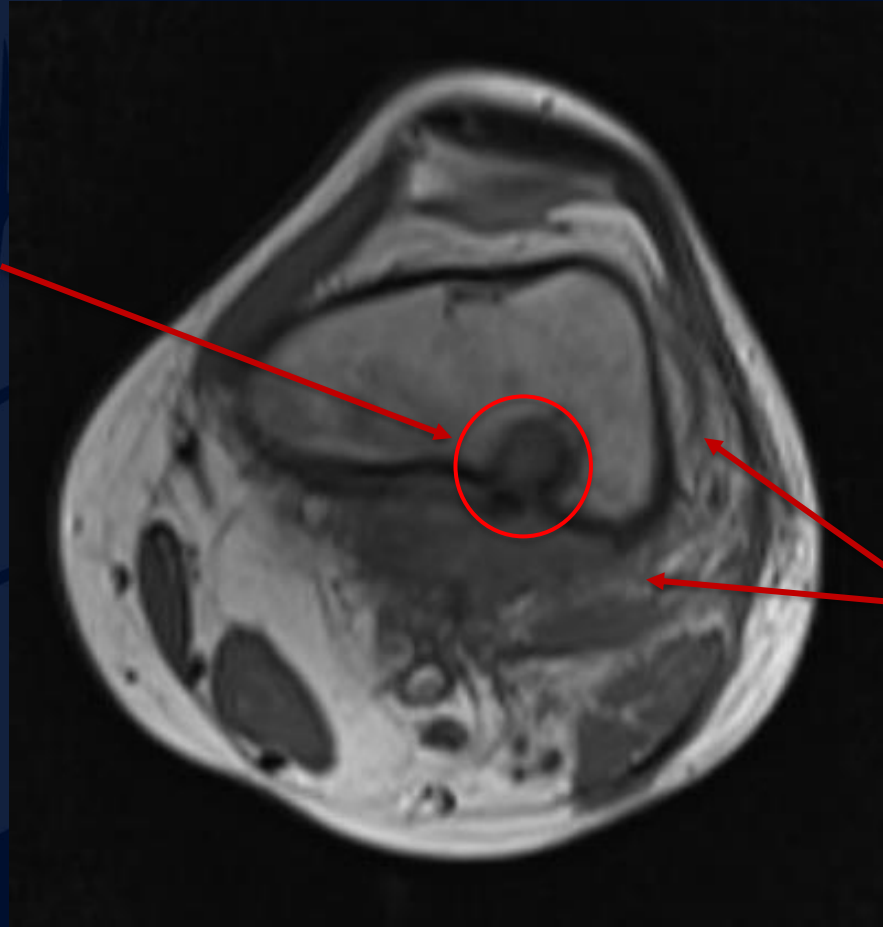
## MR T1 FS Post Gad - Coronal



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

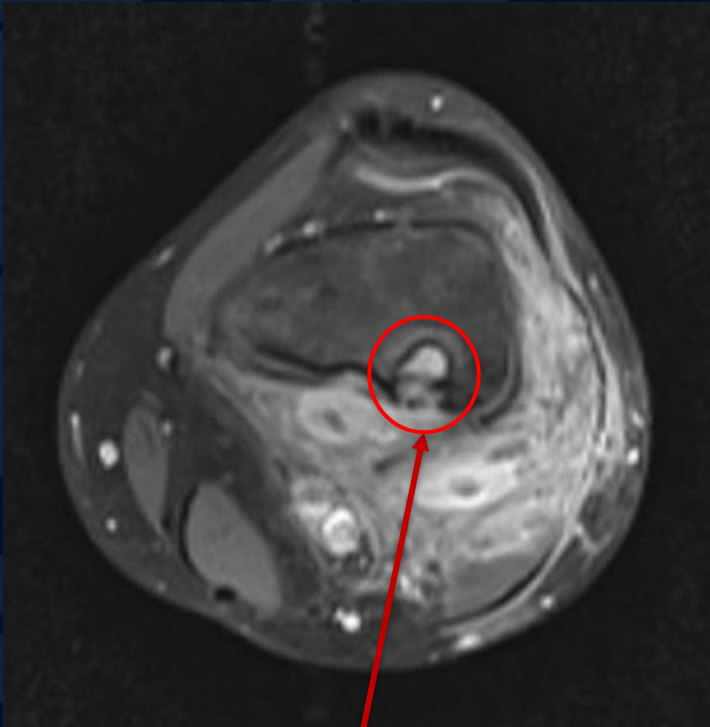
## MR T1 - Axial

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

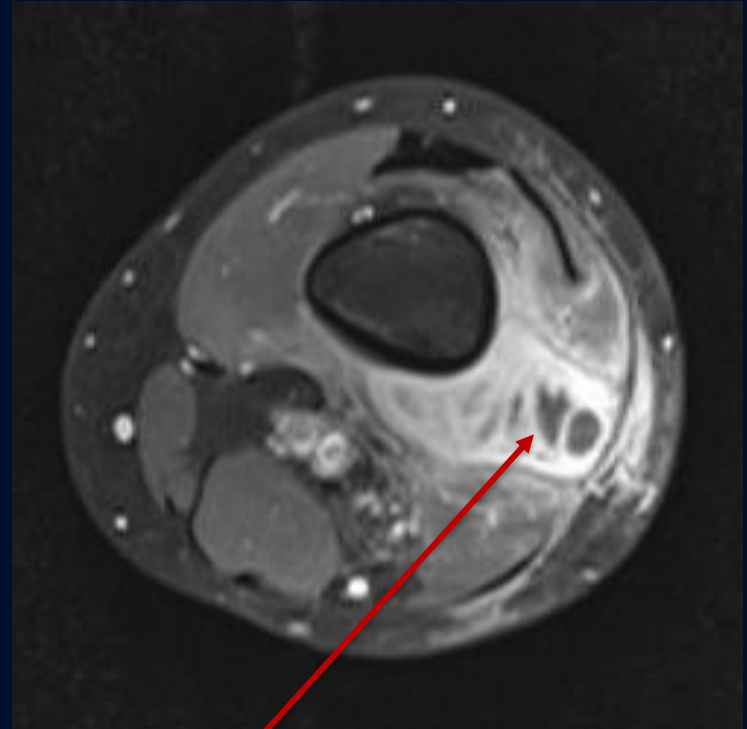


Vasogenic edema within the biceps femoris and vastus lateralis musculature

## MR T1 FS Post Gad - Axial



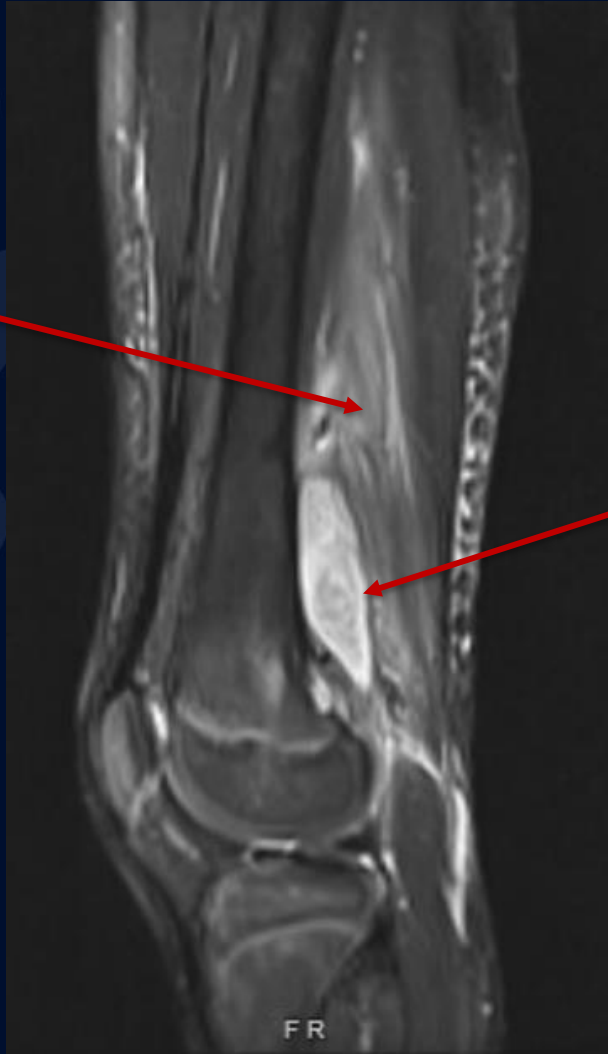
Contrast-enhancing lesion in the dorsal aspect of the L femoral metaphysis



Complex fluid collection with post-contrast enhancement of multiple septations

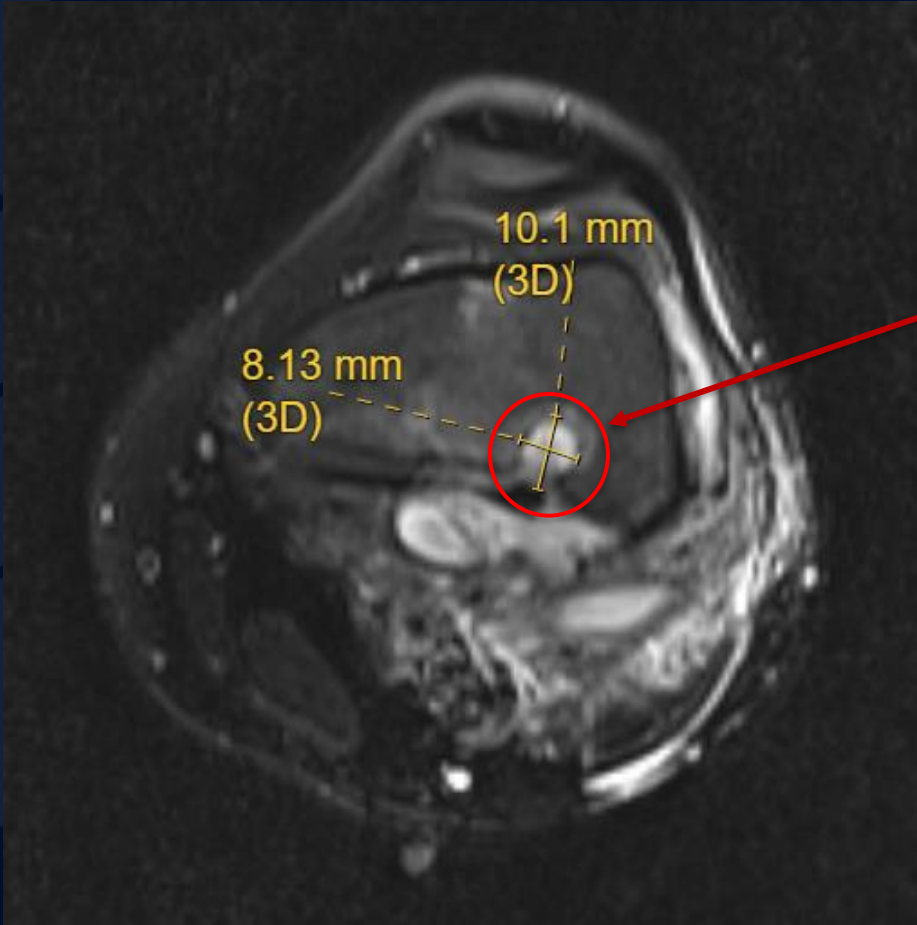
## MR T2 FS - Sagittal

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 + 3<sup>rd</sup> gen cephalosporin
    - Vancomycin or clindamycin + 3<sup>rd</sup> 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>