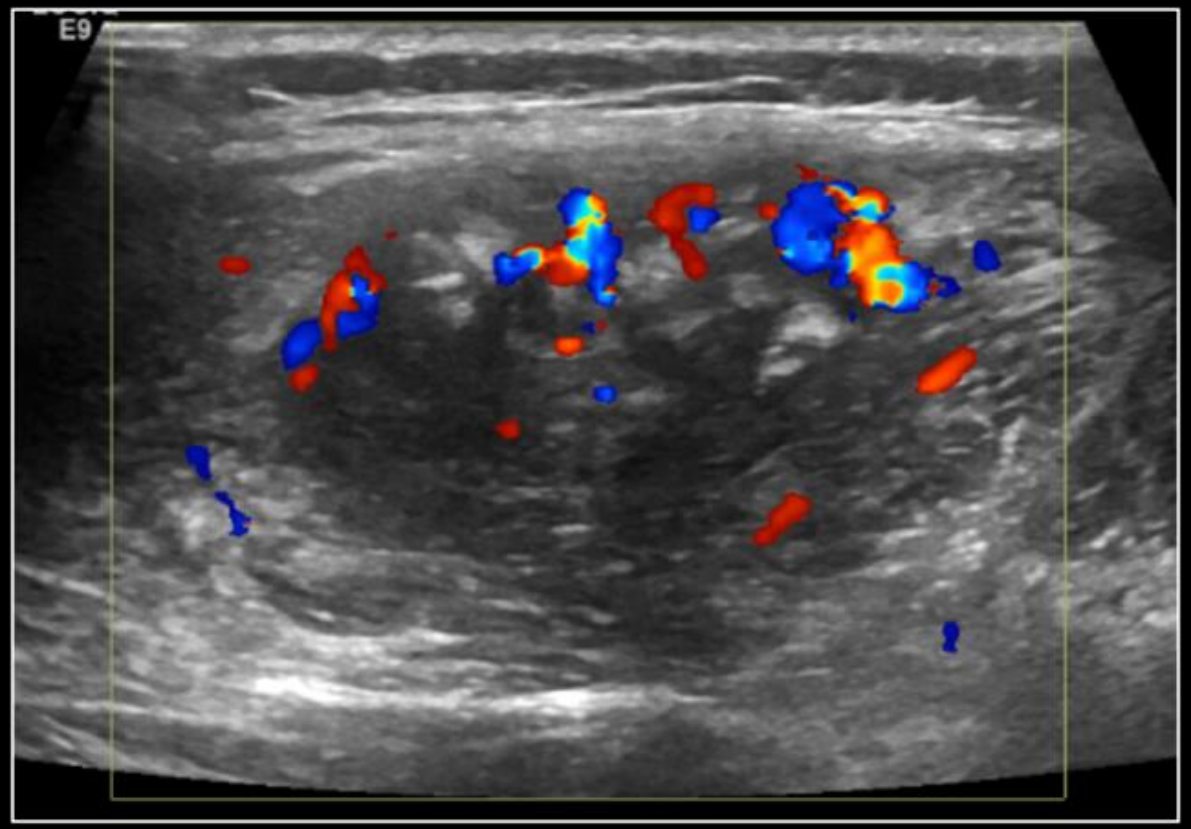
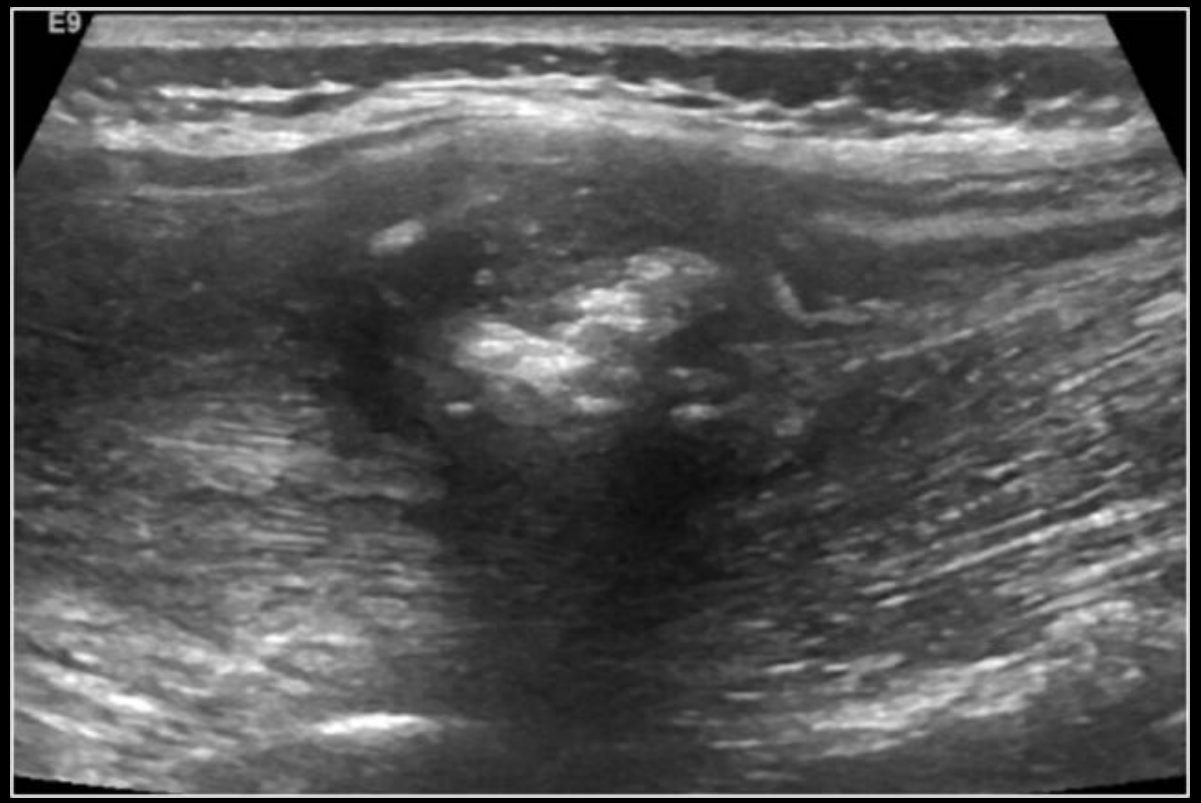
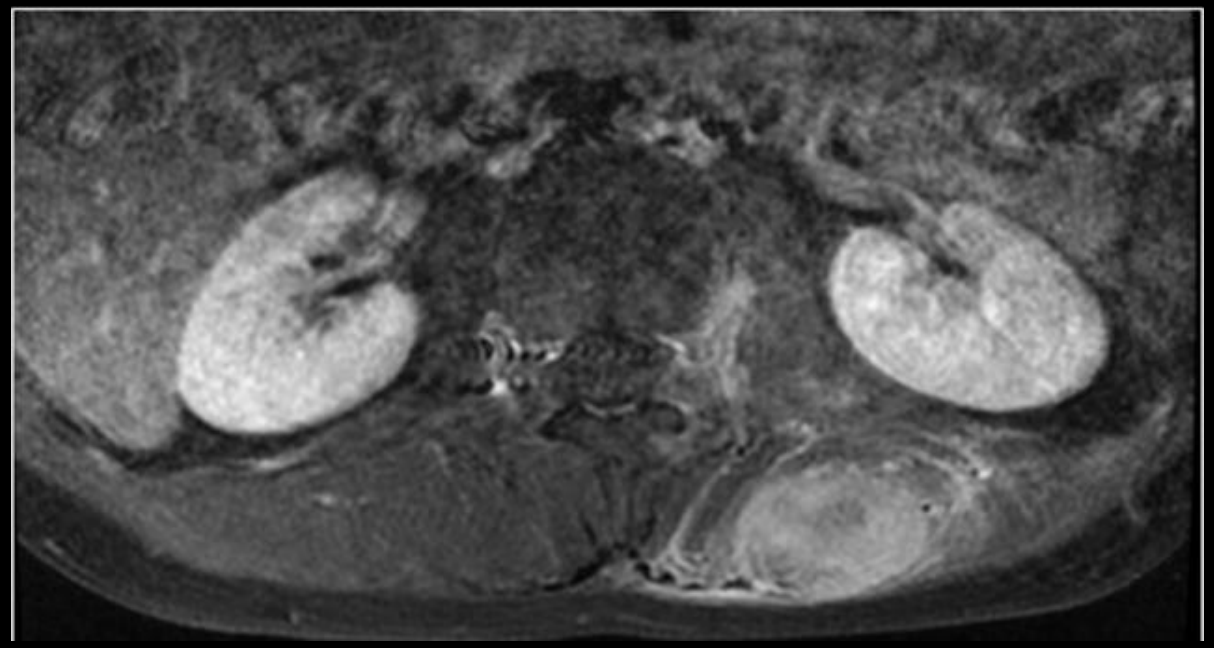
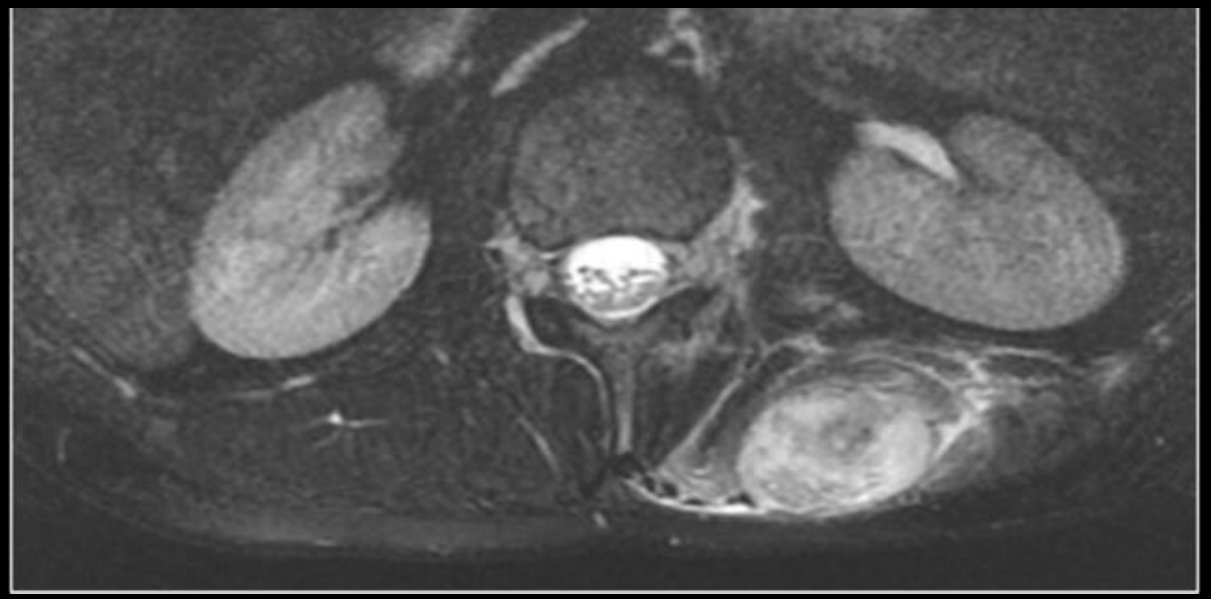
MICOD – 29/05/2024
Case contributor – Dr. Rajesh Botchu

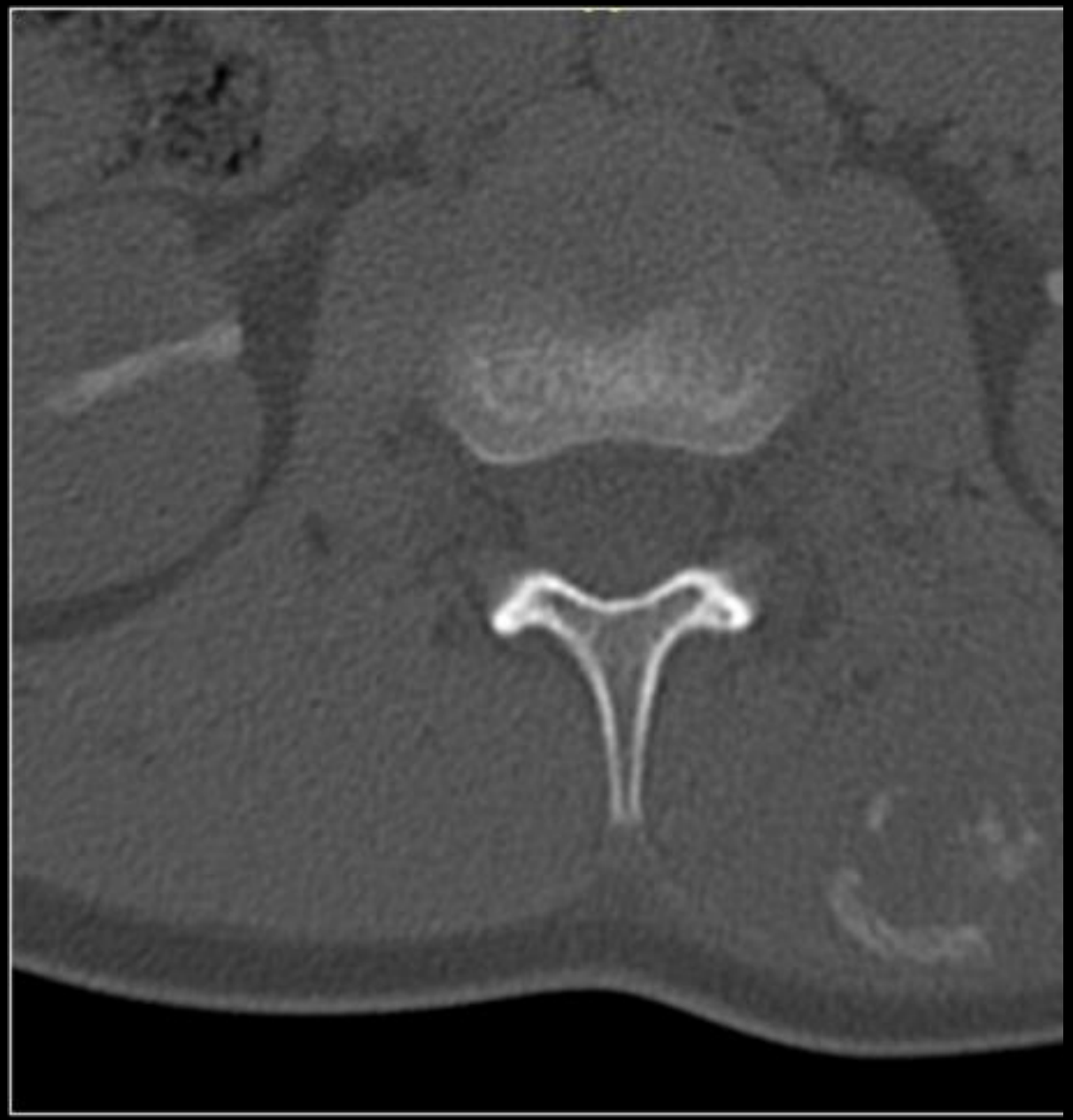




Swelling, pain and tenderness.







Birmingham MSK Radiology

Myositis Ossificans

Case Report

Bilateral calcific myonecrosis associated with epilepsy

S. Karkhanis [a,*], R. Botchu [a,b], S. James [a], N. Evans [a]

[a] *Department of Musculoskeletal Radiology, Royal Orthopaedic Hospital, Birmingham, UK*
[b] *Department of Radiology, Kettering General Hospital, Kettering, UK*

Myositis Ossificans

Background

- Myositis ossificans is the most common form of heterotopic ossification.
- It usually occurs in large muscles.
- Its importance stems in large part from its ability to mimic more aggressive pathological processes- like osteosarcoma.
- Myositis ossificans is one of the skeletal "don't touch" lesions.
- Most cases of myositis ossificans occur as a result of trauma, and thus, the primary demographic is young adults.
- Another group that is especially prone to myositis ossificans are paraplegics, usually without evidence of trauma.

https://radiopaedia.org/articles/myositis-ossificans-1

Pathology

- Myositis ossificans is essentially metaplasia of the intramuscular connective tissue resulting in extraosseous bone formation. There are three well-described histopathological stages 6:

1. first month: tissue injury causes organizing granulation tissue with fibroblastic and osteoblastic differentiation and osteoid formation
2. second month: mineralized osteoid matrix develops with immature lamellar bone
3. third month: immature bone progresses into mature lamellar cortical and trabecular bone

- It has a zonal organization:
- peripheral, well-organized mature lamellar bone
- intermediate osteoid region
- central immature non-ossified cellular (fibroblasts) focus
- .

Myositis Ossificans

Birmingham MSK Radiology

Diagnosis

- Radiographically it is circumferential calcification with a lucent center and a radiolucent cleft (string sign) that separates the lesion from the cortex of the adjacent bone.
- This feature distinguishes this entity from parosteal osteosarcoma, which tends to contain centrally located calcifications.
- MRI : Based on age of lesion
- Early features can be misleading because the peripheral calcification is not well seen, and edema in the soft tissues may extend beyond the often inapparent calcific rim.
- T1
  - ill-defined isointense to muscle mass
- T2
  - periphery: high signal (edema) seen up to 8 weeks.
  - central: heterogeneous high signal, due to high proliferating cellularity and cartilaginous components.
  - fluid-fluid levels have been reported and attributed to previous hemorrhage.
- T1 C+ (Gd): enhancement is often present.
- Late features mimic bone:
- T1
  - periphery: low signal (mature lamellar bone)
  - central: intermediate to high signal (bone marrow)
- T2
  - periphery: low signal (mature lamellar bone)
  - central: intermediate to high signal (bone marrow)
- T1 C+ (Gd): usually none in mature lesions.

https://radiopaedia.org/articles/myositis-ossificans-1

Myositis Ossificans

Management

- Myositis ossificans is benign and there is no compelling evidence that malignant transformation ever occurs.
- As such, treatment is reserved for symptomatic lesions, and surgical resection is usually curative.

Differential Diagnosis

- parosteal osteosarcoma: calcifies in the center and continues towards the periphery.
- soft tissue sarcomas, including
  - malignant fibrous histiocytoma
  - synovial sarcoma.

https://radiopaedia.org/articles/myositis-ossificans-1

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7240889/

- THANK YOU.