Myositis Ossificans: A Rare Neonatal Presentation

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Introduction

- Myositis ossificans is benign, self-limiting, ossifying pseudotumor
  - Often mistaken for malignant soft tissue tumor
- Majority are associated with severe contusions or traumatic events
- Most common in males 30-40 years old
- 80% of lesions develop within large extremity muscles
- Extremely rare in children, usually >10 years old
  - One prior publication of neonate myositis ossificans

Case History

- Term neonate on day 0 of life without history of birth trauma presented with a firm, palpable mass in the right calf
- Radiographic imaging revealed a lobulated, heterogenous, densely calcified mass
  - Associated deformation of the tibia and destruction of bony cortex.
  - Leading initial diagnosis: subperiosteal hematoma, myositis ossificans, and surface-based osteosarcoma
- MRI showed partially calcified exophytic mass emanating from posterior proximal tibial diaphysis with cortex destruction.
  - Additional enhancing, T2 bright soft tissue mass with similar appearance to cartilaginous cap.
  - Leading differential: subperiosteal hematoma, myositis ossificans, and surface-based osteosarcoma or chondrosarcoma
- CT showed chondroid matrix, periosteal reaction, and potential intramedullary extension
  - Leading differential: subperiosteal hematoma, myositis ossificans, and surface-based osteosarcoma or chondrosarcoma

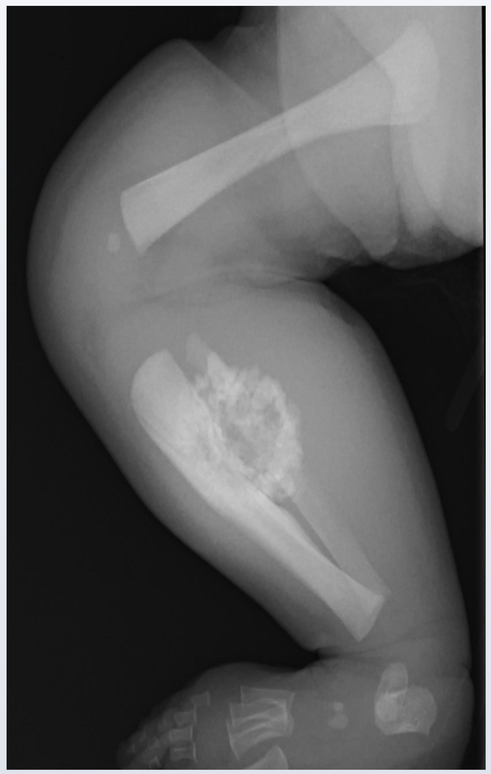

Figure 1. Frog-leg view radiograph of the right leg demonstrating an aggressive, expansile calcified mass in the posterior cortex of the proximal mid tibial diaphysis with cortical scalloping

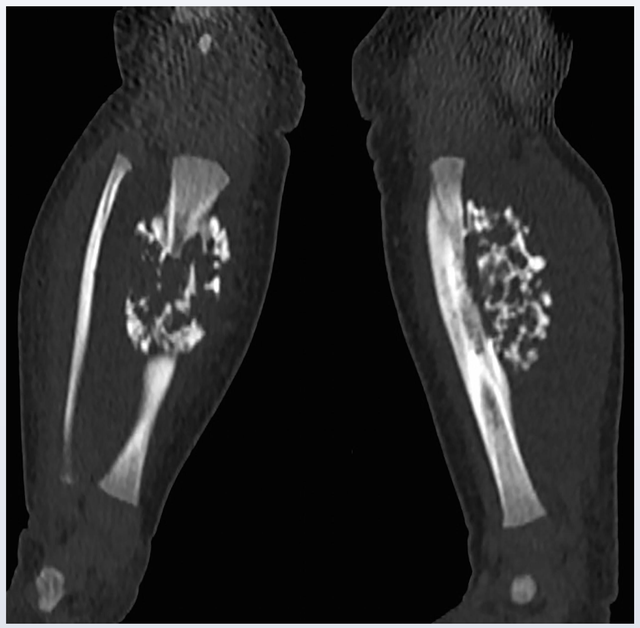

Figure 2. Coronal (left) and sagittal (right) images of the right tibia and fibular demonstrating an aggressive mass with chondroid matrix located in the posterior cortex of the proximal mid tibial diaphysis with subjacent cortical scalloping

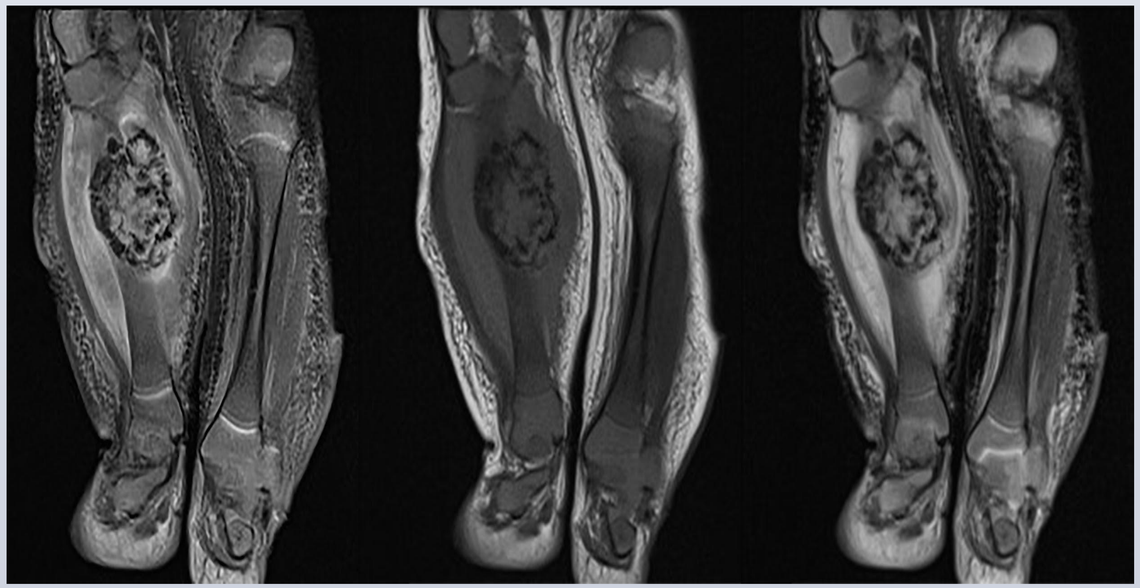

Figure 3. T2, T1, and T2 fat saturated coronal magnetic resonance images of the right tibia and fibula demonstrating an aggressive mass composed of chondroid matrix with surrounding periosteal reaction and increased fluid signal about the mass

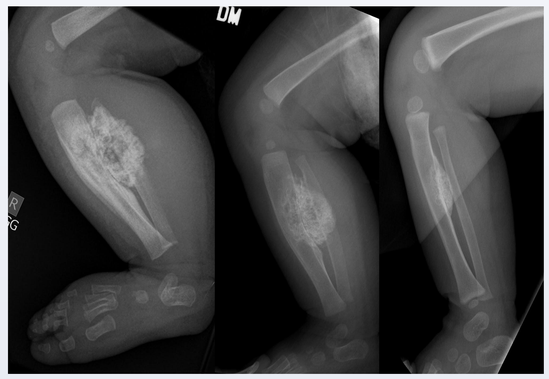

Figure 4. Serial Frog-leg view radiographs of the right leg demonstrating that the mass gradually decreases in size over approximately 15 months

Discussion

- Initial biopsy results: “highly atypical osteoid-producing lesion” with final diagnosis pending outside consultation
- Including a multi-institute pathology review, the lesion has been noted to be most consistent with myositis ossificans
- Myositis ossificans is best identified by lesional maturation on imaging through 3 zoning patterns which corresponds to 3 distinct pathology components: central proliferating fibroblasts, middle area of immature bone and osteoblasts, and mature bony trabeculae
- Ultimately, the size of the lesion decreased over approximately 15 months, consistent with Myositis Ossificans

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