

## TEACHING FILES (GRAND ROUNDS)

# EARLY-INFANCY OSTEOARTICULAR INFECTION: A CASE REPORT

Barbara Minkowitz, Jennifer R Ristic, Robyn Murphy, Elizabeth Baorto, Emily Lillie.

Department of Pediatric Orthopedics, Morristown Medical Center, New Jersey, USA.

### Clinical Problem

A previously healthy 4-month old boy was admitted with 5 days of fever, irritability and decreased feeding. He was evaluated by the pediatrician and emergency department. Blood cultures were positive for methicillin-sensitive staphylococcus aureus (MSSA). Subtle soft tissue swelling in both lower extremities, worse in right, and decreased movement of right lower extremity were noted. He was given ceftriaxone and vancomycin. Nasopharyngeal cultures were positive for rhinovirus and enterovirus. On day 3 of hospitalization, the neurologist was consulted for presumably viral right lower extremity infantile pseudoparalysis. The neurologist then referred the patient to the orthopedic department for suspected septic arthritis. Examination by the orthopedic surgeon revealed right leg abducted in frog leg position, ankle swelling, pain on palpation, and no active range of motion of the extremity. Radiographs were normal. An MRI of the leg

**Figure 1.** T1 fat saturated post contrast MRI image demonstrates increased enhancement of the right proximal femoral metaphysis and adjacent soft tissue enhancement.



**CONTACT** Barbara Minkowitz

**Email:** [bminkowitz@aol.com](mailto:bminkowitz@aol.com)

**Address for Correspondence:** Barbara Minkowitz, MD, Department of Pediatric Orthopedics, Morristown Medical Center, 100 Madison Avenue, Morristown, NJ 07960, USA.

©2019 Pediatric Oncall

### ARTICLE HISTORY

Received 12 June 2018

Accepted 5 September 2018

### KEYWORDS

osteomyelitis, MRI, pseudo-paralysis

was ordered. MRI with gadolinium showed septic hip and ankle, and osteomyelitis of the proximal femoral metaphysis (Figure 1). Patient underwent an emergent debridement of the hip, proximal femur, and ankle with repeat debridement on post-operative day (POD) 3. He was discharged home on POD 7 on parental ceftriaxone.

At 5-year follow-up, the patient is fully ambulatory without limping. Recent x-rays show minimal irregularities of the proximal femur, healed ankle, and metaphysis representing avascular changes.

*When should a clinician suspect osteoarticular infection and when should an MRI be used to confirm?*

### Expert Opinion

In infants under 6 months, osteoarticular infections present diagnostic and management challenges because the signs and symptoms are difficult to discern.<sup>1,2</sup> Prompt diagnosis and treatment are crucial for preventing sequelae.<sup>3</sup> Extremity pseudo-paralysis or swelling are present in 60-95% of infected early infants and should alert clinicians to possibility of osteoarticular infection.<sup>1,2</sup> Other symptoms like fever and irritability are common but can be absent.<sup>1,4</sup> Laboratory tests may suggest septic arthritis and osteomyelitis, which frequently occur concomitantly, but not definitely. Laboratory tests should include complete blood count with differential, ESR, CRP, blood culture, bone aspirate/synovial analysis.<sup>4</sup>

Radiologic abnormalities may be absent, subtle, or only positive in longer standing infections.<sup>1</sup> The Infectious Diseases Society of America (IDSA) considers MRI the gold standard for diagnosing septic arthritis and osteomyelitis since it is the most sensitive radiological investigation.<sup>2,5</sup> This patient was febrile, irritable, mildly anorexic, and later developed soft tissue swelling and pseudo-paralysis of the lower extremities. MRI led to the diagnosis. The need for clinical vigilance is emphasized to avoid complications of infection including bone and growth plate deformity, growth disturbance, joint dislocation, limited joint motion, and neurologic abnormalities.<sup>4</sup> Early diagnosis is crucial to mitigate sequelae. MRI should be obtained without hesitation to confirm suspicion of osteoarticular infections and facilitate prompt treatment.

**Compliance with Ethical Standards**

**Funding:** None

**Conflict of Interest:** None

**References :**

1. Knudsen, CJ, Hoffman EB. Neonatal osteomyelitis. *J Bone Joint Surg Br.* 1990; 72: 846-851.
2. Davis S, Thompson S. Paediatric orthopaedic infections. *Surgery.* 2017;35:62-67.
3. Pittard WB 3rd, Thullen JD, Fanaroff AA. Neonatal septic arthritis. *The J Pediatr.* 1976;88:621-624.
4. Mascarenhas A, Almeida C, Constantino C, Soudo AP, Calado E, Vieira JP. Septic arthritis presenting as brachial plexus neuropathy. *BMJ Case Reports.* 2011; doi:10.1136/bcr.12.2010.3562
5. Deftereos SP, Michailidou E, Karagiannakis GK, Grigoriadi S, Prassopoulos P. Hematogenous infantile infection presenting as osteomyelitis and septic arthritis: a case report. *Cases J.* 2009; 2: 8293.