

Risk Management Pitfalls in the Management of Pediatric Septic Arthritis and Osteomyelitis

- 1. “The patient did not have a fever, so I attributed the pain to minor aches and pains.”**
Not all patients with SA and OM will present with fever. Patients may present with a subacute presentation with some pain and refusal to bear weight. There may also be a history of preceding minor trauma.^{47,129}
- 2. “The patient presented with vague/nonspecific pain. I didn’t consider a bone or joint infection.”**
Both pediatric SA and OM present in a similar fashion, and the initial symptoms may be vague and nonspecific, so it is important to maintain a high index of suspicion. A thorough musculoskeletal examination should be completed and imaging should be obtained in order to fully assess the joint/bone involved.^{48,50}
- 3. “The x-ray was normal, so I did not obtain further labs or imaging studies.”**
X-rays are often normal in cases of both pediatric SA and OM, especially early in the disease course. Signs on plain radiography that are consistent with SA include distention of the joint capsule, increased opacity within the joint, displacement of muscle surrounding the joint by capsular distention, increased distance between the subchondral ends of bone, and, occasionally, subluxation of the joint.⁷⁶ Findings on plain radiography that are consistent with OM are bone destruction and periostitis, which appears as soft-tissue swelling, periosteal elevation, and lytic sclerosis.⁷
- 4. “The MRI was negative, so we did not pursue further investigation for SA and OM.”**
MRI is not 100% diagnostic and can give a false-negative result. In such cases, CT imaging can be pursued.⁷
- 5. “The ESR and WBC results were below the established Kocher criteria.”**
The ESR may be normal early in the course of SA, and neonates may have low WBC counts due to leukopenia. CRP is a useful early marker of disease and can be trended to monitor the response to antibiotics.¹⁴ Even in the absence of an elevated ESR and WBC, a patient with fever and refusal to bear weight still has a 40% risk of having SA.
- 6. “The initial lab results were not consistent with SA, so I decided to forego obtaining the arthrocentesis.”**
Synovial fluid analysis remains the gold standard for diagnosis of a septic joint. The joint fluid analysis can be completed via arthrotomy, arthrocentesis, or ultrasound-guided needle aspiration.⁷⁶
- 7. “I wanted to start the antibiotics promptly, so I did not obtain a blood culture.”**
With an increase in antibiotic-resistant organisms, it is essential to obtain culture specimens from as many sites as possible, such as blood, joint fluid, and bone, so initial empiric antibiotics can be modified to treat the specific microbiologic pathogen.^{68,70}
- 8. “I wanted to tailor the antibiotics to the specific microbial pathogen, so I decided to wait for culture results prior to starting antibiotic therapy.”**
Ideally, empiric antibiotic therapy should be started after obtaining a reliable culture sample, but the initiation of antibiotics should not be delayed while awaiting results of culture samples. The antibiotics are geared toward the organisms known to be the most likely cause of SA and OM.²²
- 9. “We were so busy in the ED that I decided to discharge some other patients first before obtaining the appropriate labs and imaging studies.”**
Time is of the essence for both pediatric SA and OM. It is imperative that the appropriate workup be initiated as soon as either diagnosis is suspected so that antibiotics can be initiated in order to avoid danger to both life and limb.^{2,3}
- 10. “I instructed my patient to continue antibiotics at least until his symptoms improved.”**
Incomplete antibiotic treatment duration and/or microbial coverage can attribute to antibiotic resistance and recurrence of symptoms. Both OM and SA require initial inpatient parenteral antibiotic therapy followed by oral antibiotic therapy lasting several weeks.⁶