Top 5 tips: Septic Arthritis

Arthritis Subcommittee







Septic arthritis should be considered as differential diagnosis in case of acute mono-articular arthritis. It requires rapid clinical diagnosis and prompt aspiration. **Initial imaging** is often limited to US and X-ray, which should show **joint effusion** (often inhomogenous) and **soft tissue swelling;** gas may also occur and be detected as as hyperechogenicity at US.



After a few days **juxta-articular osteoporosis** may occur, followed by **erosion** and joint space narrowing (**cartilage destruction**). Sclerosis is an indicator of healing. Ankylosis can also occur.







MRI is typically reserved for joints which are difficult to assess with US. Cardinal findings are joint effusion and a thickened and enhancing synovium. Outpouching of the synovium and microabscesses/small fluid pockets can be seen. Adjacent bone marrow, hypointense on T1 weighted and hyperintense on STIR, is indicative of osteomyelitis.







Septic arthritis in children is rare and most common in **infants up to 12 months (spread via bridging vessels in physis)**, in older children infection is often limited to the metaphysis.







Post-treatment MRI can show persistent thickening and enhancement of the synovium (scarring),
bone marrow edema (mechanical stress and scarring), erosions and soft tissue edema. Joint effusion with synovial pouching and abscesses should decrease with appropriate antibiotics. Clinical improvement precedes radiological resolution, often by several months.

References

- Karchevsky M, Schweitzer ME, Morrison WB, Parellada JA. MRI findings of septic arthritis and associated osteomyelitis in adults. AJR Am J Roentgenol. 2004 Jan;182(1):119-22. doi: 10.2214/ajr.182.1.1820119.
- Offiah AC. Acute osteomyelitis, septic arthritis and discitis: differences between neonates and older children. Eur J Radiol. 2006 Nov;60(2):221-32. doi: 10.1016/j.ejrad.2006.07.016.
- Bierry G, Huang AJ, Chang CY, Torriani M, Bredella MA. MRI findings of treated bacterial septic arthritis. Skeletal Radiol. 2012 Dec;41(12):1509-16. doi: 10.1007/s00256-012-1397-2.
- Rupasov A, Cain U, Montoya S, Blickman JG. Imaging of Posttraumatic Arthritis, Avascular Necrosis, Septic Arthritis, Complex Regional Pain Syndrome, and Cancer Mimicking Arthritis. Radiol Clin North Am. 2017 Sep;55(5):1111-1130. doi: 10.1016/j.rcl.2017.04.014.



Contributors

Frederiek Laloo

Janani Pillai

Wouter Huysse

Project Coordinators

Chiara Giraudo

Winston Rennie

