

Hip Septic Arthritis: Complications Including Multiple Collections and Osteonecrosis

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Abstract

Septic arthritis is a significant medical emergency, particularly in pediatric populations, where early diagnosis and management are crucial to prevent complications. This article presents the case of an 11-year-old boy diagnosed with septic arthritis of the hip, which was complicated by multiple abscesses and osteonecrosis. The patient exhibited classic symptoms, including an erythematous and painful joint with substantial functional impairment. The diagnosis was confirmed through joint aspiration, revealing the presence of a pathogen in the synovial fluid. The discussion highlights the varying presentations of septic arthritis in children, the importance of prompt joint aspiration, and the role of imaging techniques in diagnosing and managing this condition. This case underscores the necessity of early recognition and intervention in septic arthritis to minimize the risk of severe complications.

Keywords: Arthritis; Osteonecrosis; Collection; Pediatric

Introduction

Septic arthritis is a common medical emergency, especially in children, and can sometimes be difficult to diagnose [1]. Early management is essential. The infection is either of hematogenous or traumatic origin. Diagnosis is primarily based on the presence of an erythematous and painful joint with functional impairment, confirmed by the presence of a pathogen in the joint fluid [2]. We report the case of an 11-year-old child diagnosed with hip arthritis complicated by multiple abscesses and bone osteonecrosis

Case Report

An 11-year-old child has been experiencing pain in the left hip for 20 days, with limited flexion and extension of the left hip. The child was initially treated symptomatically through self-medication but developed a fever of 39 degrees Celsius. This was followed by the onset of functional impairment, which prompted the family to seek medical attention at the pediatric surgical emergency department. Clinical examination was limited by pain, with an inability to mobilize the hip. An ultrasound was requested, revealing an effusion in the hip. A biological workup was performed, showing a C-reactive protein of 150 and white blood cells at 16,000, with the rest of the workup being unremarkable. The patient was started on antibiotic therapy with aspiration puncture, but there was no improvement. A CT scan was then requested (Figure 1-3), followed by surgical revision through arthrotomy.



Figure 1: Multiple collections in the left hip enhanced after contrast injection with infiltration of the adjacent fat.



Figure 2: Collection in the iliopsoas muscle with lysis response of the ilio-pubic branch.

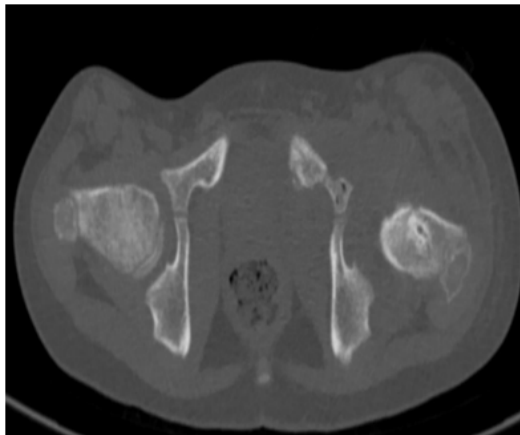


Figure 3: Bone window: Osteolytic lesions in the femoral neck with marginal osteosclerosis, classified as Lodwick IA. Lysis of the ilio-pubic branch containing air bubbles. Compatible with osteonecrosis.

Discussion

Septic arthritis is the infection of a joint. The synovial membrane is richly vascularized, and the capillaries do not have a basement membrane in the synovium, which explains why pathogens can easily enter the joint. In adults, hip pathology is dominated by osteoarthritis with a fairly monomorphic clinical expression. In contrast, in children, the modes of expression are more varied, depending on age and the pediatric characteristics of pain expression, and the causes are multiple [3]. This disease affects boys more frequently than girls [4].

Septic arthritis in children manifests differently depending on age: in newborns and infants, it is often a presentation of osteoarthritis [6]; in other cases, the symptomatology is described as sudden and acute, often dominated by pain, more or less total functional impairment, fever, and joint swelling [6]. This clinical presentation should raise suspicion of arthritis and prompt a biological workup (C-reactive protein...) indicative of an infectious syndrome.

Joint aspiration is indicated whenever there is a joint effusion. This aspiration should be performed under sterile surgical conditions to avoid iatrogenic contamination. Some joint locations are more accessible than others.

From a bacteriological standpoint, *Staphylococcus aureus* is the most common pathogen [6]. Radiologically, early-stage standard X-rays may only show indirect signs (soft tissue swelling) [6]; the appearance of bony signs indicates the severity and chronicity of the condition. Ultrasound is useful for confirming the presence of an effusion and may reveal signs suggestive of a microbial origin for the arthritis (heterogeneous nature of the joint fluid) [7]. A CT scan is indicated in the search for complications, such as collections in the joint and muscle planes, as in the case of our patient.

Septic arthritis (also called “purulent arthritis”) must be detected quickly. It always requires interdisciplinary collaboration. Delayed diagnosis and treatment lead to complications [7] such as septic shock, osteonecrosis, early physal closure, joint stiffness, and chronic infection with abscessed collections in the joint and muscle compartment. The prognosis is linked to the time between symptom onset and treatment. Surgical and antibiotic management within five days of symptom onset is recommended to avoid these complications [6].

Conclusion

Septic arthritis remains a critical condition in children that demands swift recognition and intervention. The varied clinical presentations based on age and the predominance of atypical symptoms can complicate diagnosis.

Early management is essential to prevent joint damage and long-term functional impairment. As septic arthritis can lead to serious outcomes if left untreated, healthcare providers must maintain a high index of suspicion and act promptly in cases of suspected joint infections in pediatric patients.

Questions and answers with a brief rationale true and false and/or multiple-choice questions:

- The most frequent pathogen causing hip arthritis is:
- *Escherichia coli*.
- *Pseudomonas*.
- *Staphylococcus aureus*.

The answer is a because the high prevalence of *Staphylococcus aureus* as a pathogen in septic arthritis of the hip is attributed to its colonization ability, survival mechanisms within the joint, and its capacity to provoke a significant inflammatory reaction.

- Ultrasound is indicated to assess complications of septic arthritis of the hip. True/false:
- False

Ultrasound is useful for confirming the presence of an effusion and may reveal signs suggestive of a microbial origin for the arthritis and CT scan is indicated in the search for complications, such as collections in the joint and muscle planes.

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Credit Authorship Contribution Statement

Asmae Guennouni: Writing - review and editing, Writing - original draft, Chaimae Abourak: Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Soukaina Bahha: Formal analysis, Data curation, Conceptualization. Pr Siham El Haddad and Pr Nazzik Allali: Visualization, Validation, Supervision, Resources, Investigation, Formal analysis. Pr L. Chat: Visualization, Validation, Software, Resources, Investigation.

Declaration of Competing Interest

The authors declare no conflict of interest.

Bibliography

1. Hassan AS., *et al.* "Peripheral bacterial septic arthritis: review of diagnosis and management". *Journal of Clinical Rheumatology* 23.8 (2017): 435-442.
2. Debrach AC., *et al.* "Prise en charge médico-chirurgicale de l'arthrite septique". *Revue Médicale Suisse* 14 (2018): 516-521.
3. Deslandre C. "The hip in children from 0 to 17 years". *Revue Du Rhumatisme Monographies* (2019).
4. Glorion C. "Septic arthritis in children". *Revue du Praticien* 44 (1994): 25816.
5. Mathews CJ., *et al.* "Management of septic arthritis: a systematic review". *Postgraduate Medical Journal* 84.991 (2008): 265-270.
6. Teklali Y., *et al.* "Septic arthritis in infants and children: A report of 554 cases". *Journal de Pédiatrie et de Puériculture* 15.3 (2002): 137-141.
7. Morin C and Herbaux B. "Osteoarticular infections in children". Monographie du GEOP Montpellier: Sauramps Medical (1995).

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