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Case Report Olgu Sunumu

Osteomyelitis masked by a history of trauma: Differential diagnosis with septic arthritis

Travma öyküsüyle maskelenen osteomiyelit: Septik artritle ayırıcı tanı

Pelin ARSLAN[1], Gürkan KARAKUŞ[2]

[1]Inonu University, Faculty of Medicine, Department of Internal Medicine, Division of Pediatrics, Pediatric Emergency Clinic, 44000, Malatya-Turkey
[2]Inonu University, Faculty of Medicine, Department of Internal Medicine, Division of Pediatrics, 44000, Malatya-Turkey

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Abstract
Osteomyelitis is diagnosed through a combination of clinical signs and imaging techniques that reveal bone lesions, as well as isolating the causative microorganism from bone or blood cultures when applicable (1). A case involving an 18-month-old child with right knee swelling, fever, increased fluid observed in radiographs and ultrasonography, and leukocytes detected in synovial fluid was initially suspected to have septic arthritis. However, osteomyelitis was diagnosed following magnetic resonance imaging because of a prior history of trauma. This case emphasizes the need to carefully consider trauma history in children with single-joint arthritis, who may initially be misdiagnosed with septic arthritis.
Keywords: Trauma; Joint pain (Arthralgia); Osteomyelitis; Knee joint.

Öz
Osteomiyelit klinik bulguların yanı sıra, görüntüleme yöntemleriyle kemik dokuda lezyonların gösterilmesi ve etken mikroorganizmanın kemik ya da kan kültürlerinden izole edilmesiyle konur. Sağ dizde şişlik, ateş, direkt grafi ve ultrasonografide sıvı artışı gözlemlenen, alınan eklem sıvısında lökosit tespit edilen bir olguda, septik artrit ön tanısı konmuş; ancak travma öyküsü göz önünde bulundurularak yapılan manyetik rezonans görüntüleme ile osteomiyelit tanısı konulmuştur. Bu vaka, tek eklem artritiyle başvuran ve ilk aşamada septik artrit tanısı alan hastalarda travma öyküsünün önemini vurgulamayı amaçlamaktadır.
Anahtar Kelimeler: Travma; Eklem ağrısı (Artralji); Osteomiyelit, Diz eklemi.

Yazışma Adresi/Address for Correspondence: Pelin ARSLAN, Inonu University, Faculty of Medicine, Department of Internal Medicine, Division of Pediatrics, Pediatric Emergency Clinic, 44000, Malatya-Turkey, E-mail: ptulun73546@gmail.com
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Introduction

Septic arthritis, a purulent infection of the joint caused by microorganisms, is a common condition in pediatric populations. The most common pathogens in neonates include Staphylococcus aureus, Gram-negative bacilli, and Group B Streptococcus (GBS). In children under five years of age, S. aureus**,** Haemophilus influenzae**,** Streptococcus pyogenes and Streptococcus pneumoniae are more frequently isolated.[1] While bacterial infections remain the main cause of septic arthritis in this age group, it is crucial to consider osteomyelitis in cases involving trauma history.

Osteomyelitis in children commonly affects the metaphyseal region of long bones and often results from the spread of bacteria following trauma. [2] Diagnosis is based on clinical findings and imaging techniques that can detect bone lesions, in addition to culturing the microorganism from infected sites.

Case presentation

An 18-month-old female patient presented with complaints of right knee pain. Initial radiographs showed swelling and increased joint space in the right knee (Figure 1), and the patient was diagnosed with suspected septic arthritis and started on antibiotic therapy. However, her condition worsened with increasing pain and difficulty in walking, prompting referral to our clinic. The patient had a history of a fall involving her right knee a month prior. On physical examination, knee swelling, increased temperature, and a noticeable size discrepancy were observed.



Figure 1. Increased joint space in the right knee.

Laboratory tests showed the following: C-reactive protein (CRP) at 1.78 mg/dL, white blood cell (WBC) count at 9800/mm³, and erythrocyte sedimentation rate (ESR) of 44 mm/h. A negative Brucella tube agglutination test and an ultrasound revealing increased joint fluid with synovial thickening were noted. The aspirated synovial fluid contained only a small number of leukocytes.

Subsequent Magnetic Resonance Imaging (MRI) revealed T1 hypointense and T2 hyperintense signal changes in the proximal metaphysis and epiphysis of the tibia, with heterogeneous contrast enhancement, consistent with osteomyelitis (Figure 2).



Figure 2. T1 hypointense, T2 hyperintense signal changes and heterogeneous contrast enhancements were observed in the proximal metaphysis and epiphysis of the tibia. It was evaluated in favor of osteomyelitis.

Treatment with vancomycin and amikacin was initiated. During surgery, no microorganisms were cultured from the synovial fluid or blood cultures. As a result, the patient was discharged after receiving antibiotics for 28 days and switching to oral therapy, with a total treatment plan of 56 days.

Discussion

Osteomyelitis and septic arthritis are both commonly observed in children and share overlapping clinical symptoms, yet they require different therapeutic approaches.[3] Trauma-related infections typically involve

Staphylococcus aureus as the predominant pathogen, although other microorganisms may also play a role. In these cases, Magnetic Resonance Imaging (MRI) serves as a crucial diagnostic tool for confirming osteomyelitis, as it can identify bone damage, abscess formation, and the extent of infection.[2] However, MRI may also demonstrate synovial and periarticular soft tissue enhancement, which can mimic septic arthritis and complicate the differential diagnosis (Figure 3).

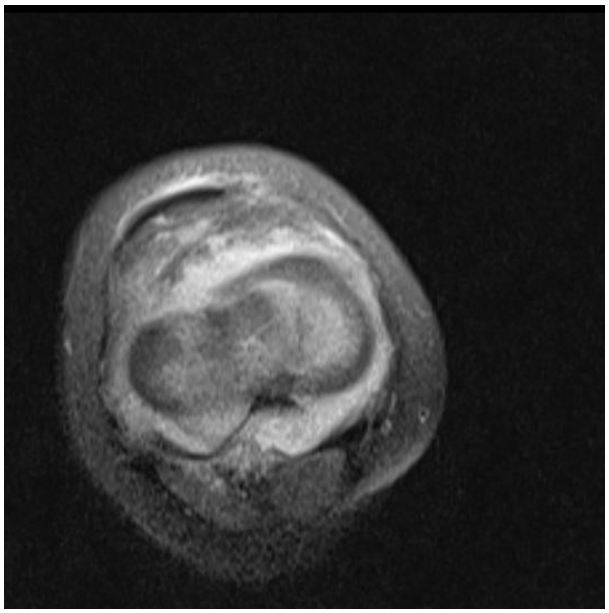


Figure 3. Signal enhancement in the fat pads and synovia within the knee joint and in the soft tissues adjacent to the knee joint and contrast enhancement on post contrast images (septic arthritis?).

Osteomyelitis, particularly following trauma, commonly affects the metaphyseal regions of long bones, although joint infection may also occur, leading to septic arthritis. The relationship between osteomyelitis and septic arthritis is evident in about 33% of cases, highlighting the need for vigilance when trauma is involved.[4]

Effective treatment typically involves a combination of targeted antibiotics and, if necessary, surgical intervention. Broad-spectrum antibiotics should be administered initially, with adjustments made once the pathogen is identified. Rifampin**,** vancomycin**,** amikacin are among the recommended antibiotics for treating osteomyelitis following trauma.[5]

In pediatric patients with a history of trauma, osteomyelitis should not be overlooked, especially when septic arthritis is initially suspected. It is crucial to inquire thoroughly about trauma history and consider osteomyelitis as a potential diagnosis in cases of single-joint arthritis. Early diagnosis and a multidisciplinary treatment approach can help reduce complications and improve outcomes.

Ethics Committee Approval

Since this study is a case report, ethical committee approval was not required. Written informed consent was obtained from the patient's legal guardian in accordance with the Declaration of Helsinki.

Informed Consent

Detailed written informed consent was obtained for the case and uploaded as a supplementary file.

Author Contributions

Concept and design: P.A, G.K; Data processing: P.A; Analysis and interpretation: G.K; Literature review: P.A, G.K; Manuscript drafting: P.A

Conflict of Interest

The authors declare that there are no conflicts of interest related to this study.

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Peer-review

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