# Walking on a warning sign: a hidden infection behind a unilateral leg swelling

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**Background:** Lower limb swelling is a common presentation in the Emergency Department (ED). While bilateral swelling is often attributed to venous insufficiency, unilateral edema presents a diagnostic challenge. Common differentials, including cellulitis, deep vein thrombosis (DVT), and ruptured Baker's cyst, may obscure rare but serious conditions. We describe a case of septic arthritis with a large calf abscess misdiagnosed as a ruptured Baker's cyst.

**Case Presentation:** A healthy 63-year-old lady presented with a 2-week history of progressive calf pain and swelling. An ultrasound performed 9 days earlier reported a ruptured Baker's cyst and no DVT. She denied any fever, trauma, or insect bites.

On initial ED evaluation, she was afebrile with a tense, swollen left calf. Knee examination was unremarkable, with no palpable popliteal bursa. There were no signs of compartment syndrome, and distal pulses were intact. Laboratory tests showed a WBC count of $9.83 \times 10^9$/l (88% neutrophils) and an elevated CRP of 148 mg/l. She was discharged with analgesia and outpatient orthopedic follow-up.

Two weeks later, persistent symptoms at her follow up prompted admission. Examination revealed similar findings except for new pain on passive knee movement. Inflammatory markers remained elevated (CRP 93.5 mg/dl and ESR 115 mm/hr). Knee aspiration yielded minimal straw-colored fluids, and X-rays were unremarkable. However, Magnetic Resonance Imaging demonstrated a large posterior calf collection suggestive of an abscess with concerning features for septic arthritis.

The patient underwent surgical drainage of the knee with calf debridement. Intra-operatively, seropurulent joint fluid and extensive pus in the calf were identified. Cultures grew methicillin-sensitive *Staphylococcus aureus*. She received intravenous antibiotics for 6 weeks. She remained largely afebrile throughout admission and tested negative for immunocompromising conditions (diabetes, HIV).

**Conclusion:** Septic arthritis associated with an extra-articular abscess is uncommon and presents atypically. This case underscores the importance of re-evaluating the initial diagnosis for patients with persistent symptoms and elevated inflammatory markers. An elevated CRP even without classical signs (e.g., fever, immunocompromised host) should prompt further evaluation. When paired together the elevated ESR sensitivity for joint infections increases to 98%. Early recognition and imaging can significantly alter patient outcomes by enabling timely surgical and antimicrobial intervention.

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