

Infected Ruptured Baker's Cyst Mimicking Deep Vein Thrombosis: A case report

Kawtar El Fid *, Hanane Baybay, Zakia Douhi, Meryem Soughi, Sara Elloudi and Fatima-Zahra Mernissi

Department of Dermatology, Hassan II University Hospital, Sidi Mohamed Ben Abdellah University, Fez, Morocco.

World Journal of Advanced Research and Reviews, 2026, 31(02), 446–449

Publication history: Received on 03 July 2026; revised on 08 August 2026; accepted on 10 August 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.31.2.2093>

Abstract

Acute unilateral calf erythema and swelling frequently prompt empirical treatment for cellulitis and urgent investigation for deep vein thrombosis (DVT). Rupture of a Baker's cyst is an uncommon but important mimic. A 60-year-old patient presented with a one-week history of progressive swelling of the left lower limb despite treatment with amoxicillin-clavulanate. Examination showed an ill-defined erythematous, edematous, and warm plaque over the left calf with overlying ecchymosis. DVT was initially suspected; however, the D-dimer assay was negative and venous duplex ultrasonography showed no thrombosis. The examination instead demonstrated a complex left Baker's cyst considered dissected and ruptured. Surgical drainage and adjusted antibiotic therapy were followed by a favorable clinical course. This case highlights the need to consider a ruptured Baker's cyst in patients with unilateral inflammatory calf swelling, particularly when ecchymosis is present and presumed cellulitis does not improve with antibiotics. Duplex ultrasonography is valuable because it can both exclude DVT and identify an alternative popliteal or calf process.

Keywords: Baker's Cyst; Popliteal Cyst; Pseudocellulitis; Pseudothrombophlebitis; Deep Vein Thrombosis; Ultrasonography.

1. Introduction

Acute unilateral erythematous leg swelling is a common diagnostic challenge. Cellulitis and DVT are clinically important considerations, but several musculoskeletal disorders can produce an almost identical presentation. A Baker's cyst is a synovial fluid collection arising from distension of the gastrocnemius-semimembranosus bursa, which commonly communicates with the knee joint. Most cysts are asymptomatic; when rupture occurs, fluid may dissect into the calf and cause pain, edema, warmth, and erythema, a presentation often termed pseudothrombophlebitis [1,2].

The overlap may also extend to cellulitis, especially when the calf is markedly inflamed. Recognizing clinical clues and extending ultrasonographic assessment beyond the venous system can prevent diagnostic delay and inappropriate treatment. We report a ruptured Baker's cyst presenting as an antibiotic-unresponsive inflammatory calf syndrome with ecchymosis.

2. Case Report

A 60-year-old man with a more than five-year history of untreated mechanical knee pain presented to the emergency department with sudden-onset pain in the left popliteal fossa. The subsequent clinical course was marked by progressive swelling of the left calf, fever, chills, and functional impairment. Before admission, he had received oral amoxicillin-clavulanate at a dose of 3 g/day for two days for presumed bacterial cellulitis, without clinical improvement.

At admission, the patient was febrile at 38.3°C, with a heart rate of 98 beats/min. He was hemodynamically stable and normotensive. Physical examination disclosed an ill-defined erythematous, edematous, violaceous, warm, and tender

* Corresponding author: Kawtar El Fid.

plaque with focal ecchymotic areas, extending from the popliteal fossa to the proximal half of the posterior calf. Marked asymmetric swelling was noted compared with the contralateral limb, together with limited knee mobility. Distal pulses were palpable, and the distal neurological examination was normal (Figure 1).



Figure 1 Clinical appearance of the left lower limb showing an ill-defined erythematous, edematous inflammatory plaque of the calf with overlying ecchymosis.

Laboratory investigations revealed leukocytosis with neutrophil predominance and an elevated C-reactive protein level of 150 mg/L. The D-dimer assay was negative. Given the acute unilateral swelling, deep vein thrombosis was initially suspected. Venous duplex ultrasonography showed no evidence of deep vein thrombosis. It additionally revealed a complex left Baker's cyst with internal echoes and fluid tracking inferiorly along the posterior calf fascial planes, consistent with cyst rupture. In view of the associated fever and marked inflammatory response, secondary infection was suspected (Figure 2).

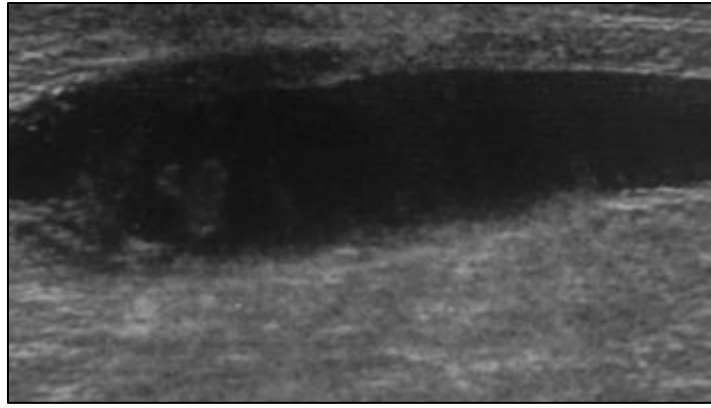


Figure 2 Longitudinal B-mode ultrasonography of the left calf showing a complex, predominantly anechoic fluid collection containing low-level internal echoes and extending beyond both lateral margins of the acquired image, consistent with fluid dissection following rupture of a Baker's cyst.

The patient underwent open incision and drainage of the calf collection, which yielded purulent material, supporting the diagnosis of an infected ruptured Baker's cyst. Postoperative antimicrobial therapy consisted of intravenous ceftriaxone 2 g once daily combined with intravenous ciprofloxacin 400 mg twice daily for two weeks, followed by oral cefixime for an additional two weeks.

Local pain and erythema improved markedly within three days following drainage. Serial measurements showed a progressive decrease in C-reactive protein from 150 mg/L at admission to 80 mg/L on day 4 and 30 mg/L on day 6. The patient remained hospitalized throughout the two-week intravenous treatment period. Complete wound healing was achieved within one month, with no clinical recurrence at the one-month follow-up.

3. Discussion

This case illustrates the classic pseudothrombophlebitis syndrome caused by rupture of a Baker's cyst. The sudden popliteal pain followed by progressive unilateral calf swelling, erythema, warmth, tenderness, and ecchymotic discoloration closely mimicked deep vein thrombosis. Although bacterial cellulitis was initially considered because of the prominent inflammatory findings, the main diagnostic challenge was the exclusion of venous thrombosis. The negative D-dimer assay and the absence of DVT on venous duplex ultrasonography, together with the identification of a complex ruptured popliteal cyst with fluid extension into the calf, supported the diagnosis. The associated fever, marked inflammatory response, and purulent material obtained during surgical drainage further indicated secondary infection of the ruptured cyst. This case emphasizes that a ruptured Baker's cyst should be considered in the differential diagnosis of acute unilateral calf swelling, even when prominent inflammatory signs suggest an infectious process [1,2].

Ecchymosis was a particularly useful clue in our patient. A small series of three patients with duplex-confirmed ruptured Baker's cysts described ecchymosis of the foot as a differential sign, probably resulting from hemorrhagic cyst contents, bleeding from the cyst wall, or disruption of soft tissues during distal fluid dissection. More recent dermatologic literature has emphasized a distal hemorrhagic crescent as a clue to pseudocellulitis caused by cyst rupture. In the present case, the bruising involved the calf rather than the ankle or dorsum of the foot and should therefore be considered supportive rather than pathognomonic [3,4].

Duplex ultrasonography has a dual role in this setting: it assesses the deep venous system and can identify the alternative diagnosis. A typical Baker's cyst is located between the semimembranosus tendon and the medial head of the gastrocnemius. After rupture, fluid may extend along intermuscular or fascial planes of the calf. Ultrasound is accessible and can guide aspiration when required, whereas magnetic resonance imaging provides more detailed anatomical delineation when ultrasonographic findings are equivocal, complications are suspected, or surgery is planned [1,5].

Management depends on severity and etiology. Uncomplicated ruptured cysts are often treated conservatively with rest, limb elevation, analgesia, and management of the underlying knee disorder. Drainage or surgery may be required for persistent large collections, neurovascular compromise, compartment syndrome, or infection. If infection is suspected, aspiration of the cyst or calf collection for cell count and culture is important, and the knee joint should be

evaluated for associated septic arthritis. Confirmed infected and ruptured cysts generally require drainage or debridement combined with culture-directed antimicrobial therapy [2,6,7].

In our patient, the absence of improvement with amoxicillin-clavulanate, the presence of ecchymosis, and the ultrasonographic identification of a complicated popliteal cyst redirected management away from isolated cellulitis and DVT. The need for surgical drainage suggests a clinically significant collection. Microbiological and operative details are essential, however, before the final manuscript can classify this episode as an infected Baker's cyst rather than a sterile inflammatory reaction to rupture.

4. Conclusion

A ruptured Baker's cyst should be included in the differential diagnosis of unilateral inflammatory calf swelling, particularly when ecchymosis is present or presumed cellulitis fails to improve with antibiotics. Venous duplex ultrasonography should not end with exclusion of DVT; careful assessment of the popliteal fossa and calf may reveal the true diagnosis and guide timely orthopedic or surgical management.

Compliance with ethical standards

Acknowledgments

The authors have no acknowledgements to declare.

Disclosure of conflict of interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

Statement of informed consent

Written informed consent was obtained from the patient for publication of this case report. All procedures performed were in accordance with the ethical standards of the institutional and national research committee and with the principles of the Declaration of Helsinki.

References

- [1] Kim JS, Lim SH, Hong BY, Park SY. Ruptured popliteal cyst diagnosed by ultrasound before evaluation for deep vein thrombosis. *Ann Rehabil Med*. 2014;38(6):843-846. doi:10.5535/arm.2014.38.6.843.
- [2] Bansal K, Gupta A. Ruptured Baker's cyst: a diagnostic dilemma. *Cureus*. 2021;13(10):e18501. doi:10.7759/cureus.18501.
- [3] von Schroeder HP, Ameli FM, Piazza D, Lossing AG. Ruptured Baker's cyst causes ecchymosis of the foot: a differential clinical sign. *J Bone Joint Surg Br*. 1993;75(2):316-317. doi:10.1302/0301-620X.75B2.8444957.
- [4] Hamp A, Huttinger ZM. Hemorrhagic crescent sign in pseudocellulitis. *Cutis*. 2024;113(2):E28-E29. doi:10.12788/cutis.0977.
- [5] Ward EE, Jacobson JA, Fessell DP, Hayes CW, van Holsbeeck M. Sonographic detection of Baker's cysts: comparison with MR imaging. *AJR Am J Roentgenol*. 2001;176(2):373-380. doi:10.2214/ajr.176.2.1760373.
- [6] Verbner JM, Pereira-Duarte M, Zicaro JP, Yacuzzi C, Costa-Paz M. Infected Baker's cyst: a new classification, diagnosis and treatment recommendations. *J Orthop Case Rep*. 2018;8(6):16-23. doi:10.13107/jocr.2250-0685.1238.
- [7] Drees C, Lewis T, Mossad S. Baker's cyst infection: case report and review. *Clin Infect Dis*. 1999;29(2):276-278. doi:10.1086/520198.