DOI: 10.4274/tod.galenos.2025.36539
Turk J Osteoporos

Not Every Popliteal Swelling is a Baker's Cyst

Her Popliteal Şişlik Baker Kisti Değildir

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Keywords: Popliteal region, Baker's cyst, desmoid-type fibromatosis
Anahtar kelimeler: Popliteal bölge, Baker kisti, desmoid tip fibromatozis

Dear Editor,

We present the case of a 45-year-old male patient who presented to our outpatient clinic with a complaint of swelling behind his right knee, which he had noticed for the past 2-3 months. Prior to this consultation, the patient had visited an orthopedic clinic where, without further investigation, the swelling was diagnosed as a Baker's cyst. He was informed that the cyst could recur if removed, but given the minimal discomfort, no further recommendations were provided.

Subsequent ultrasonography (US) by another physician revealed a dense hypoechoic lesion, approximately 4-cm in diameter, located in the left popliteal fossa. The lesion was initially suspected to be a complicated Baker's cyst or an abscess. The patient returned to our clinic on the same day (March 2022) with this US report. His medical history was otherwise unremarkable, with no systemic diseases or traumatic events. Notably, there was no clinical history suggesting a Baker's cyst at his age, particularly one of such size.

The patient's primary complaint was localized swelling, which caused difficulty squatting. He was otherwise able to perform daily activities without issue. On physical examination, the patient ambulated normally with no signs of antalgia. A large, firm swelling was palpated on the lateral aspect of the left calf (Figure 1), with a noticeable increase in calf diameter by 2-cm. The knee and hip joint range of motion were both normal and pain-free.

Plain radiographs were unremarkable, and a follow-up US revealed a heterogeneous, hypoechoic mass with lobulated contours, measuring approximately 4 cm in diameter. Color Doppler imaging showed evidence of vascular flow. Magnetic resonance imaging (MRI) performed the following day (Figure 2) revealed grade II meniscopathy of the medial meniscus posterior horn and a linear hypointense extension in the subchondral region of the tibial plateau, suggestive of a subchondral insufficiency fracture. A mass (56×90×102 mm) was identified in the lateral popliteal region with heterogeneous T1 hypointensity and T2 hyperintensity, which demonstrated signal voids, likely representing vascular structures, and exhibited intense, heterogeneous contrast enhancement with external compression of adjacent muscles and vasculature. Differential diagnoses included peripheral nerve sheath tumors and soft tissue sarcomas.

The patient was referred to orthopedic surgery, where biopsy results confirmed the diagnosis of desmoid fibromatosis. Despite its locally aggressive nature, no chemotherapy or radiotherapy was initiated, and the patient was closely monitored. A second surgical intervention was performed in August 2023.

Follow-up MRI in May 2024 identified two new lesions: One measuring 24 mm in diameter near the biceps femoris muscle in the popliteal region and another 18×13 mm lesion beneath the skin in the popliteal fossa posteriorly. These findings raised concerns for recurrence, and the patient continues to be monitored by his orthopedic team.

While Baker's cyst is the most common cause of popliteal masses in adults, other potential etiologies, including hematomas, adipose tissue proliferation, extra-articular ganglion cysts, popliteal artery aneurysms, thrombosed varicose veins, gouty tophi, and both benign and malignant soft tissue tumors, should be considered in the differential diagnosis (1-4). A Baker's cyst, characterized by a fluid-filled cystic formation within the bursa between the medial head of the gastrocnemius and semimembranosus tendons, is typically located medially within the popliteal fossa. It commonly arises in conjunction with conditions associated with increased intra-articular fluid, such as osteoarthritis, inflammatory rheumatic diseases, and trauma, although it can also occur idiopathically. US is a valuable tool for

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Received/Geliş Tarihi: 13.01.2025 **Accepted/Kabul Tarihi:** 04.03.2025 **Epub:** 08.07.2025
Cite this article as/Atıf: Çiçek S, Dere O, Yetişgin A. Not every popliteal swelling is a Baker's cyst. Turk J Osteoporos. [Epub Ahead of Print]

Figure 1. There is a significant swelling in the lateral aspect of the left popliteal region

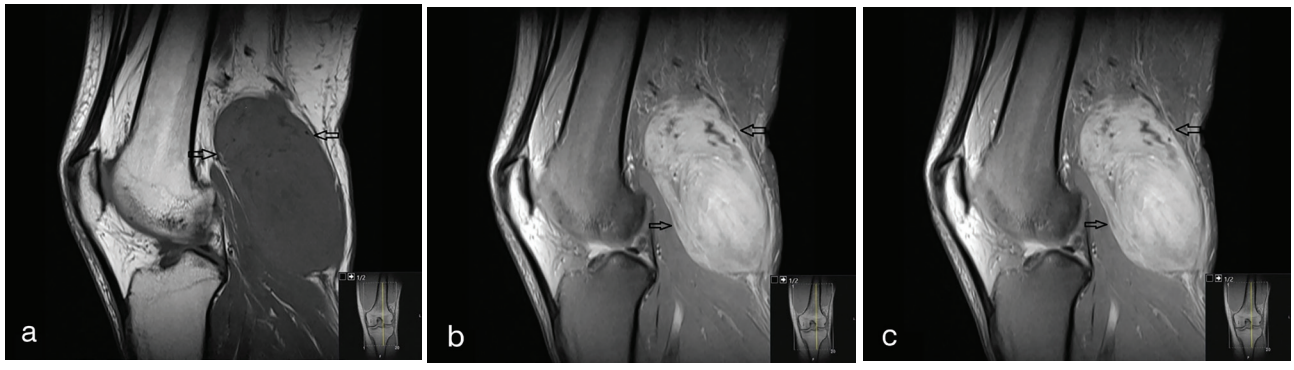

Figure 2. a) A 45-year-old male patient with a T1 hypointense mass with regular lobulated contours located within the biceps femoris muscle in the distal thigh (open black arrows). b) The same mass shows heterogeneous hyperintense signal characteristics on sagittal proton density-weighted imaging (open black arrows). c) The mass shows heterogeneous intense contrast enhancement on coronal T1-weighted images obtained following contrast medium administration (open black arrows)

evaluating knee and popliteal masses, enabling differentiation between cystic and solid lesions (5). However, diagnostic accuracy is highly operator-dependent, and, as seen in this case, a solid mass may be misinterpreted as a Baker's cyst on initial examination.

Desmoid-type fibromatosis is a locally aggressive fibroblastic neoplasm arising from deep soft tissues. Although it lacks metastatic potential, it exhibits infiltrative growth, a high tendency for local recurrence, and, in some cases, spontaneous regression (6,7). In this case, despite the initial suspicion of a Baker's cyst, the presence of a large mass in an adult without a history of significant trauma or inflammatory disease warranted further investigation. The lateral location of the mass, which is atypical for a Baker's cyst, further supported the need for a broader differential diagnosis.

In conclusion, while Baker's cysts remain the most common cause of popliteal masses in adults, other potential causes, particularly benign and malignant soft tissue tumors, must also be considered. A thorough clinical history, physical examination, and imaging studies such as US and MRI, complemented by radiography, are essential for accurate diagnosis and appropriate management.

Footnotes

Authorship Contributions

Concept: S.Ç., O.D., A.Y., Design: S.Ç., O.D., A.Y., Data Collection or Processing: S.Ç., O.D., A.Y., Analysis or Interpretation: S.Ç., O.D., A.Y., Literature Search: S.Ç., O.D., A.Y., Writing: S.Ç., O.D., A.Y.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

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