

## Baker's Cyst Rupture May Mimics Deep Vein Thrombosis

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Although the first report on a popliteal cyst was originally reported by Adams in 1840 [1] these cysts were named thirty-seven years later, after Wiliam Baker published his famous paper [2]. Popliteal or Baker's cysts are abnormal synovial fluid-filled masses located in the popliteal fossa and almost always result in chronic knee joint effusion. The cyst may be a herniation of the gastrocnemius or semimembranosus bursa through the fibrous layer of the joint capsule into the popliteal fossa, communicating with the synovial cavity of the knee joint by a narrow stalk [3]. This communication between the knee joint and one of the popliteal bursae in up to 40% of normal knees has been described [4]. In a recent ultrasonographic evaluation their size varies from 1.4–6.2 cm [5].

Almost all popliteal cysts may be secondary. These popliteal cysts have a multifactorial etiology but generally they are the final manifestation of intraarticular pathology of the knee joint. They are often associated with osteoarthritis, rheumatoid arthritis, cartilage tears, meniscal tears, and ACL insufficiency and, less commonly, to overuse, infections, trauma, and other causes such as spondyloarthropathy or gout [5-12].

On the other hand in the less numerous primary cysts, a distension of the bursa arises independently with no communication to the joint and no knee derangement [9].

Baker's or popliteal cysts are the most frequently found soft-tissue masses in the posterior knee [13]. The range of their incidence in series of patient who underwent MRI or ultrasonography of the knee was calculated as high as 5% to 27% and was notably more common in osteoarthritic knees [5,7,14]. Older people present a higher incidence of Baker's cyst as well [7]. Asymptomatic cysts found incidentally need no treatment. Most symptomatic cysts respond temporarily to intra-articular corticosteroid injections [10]. Surgical excision is needed only in rare cases [9, 15].

The popliteal cyst can compress various anatomical structures such as the popliteal vein which is the most frequently compressed structure. As a secondary complication thrombophlebitis may occur [9]. Rupture of popliteal cyst may resemble Deep Vein Thrombosis (DVT), a pathologic entity known as pseudothrombophlebitis [16-21].

A pseudothrombophlebitis syndrome related to Baker's cyst rupture is well documented [16-21].

Sometimes sudden swelling and pain in the calf is not the result of DVT, but instead accompanies popliteal cyst ruptures.

The differential diagnosis between DVT and ruptured popliteal cyst is imperative as the first nosologic entity encompasses life threatening risks such as pulmonary embolism. Other pathologies that mimic DVT of the leg such as Baker's cyst, haematoma, cellulitis, postphlebotic syndrome, extrinsic compression from a popliteal artery or venous aneurysm or a tumour must be excluded from the initial diagnosis [4, 22, 23].

Falsely diagnosed thrombophlebitis and use of anticoagulant treatment may cause cyst haemorrhage [10]. Although an infrequent occurrence, a Baker's cyst can compress vascular structures and cause leg edema and a true DVT. In the event of cyst rupture, severe pain indicates thrombosis, or muscle rupture, resulting in warmth, tenderness, and redness of the calf. However, the ruptured cyst may be without much pain, with calf and ankle swelling[10].

Ultrasonography is a tool of great value in order to investigate a ruptured cyst in a swollen and painful leg and is both a safe and an inexpensive technique [4, 24].

Cyst rupture may be challenging to identify on Venous Doppler Sonography. Still, sudden onset of calf pain which is elicited by ankle dorsiflexion are findings following Baker's cyst rupture. Differentiating cyst rupture from a dissecting hematoma may be difficult on ultrasonography. It can be said though that the hematoma consists of a more homogenous pattern[4].

MRI may lead not only to diagnosing popliteal cyst ruptures but may also reveal any concomitant intrarticular pathology.

Treatment of a ruptured Baker cyst mimicking DVT includes symptomatic relief with bed-rest, support, and non-steroidal anti-inflammatory drugs. Anticoagulation is contraindicated for a ruptured Baker's cyst as calf haematomas and muscle contractures may ensue [25].

In conclusion Baker's cyst rupture mimicking thrombophlebitis must always be considered as a possible diagnosis when symptoms in the calf are experienced.

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