

Giant baker cyst simulating a deep venous thrombosis in a patient with rheumatoid arthritis

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Abstract

We report a rare case of a “giant Baker’s cyst-related rheumatoid arthritis (RA)”, simulating a deep venous thrombosis. The patient presented with chronic pain and a palpable mass behind his right calf with a recent increased pain and swelling. Diagnosis of the Baker cyst was made by ultrasound.

Baker cysts are a fluid-filled lesions in the popliteal fossa that are distended synovial lined cyst. Rheumatoid arthritis is associated with increase of synovial fluid production which can lead to the formation of these cyst.

Recognizing them in the context of rheumatoid arthritis-associated inflammation is critical for accurate diagnosis, as increased leg volume along with discomfort could signal more serious condition such as deep vein thrombosis.

Keywords

Baker cyst; Popliteal cyst; Rheumatoid arthritis; Deep venous thrombosis.

Abbreviations

BC: Baker cyst; RA: Rheumatoid arthritis.

Case Report

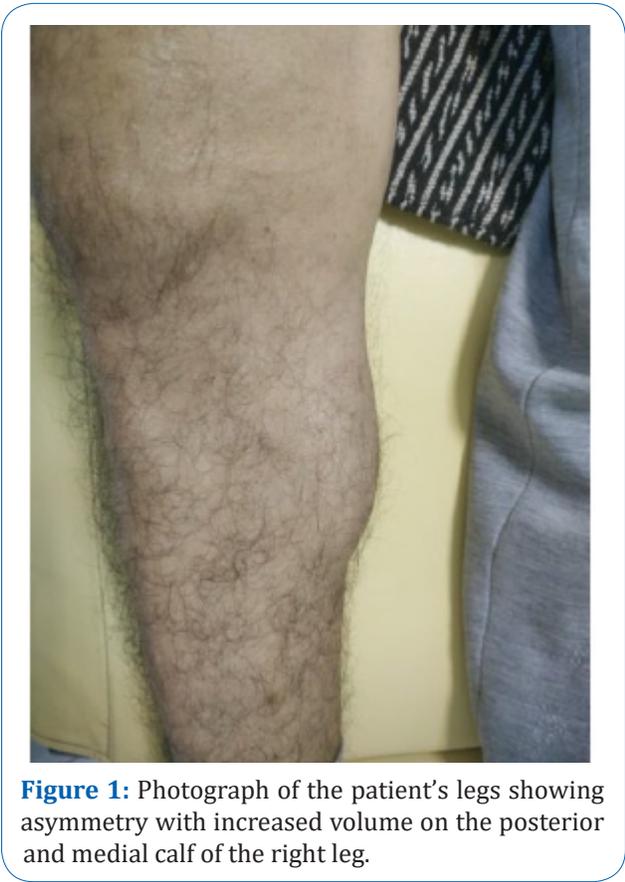
We report a case of 51-year-old male patient, who is treated for a rheumatoid arthritis and presented with swelling and pain of the right calf. At least a year before consulting, he noticed the swelling that was growing, with some mild pain, thinking that his symptoms were related to his rheumatoid arthritis. He reported an increased pain and swelling, in the last 10 days before consulting.

Upon clinical examination a localized swelling of the antero-medial region of his right calf (Figure 1), with some tenderness. The Homan’s sign was positive. There was no numbness, coldness, nor paralysis.

Dorsal pedal pulses were bilaterally palpable. No abnormal findings were seen in other limbs. He's been admitted to our radiology department for an ultrasound of the right lower light limb.

While looking for a deep venous thrombosis, the ultrasound of the right popliteal fossa found well-defined lesion, containing some internal debris, extending into the joint space between the semimembranosus tendon and the medial head of the gastrocnemius. Further scanning of the lesion found that it extends into the calf, between the gastrocnemius and soleus muscle (Figure 2).

Because of the atypical appearance of the potential Baker cyst and the possibility of other diagnoses, a recommendation for a complementary (MRI) had been made, but because of lack of means, we did a ct scan, that found a fluid density, well-defined lesion, arising from the popliteal fossa and extending into the calf (Figure 3).



Discussion

Baker cyst (BC) or popliteal cyst are fluid filled lesions arising in the popliteal fossa between the medial head of the gastrocnemius and the semimembranosus tendons via a communication with the knee joint. They are distended synovial lined cyst.

Studies describe that the prevalence of these cysts is 5% of the adult population. The presence of a connection between the knee joint and a bursa between the gastrocnemius muscle and the semitendinosus tendon, which allows fluid to flow, is suggested to be the etiology of Baker's cyst. Because of the movement of the semitendinosus and gastrocnemius muscles, there is a valve effect between the cyst and the joint. The "valve" opens during flexion, and the knee's intra-articular pressure interferes with the creation and filling of popliteal cysts [1].

Our patient initially came for an ultrasound scan to rule out a deep vein thrombosis, his veins were compressible and permeable, with no doppler anomalies. The pain from a BC is known to simulate a deep vein thrombosis [2].

Rheumatoid arthritis (RA) is a chronic autoimmune multisystemic inflammatory disease that affects many organs but predominantly attacks the synovial tissues and joints. It is associated with increase of synovial fluid production which can lead to the formation of Baker's cyst [3]. The association between BC and Rheumatoid arthritis is not unknown [4,5]. Liao and Al found that up to 20% of RA are associated with Baker cyst [6].

A popliteal cyst can be diagnosed and assessed using a variety of imaging modalities. Plain radiographs are inexpensive and easy to get, however they only reveal a limited amount of information concerning the popliteal cyst. They may, however, aid in the detection of concomitant articular problems, such as loose bodies in the cyst or overall osteoarthritis and inflammatory arthritis signs. For diagnosing popliteal cysts, other imaging modalities are frequently more appropriate.

Ultrasound is widely available, very affordable, and noninvasive, with no risk of radiation exposure. A popliteal cyst appears on ultrasound as a well-defined, unilocular collection of anechoic or containing some debris, situated between the tendons of the gastrocnemius medial head and semimembranosus. The size of the cyst, its connection to nearby muscles, tendons, and arteries, and the presence of intracystic loose bodies or septations can all be determined using ultrasound. It can also distinguish these cysts from other conditions including popliteal aneurysms and ganglion cysts [7].

MRI is considered the gold standard for the diagnosis of popliteal cysts [8]. It can confirm the benign cystic, unilocular nature of the BC, assess its relationship to anatomic structures in the joint and surrounding tissue, and identify intra-articular diseases. A popliteal cyst appears as a defined mass on an MRI scan, with low signal intensity on the T1-weighted picture, intermediate signal intensity on the proton density image, and high signal intensity on the proton density-weighted fat saturation image [5].

When symptomatic, the management is most of the time surgical. But recent studies have demonstrated favorable outcomes using ultrasound-guided aspiration and steroid injection of adult popliteal cysts [9].

Conclusion

Baker cysts are fluid-filled distensions of synovium-lined sacs that can become large. Recognizing them in the context of rheumatoid arthritis-associated inflammation is critical for accurate diagnosis, as increased leg volume along with discomfort could signal a more serious condition such as deep venous thrombosis.

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