RUPTURE OF BAKER’S CYST PRODUCING PSEUDOOTHROMBOPHLEBITIS IN A PATIENT WITH REITER’S SYNDROME

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This is an unusual case of pseudothrombophlebitis resulting from rupture of Baker’s cyst in a patient with Reiter’s syndrome. The patient presented with a swollen, painful left calf and persistent itching on the skin of the calf. Ultrasonography showed a ruptured popliteal cyst with minimal hemorrhage and fluid collection within the fascial compartments and gastrocnemius muscle. Color Doppler ultrasound showed a patent popliteal vein and artery and duplex Doppler scans revealed a normal flow pattern. In conclusion, the clinical picture of deep vein thrombosis and that of pseudothrombophlebitis are difficult to distinguish by clinical examination and necessitate detailed examination by imaging techniques. Persistent pruritus on calf skin resulting from irritation of inflammatory synovial fluid may be an important clinical feature.

Key Words: pseudothrombophlebitis, popliteal, Baker’s cyst, rupture, ultrasonography

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Reiter’s syndrome (RS) is reactive arthritis that follows an episode of urethritis, cervicitis, or diarrhea, and may also show coexisting inflammation at sites other than joints such as eyes, skin, and mouth. RS belongs to the spondyloarthropathy disease group [1,2]. The inflammatory synovitis is triggered by bacterial infection at a distant site, usually in the gastrointestinal or genitourinary tract. The important bacterial triggers are Chlamydia trachomatis for genitourinary tract infections and Shigella flexneri, Salmonella species, Yersinia enterocolitica, Yersinia pseudotuberculosis, Campylobacter jejuni, or Clostridium difficile for enteric infections. Antecedent infection may be asymptomatic or the causative microorganism may not be identified. These bacterial infections do not trigger reactive arthritis in everybody but some people who are HLA-B27-positive are much more susceptible to developing reactive arthritis and also have a higher risk of chronic and more severe disease. The clinical picture varies from mild arthritis to a severely disabling illness and may combine with extra-articular features. Synovitis tends to occur most commonly in lower limbs (knees, ankles, and feet), followed by the upper limbs or axial skeleton. The acute arthritis is often associated with conjunctivitis and urethritis. Skin lesions, such as keratoderma blennorrhagica or circinate balanitis, and painless oral mucosal lesions, enthesitis or sausage digits may occur and enhance the diagnosis [1,3].

Popliteal cysts or Baker’s cysts are usually seen secondary to osteoarthritis, rheumatoid arthritis and, less commonly, to infections, trauma, and other causes of arthritis such as spondyloarthropathy or Behcet’s disease [4,5]. These cysts result from an excessive collection of synovial fluid within the gastrocnemius-semimembranosus bursa (GSB), which communicates with the knee joint [5,6]. Pseudothrombophlebitis (PTP) is described as a clinical picture eliciting an inflammatory response secondary to herniation or extravasation of popliteal cyst contents into the soft tissues.
Pseudothrombophlebitis in Reiter’s syndrome

[7]. Rupture of Baker’s cyst associated with reactive arthritis is an extremely rare condition [8–10]. We report an unusual case of PTP complicating rupture of a popliteal cyst in a patient with Reiter’s syndrome.

CASE PRESENTATION

A 32-year-old man presented with pain and swelling in his left calf. He complained of swelling, tenderness, and redness on his right big toe nearly 45 days previously, followed by swelling and pain in his left knee and a mass reaching egg size in his left popliteal region. He reported swelling and aching in his left calf with gradual disappearance of the popliteal mass. He also reported a history of urinary tract infection nearly 45 days prior to the knee pain and swelling. On physical examination, the left calf was painful, swollen, and tender. The calf skin was edematous and erythematous. The patient was uncomfortable because of persistent itching that was evident from diffuse scratches on the skin of his calf (Figure 1). Homán’s sign was positive on the left. Urogenital examination revealed circinate balanitis on the glans penis. There were diffuse squamous, erythematous, and hyperkeratotic plaques on the anterior of the trunk. The erythrocyte sedimentation rate was 77 mm/hour, and the C-reactive protein level was 48 mg/L; assay for rheumatoid factor was negative. Complete blood count and routine biochemical parameters were within normal limits. Assay for HLA-B27 was positive, but serologic tests for antinuclear antibody and anti-Chlamydia antibody were negative. Urine culture was negative and throat culture revealed normal bacterial flora. The patient was referred to the ophthalmology department for sequelae of anterior uveitis in both eyes.

The patient was hospitalized and underwent B-mode ultrasound examination using a 7.5 MHz linear probe, which revealed a partially ruptured Baker’s cyst with minimal hemorrhage (Figure 2A) within the residue and a heterogeneous hypoechoic fluid that was collected mostly within the fascial compartments from the origin of the gastrocnemius muscle to the medial aspect of the calf (Figure 2B). Color Doppler ultrasonography showed a patent popliteal vein and artery and duplex Doppler scans revealed a normal flow pattern. Chest roentgenogram was normal, and computerized tomography of the sacroiliac joints revealed minimal narrowing and vacuum phenomena on the left.

The patient was diagnosed with Baker’s cyst rupture and PTP. He was treated with sulfasalazine, beginning with 500 mg daily and gradually increasing to 3 g/day.

Figure 1. Edematous and erythematous skin on the patient’s swollen left calf. Note the scars on the skin resulting from persistent scratching.

Figure 2. (A) Axial ultrasound view (left poplitea) reveals partially ruptured Baker’s cyst connecting with the joint and hemorrhage within the residue. (B) Longitudinal ultrasound view shows hypoechoic fluid collection and vascular structures with normal flow pattern.
and indomethacin 75 mg daily. Antibiotic therapy with cephalosporin was administered for 10 days for infected skin lesions, possibly resulting from scratching the calf. The calf swelling gradually resolved and the patient was discharged in a good condition.

**DISCUSSION**

Reactive arthritis principally affects lower extremity joints, particularly the knee joints, and rarely the small joints of the hands and feet. It is characterized by non-destructive inflammatory synovitis [1,3], and sometimes can be recurrent or persistent. Popliteal cyst is missed without a proper examination. Abundant synovial effusions complicating rupture of Baker’s cyst have rarely been reported in reactive arthritis [8–10].

Baker’s cyst rupture is clinically important because of the difficulty of discriminating the clinical picture from deep vein thrombosis, which may further complicate thromboembolic life-threatening events. Treatment for these two clinical entities is completely different. The application of thrombolytic agents or anticoagulants in PTP may aggravate symptoms, causing hemorrhage into the soft tissues, which causes contracture and fibrosis of the calf muscles [11,12].

Another striking but rarely reported feature of PTP is the itching that is initiated by the irritation of surrounding soft tissues by the inflammatory synovial fluid and its content. Excessive synovial fluid in the joint or GSB may cause rupture of Baker’s cyst, which is usually observed in patients with osteoarthritis or rheumatoid arthritis. Extravasation of degraded blood products and inflammatory synovial fluid into the soft tissues due to rupture of the cyst causes irritation and inflammation of the surrounding muscles, fascia, and subcutaneous tissues. The clinical picture reveals subcutaneous edema, cutaneous erythema, swelling and tenderness of the calf, and itching, as in our case. Scratching of the calf skin in this patient led to skin infection that required antibiotics. Itching is not a previously mentioned feature of ruptured Baker’s cyst due to reactive arthritis. It is very likely that pruritus may be related to irritation caused by hemorrhage and extravasation of degraded blood products into the soft tissue compartments.

The diagnosis of popliteal cyst rupture was previously established by xeroradiography or arthrography and venography, which are frequently used to demonstrate deep vein thrombosis [6,7]. However, these are invasive procedures. Currently, ultrasound and color Doppler ultrasonography are widely used noninvasive techniques [13–15]. Color Doppler ultrasonography is an accurate method to rule out deep venous thrombosis [14–16]. Although conventional Doppler ultrasound may be sufficient to detect popliteal cysts or thrombosis, color Doppler ultrasonography is more sensitive in detecting partial thrombosis or recanalized thrombosis [16].

Magnetic resonance imaging may be an alternative in selected cases and is regarded as sensitive to differentiate cellulitis, hemangiomias, and soft tissue tumors and to demonstrate the presence and morphology of soft-tissue masses within the periarticular structures, or of edema and fluid collections within the soft tissues [15,17]. However, this technique is expensive.

PTP due to a ruptured popliteal cyst can occur in patients with reactive arthritis. It should be examined carefully by both clinical features and color Doppler ultrasonography.

**REFERENCES**