

Suprapatellar Pouch Rupture in Acute Gouty Arthritis

Daniel Schapira MD DSc¹, Alexandra Balbir-Gurman MD¹, Alicia Nachtigal MD² and Abraham Menahem Nahir MD PhD

Departments of ¹Rheumatology and ²Diagnostic Radiology, Rambam Medical Center and Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

Key words: suprapatellar bursa, suprapatellar pouch rupture, gout, thigh pseudothrombophlebitis

IMAJ 2001;3:700-701

We report a rare case of suprapatellar pouch rupture mimicking deep thrombophlebitis of the thigh in a patient with acute gouty arthritis. The clinical features of this unusual condition are described and the diagnostic importance of the imaging techniques emphasized. To our knowledge, rupture of the suprapatellar pouch has not been previously reported in gouty arthritis.

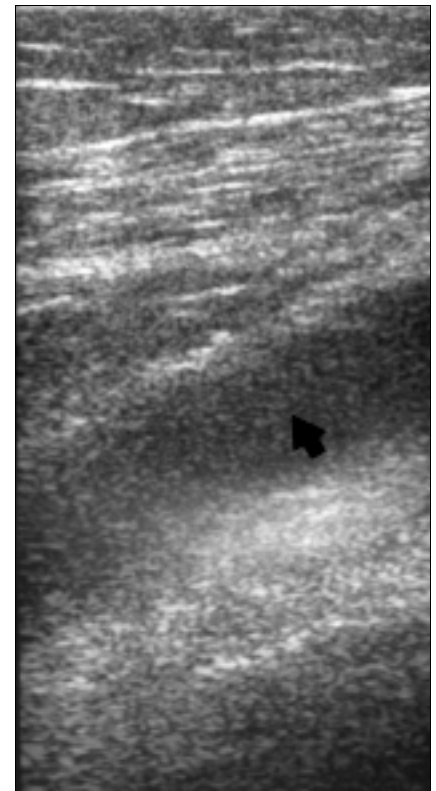
Patient Description

A 47 year old man presented with severe pain and swelling of the right thigh. During the previous 2 weeks he suffered progressive pain and swelling of the right knee and had difficulty walking. He denied any trauma or infection and there were no systemic complaints. For 2 days prior to presentation he experienced excruciating pain in the right thigh, accompanied by local swelling and warmth, and fever reaching 38.5°C. Past history included arterial hypertension (treated with metoprolol tartrate and furosemide), transplantation of a kidney 4 years previously (with chronic transplant rejection despite cyclosporin and corticosteroid treatment), and recurrent transient arthritis of both first metatarsophalangeal joints and the knees for which the patient received only symptomatic therapy. At admission his blood pressure was 120/80, heart rate 80/min, body temperature 37.5°C, and body weight 96 kg. The patient was unable to walk and was confined to a wheelchair. His right knee was swollen, warm and sensitive. Marked swelling as well as large areas of subcutaneous hemorrhage

were noticed on the anterior, lateral and posterior parts of the right thigh. These regions were also warm and extremely sensitive.

Erythrocyte sedimentation rate was 60 mm/hr and hemoglobin 10.6%. The rest of the blood count, electrolytes, glucose, calcium, phosphorus, liver function tests, creatine kinase, and urine analysis were normal. Serum creatinine was 3.6 mg/dl, total protein 7.9 g/dl and albumin 3.9 g/dl. Serum uric acid was 11.7 mg/dl. Doppler examination of the right lower limb failed to show signs of deep vein thrombosis, but ultrasonography of the right knee and thigh revealed a large effusion in the suprapatellar bursa, synovial hypertrophy of the bursal sheath and penetration of the fluid into the thigh tissue, separating the adjoining muscles: rectus femoris and vastus lateralis [Figure].

The knee was aspirated and 50 ml of thick, turbid and bloody fluid were evacuated. Analysis of the synovial fluid showed 22,000 white blood cells, but the culture was sterile. Inspection of the fluid by compensated polarized microscopy revealed needle-shaped, bright, negative birefringent crystals compatible with monosodium urate. Gouty arthritis of the right knee, complicated by suprapatellar pouch rupture into the thigh, was diagnosed. Treatment with high doses of corticosteroids, colchicine and bed-rest resulted in gradual disappearance of the symptoms and the patient was able to resume his daily activities. At a later stage, treatment with allopurinol was initiated.



Ultrasonographic examination of the knee: a longitudinal scan through the mid-sagittal region of the mid-thigh shows fluid between the muscle fibers (arrow).

Comments

The knee joint is surrounded by numerous bursae. The suprapatellar bursa, located between the anterior surface of the lower part of the femur and the deep surface of the quadriceps muscle, is the largest. In rare cases it is congenitally separated from the knee joint, but in

most instances it is involved in pathological conditions of the articulation and hosts its effusions. Studies in cadaveric knees have shown the apex of the suprapatellar pouch to be the site most vulnerable to rupture. Rapid changes in the position of the knee cause instantaneous high intraarticular pressure, enhance the already elevated pressure of the previously accumulated synovial fluid, and seem to be responsible for the rupture of the pouch or extension into the thigh. This unusual condition has been described in a variety of diseases such as trauma, hemophilia and rheumatoid arthritis. The clinical features, apart from location, are similar to those of "pseudothrombophlebitis," a syndrome caused by rupture or extension of a popliteal (Baker's) cyst into the calf, namely diffuse swelling and tenderness, local heat and erythema, severe pain aggravated by movements of the knee joint, and marked functional disability.

The diagnosis is based on the chronological link between a previous knee

effusion, partially alleviated after an acute episode of knee and thigh pain, and the sudden appearance of the already described inflammatory changes in the ipsilateral thigh shortly after this dramatic event [1–3]. It is confirmed by imaging techniques: arthrography now replaced by ultrasonography and magnetic resonance imaging – both accurate methods for detecting and monitoring the course of the disease [4,5]. Differential diagnoses include deep or superficial vein thrombophlebitis, muscle rupture, infectious or tumor conditions.

The physician's awareness of this syndrome may prevent unnecessary invasive diagnostic procedures and treatments. Effective therapeutic measures include evacuation of the synovial fluid, intraarticular administration of corticosteroids, systemic corticosteroids and non-steroidal anti-inflammatory drugs, treatment of the underlying disease, and bed-rest. Surgery is rarely necessary [5].

References

1. Coulton BL, Popert AJ. Massive extension of the suprapatellar pouch into the thigh tissues in rheumatoid disease. *Ann Rheum Dis* 1986;45:174–5.
2. Schapira D, Nahir M. Suprapatellar pouch rupture or extension into the thigh tissue in rheumatoid disease [Letter]. *Ann Rheum Dis* 1986; 45:791.
3. McCabe JP, Gilmore MF. Spontaneous rupture of the suprapatellar bursa. *J Bone Joint Surg [Br]* 1990;72:927.
4. Lawson TL, Mittler S. Ultrasonic evaluation of extremity soft-tissue lesions with arthrographic correlation. *J Can Assoc Radiol* 1978;29:58–61.
5. Nurse R, Kilooyne R, Geraghty S, Wilkins R, Wiedel J, Manco-Johnson M. Magnetic resonance imaging visualization of hemorrhage into a suprapatellar pouch in a child with hemophilia. *Am J Pediatr Hematol Oncol* 1994;16:183–5.

Correspondence: Dr. D. Schapira, Dept. of Rheumatology, Rambam Medical Center, Haifa 31096, Israel. Phone: (972-4) 854-2268/629, Fax: (972-4) 854-2985, email: d_schapira@rambam.health.gov.il