Mod Rheumatol (2004) 14:274–278
DOI 10.1007/s10165-004-0308-3


CASE REPORT

**Satoshi Mori · Tomoo Tamura · Satoshi Komatsubara
Yoji Kawaguchi · Satoshi Todo · Masayuki Inoo
Noriyuki Kurata · Hiromichi Norimatsu**

# A case of femoral nerve palsy caused by iliopectineal bursitis associated with rheumatoid arthritis

Received: December 6, 2003 / Accepted: February 7, 2004

**Abstract** We report the case of a 46-year-old woman with rheumatoid arthritis who developed femoral nerve palsy caused by an enlarged iliopectineal bursa. Surgical excision revealed that the iliopectineal bursa was connected with the hip joint. The patient showed good recovery from the femoral nerve palsy after surgery. It was considered that iliopectineal bursitis had developed following the synovial inflammation of the hip joint.

**Key words** Femoral nerve palsy · Hip joint · Iliopectineal bursa · Rheumatoid arthritis (RA) · Synovial cyst

## Introduction

Rheumatoid synovial cysts are often encountered in the hand, wrist, elbow, shoulder, feet, and knee, but rarely in the hip. Iliopectineal bursitis is reported in association with various hip diseases such as rheumatoid arthritis (RA),[1–3] osteoarthritis,[4,5] osteochondromatosis,[6] and pigmented villonodular synovitis.[7] Even if swelling or palpable mass is noted in the inguinal lesion, the patients usually have no symptoms or swelling of the affected limb. The case we report, in which an enlarged iliopectineal bursa caused femoral nerve palsy, is considered to be quite rare. We report the course of treatment and discuss the pathogenesis of iliopectineal bursitis.

S. Mori (✉) · S. Komatsubara · Y. Kawaguchi · H. Norimatsu
Department of Orthopedic Surgery, Faculty of Medicine, Kagawa University, 1750-1 Ikenobe, Miki-cho, Kita-gun, Kagawa 761-0793, Japan
Tel./Fax +81-87-891-2196
e-mail: stmori@kms.ac.jp

T. Tamura
Department of Orthopedic Surgery, Center of Rheumatic Disease, Dohgo Spa Hospital, Ehime, Japan

S. Todo
Department of Orthopedic Surgery, Kinashi Ohbayashi Hospital, Kagawa, Japan

M. Inoo
Department of Rheumatology, Utazu-Hama Clinic, Kagawa, Japan

N. Kurata
Department of Rheumatology, Utazu Clinic, Kagawa, Japan

## Case report

A 46-year-old woman was admitted to our hospital with numbness and a mass in the left inguinal region which had gradually enlarged over 1 month, although she limped without pain. She had been diagnosed with RA at the age of 41 and was being treated with prednisolone 4 mg/day, d-penicillamine 300 mg/day, and methotrexate 7.5 mg/week. A 7 cm × 5 cm hard elastic mass was palpable in the ilioinguinal region, and there was mild tenderness. No signs of inguinal hernia or inflammation, such as local heat, redness, or tenderness, were observed. The patient's hip motion was normal without pain. She had mild swelling on both wrists and knee joints without deformity. Remarkable hypesthesia and numbness were observed in the left femoral nerve region from the front of the thigh to the medial side of the knee joint (Fig. 1). The circumference of the thigh and the strength of knee extension were clearly decreased in the left leg compared with the right. The left patellar tendon reflex was also slightly reduced compared with that on the right. X-ray examination revealed neither destructive nor atrophic changes in either the hip (Fig. 2a) or the knee joints. Joint narrowing, cystic lesion, and erosive changes were apparent in both wrists and carpal bones (Fig. 2b). Computed tomography (CT) examination revealed a capsulated cystic mass, approximately 65 mm × 50 mm, between the joint capsule and the iliopsoas muscle, which reached the level of the anterior superior iliac spine. The femoral artery and vein were located inside the mass. On magnetic resonance imaging (MRI), the cyst content was low in intensity on T1-weighted images and high in intensity on T2-weighted images. The cyst wall was high in intensity on T1-weighted gadolinium-enhanced images (Fig. 3a–c). Hematological examination revealed an erythrocyte

sedimentation rate (ESR) of 51 mm/h, C-reactive protein (CRP) of 0.4 mg/dl, WBC count of 5800/mm$^2$, and RA +1. A biopsy was performed to ascertain whether it was a tumorous or an infectious condition. The pale yellow fibrinous content leaked out. No bacterial organisms or tuberculosis were detected on culture, and a histological examination revealed fibrinoid necrosis associated with inflammatory cell infiltration. Surgical excision was carried out through an anterior approach. The cyst was located under the femoral nerve, outside of the femoral vessels (Fig. 4a). The femoral vessels were mildly shifted medially, but the femoral nerve was severely stretched upward by the cyst. The femoral cyst had a steel 3 cm long connected to the hip joint. By cutting the inguinal ligament, the cyst was excised en bloc, including the joint capsule attachment (Fig. 4b). It contained a considerable quantity of pale yellow fibrinous substance, and the cyst wall had a smooth, glazed inner surface compatible with bursa (Fig. 4c). Mild synovial proliferation was observed in the hip joint with no cartilage degeneration. After hip joint synovectomy through the opening, the capsular defect was covered with an iliotibial band graft. Further histological examination revealed synovial proliferation associated with a remarkable number of lymphocytes and plasma cell infiltration, as well as vascular proliferation in the synovial villi, which is consistent with typical RA (Fig. 5a,b). In the cyst wall, granulation tissue associated with lymphocytes and other inflammatory cell infiltration was observed under the synovium-like cell lining (Fig. 5c). Fibrinoid necrotic tissue was contained in the cyst, with numerous inflammatory cells. The sensory disturbance of the left leg and the strength of the quadriceps femoris were remarkably improved after surgery and the limping disappeared 6 months after surgery. No evidence of recurrence was noted 3 years after surgery.

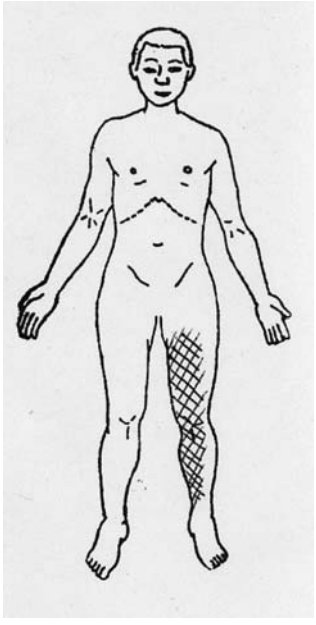

**Fig. 1.** Sensory evaluation. The shadowed area indicates the area with numbness and hypesthesia. The patient had sensory disturbance at the femoral nerve region

## Discussion

The differential diagnosis of a mass in the inguinal region includes rheumatoid bursitis as reported here, ganglion, inguinal adenopathy secondary to chronic infection, neoplasm, herniation of the abdominal contents, aneurysm of the femoral artery or vein, psoas abscess, or primary tumor


**Fig. 2a,b.** X-ray examination. The hip joint showed no abnormal changes. Wrist and carpal bones showed joint space narrowing, and cystic and erosive changes

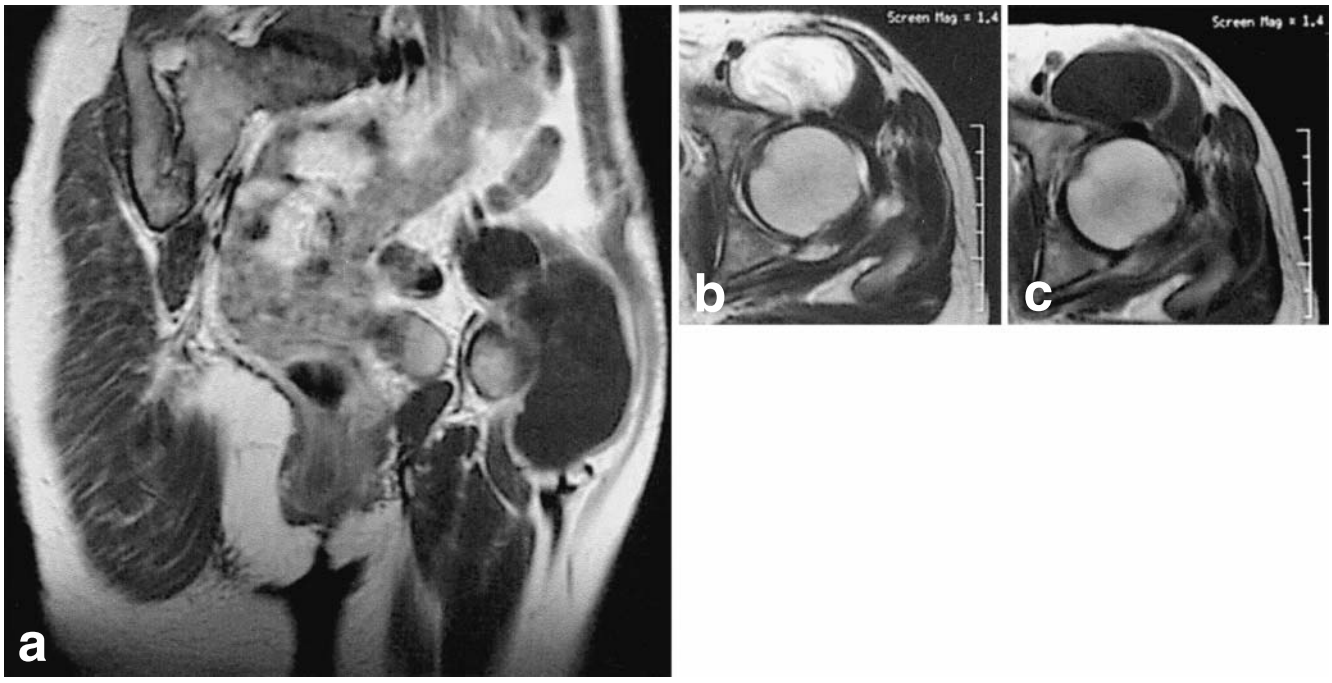


**Fig. 3a–c.** MRI examination. T1-weighted coronal image. Cystic mass with T1 low content was located in front of the left hip joint. T2-weighted axial image. The cyst content showed T2 high intensity. T1-weighted Gd. Enhanced image. The cyst wall was enhanced

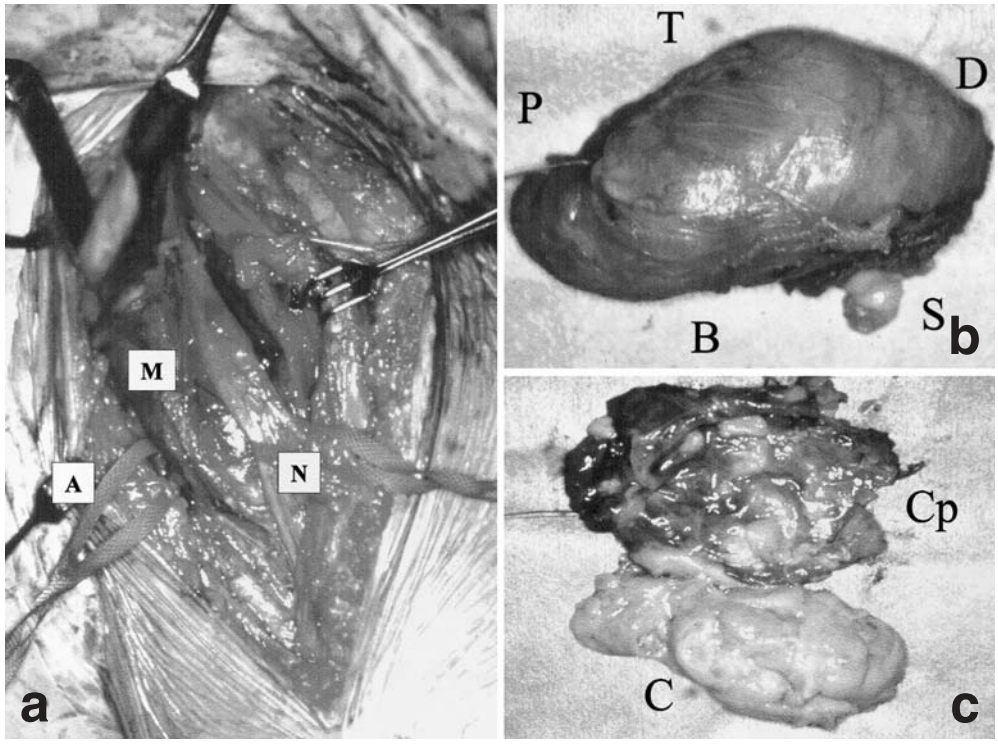


**Fig. 4a–c.** Operative findings. Femoral nerve (*N*) and femoral vessels (*V*) were stretched by the cystic mass (*M*). Excised mass: *P*, proximal; *D*, distal; *T*, top; *B*, bottom; *S*, steel connecting to the hip joint; *Cp*, cyst capsule; *C*, contents

such as lipoma. A diagnostic biopsy and tissue culture are sometimes necessary to confirm the diagnosis.

The iliopectineal bursa is located beneath the iliac muscle, in front of the capsule of the hip joint, and inside the femoral vessels, nerve, and iliopectineal eminence, and its lateral edge reaches the anterior inferior iliac spine. The average size is 6 cm × 3 cm, which is the largest bursa in the body, and approximately 14% of the human population have a iliopectineal bursa communication with the hip joint.[8] Communication between the iliopectineal bursa and

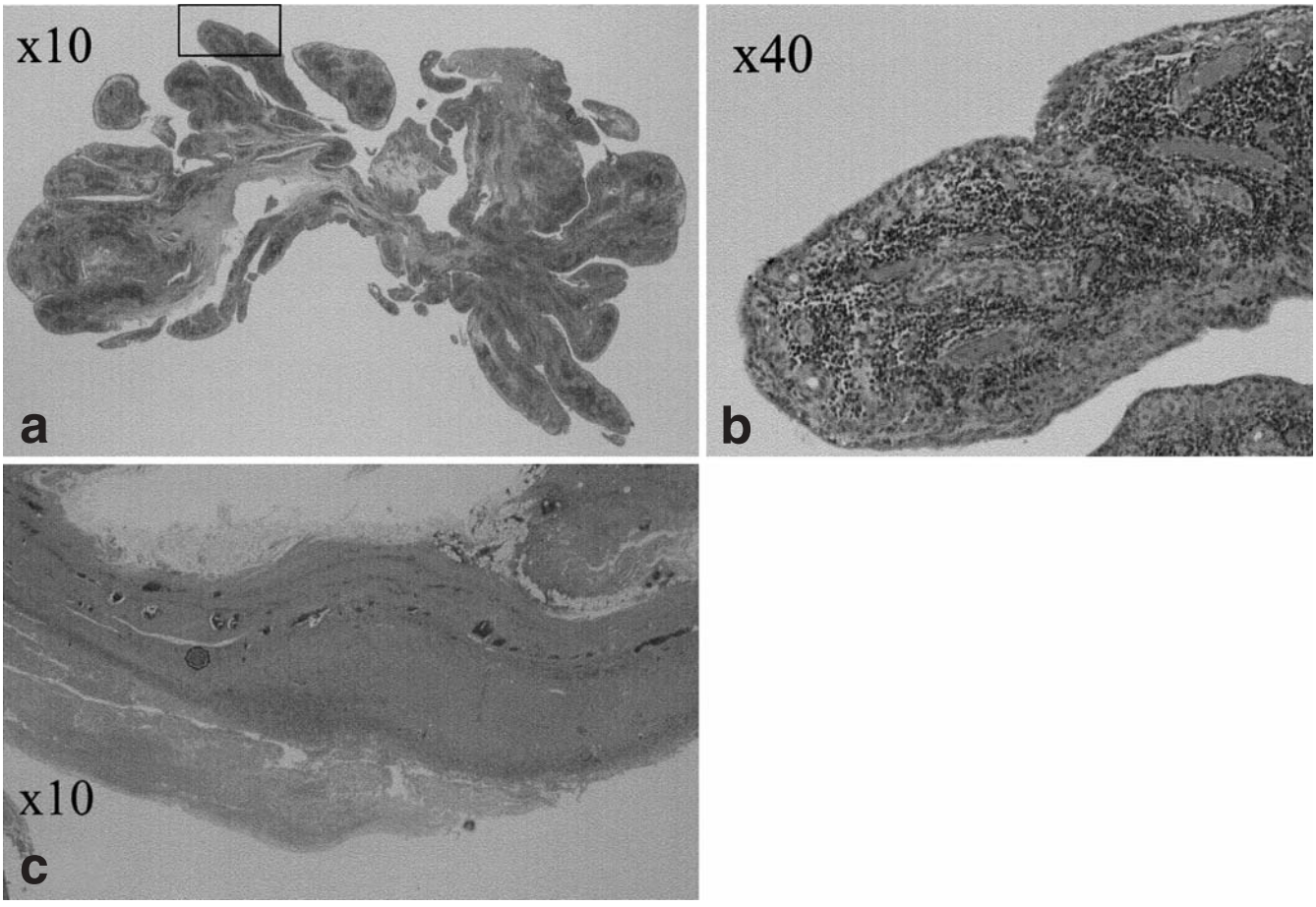


**Fig. 5a–c.** Histological findings. Synovium of the hip joint, magnification ×10 (**a**), and Synovium of the hip joint, magnification ×40 (**b**). Synovial proliferation was associated with considerable lymphocyte and plasma cell infiltration, and also vascular proliferation in the synovial villi. In the iliopectineal bursa, magnification ×10 (**c**), granulation tissue associated with lymphocytes and other inflammatory cell infiltration was observed under the synovium-like cell lining. H&E stain

the hip joint also occurs in patients with chronic inflammation of the hip joint, such as rheumatoid arthritis or osteoarthritis or related conditions.

There are several possible theories about the cause of the enlargement of an iliopectineal cyst in RA.[9] First, overproduction of synovial fluid might increase intraarticular pressure and distend the joint capsule at the point of weakness caused by degenerative changes secondary to RA. Second, rheumatoid involvement of the iliopectineal bursa was the original lesion, and then increased pressure of the bursa produced the communication channel to the hip joint. Third, necrosis of a subcutaneous periarticular RA nodule could result in the formation of a juxtaarticular cyst simulating the appearance of a cyst, but this is not likely to have occurred in our patient. This case, in which rheumatoid synovial proliferation was more obvious in the hip joint than in the bursa, and the content of the bursa was mainly fibrinoid substance, supports the first theory. However, it remains unclear whether the communication channel originated from the hip joint or had existed since before enlargement of the bursa. Overproduced joint fluid probably flowed into the bursa and was kept there by a valve-like mechanism in the communication channel.[10]

A swollen leg is a common symptom of inguinal synovial cyst, but we could find only one case report (by Tebib et al.[11]) of femoral nerve palsy in the literature. In our case, the cyst had expanded rapidly under the femoral nerve and stretched it upward, which may have caused femoral nerve palsy instead of obstruction of the vein, as previously reported. Treatment of a synovial cyst may require surgical excision to make the differential diagnosis, especially in patients suffering from symptoms related to compression or obstruction of adjacent structures by the cyst.[12] Our patient obtained good relief of symptoms and has had no recurrence after surgery, which is consistent with previous reports.

## References

1. Levy R, Herman G, Haimov M, Sherry HS, Train JS, Davison S. Rheumatoid synovial cyst of the hip. Arthritis Rheum 1982;25: 1382–4.
2. Atkinson MH. Rheumatoid synovial cyst of the hip: unusual case of leg swelling. J Rheumatol 1986;13:986–8.
3. Torisu T, Chosa H, Kitano M. Rheumatoid synovial cyst of the hip. Clin Orthop 1978;137:191–3.

4. Staple, TW. Arthrographic demonstration of iliopsoas bursa extension on the hip joint. Radiology 1972;102:515–8.
5. Warren R, Kaye JJ, Salrati, EA. Arthrographic demonstration of an enlarged iliopsoas bursa complicating osteoarthrits of the hip J Bone Joint Surg 1975;57A:413–5.
6. Eisenberg KS, Johnston JO. Synovial chondromatosis of the hip joint presenting as an intrapelvic mass. J Bone Joint Surg 1972; 54A:176–8.
7. Carr CR, Berley FV, Davis WC. Pigmented villonodular synovitis of the hip joint. J Bone Joint Surg 1954:1007–13.
8. Chandler SB. The iliopsoas bursa in man. Anat Rec 1934;58:235–40.
9. Coventry MB, Polley HF, Weiner AD. Rheumatoid synovial cyst of hip. J Bone Joint Surg 1959;41A:721–30.
10. Shiga T, Watanabe N, Sugita M, Kamada Y, Inoue S, Kubo T. Two cases of osteochondromatosis which developed in the iliopectineal bursae of an osteoarthritic hip. Mod Rheumatol 2001;11:360–2.
11. Tebib JG, Dumontet C, Carret JP, Colson F, Bouvier M. Synovial cyst of the hip causing iliac vein and femoral nerve compression. Clin Exp Rheumatol 1987;5:92–3.
12. Samuelson C, Ward JR, Albo D. Rheumatoid synovial cyst of the hip. Arthritis Rheum 1971;14:105–8.