Mod Rheumatol (2006) 16:52–54
DOI 10.1007/s10165-005-0449-z

CASE REPORT

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Enlarged psoas muscle and iliopsoas bursitis associated with a rapidly destructive hip in a patient with rheumatoid arthritis

Received: September 26, 2005 / Accepted: December 6, 2005

Abstract A 39-year-old man with rheumatoid arthritis developed femoral neuropathy secondary to iliopsoas bursitis. The adjacent hip joint was severely damaged. Magnetic resonance imaging showed enlargement and inflammation of the psoas muscle at the same side of iliopsoas bursitis. Iliopsoas bursitis and abnormal findings of the psoas muscle disappeared while the symptoms improved.

Key words Femoral neuropathy · Iliopsoas bursitis · Magnetic resonance imaging · Psoas muscle · Rheumatoid arthritis

Introduction

Iliopsoas bursitis is observed in conjunction with rheumatoid arthritis of the hip. Magnetic resonance imaging (MRI) is the best method through which to observe the relationship between the iliopsoas bursa and its surrounding structures. We describe a case in which MRI showed enlargement and inflammation of the psoas muscle with iliopsoas bursitis in communication with the hip joint. There is as yet no report of such MRI findings of the psoas muscle accompanying rheumatoid iliopasoas bursitis or rheumatoid hip.

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Case report

A 39-year-old man had 2-year history of rheumatoid arthritis. He came to our hospital complaining of pain in his left hip that had gradually increased from 4 months previously. Physical examination revealed limitation of the range of motion in his left hip. No mass lesion was palpable in his left groin. Hip radiography showed that the left hip joint space was almost diminished and the femoral head was small and flattened (Fig. 1a).

Three weeks later, he complained of pain radiating from his left inguinal region to the anterior aspect of his left thigh. On physical examination, there was a mass that measured 3×3 cm in the left groin. It did not pulsate, and there was no tenderness or bruit. After aspiration at his local physician, the hip pain was temporarily alleviated.

Eight weeks after the initial consultation, the mass grew to measure 6×4 cm. His left hip was spontaneously flexed. Both active and passive extension movements caused severe pain. There were sensory disturbances in the anterior aspect of left knee and the medial aspect of left leg. Muscular atrophy was seen in the left thigh. The circumferential lengths of thigh at 10 cm above the patella were 38 cm on the right and 34.5 cm on the left. The patellar tendon reflex was absent. Electromyography showed neuropathy of the left femoral nerve. Yellowish fluid was aspirated from the mass and was cultured. No organisms, including anaerobes and acid-fast bacilli, were observed to grow.

Hip radiography showed that the collapse of the femoral head progressed, and there were indistinct calcifications at the medial and inferior to the lesser trochanter (Fig. 1b). Magnetic resonance imaging showed the enlarged iliopsoas bursa and asymmetrical enlargement of the left iliopsoas muscle. The bursa extended into the retroperitoneum, reaching to the level of iliac crest superiorly and into the lesser trochanter inferiorly. The wall of the bursa was enhanced after administration of contrast medium. The iliopsoas muscle had a low signal intensity equal to a hemolateral one on T1-weighted images and a homogeneous high signal intensity on T2-weighted images, and was

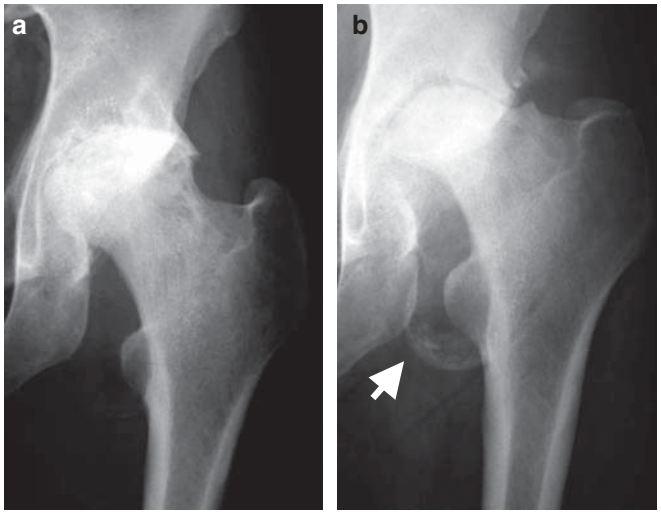

Fig. 1. **a** On the left hip joint, the femoral head was small and flattened. **b** Eight weeks later, the collapse of the femoral head progressed, and there were indistinct calcifications at the medial and inferior of the lesser trochanter of the left femur (*arrow*)

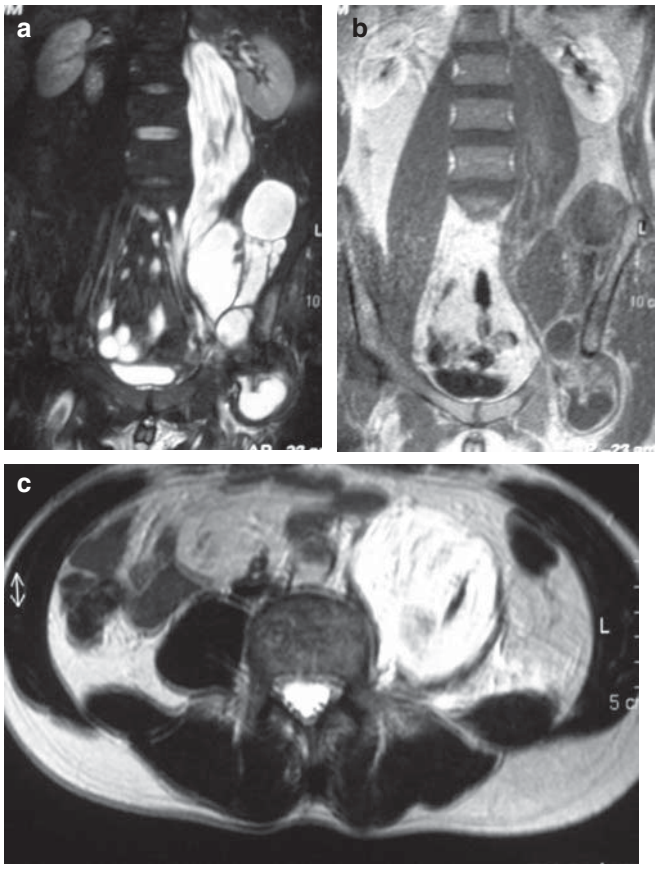

Fig. 2a–c. Magnetic resonance imaging. **a** Sagittal T2-weighted image shows the enlarged and fluid-filled iliopsoas muscle and iliopsoas bursa. **b** Sagittal T1-weighted image after administration of contrast medium shows enhancement of the wall of bursa and the inside of iliopsoas muscle. **c** Axial T2-weighted image at the level of L4 vertebral body shows the enlarged and fluid-filled iliopsoas muscle

enhanced partially after administration of contrast medium (Fig. 2a–c). Magnetic resonance imaging at the level of the femoral head showed communication between the bursa and the hip joint.

The patient was admitted to our department. The left leg pain gradually resolved with bed rest of approximately 1 month's duration. Sensory disturbances and muscular atrophy were also improved. Magnetic resonance imaging performed approximately 1 month after the initial MRI showed reduction of iliopsoas bursa and diminishment of abnormal findings of the iliopsoas muscle. Total hip arthroplasty was carried out for the left hip.

Histopathological examination of the cyst removed during surgery showed fibrous thickening of the wall containing small fragments of bone, and necrotic bone materials and foreign body granuloma with scattered giant-cell formation. Few synovial cells were apparent. The resected femoral head did not show osteonecrosis.

The postoperative course was uneventful. At the follow-up 7 months later, there was no recurrence of iliopsoas bursitis, and MRI showed diminishment of abnormal findings of the iliopsoas muscle (Fig. 3). Muscular atrophy and sensory disturbances were completely resolved.

Discussion

The iliopsoas bursa is the largest bursa in humans, measuring approximately 5–7 cm in length and 2–4 cm in width. The communication between the bursa and hip joint is observed in 14% of individuals, and it is located between the pubofemoral ligament and the iliofemoral ligament.[1]

The iliopsoas bursa is always collapsed, but in some situations is enlarged to contain fluids within. Iliopsoas bursitis is accompanied by a variety of hip conditions including rheumatoid arthritis, osteoarthritis, pigmented villonodular synovitis, septic arthritis, synovial chondromatosis, gout, and trauma. When the iliopsoas bursa is enlarged, it compresses adjacent structures such as bowels,[2] urinary tract, bladder,[3,4] extrailiac vessels,[5,6] femoral vessels,[5,7,8] and femoral nerve, and may cause a variety of symptoms.

There are already several reports concerning femoral neuropathies caused by iliopsoas bursitis.[9–11] In every case, neuropathies have been fully recovered by bursa excision. In our case, the symptoms improved spontaneously together with diminishment of iliopsoas bursitis. Therefore, we did not perform bursa excision at total hip arthroplasty to avoid unnecessary invasion. To our knowledge, there is no report of iliopsoas bursitis recurring after total hip arthroplasty, regardless of performance of bursa excision.

The enlarged iliopsoas bursa is known to extend inferiorly into the lesser trochanter and superiorly into the retroperitoneum along the iliopsoas muscle beyond Poupart's ligament.[12,13] However, in our case the psoas muscle itself, as well as the iliopsoas bursa, was enlarged and showed signs of fluid retention on MRI. As far as we know, there is no report of such MRI findings of the psoas muscle that accompany iliopsoas bursitis.

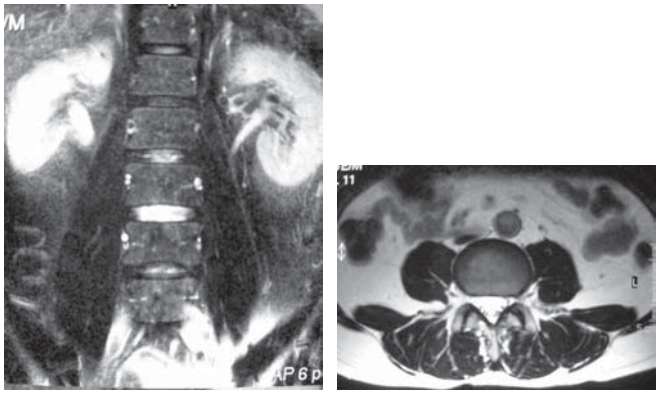

Fig. 3. Magnetic resonance imaging at 7 months follow-up. Sagittal and axial T2-weighted image shows the diminishment of abnormal findings of the iliopsoas muscle

How did such enlargement and signs of fluid retention occur?

Regarding the occurrence of rheumatoid iliopsoas bursitis, there are two patterns.[14] Firstly, overproduction of synovial fluid in a hip joint may increase the intra-articular pressure. Through the capsule being weakened by rheumatoid degenerative changes, the synovial membrane of the hip joint can protruded into the potential space of the iliopsoas bursa. Secondly, the iliopsoas bursa may be involved in the rheumatoid process through communication between the bursa and the joint. The fluid overproduction of the bursa may then lead to bursal enlargement. We applied such patterns of expansion in rheumatoid synovitis to the relationship between iliopsoas muscle and iliopsoas bursitis, and proposed two theories on the enlargement and signs of fluid retention on MRI in the iliopsoas muscle. One was that communication between the iliopsoas muscle and iliopsoas bursitis might be created and fluids of the bursa might flow into the muscle, yielding to high pressure of the cyst. The other was that extension of synovitis into the muscle might occur and be followed by edema of the muscle. We did not perform a muscle biopsy and thus were not convinced of the latter hypothesis. However, we considered the former one as having a greater possibility for the following reasons. In the primary MRI, the inflammation in the muscle, which was shown as enhanced after administration of contrast medium, existed partially, and the signs of fluid retention of the muscle existed entirely in the muscle. In addition, the fact that the fluids containing signals rapidly disappeared within a month might also support our estimation.

References

1. Chandler SB. The iliopsoas bursa in man. Anat Rec 1934;58:235–40.
2. Melamed A, Bauer CA, Howard Johnson J. Iliopsoas bursal extension of arthritic disease of the hip. Radiology 1967;89:54–8.
3. Underwood PL, McLeod RA, Ginsburg WW. The varied clinical manifestations of iliopsoas bursitis. J Rheumatol 1988;15:1683–5.
4. Watson JD, Ochsner SF. Compression of bladder due to "rheumatoid" cysts of hip joint. Am J Roentgenol 1967;99:695–6.
5. Ford MJ, Martynoga AG, Nuki G. Iliopsoas bursitis in rheumatoid arthritis: an unusual cause of leg edema. Br Med J 1981;282:947–8.
6. Chilton CP, Darke SG. External iliac venous compression by a giant iliopsoas rheumatoid bursa. Br J Surg 1980;67:641.
7. Bystrom S, Adalberth G, Milbrink J. Giant synovial cyst of the hip: an unusual presentation with compression of the femoral vessels. Can J Surg 1995;38:368–70.
8. Binek R, Levinsohn EM. Enlarged iliopsoas bursa: an unusual cause of thigh mass and hip pain. Clin Orthop 1987;224:158–63.
9. Letourneau L, Dessureault M, Carette S. Rheumatoid iliopsoas bursitis presenting as unilateral femoral nerve palsy. J Rheumatol 1991;18:462–3.
10. Lavyne MH, Voorhies RM, Coll RH. Femoral neuropathy caused by an iliopsoas bursal cyst. J Neurosurg 1982;56:584–6.
11. Yoon TR, Song EK, Chung JY, Park CH. Femoral neuropathy caused by enlarged iliopsoas bursa associated with osteonecrosis of femoral head – a case report. Acta Orhop Scand 2000;71:322–4.
12. Varma DG, Richli WR, Charnsangavej C, Samuels BI, Kim EE, Wallace S. MR appearance of the distended iliopsoas bursa. Am J Roentgenol 1991;156:1025–8.
13. Iversen JK, Nelleman H, Buus A, Stengaard-Pedersen K, Lucht U, Myhre Jensen O, Jurik AG. Synovial cysts of the hips in seronegative arthritis. Skelet Radiol 1996;25:396–9.
14. Coventry MK, Polley HF, Weiner AD. Rheumatoid synovial cyst of the hip. J Bone Joint Surg 1959;41A:721–30.