

Iliopsoas bursitis-associated femoral neuropathy exacerbated after internal fixation of an intertrochanteric hip fracture in rheumatoid arthritis: a case report

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Abstract We present the case of a 63-year-old woman with a six-year history of rheumatoid arthritis (RA) and a left iliopsoas bursitis. Radiography had detected destructive changes in her hip joint associated with her bursitis, and she had reported some paresthesia along the left anterior distal thigh. Her pain and numbness remained tolerable, and her disease activity was well controlled until she accidentally fell on the floor, which resulted in an unstable intertrochanteric fracture of left femur with displacement of the proximal portion. The fracture was successfully treated with open reduction and internal fixation, but after the surgery, her femoral nerve palsy worsened. She subsequently underwent bursa excision after the failure of conservative treatment. Accordingly, after bursa excision, the postoperative course was uneventful, and her neurological symptoms gradually disappeared. We would recommend that bursa excision be considered even in cases of iliopsoas bursitis associated with mild femoral neuropathy when destructive changes in the hip joint are also present.

Keywords Femoral neuropathy · Iliopsoas bursitis · Rheumatoid arthritis

Introduction

Enlargement of the iliopsoas bursa is an unusual clinical event that has been reported in patients with osteoar-

thritis, microcrystalline arthropathies, infections, avascular necrosis, trauma, syphilis, gout, pigmented villonodular synovitis, synovial chondromatosis, osteonecrosis [1–3], and rheumatoid arthritis (RA) [4–8]. Iliopsoas bursitis has also sometimes been termed “iliopectineal bursitis” [9, 10].

Clinical manifestations of iliopsoas bursitis are usually limited to pain and/or a palpable mass in the inguinal area. However, iliopsoas bursitis has also been associated with acute destruction of the hip joint and rapid resorption of the femoral head in RA patients [4, 8]. Additionally, several reports have described femoral neuropathies caused by iliopsoas bursitis in RA patients [4, 7, 9]. In this paper, we present the case of an RA patient with iliopsoas bursitis and mild femoral neuropathy whose neuropathy was exacerbated after internal fixation of an intertrochanteric fracture.

Case report

A 63-year-old woman had a six-year history of RA treated with methotrexate and low-dose corticosteroids. In 2001, she had total joint arthroplasties of both knees along with cervical laminoplasty for cervical spondylotic myelopathy. Despite good control of her RA disease activity (confirmed retrospectively by a C-reactive protein measurement of 0.5 mg/dl during the second half of 2004), she noticed a gradual increase in hip pain. A radiograph at this time showed evidence of ongoing progressive joint destruction (Fig. 1). A left inguinal soft tissue mass then appeared which was identified by computed tomography (CT) and magnetic resonance imaging (MRI) as an enlarged iliopsoas bursa (10.0 × 4.0 cm) with abnormal signal intensities in the anterosuperior region of the left femoral

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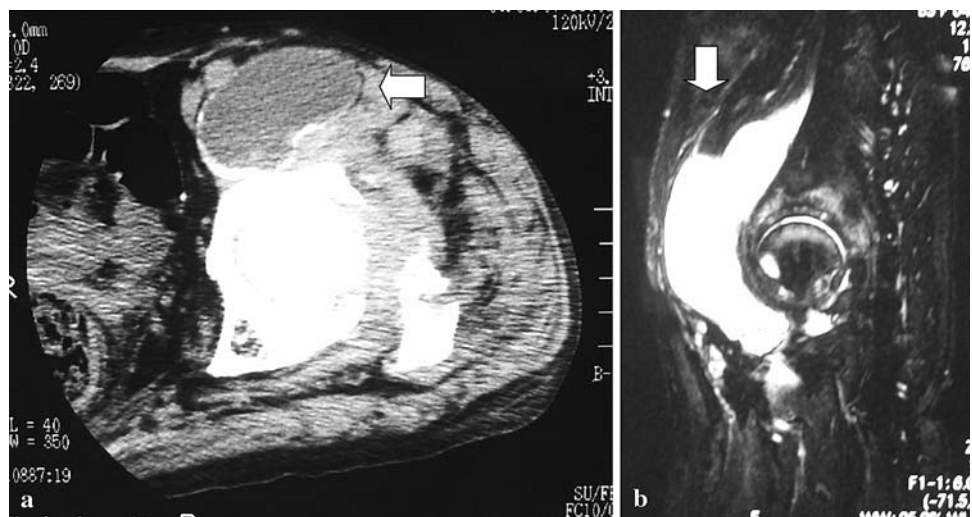
head (Fig. 2). At this time, she had some paresthesia along the left anterior distal thigh and tolerable numbness.

At the end of December 2003, the patient was hospitalized in our orthopedic division with a complaint of



Fig. 1 Radiograph showing joint space narrowing and flattening of the femoral head. The patient was experiencing a gradual increase in hip pain

Fig. 2 A soft tumor on the anterior aspect of the patient's left hip joint was identified by computed tomography (CT) and magnetic resonance imaging (MRI) as an iliopsoas bursa showing abnormal signal intensities. **a** CT image at the level of the left femoral head shows an enlarged and fluid-filled iliopsoas bursa (white arrow). **b** A sagittal fat suppression MRI image shows an enlarged iliopsoas bursa in front of the left hip joint extending from the top of the inguinal region to the femoral shaft (white arrow)



acute hip pain following direct trauma to the buttocks. A radiograph revealed an unstable intertrochanteric fracture of the left femur with displacement of the proximal portion (Fig. 3a). Since we did not consider this type of fracture suitable for total hip arthroplasty (THA), we performed an open reduction and internal fixation of the fracture using a sliding screw and side plate on 13th January 2004 (Fig. 3b). Discontinuance of epidural anesthesia two days after the operation revealed that the femoral nerve palsy had worsened, manifesting itself as severe paresthesia along the anterior distal thigh and medial calf along with decreased strength of the quadriceps muscle. Despite no apparent change in the size of the iliopsoas bursa, a cyst puncture was performed, yielding bloodstained inflammatory synovial fluid. Bursography discovered communication between the enlarged iliopsoas bursa and the hip joint (Fig. 4). The bursa was aspirated and injected with corticosteroids following the bursography. The lower extremity pain and nerve palsy did improve initially after the bursa aspiration, but when these symptoms began to worsen again several days later, the bursa was excised on 17th February 2004. Pitting edema of both legs, however, was not remarkable at this time. During the excision, a bursal cyst was found just beneath the inguinal ligament down to the hip joint, extending also into the retroperitoneal space, where it was directly compressing the femoral nerve (Fig. 5). Removal of the bursa (including the cyst) successfully decompressed the femoral nerve. On histological examination, the inner wall of the cyst was found to be composed of thick fibrous tissues with deposition of hyaline cartilage, and the content of the excised bursal cyst was like the formation of atheroma (Fig. 6). The postoperative course was uneventful, and the neurological symptoms gradually disappeared after the operation.

Fig. 3 **a** Radiograph demonstrating unstable intertrochanteric fracture of the left femur with displacement of the proximal portion. **b** The fracture was treated by open reduction with internal fixation using a sliding screw and side plate



Fig. 4 Bursography discovered communication between the iliopsoas bursa and the hip joint

Discussion

The iliopsoas bursa, which lies over the anterior hip capsule, is the largest bursa in the human body. The differential diagnosis includes femoral or inguinal hernia, lymphoma or another neoplastic disease, lymphadenopathy, undescended testicle, psoas abscess, and vascular abnormalities such as femoral vessel aneurysm. Ultrasonography and CT are reliable diagnostic techniques, and MRI and bursography are the best diagnostic tests because

they provide an exact anatomic delimitation and can visualize the fluid content of the cyst. These tests are also capable of detecting communication between the hip joint and the iliopsoas bursal collection, as occurred in this case.

In most instances, swelling of the iliopsoas bursa is asymptomatic or presents with groin pain, a snapping sensation, and/or a palpable mass in the inguinal area. However, in this case, noninfective iliopsoas bursitis occurred as a complication of open reduction and internal fixation of an unstable intertrochanteric fracture of the left femur using a sliding screw and side plate. Moreover, the patient developed severe left femoral nerve neuropathy after internal fixation. With respect to pathogenesis, Coventry et al. [11] discuss three possible mechanisms responsible for the occurrence of synovial cysts in RA patients. They explained the pathogenesis of these cysts for the following theories. First, the overproduction of synovial fluid in a rheumatoid joint might increase the intra-articular pressure and distend the capsule of the joint. A second theory is that the iliopsoas bursa may become involved in the rheumatoid process with formation of excessive quantities of fluid, enlargement of the bursa, and hypertrophic and villous proliferation of the bursal lining. A third theory is that necrosis of a subcutaneous periarticular rheumatoid nodule possibly could result in the formation of a juxta-articular cyst simulating the appearance of a synovial cyst.

In light of our patient's case history, the most likely explanation for her developing iliopsoas bursitis and worsening femoral neuropathy after internal fixation of her hip fracture is that she developed a hematoma in her hip joint after surgery that increased intra-articular pressure,

Fig. 5 Intraoperative picture. During the excision, a bursal cyst was found just beneath the inguinal ligament down to the hip joint, extending also into the retroperitoneal space, where it was directly compressing the femoral nerve. The *white arrow* shows the femoral nerve, which was decompressed after the excision of an enlarged iliopsoas bursa

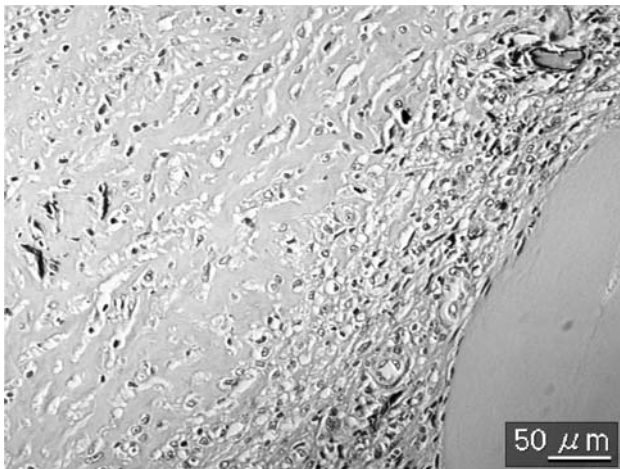
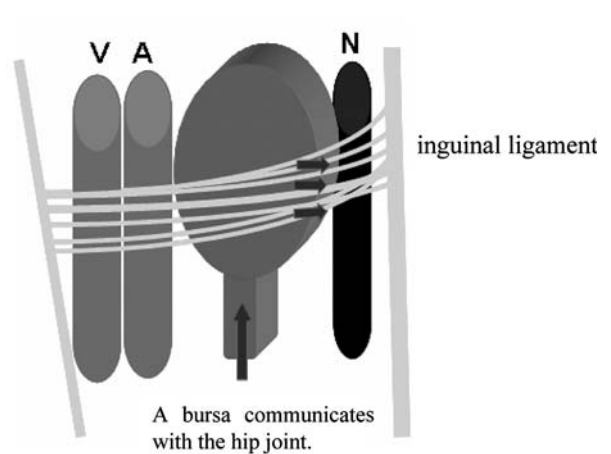
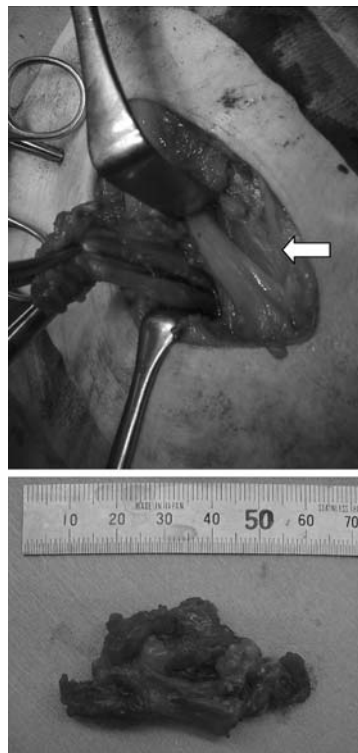


Fig. 6 Histological appearance (hematoxylin-eosin staining). The inner wall of the cyst was found to be composed of thick fibrous tissues with deposition of hyaline cartilage, and the content of the excised bursal cyst was like the formation of atheroma

leading to iliopsoas bursal enlargement via communication between the bursa and the hip joint. The elevated pressure due to fluid overproduction in the bursa might have irritated the left femoral nerve and exacerbated her neuropathy. The discovery of bloodstained inflammatory synovial fluid during the cyst puncture and the discovery by bursography of an enlarged iliopsoas bursa communicating with the hip joint provide supportive evidence for this scenario.

Several studies have reported femoral neuropathies caused by iliopsoas bursitis [3, 4, 7, 12] that usually reversed following bursa excision. In this case, although cyst puncture and cyst fluid drainage were initially followed by a lessening of the lower extremity pain due to the femoral nerve palsy, our subsequent observations after just a few days that fluid was reaccumulating in the bursa and that her femoral neuropathy was again starting to worsen led to our decision to resect the enlarged iliopsoas bursa.

Matsumoto et al. [4] reported that they had not identified any report of iliopsoas bursitis recurring after THA, whether or not the patient had previously undergone bursa excision. Hence, if we had tried to force ourselves to operate on THA before her fracture in this case, femoral neuropathy might never have been observed. We consider that we should have performed a THA when she first complained of neuropathy symptoms and the radiograph detected signs of progressive hip bone destruction.

In conclusion, we would recommend that bursa excision and/or THA be considered even in cases of iliopsoas bursitis associated with mild femoral neuropathy when destructive changes in the hip joint are also present.

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