Femoral neuropathy caused by an iliopsoas bursal cyst

Case report

MICHAEL H. LAVYNE, M.D., RAND M. VOORHIES, M.D., AND RAYMOND H. COLL, M.D.

Department of Surgery, Division of Neurosurgery and Department of Neurology, The New York Hospital-Cornell Medical Center, New York, New York

This case presents a rare occurrence of femoral neuropathy due to iliopsoas bursitis as a consequence of hip osteoarthritis. A computerized tomography scan of the hip revealed a smooth-walled nonenhancing cystic mass adjacent to the hip joint and elevating the components of the homolateral femoral triangle. The differential diagnosis and operative management of this entity are reviewed.

KEY WORDS  iliopsoas bursa  iliopsoas cyst  femoral neuropathy  hip arthritis  femoral nerve

The iliopsoas bursa is the largest bursal structure in the body. In spite of its size and location beneath the femoral nerve below Poupart's ligament, cystic enlargement of this bursal structure, a not infrequent accompaniment of inflammatory hip disease, is rarely recognized as a cause of femoral neuropathy. We report a case of femoral neuropathy due to iliopsoas bursal cyst enlargement in a man with advanced osteoarthritis of the hip joint.

Case Report

This previously vigorous 57-year-old man presented with a 5-week history of right groin pain, which he described as "sharp and burning," radiating from the mid-inguinal region toward the scrotum and anteromedial aspect of the thigh. The pain infrequently radiated below the knee. Coughing, walking, standing, and abduction of the right hip aggravated the pain. Bed rest with the leg and hip flexed and adducted relieved the pain.

Examination. On detailed neurological examination, the pertinent findings included a palpable mass lateral to the femoral arterial pulse and below the right inguinal ligament. The right iliopsoas muscle was weak, as were the extensors of the right knee. Minimal hypalgesia and hypesthesia were present over the anteromedial aspect of the thigh and below the knee. The knee jerks were diminished bilaterally.

His past medical history was significant for adult onset of diabetes mellitus, which was controlled by diet, and severe osteoarthritis of the lower back, with an episode of left sciatica that resolved with bed rest 1 year prior to admission.

X-ray films of the pelvis and right hip revealed severe degenerative disease. A technetium bone scan showed increased activity in the right hip joint. Ultrasound and computerized tomography of the pelvis revealed a well defined radiolucent mass in front of the right femoral head between the iliopsoas and iliopsoas muscles (Fig. 1). The mass measured 3.5 cm in diameter and 2.5 cm in width, and compressed and displaced the right femoral nerve and vessels anteriorly. The wall of the cystic mass enhanced after contrast infusion. Ultrasonography of the area revealed that the mass was cystic (Fig. 2). A preoperative diagnosis of iliopsoas bursitis due to right hip osteoarthritis was made.

Operation. Incision over the cystic mass revealed a markedly thin and laterally displaced sartorius muscle. The crural branches of the femoral nerve were identified and spared. The femoral nerve was elevated and displaced anteriorly, as were the femoral vessels. The cyst was entered, and 50 cc of straw-yellow fluid that did not clot in a test tube was aspirated. Analysis of this fluid showed 450 red cells and 100 white cells/ml, predominantly lymphocytes. The smooth inner
surface of the cavity communicated at the depths of the pelvis with the right hip joint. The cyst wall was removed, and microscopic review of the pathological specimen revealed scarred synovium with cartilaginous debris consistent with a neuropathic joint.

Postoperative Course. There was immediate improvement in his pain, and power in the iliopsoas and quadriceps femoris musculature improved. The right knee jerk remained depressed. Six weeks later, his right lower back and hip pain returned. Over the past year the hip pain has persisted without recurrence of neurological dysfunction. A right hip replacement is planned.

Discussion

The explanation for this unusual manifestation of degenerative hip disease is found in the anatomical relationships of the joint and the iliopsoas bursa. The complex iliopsoas muscle arises from the body of the T-12 vertebra, the bodies and all the transverse processes of the lumbar vertebrae, as well as the posterior iliac crest. The combined iliopsoas tendon passes over the thin portion of the hip capsule between the end of the iliofemoral and pubocapsular ligaments, and inserts into the lesser trochanter of the femur. The bursa is bounded anteriorly by the iliopsoas muscle, posteriorly by the pectineal prominence and the thin portion of the capsule of the hip joint, laterally by the iliofemoral ligament, medially by the cotyloid ligament, above by Poupart's ligament, and below by the pubofemoral ligament. Sometimes, there is an opening in the hip joint capsular ligament under the iliopsoas tendon, and in these cases the bursa is continuous with the synovial membrane of the joint. This opening explains how accumulations of the joint fluid may extend into the iliopsoas bursa, compressing adjacent structures.

Several anatomists have investigated this bursa and its occasional communication with the hip joint. Chandler, in his study of 206 adult cadavers, was able to demonstrate the bursa in all but three specimens. The bursal space measured 5 to 7 cm in length and 2 to 4 cm in width. Out of a total of 400 bursae studied, communication between the cavity and the hip joint was identified in approximately 15% of the specimens, measuring 1 to 2 mm in the fetus and up to a maximum of 3 cm in the adult. In 1933, O'Connor published a comprehensive article on the subject of iliopsoas bursal enlargement, in which he reviewed the literature to date. In 21 of his 33 cases, there was neither swelling nor palpable tumor in the femoral triangle. In spite of this, in some cases the slowly enlarging bursal mass was found to dissect anteriorly and superiorly around either side of the iliopsoas muscle causing displacement of the ureter and colon, and compression of the iliac vessels, resulting in ipsilateral pedal edema.

Hip pain is usually one of the first complaints in a patient with iliopsoas bursitis. Pain may radiate down the front of the thigh toward the knee and occasionally to the back and abdomen. Later, the extremity will be carried with the hip and knee flexed and thigh adducted and externally rotated in order to relieve the pressure of the iliopsoas muscle and tendon on the underlying bursal cyst. Groin swelling may be de-
monstrable several months after these symptoms have appeared. Examination will reveal a few definite physical findings; the hip will usually be held in flexion with some adduction and external rotation. There may be marked tilting of the pelvis and apparent lengthening of the affected limb when this occurs. Pain will be elicited by hyperextending, abducting, or internally rotating the hip. A palpable mass may be present 2 cm below Poupart's ligament and just lateral to the femoral arterial pulse. The skin is freely movable over the mass unless an inflammatory condition is present. Atrophy of the quadriceps femoris muscle due to pressure on the femoral nerve by this mass lesion is a late finding. A variable sensory deficit will be noted over the anterior medial aspect of the thigh, and the knee jerk will be diminished. X-ray examination of the hip usually reveals a significant sclerosis of the joint in elderly individuals. It is generally believed that these hypertrophic changes in the hip joint are due to trauma, a predisposing factor in the development of iliopsoas bursal swelling, probably accounting for the high incidence of this disorder in older male individuals. Younger patients with post-traumatic iliopsoas bursitis (19 of 33 in O'Connor's series) will have normal plain films of the hip and pelvis.

In the pre-antibiotic era, approximately 20% of the cases of iliopsoas bursitis resulted from a contiguous pyogenic infection, such as tuberculosis, gonococcal arthritis, syphilitic arthritis, or perinephric abscess at the groin. The latter conditions, however, are acute problems without predilection for age or sex, and rarely were associated with a mass large enough to cause compression of the femoral nerve, producing neuropathy. In fact, no such case has been reported.

Computerized tomography (CT) of this region will delineate a round encapsulated mass lesion beneath the femoral nerve and lateral to the femoral artery, adjacent to the head of the femur, and as far inferior as the insertion of the iliopsoas tendon into the lesser trochanter of the femur (Fig. 1). The capsule of the lesion enhances after intravenous infusion of contrast material, but the center of the mass will not enhance. Ultrasound testing of the region will demonstrate its central cystic component (Fig. 2). These radiographic characteristics differentiate iliopsoas bursal swelling from other mass lesions presenting in the groin, including femoral artery aneurysm, femoral vein varicosities, femoral nerve tumor, lymphadenopathy, tumor, and hernia.

The correct preoperative diagnosis of femoral neuropathy due to iliopsoas bursitis may be confirmed by arthrography, although we believe that CT scanning combined with ultrasonography obviates the need for these more invasive maneuvers. When evaluating patients with hip arthritis, lower extremity pain, and concomitant lower abdominal symptoms, one must be mindful of the fact that a large iliopsoas bursa beneath the ilioinguinal ligament may result in compression of the sigmoid colon, cecum, ureter, or bladder. In those cases that do not resolve after weeks of bed rest, removal of the bursal sac and overseeing of the communication with the hip joint is the treatment of choice. Needling of the bursa and draining of the cyst fluid will be followed by the reaccumulation of the fluid in a few week's time. If excision of the cyst does not result in increased mobility and relief of hip pain, then total hip replacement may be indicated.

References

3. Cullen TS: A large cystic tumor developing from the iliopsoas bursa, containing large free cartilaginous masses, and communicating with the hip-joint. JAMA 54:1181–1184, 1910

Manuscript received October 1, 1981.

Address reprint requests to: Michael H. Lavyne, M.D., The New York Hospital-Cornell Medical Center, 525 East 68th Street, New York, New York 10021.