Computerized tomography and surgical treatment of femoral compression neuropathy

Report of two cases

ALF T. TYSVAER, M.D.
The Surgical Clinic, Sentralsjukehuset i Rogaland, Stavanger, Norway

Two cases of femoral nerve compression are described. In the first, a large hematoma developed in the iliacus muscle while the patient was receiving anticoagulation therapy. In the second, a small abscess developed in the iliacus muscle 4 days after a proximal gastric vagotomy. Both cases were diagnosed by computerized tomography.

KEY WORDS • computerized tomography • femoral nerve • iliacus muscle hematoma • iliacus muscle abscess

Two cases of intramuscular hemorrhage with femoral nerve palsy are described. Both patients had been receiving anticoagulation therapy. Computerized tomography (CT) was diagnostic in both cases.

Case Reports

Case 1

This 71-year-old woman had been receiving anticoagulation therapy since 1979 for transient ischemic attacks. In July, 1980, she was operated on for a fracture of the right femoral neck. She was readmitted to the hospital on March 17, 1981, for evaluation of a possible hemarthrosis in the right hip. One day before her admission she began to complain of pain in the right groin. The following day the pain became worse and weakness of the right foot was noticed, but reflexes and sensation were normal.

Examination. Her erythrocyte sedimentation rate (ESR) was 18 mm/hr, hemoglobin 13.2 gm%, and the prothrombin time 7 seconds. X-ray films of the hip showed no abnormality. On the 3rd day, excruciating pain developed in the right groin. Attempts to extend the hip worsened the pain, and the patient felt numbness over the anterior aspect of the right thigh. A palpable, tender, fusiform mass was found in the right iliac fossa above and below the inguinal ligament. There was a slight flexion contracture of the hip, but external and internal rotation movements were normal and not painful. The right knee jerk was diminished, as was the sensation of touch and pain on the anteromedial aspect of the thigh. There was slight weakness of the right hip flexor and the knee extensor muscles. By the 4th day, the patient had developed a full-blown picture of a femoral paresis with loss of quadriceps function, absent patella reflex, and nearly complete loss of sensation in the right femoral nerve distribution. Hemoglobin dropped during this period from 13.2 to 10.7 gm%. Computerized tomography (CT) showed a relatively large hematoma in the right iliacus muscle (Fig. 1). The anticoagulation therapy was stopped.

Operation. At surgery, a vertical incision was made through the middle of the right inguinal ligament. The femoral nerve was pushed forward and medially by the hematoma. The hematoma was evacuated and the nerve became much more mobile. The day after the operation the pain in the right groin and thigh was markedly decreased. A few days later, the patient had regained some sensation in the thigh and leg, but the function of the quadriceps did not start to return until 5 months after the operation.

Case 2

This 48-year-old man was admitted on April 28 for evaluation of gastrointestinal bleeding. The hemoglobin...
A. T. Tysvaer

FIG. 1. Case 1. Computerized tomography scan showing a large hematoma in the right iliacus muscle.

FIG. 2. Case 2. Computerized tomography scan showing an abscess in the left iliacus muscle.

bin was 9.4 mg%, ESR 13 mm/hr, and the white blood cell (WBC) count 11,000/cu mm. On gastro-duodenoscopy, a duodenal ulcer was found. The patient received four units of blood, and 7 days after admission a proximal gastric vagotomy was performed. During the operation and on the 1st postoperative day, the patient was given a total of 1500 ml of Macrodex (a plasma volume expander) to prevent thrombosis. Four days after the operation, the patient felt severe pain in the left groin, thigh, and medial part of the leg down to the ankle.

Examination. The patient's temperature measured 37.6°C. A neurological examination was negative except for some general weakness in the left lower extremity, mostly due to pain. He preferred to stay in bed with pillows supporting the hip and knee in flexion. Four days after the onset of the pain, his temperature rose to 39.0°C, the ESR was 118 mm/hr, and the WBC count 11,300/cu mm. X-ray films and scintigraphic examinations of the spine, hip, and pelvis were negative, as was myelography. The cerebrospinal fluid was normal. ACT scan showed a bulge in the iliacus muscle (Fig. 2).

Operation. As there was no sign of improvement and an abscess was suspected, the patient was operated on using the same procedure as in Case 1. The femoral nerve was riding over a small abscess in the iliacus muscle. The infecting organism was Staphylococcus aureus. The patient, who had no active infection elsewhere in the body, received antibiotic therapy for about 1 month. The patient was followed as an outpatient, and at examination 2 months after surgery the strength of his quadriceps was graded as fair to good, and he could return to work.

Discussion

Intramuscular hemorrhage with femoral nerve palsy due to hemophilia, Christmas disease, trauma, and anticoagulation therapy is well known. Intramuscular abscess of pyogenic origin have also been reported. There is some disagreement as to whether the bleeding starts in the psoas or in the iliacus muscle. The femoral nerve is derived from the L-2, L-3, and L-4 nerve roots, emerges from the lateral side of the psoas muscle, and descends between the iliacus and the psoas muscle in a shallow groove. The nerve is covered by the transversalis fascia, which is especially strong over the groove. Pain due to femoral compression neuropathy starts in the groin and spreads to the inner thigh and the medial part of the leg. The patient prefers to lie with flexed hip and knee. Extension of the hip increases the pain. External and internal rotation movements of the hip are normal, which differentiates the disease from hemarthrosis and infection of the hip. Clinically, there is paresis of the quadriceps extensor group of muscles, and weakness or absence of the knee jerk. Often, but not always, there is loss of sensation over the inner part of the thigh and medial aspect of the leg. Sometimes, a palpable mass can be felt in the groin. According to Stern and Spiegel, femoral neuropathy due to bleeding must occur outside the psoas muscle, because the obturator nerve, which also is derived from L-2, L-3, and L-4 nerve roots, is never involved in the classical picture of hemorrhagic compression of the femoral nerve. In the two cases described here, there was no involvement of the obturator nerve, and both the CT and surgical findings showed the lesions were restricted to the iliacus muscle. Medical treat-
Femoral compression neuropathy

ment consists of correction of the coagulation abnormality, administration of analgesics, and immobilization in the acute stage in patients with mild symptoms. Otherwise, surgical intervention with evacuation of the hematoma may be required. An abscess always requires early drainage.

To administer the right treatment, it is necessary to be aware of acute hematoma or abscess of the iliacus muscle and to suspect it in a patient with sudden pain in the hip, groin, and thigh. For the diagnosis, CT examination of the groin is superior to intravenous pyelography, x-ray examination of the abdomen, barium enema, and venography of the pelvic veins.

References


Manuscript received December 28, 1981.
Address reprint requests to: Alf T. Tysvaer, M.D., Surgical Clinic, Sentralsjukehuset i Rogaland, 4000 Stavanger, Norway.