Computerized tomographic demonstration of a retroperitoneal hematoma causing femoral neuropathy

Report of two cases

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To the previously reported 28 cases of femoral neuropathy caused by a retroperitoneal hematoma in patients on anticoagulant drugs are added two cases in which the diagnosis was made by direct visualization of hematoma of the iliacus muscle by computerized tomography of the abdomen.

KEY WORDS • femoral nerve • femoral neuropathy • retroperitoneal hematoma • anticoagulants • computerized tomography

TWENTY-EIGHT cases of spontaneous retroperitoneal hemorrhage causing a femoral neuropathy have been reported in the English literature. The diagnosis has, until now, been made on the basis of clinical signs and symptoms of a femoral neuropathy, and the knowledge that the patient has received anticoagulants. Occasionally barium enemas, intravenous pyelograms, and other diagnostic examinations have been employed to confirm the presence of a retroperitoneal mass.

Two cases are reported in which computerized tomography (CT) demonstrated the presence of an iliac muscle hematoma causing a femoral neuropathy in patients on anticoagulant therapy.

Case Reports

Case 1

This 53-year-old woman was admitted with severe unrelenting pain in the right inguinal region and anterior thigh, and an inability to support herself upon the right leg. She had fallen 3½ weeks before admission, striking her left leg and back. One week later, she experienced sudden pain in the right groin as she arose from bed. Shortly thereafter she had difficulty in supporting herself on the right leg, and her knee gave way. Investigative studies including barium enema, intravenous pyelography, and a lumbar myelogram were unremarkable. Three years previously she had undergone aortic valve replacement because of aortic stenosis and she had been kept on an anticoagulant regimen with Coumadin (warfarin).

Examination on admission revealed a well developed and well nourished, middle-aged woman, who preferred to lie quietly in bed and who was reluctant to turn to either side. There was tenderness on palpation of the right lower abdominal quadrant, but no mass was felt. There was moderate tenderness on
CT demonstration of hematoma causing femoral neuropathy

Fig. 1. Computerized tomography scan of the abdomen at the level of the iliac bones shows a barely visible left iliacus muscle (arrowheads, right) against the left iliac bone. The left psoas muscle (LP) is normal and contains the groove for the femoral nerve (arrow). On the right side, arrowheads, left, outline a smooth solid mass (the iliac muscle hematoma adjacent to the right iliac bone) that is compressing and distorting the right psoas muscle (RP). The femoral nerve is being compressed between the hematoma and psoas muscle.

Shock percussion of the right costovertebral angle. No restriction of hip mobility was found on either side. There was moderate atrophy and complete paralysis of the right quadriceps muscle group. The right knee jerk was absent, whereas the left was brisk. The ankle jerks were active bilaterally. The plantar responses were flexor. Straight leg raising tests were mildly positive on the right side at 75° but were negative on the left at 85°. The psoas stretch test was markedly positive on the right side. There was hypesthesia and hypalgesia over the anterior aspect of the right thigh from 5 cm below the inguinal ligament down to 10 cm above the knee. On rectal examination no masses were felt but there was tenderness high on the right side.

A pelvic retroperitoneal mass compressing the femoral nerve was suspected. A CT scan (Fig. 1) of the abdomen and pelvis demonstrated a mass in the region of the right iliacus muscle at the level of the pelvic brim; the mass was interpreted as either hematoma or neoplasm within the muscle. Flat plate of the abdomen was negative except for residual barium within the colon and Pantopaque within the lumbar spinal canal. Ultrasound examination of the pelvis was normal. Prothrombin time was 23.4 seconds, control 11.1 seconds on admission. By the fifth hospital day the prothrombin time was 12.5 seconds as compared with 11.2 seconds control. Exploratory laparotomy revealed a large retroperitoneal hematoma within the right iliacus muscle, from which was evacuated 250 cc of sanguinous fluid and clot. The interior of the hematoma cavity was smooth and without evidence of tumor.

The postoperative course was uncomplicated and she was promptly relieved of the right inguinal and thigh pain. After physiotherapy and a brace to support the right knee, she was discharged from the hospital 3 weeks after admission, at which
time she could walk, and had begun to show some active contractions of the right quadriceps muscle group. Baseline electromyographic studies revealed abnormal resting potentials on monopolar needle electrode insertion into the quadriceps with some fibrillations and positive sharp wave forms.

Case 2

This 66-year-old woman was admitted to the hospital for ureteral diversion following radiotherapy for carcinoma of the bladder. Nine days following surgery multiple pulmonary emboli were diagnosed and she received anticoagulation therapy. Six days later the patient developed severe left groin pain, exacerbated by flexion of the thigh. Over the next several days leg numbness was noted.

A CT scan demonstrated a mass within the left iliococcygeus muscle. At surgery, a large intramuscular hematoma was found and drained.

Discussion

The femoral nerve, formed from the dorsal branches of the ventral rami of L-2, L-3, and L-4 and occasionally from L-1 emerges from the lateral margin of the psoas muscle, descending in a groove between the iliac and psoas muscle, covered by transversalis fascia. Femoral neuropathy may result from compression of the nerve by hematoma within its fascial compartment at two distinct sites, above and below the inguinal ligament. The ligament acts as a barrier to the spread of hematoma in either direction.2,6 Symptoms4,10 include weakness of the lower extremity; numbness in the thigh; sudden onset of pain in the groin, spreading to the flank area and thigh; a flexion contracture of the hip and lateral rotation of the thigh with worsening pain on hip extension; and an absent knee jerk.

Computerized tomography allows direct and clear visualization of structures in the retroperitoneum. Pathological masses in the retroperitoneum adjacent to the psoas muscle have previously been diagnosed radiographically on the basis of kidney and/or ureteral displacement seen by intravenous urography, or displacement of the colon. Occasionally, arteriography will demonstrate stretching and displacement of the retroperitoneal vessels or abnormal vessels in the case of a vascular tumor. Ultrasonography can be helpful in retroperitoneal and pelvic masses if these masses are not located close to bone structures.

After the diagnosis of a femoral neuropathy caused by a hematoma of the iliac muscle has been made in a patient on anticoagulant therapy, initial treatment consists of discontinuation of the drug followed by surgical intervention.1,6 A relatively high percentage of patients have residual disability with prolonged recovery time unless decompression neurolysis is performed.5,8 The initial clinical improvement in the patient in Case 1 tends to support the beneficial effects of immediate surgical intervention. Conservative management has had more favorable results in hemophiliacs.5

Addendum

Since submission of this article, we have seen three additional identical cases.

References


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