



Femoral nerve palsy due to iliopsoas hematoma

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ABSTRACT

Femoral nerve palsy seconder to iliacus hematoma has been rarely reported in terms of blood coagulation abnormalities, either from anticoagulant medications or from hemophilia. The clinical symptoms vary from femoral neuropathy to fatal hypovolemic shock with increased used of anticoagulant agents; femoral nerve palsy subsequent to hemorrhage within the iliopsoas muscle has become a frequent clinical problem. In our case, a 73-year-old male patient presented to hospital with left leg pain and weakness. Lumbar magnetic resonance imaging (MRI) and abdomen computed tomography (CT) showed a left-sided iliopsoas hematoma. An extraperitoneal inguinal incision (Gibson incision) was made. The hematoma was superior of the external iliac artery in the iliopsoas muscle. It was nearly 8 cm deep and was drained and evacuated. After the operation, the left leg pain decreased, and the weakness of left leg improved (3/5).

Keywords: femoral nerve palsy, iliopsoas, hematoma

INTRODUCTION

Femoral nerve palsy may occur with direct injury, a tumor or other growth blocking or trapping the nerve, prolonged pressure on the nerve, pelvic fracture, radiation to pelvis, a catheter placed into the femoral artery for surgical procedures (1), or hemorrhage or bleeding into the space behind the abdomen (retroperitoneum).

Femoral nerve palsy seconder to iliopsoas hematoma rarely occurs. The iliopsoas muscle is one of the inner hip muscles. It is comprised of a complex of two muscles with different areas of origin. This muscle belongs to the striated musculature, and the innervation is carried by the femoral nerve as well as direct branches of the lumbar plexus. The iliopsoas muscle is the strongest flexor of the hip joint. It is an important walking muscle, and it leads in turning/rotation of the spine (2). Femoral nerve palsy will be present as a herniated discopathy clinic.

Psoas hematomas are located in the retrofascial space rather than in the retroperitoneal space because the psoas muscles are located in the iliopsoas compartment posterior to the transversalis fascia, which is the boundary of the retroperitoneum (2). In our case, the patient presented to hospital with left leg pain and weakness. After radiological examinations, femoral nerve palsy due to iliopsoas hematoma recognized. This is a rare case seen in neurosurgery practice and presented with literature.

CASE REPORT

A 73-year-old male presented to the hospital suffering from left leg pain and weakness. His symptoms had begun 20 days before. Firstly, he was applied a government hospital with left leg pain. Pelvic and lumbar X-rays were taken, but no pathology was found. After this, he suffered from left leg weakness. He was seen in the same hospital. This time, MRI was taken, but it was reported as normal. The patient's symptoms increased. He was sent to a university hospital for more investigation. He had a history of using coumadin for venous thrombosis prophylaxis. His vital signs were stable. His hemoglobin was 11,8 g/dL, platelet count $305 \times 10^3 / \text{qL}$, prothrombin time was in normal



Figure 1: Magnetic Resonance Imaging coronal section showing hematoma



Figure 2: Magnetic Resonance Imaging coronal section showing hematoma

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Figure 3: Lumbar transvers MRI showing psoas hematoma



Figure 4: Per operation hematoma



Figure 5: After post op four-month abdomen CT showing no hematoma appear

ratio 15,1 sec, and international normalized ratio (INR) was 1.14, also in normal range.

Physical examination revealed paresis of strength of 2/5, and the deep tendon reflex of patella was decreased. After making passive movements of the hip, he was in more pain. Bilateral lower extremity pulses were equal and symmetric.

X-ray of lumbar vertebrae and pelvic bone did not show any abnormalities. In the lumbar, magnetic resonance imaging (MRI) was negative for root compression. But there was a left-sided 84,6 × 61,3 mm sized iliopsoas hematoma seen, especially in the coronal contrasted screens (see Figure 1,2,3). We also took abdomen CT for more investigation. The abdomen CT showed left-sided psoas hematoma behind that iliacus muscle that was going to the inferior side. The hematoma had fluid collection inside. It was thought to be an organized hematoma.

In view of the patient's clinical and radiological findings, the diagnosis was femoral nerve palsy due to iliopsoas hemorrhage. We planned surgical decompression for femoral nerve palsy. The patient was placed in the lateral decubitus position with lumbar flexion under general anesthesia, operation side up (left). Extraperitoneal inguinal incision (Gibson incision) was performed. The hematoma was seen as superior of the external iliac artery. Depth was nearly 7 cm. It was drained and evacuated (see Figure 4).

DISCUSSION

Femoral neuropathy secondary to iliac hematoma rarely occurs in patients receiving anticoagulant agents or suffering from clotting disorders (3). Femoral neuropathy with direct trauma to the pelvis or hyperextension of the hip may result in muscular tears leading to iliacus hematoma (4). The lumbosacral plexus may be compressed with the psoas muscle, resulting in weakness of those muscles supplied by the obturator and femoral nerves. Secondly, the femoral nerve is compressed as it passes through the closed fibrous compartment formed by the iliac fascia and ileum. The hematoma expands in this compartment and causes femoral nerve palsy (4).

The first step in treating femoral neuropathy is dealing with the underlying condition or cause. If compression on the nerve is the cause, the goal will be to relieve the compression. Occasionally in mild injuries, such as mild compression or a stretch injury, the problem may resolve spontaneously. For diabetics, bringing blood sugar levels back to normal may alleviate nerve dysfunction. Latex injected into iliacus sheath spreads from the midlumbar region to the femoral triangle, surrounding, corresponding and stretching the femoral nerve in the different parts of its course. These observations suggest an anatomical basis for femoral nerve palsy during iliac hematoma (5).

Retroperitoneal hematoma resulting in femoral nerve injury is a serious potential complication of anticoagulation. The exact cause of iliacus hematoma is unclear. Not all patients have been over-anticoagulated. Studies of femoral palsy have found that weakness of the iliopsoas muscle, numbness, loss of knee joint, sensory loss of antero-medial thigh, and peripheral neuropathy caused by compression of the nerves around the inguinal area may occur. Symptoms frequently include acute groin pain and femoral palsy. Previous literature shows that general fatigue and low back pain were often observed as primary symptoms (6).

Femoral palsy can mimic lumbar disc disease. As in our case, this may cause delayed or wrong diagnosis. Lumbar MRI with contrast enhancement is important for showing iliopsoas hematoma. Coronal sections will be more useful for correct diagnosis of psoas hemorrhage. An MRI scan can reveal tumors, growths, or any other masses in the area of the femoral nerve that could cause compression on the nerve. A CT scan using cross-sectional x-rays can also be used to look for vascular or bone growths.

Treatment options of iliopsoas hematoma include conservative therapy such as clotting factor replacement, transcatheter arterial embolization or hematoma removal. The

treatment of the disease may differ depending on the severity of symptoms and underlying disease. If the hematoma is small or there is evidence of clinical improvement, conservative treatments such as bed rest, correction of blood coagulation disorder and transfusion are preferred (7). Treatment decision about this clinical entity depends on the speed of onset, the size of hematoma and the degree of neurological impairment.

In cases of small hematomas and moderate neurological symptoms, conservative management is advised. If non-operative management is chosen, serial neurological examinations and hematological parameters reflecting ongoing blood loss must remain stable (8). Bigger hematomas with severe neurological impairment require surgery for decompression and drainage (9). A positive outcome is normally achieved if the treatment is customized. The prognosis of femoral nerve recovery after hematoma compression is very good (10).

If there is no improvement with conservative treatments, neurological symptoms progress, and MRI clearly shows nerve compression by hematoma, surgical treatment such as hematoma evacuation or percutaneous drainage may be needed (9). Prognosis depends on the intensity and length of nerve compression. It should be remembered hemorrhage can occur even with therapeutic INR levels, and this can be massive and life-threatening.

In our case, the patient suffered pain and left leg weakness. Iliopsoas hematoma was diagnosed on the lumbar contrasted MRI with coronal section and abdomen CT. His hemoglobin level

and INR were normal. CT and MRI remain the most powerful diagnostic tools. The complex challenge for the surgeon is the choice of clinical pathway in the management of this entity. This choice should be made based on two considerations: firstly, the patient's general condition, and secondly, the presence of femoral or sciatic nerve palsy due to compression syndrome.

In conclusion, a patient came in with leg weakness and pain, but there was no disc pathology in the lumbar MRI, so lumbar plexus or peripheral nerve lesions must be considered in the diagnosis. In this case, delayed diagnosis could cause neurological deficit. Abdomen CT and contrast enhanced lumbar MRI with coronal sections must be taken.

The differential diagnosis for this syndrome requires early recognition with a high level of suspicion. Treatment decision about this clinic entity depends on the speed of onset, the size of the hematoma and the degree of neurological impairment.

CONCLUSION

In our case, surgery relieved the pain and provided regression of the femoral palsy more rapidly and completely than if surgery had not been undertaken. Also, surgery occasions an opportunity for early, efficient physiotherapy. Early evacuation of the hematoma is suggested. Using standard lumbar MRI may cause misdiagnosis; according the patient's neurological examination, gadolinium enhanced variant screening procedures must be taken.

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