

Case Report

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Femoral nerve palsy from Iliacus hematoma syndrome in a 19-year-old basketball player

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Abstract

Introduction: Iliacus hematoma syndrome is a rare condition in which damage to the iliac vasculature leads to hematoma development within the iliopsoas muscle group, compressing the femoral nerve, causing motor and sensory deficits. Progression is usually slow and frequently missed during initial encounters. Long-term neurologic complications may result without early recognition and intervention.

Case Description: A 19-year-old male presented with worsening left hip pain, paresthesias, sensory loss, and difficulty walking one week after a low back injury while playing basketball. Initial evaluation by his college's health facility included unremarkable plain film radiographs of the pelvis and lumbar spine. The patient did not tolerate outpatient magnetic resonance imaging due to pain. Physical exam revealed decreased sensation throughout the left femoral nerve distribution with impaired hip flexion and knee extension. Abdominal angiography revealed a 12 cm iliacus hematoma with active extravasation, which underwent embolization. Hematoma evacuation was performed with rapid sensory improvement and gradual motor improvement. The patient was ultimately discharged with physical therapy and orthopedic referrals.

Discussion: Iliacus hematoma syndrome is a difficult diagnosis to make given the insidious onset and similar presentation to benign conditions like muscle strain or contusion. Surgical hematoma evacuation is often necessary to relieve the femoral nerve compression. Early recognition and intervention is critical, as delayed decompression may lead to iliacus compartment syndrome and permanent disability.

Conclusion: Iliacus hematoma syndrome with resultant femoral nerve palsy is an exceedingly rare yet potentially devastating condition with complications that may include permanent neurologic damage, impaired mobility, and chronic pain if not expediently recognized and managed.

Keywords: Iliacus hematoma syndrome; Femoral nerve palsy.

Introduction

Iliacus hematoma syndrome is a rare medical condition in which damage to the iliac vasculature leads to hematoma formation within the iliopsoas muscle group and is high risk for femoral nerve palsy [1]. Both traumatic and atraumatic etiologies have been identified, with cases of iliac hematoma syndrome and femoral nerve palsy diagnosed in patients following minor trauma [2-4], intraoperative femoral artery puncture [5], anterior iliac crest bone graft harvest [6], as a complication of anticoagulant usage [7,8] or in patients with underlying hematologic conditions such as hemophilia [9]. Hematoma develops in a compartment bound by the intersection of the iliacus and psoas muscle fascial planes [5]. Iliacus hematomas can grow to a significant size resulting in compression of the femoral nerve, with early paresthesias that can progress to femoral nerve palsy [1]. Progression is typically slow, with symptoms presenting as early as one day [6] or as late as thirty days [10] after the inciting event. Insidious presentations are likely to be misdiagnosed early in the clinical course, even when examined by experienced clinicians.

Early recognition and intervention are critical to prevent long-term sequelae including impaired mobility, chronic pain, and permanent nerve damage [1]. Other complications include muscle necrosis and rhabdomyolysis [8]. Operative intervention is often necessary for hematoma evacuation in an attempt to alleviate the progressive nerve compression, occasionally requiring full iliacus fasciotomy depending on the severity [11]. Nonoperative management may also be considered, although this approach risks progression to permanent femoral nerve damage [12,13].

Case description

A 19-year-old male with no significant past medical history presented to the emergency department with worsening left hip pain, progressive left lower extremity paresthesias and weakness with sensory loss, and difficulty ambulating one week after sustaining a low back injury while playing basketball. The player had jumped in the air, had his legs swept out from underneath him, and struck his sacrum directly on the hardwood court. He had been initially evaluated at his college's health facility the day after the injury, at which time plain film radiographs of the pelvis and lumbar spine were without evidence of acute osseous injury. Two days later he presented to an orthopedic surgeon who ordered magnetic resonance imaging (MRI) of the hip and spine, however the patient was unable to tolerate this study due to intractable pain while lying in a supine position. The next day the patient was no longer able to ambulate due to worsening numbness in left lower extremity, prompting him to present to a nearby emergency department. Physical examination demonstrated decreased sensation to the left medial thigh and lower leg, with impaired hip flexion and knee extension. Computed tomography (CT) angiogram of the abdomen and pelvis revealed an iliacus hematoma approximately 12 cm in diameter, with active extravasation from a branch of the left internal iliac artery (Figure 1).

The patient was then transferred to our trauma center where he underwent gelfoam embolization of a left obturator artery pseudoaneurysm by interventional radiology. Evaluation the following morning revealed persistent femoral nerve palsy symptoms at which time he was taken to the operating room with the trauma surgery and vascular surgery teams for retro-



Figure 1: Computed tomography (CT) angiogram of the abdomen and pelvis demonstrating iliacus hematoma formation with active extravasation in the coronal (A), sagittal (B), and axial (C) planes.

peritoneal exploration and hematoma evacuation. An iliacus hematoma approximately 300 mm in size was evacuated, after which the patient experienced rapid improvement of sensory function over the ensuing six hours and gradual improvement of motor function over the following three days. He received inpatient physical therapy and was trained on front wheel walker utilization. The patient was ultimately discharged after a five-day hospitalization with an outpatient physical therapy referral and trauma surgery clinic follow-up.

Discussion

Iliacus hematoma syndrome is a rare condition where bleeding within the iliacus muscle compresses the femoral nerve, leading to motor and sensory deficits. It is frequently missed in the first few days after injury given the insidious progression of symptoms and its similar presentation to benign conditions such as a contusion or muscle strain. This patient developed a large left iliacus hematoma and femoral nerve palsy after minor blunt trauma to his lower back while playing basketball. As demonstrated in this case, plain film radiographs are not adequate

to recognize an iliacus hematoma, which requires contrast-enhanced CT imaging to identify and preferably angiography to investigate for active extravasation indicating an ongoing bleed. Additional testing such as electromyography (EMG) may also be useful in diagnosing this condition, or may also be used in the postoperative phase to evaluate for improving nerve function.

Early intervention is critical, as delayed decompression may lead to a local compartment syndrome and permanent disability along the femoral nerve distribution. Surgical hematoma evacuation is often necessary to relieve the femoral nerve compression and facilitate recovery, which may require fasciotomy of iliacus in severe cases. Current literature lacks a clear standard of practice for treatment. This case highlights the importance of timely diagnosis and prompt surgical management to prevent long-term neurological deficits. Given the severity of femoral nerve palsy, nonoperative management was not considered an option in this case. All management pathways will also require some form of physical rehabilitation, ranging in degree of intensity inversely correlated to severity of palsy.

Conclusion

Iliacus hematoma syndrome with resultant femoral nerve palsy is an exceedingly rare yet potentially devastating condition with complications that may include permanent neurologic damage if not expediently recognized and managed. Initially difficult to diagnose given its insidious progression, it must be kept in the differential diagnosis for persistent unilateral hip or back pain with deficits along the femoral nerve distribution. Iliacus hematoma syndrome commonly requires angiography to identify and characterize. As demonstrated in this case, operative management with surgical hematoma evacuation is the ideal definitive management strategy to prevent long term complications including permanent femoral nerve palsy.

Declarations

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