Total Hip Arthroplasty Complicated by a Gluteal Hematoma Resulting in Acute Foot Drop

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**abstract**

Total hip arthroplasty is a prevalent orthopedic intervention in the United States. Massive postoperative hematomas are a rare albeit serious complication of the procedure. Sequelae of these hematomas can include lower extremity paralysis from compression of the sciatic nerve. A 66-year-old woman taking aspirin and clopidogrel for coronary stents presented with a complete foot drop, paresthesias, and lower extremity pain 10 days after a total hip arthroplasty. The patient was initially seen by a neurology service at another hospital and thought to have lateral recess stenosis. At the authors’ center, magnetic resonance imaging of the lumbar spine failed to show lateral recess stenosis. Urgent pelvic computed tomography showed a large hematoma and raised suspicion of sciatic nerve compression. Hip magnetic resonance imaging showed a right gluteal hematoma compressing the sciatic nerve. The patient was then taken to the operating room for the clot to be evacuated and was later referred for rehabilitation. Massive hematomas after total hip arthroplasty are an important consideration in the differential diagnosis of nontraumatic acute foot drop. Prompt diagnosis may correlate with improved neurological outcome and help reduce overall morbidity. [Orthopedics. 2016; 39(2):e374-e376.]

**Case Report**

**Clinical History**

A 66-year-old woman with a history of diabetes, obesity, and coronary artery disease, weighing 210 lb, initially presented with right hip pain. She successfully underwent total hip replacement surgery for degenerative joint disease by an outside orthopedic surgeon. Preoperatively, the patient was receiving an 81-mg aspirin and clopidogrel regimen for coronary stents that had been placed 13 years earlier. Postoperatively, she was switched to an 81-mg aspirin and Coumadin (Bristol-Myers Squibb, New York, New York) regimen. Ten days postoperatively,
while the patient was attempting to sit, she felt a pop in her right hip but did not have antecedent trauma. Following that incident, she developed severe lower back pain radiating to her foot. On examination, she had right lower extremity paresthesias in multiple dermatomes; 4/5 motor strength in hip flexion and knee extension; and 0/5 motor strength in knee flexion, hip abduction/adduction, foot dorsi-/plantarflexion, and foot inversion/eversion. Her left lower extremity sensory and motor examination yielded normal results and her presenting international normalized ratio value was 1.3. She was referred to the authors’ institution for a neurosurgical consultation for the suspected diagnosis of lumbar spinal stenosis.

Magnetic resonance imaging and computed tomography myelography showed that the patient had minimal lumbar stenosis (Figure 1), thereby excluding lumbar stenosis as the etiology of her neurologic deficit. Further workup with a pelvic computed tomography scan showed a large gluteal hematoma at the surgical site (Figure 2). Follow-up right hip magnetic resonance imaging showed a 500-mL subfascial mixed-intensity hematoma with extensive edema and inflammatory changes in the gluteal muscles from the sciatic notch to the popliteal fossa (Figure 3).

Surgical Intervention

The orthopedic surgery service at the authors’ institution was consulted and surgically evacuated the hematoma 24 hours following the magnetic resonance imaging. Intraoperatively, the surgeon (G.S.G.) identified 1000 mL of tense liquid hematoma between the skin and the fascia. On opening the fascia, approximately 500 mL of both gelatinous and liquid hematoma was expressed. The sciatic nerve was clearly compressed, with indentation of the course of the nerve to the bifurcation. Debridement of the hematoma followed by epineurolysis of the sciatic nerve from the sciatic notch to the ischial tuberosity allowed for complete decompression.

Postoperative Course

Postoperatively, the patient received antibiotics pending surgical site cultures. Her right lower extremity radiculopathy pain had resolved; however, she still had a significant amount of paresthesia and hyperalgesia and she was still unable to plantar- or dorsi-flex her right foot. She was discharged to a skilled nursing facility for rehabilitation and further care.

Discussion

Nontraumatic acute foot drop is rare. The most common etiology of acute foot drop is due to neural compression within the spinal canal from herniated lumbar disks, spondylolisthesis, and lateral recess syndrome. Rare causes of acute foot drop include multiple sclerosis, brain lesions, gas-filled intradural cysts, lumbar ligamentum flavum hematoma spinal vascular malformations, and compressive spinal tumors. Extra-spinal causes of compression of peripheral nerves may also result in acute foot drop. Compression of the sciatic nerve anywhere along its course may cause acute foot drop, as shown on the current patient’s magnetic resonance imaging. The sciatic nerve is most at risk of compression in the pelvis around the sciatic notch, especially following a surgical intervention. Although various mechanisms of injury from hematomas have been suggested, it is widely agreed that a compartment syndrome causes pressure build-up within fascial enclosures, which leads to compression and ischemia of the peripheral nerves. More distal pathology such as popliteal fossa hematoma following a popliteal vein aneurysm resection or peroneal nerve entrapment with or without a tibiofibular cyst also cause similar symptomatology. In this context, the neurologic examination becomes paramount to determine the location of the lesion. The current patient had some weakness in hip flexion and knee extension, which is most likely attributed to the size of the compressive hematoma and to the associated pain.

Sciatic nerve injury is a recognized complication of THA in between 0.5% and 2% of cases. The mechanism of inju-
ry could involve screws, trochanteric wire pieces, methyl methacrylate cement, metal cages, or hematomas.\textsuperscript{4,14,15} It is crucial to note the importance of a prompt diagnosis of the hematoma as a possible etiology of acute foot drop. At the outside facility, the current patient was returned to anticoagulation and antiplatelet therapy shortly after the THA. Anticoagulation has been reported to be a risk factor for the formation of postoperative hematomas, especially in patients who weigh less than 70 kg.\textsuperscript{4}

Management approaches to hematomas after THA vary. Some cases in the literature advocate conservative measures with complete bed rest and physical therapy and report excellent results, indicating that surgery is only to be used in certain situations.\textsuperscript{2} Suggested criteria for nonsurgical management include hemodynamic stability, stable neurological findings, and no suspicion of active bleeding in the hematoma. Surgical treatment is recommended in cases of worsening neurological symptoms or hemodynamic instability.\textsuperscript{2} Other reports advocate that early decompression of the sciatic/femoral nerve by evacuation of the hematoma correlates with better neurological outcomes and prevents irreversible nerve damage.\textsuperscript{4,14} In the current case, the patient was having severe neurological deficits and the decision was made to urgently evacuate the hematoma.

**CONCLUSION**

Prompt diagnosis of hematomas following THA, especially in patients receiving anticoagulation, is crucial in cases of acute foot drop. It is the authors’ recommendation that compressive hematomas after THA be evacuated as early as possible, as this would probably lead to improved overall neurological outcomes. The speed of recovery of function in the lower extremity will depend on the promptness of the diagnosis and the intervention.

**REFERENCES**


