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## Case Report

# Endovascular management of posttraumatic and iatrogenic large pelvic pseudoaneurysms following biopsy: case report

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## ABSTRACT

Pelvic traumatic and iatrogenic pseudoaneurysms supplied by the internal iliac artery are very rare but can present with pain, nerve compression, and rupture. Particularly with more chronic pseudoaneurysms, their imaging appearance can be confusing and they can be mistaken for tumors. We present two cases of pelvic pseudoaneurysms supplied by the superior gluteal artery that were initially mistaken for masses and subsequently biopsied. We report the subsequent successful endovascular embolization technique subsequently utilized for both of these cases. A high index of suspicion should be maintained to avoid biopsy of these lesions. In the appropriately selected patient, an endovascular approach may be safely used to perform embolization.

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## Introduction

Pseudoaneurysms manifest as painful and pulsatile masses, often the result of blunt or penetrating arterial trauma. Of the sites in which pseudoaneurysms can be found, those supplied by the internal iliac artery, specifically the superior gluteal branch, are particularly rare. Because pseudoaneurysms can be fatal, it is important to maintain the diagnostic possibility of a pseudoaneurysm in patients who have had prior history of trauma to the area along with complaints of

pain, nerve compression, and loss of mobility in the corresponding limb. We present two cases of patients with large pseudoaneurysms arising from the superior gluteal artery, initially incorrectly diagnosed as masses, prompting subsequent biopsies. One of these masses was likely secondary to prior trauma, while the other was likely due to prior bone marrow biopsy. Both cases were treated successfully with coil embolization. To our knowledge, there are only 11 reports of posttraumatic superior gluteal artery pseudoaneurysm in the literature since 1983.

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## Case report

### Patient 1

#### Clinical presentation

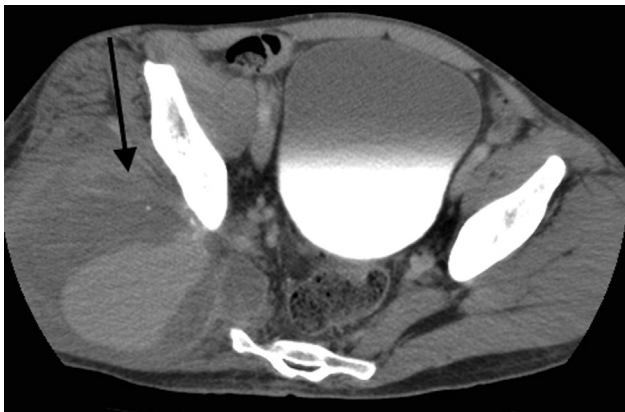
A 47-year-old gentleman was transferred to our center from an outside hospital with a right gluteal mass. Unbeknownst to us, the patient underwent nondiagnostic biopsy a prior to arrival at our institution complicated by 2 liters of intraoperative blood loss and continued intermittent bleeding from the open biopsy site, requiring multiple blood transfusions. The patient's past medical history was notable for hepatitis C virus and a remote history of right leg trauma at age 30 years, as well as right buttock gunshot wound at age 33 years. Vital signs were stable. Physical examination demonstrated a roughly 12 × 10 cm nonmobile, nontender right buttock soft tissue mass. Coagulation panel and platelet count were within normal limits.

#### Imaging

Contrast-enhanced computed tomography (CT) of the abdomen and pelvis demonstrated partial visualization of a 15-cm soft tissue density mass with central enhancement in the right gluteal region, which extended medially to the pelvic sidewall and involved the right piriformis muscle (Fig. 1). The possibility of sarcoma was raised at the outside hospital. To further evaluate the vascular supply to this mass, MR angiogram of the pelvis and lower extremities was performed at our center upon admission. The study revealed contrast enhancement of the mass with contrast pooling in the medial aspect of the mass, with enlargement of a branch of the right internal iliac artery with drainage into the contrast collection within the mass, suggesting a partially thrombosed pseudoaneurysm (Fig. 2).

#### Intervention

An angiogram was next performed to further evaluate the pseudoaneurysm with intention to treat. After attaining left common femoral artery access, a diagnostic angiogram was



**Fig. 1 – Contrast-enhanced CT of the abdomen and pelvis demonstrating large right gluteal soft tissue density with central enhancement (arrow), with extension medially to the pelvic sidewall and involvement of the right piriformis muscle.**

performed through a 4-French Omni Flush pigtail catheter (AngioDynamics, Latham, NY). The angiogram showed an enlarged superior gluteal artery arising from the right internal iliac artery providing supply to a large pseudoaneurysm in the right posterior pelvis (Fig. 3). The decision was made to proceed with coil embolization of this pseudoaneurysm due to ongoing blood loss and repeated transfusion requirements. Over an 0.035 Bentson guidewire (Cook Medical, Bloomington, IN), the pigtail catheter was exchanged for a 5-French Levin-1 catheter (AngioDynamics). Through the Levin-1 catheter, a Tracker microcatheter (Stryker, Kalamazoo, MI) was introduced to select the superior gluteal branch artery for coil embolization. The neck and segments proximal and distal to the pseudoaneurysm were then embolized with fifteen 6-7 mm Complex Helical-18 coils (Boston Scientific, Natick, MA). Postembolization arteriogram demonstrated cessation of antegrade flow and nonopacification of the pseudoaneurysm. The patient tolerated the procedure well without complications.

#### Outcome

Following embolization, the patient reported cessation of bleeding and his hemoglobin normalized. Patient initially described mild decrease in sensation over the right dorsal foot, which later resolved during hospitalization, with intact motor examination and distal pulses. Thrombosed pseudoaneurysm was later evacuated surgically without complication 3 weeks following embolization.

### Patient 2

#### Clinical presentation

A 51-year-old gentleman presented with a 10-month history of lumbar spondylosis, low back pain, right buttock pain radiating down the leg, as well as right foot drop and numbness in the right medial lower leg. Of note, 1 month prior to symptoms onset, he had undergone bone marrow biopsy via right posterior iliac approach. The patient had tried oral analgesics, epidural spinal injections, and physical therapy with minimal improvement in his symptoms. Past medical history was notable for hepatitis C virus, lumbar radiculopathy, sciatica since a work-related lumbar spine injury 3 years prior, as well as persistent leukopenia (which had prompted his bone marrow biopsy). Laboratory results were notable for INR of 1.3. Platelet count and hepatic function tests were within normal limits. Recent electromyography demonstrated denervation changes in the right lateral gastrocnemius muscle, which were thought to be related to recent direct muscular trauma with associated bruising.

#### Imaging

Nonenhanced magnetic resonance imaging (MRI) of the lumbar spine was obtained to evaluate the patient's low back pain and neurologic deficit. The study showed an 11 × 8.6 × 7.7 cm mass in the presacral space lateral to the rectum with extension into the right gluteus medius and maximus muscles, with heterogeneous solid components and surrounding cystic/fluid components (Fig. 3). The mass resulted in anterior displacement of the right sacral neurovascular bundle, mild remodeling of the right posterior acetabulum, and edema and

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