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(CASE REPORT)

Ruptured pseudoaneurysm of the superior gluteal artery: Case report

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Abstract

Pseudoaneurysms of the gluteal arteries are rare. They are often post-traumatic, resulting from either blunt or penetrating trauma to the pelvis. These pseudoaneurysms are initially asymptomatic and may present after a variable delay, ranging from a few weeks to several years following the initial trauma. Their spontaneous evolution can be fatal in the event of rupture. The treatment of gluteal pseudoaneurysms was historically surgical, but the advent of endovascular techniques has revolutionized their management by reducing perioperative morbidity and offering outcomes comparable to surgery.

We report the case of a patient admitted as an emergency for the management of a ruptured post-traumatic pseudoaneurysm of the superior gluteal artery, which occurred 32 days after a penetrating injury to the left gluteal region. The patient underwent surgical treatment.

Keywords: Pseudoaneurysm; CT angiography; Embolization; Surgery

1. Introduction

Aneurysms of the superior gluteal artery are rare, accounting for less than 1% of all aneurysms. The first case was reported in 1803 by Stokes [1,2].

The majority of these are pseudoaneurysms, most commonly resulting from either penetrating or blunt pelvic trauma.

2. Clinical presentation

A 34-year-old male, with no significant medical or surgical history, presented with a stab wound to the lateral aspect of the left buttock. The wound was sutured in the emergency department without signs of active bleeding.

Post-trauma recovery was initially uneventful, except for localized left gluteal pain. However, 32 days later, the patient returned with a pulsatile swelling in the right gluteal region (likely a typo in the original; please confirm if it should be *left*).

On clinical examination, there was hypoesthesia of the left thigh, with preserved muscle strength and normal deep tendon reflexes.

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Palpation revealed a pulsating, expanding mass in the left gluteal area. Femoral pulses were present. Blood pressure was 130/75 mmHg, and respiratory rate was 12 breaths per minute.

An emergency CT angiography (Figure 1) revealed a pseudoaneurysm arising from the left superior gluteal artery, with rupture into the surrounding soft tissues extending toward the skin. The lesion measured 13 × 5 cm, and was partially thrombosed at the periphery.

The surgical procedure consisted of a retroperitoneal lombotomy in the right lateral decubitus position, with control of the internal iliac artery, which was clamped to manage the risk of bleeding.

The patient was then repositioned and underwent a second procedure via a direct transgluteal approach in the lateral decubitus position, allowing for hematoma evacuation, excision of the aneurysmal sac, and ligation of the vascular defect (Figure 2).

The total surgical duration was 300 minutes, with an uneventful postoperative course. The patient was discharged seven days after surgery.

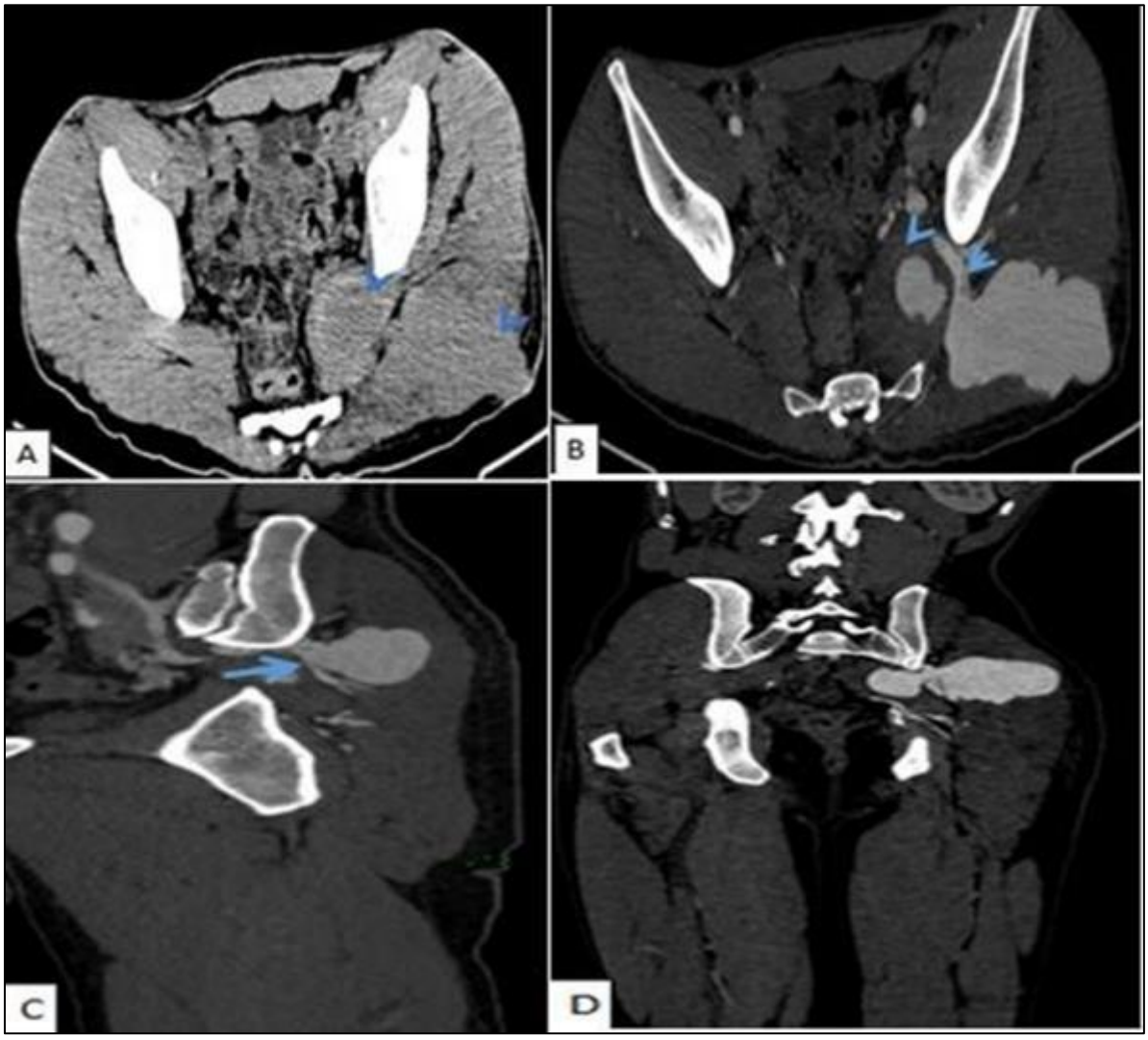

Figure 1 A. Axial CT scan without contrast showing a hematoma (arrowhead) in the left gluteal soft tissues, extending to the skin. B. Axial slice of the contrast-enhanced CT angiography showing a saccular contrast-enhancing outpouching consistent with a pseudoaneurysm arising from the superior gluteal artery

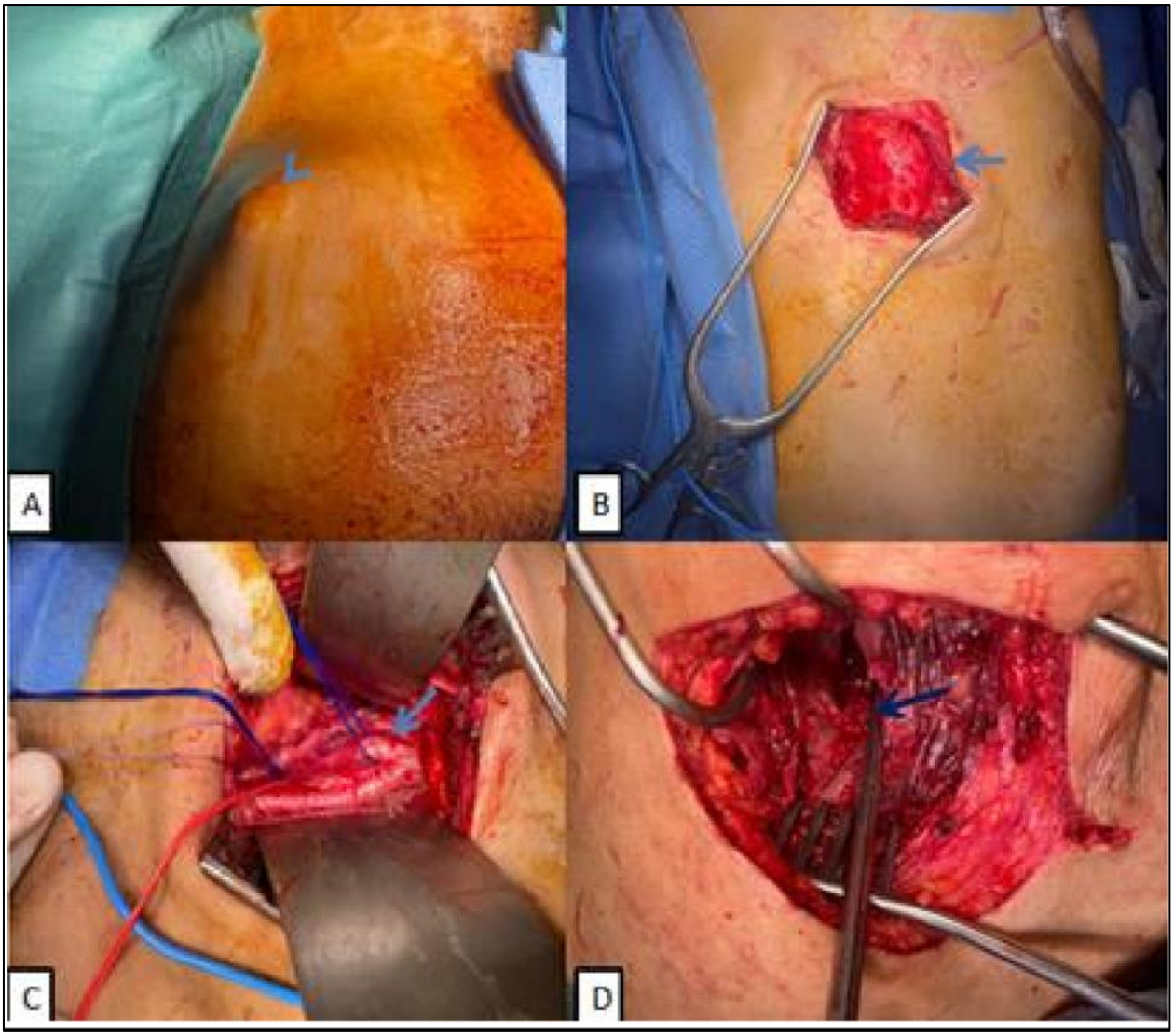

Figure 2 A. Aseptic preparation of the surgical field; B. Posterior lombotomy approach; C. Control of the internal iliac artery; Arrow: Internal iliac artery

3. Discussion

The superior and inferior gluteal arteries are branches of the internal iliac artery. Gluteal artery aneurysms are rare, representing less than 1% of all aneurysms [1,2,3]. Most reported cases are pseudoaneurysms, more frequently involving the superior gluteal artery than the inferior, and most commonly result from penetrating or blunt pelvic trauma, with or without associated bone injuries. They may also be iatrogenic, following pelvic surgery, intramuscular injection, or bone marrow biopsy [1,3,7,8].

A few cases of true or false gluteal aneurysms of infectious, inflammatory, or atherosclerotic origin have also been reported in the literature [4,5].

The clinical presentation of gluteal pseudoaneurysms is nonspecific, with a highly variable delay in onset ranging from weeks to years after the initial trauma. In our case, the initial clinical examination revealed no signs of vascular injury—no hematoma, external bleeding, limb ischemia, or neurological deficits suggestive of damage to adjacent vascular or nerve structures. The patient was hemodynamically stable, and the wound was sutured without further radiological exploration, such as a CT angiography.

Typical clinical signs of gluteal pseudoaneurysms include a mass in the gluteal region, often accompanied by neurological symptoms in the ipsilateral lower limb, such as pain or sensorimotor deficits due to sciatic nerve compression [2,10].

However, the pulsatile nature of the mass is inconsistent, which can complicate the differential diagnosis with gluteal tumors or abscesses. Doppler ultrasound may help confirm the vascular origin of the lesion by demonstrating circulating flow within the aneurysmal sac [1,6].

CT angiography and MR angiography of the pelvis are useful for confirming the diagnosis of a gluteal artery pseudoaneurysm. Selective arteriography of the internal iliac artery has a dual role: diagnostic, by accurately identifying the arterial branch responsible, and therapeutic, by allowing embolization of the lesion [2].

Historically, the treatment of gluteal aneurysms was exclusively surgical. The surgical procedure involves ligation of the internal iliac artery via a retroperitoneal or transperitoneal approach, followed by ligation of the feeding branch and exclusion of the aneurysmal sac [10,11]. However, this approach is technically demanding and carries a significant risk of bleeding, which has made superselective embolization a more favorable option.

Endovascular treatment involves catheterization of the common and internal iliac arteries under angiographic guidance to identify the feeding gluteal artery, followed by embolization using various materials, such as hemostatic agents (biological glue), coils, self-expanding balloons, or vascular plugs [1,2,13]. This approach is recommended when the aneurysm is larger than 25 mm, symptomatic, or at risk of rupture or sciatic nerve compression. While open surgery remains effective in rapidly relieving compression symptoms, it is invasive and associated with a higher risk of iatrogenic injury [11,12].

Advantages of angiographic embolization include lower infection risk, no need to open the retroperitoneal space, and reduced risk of nerve and arterial injury. The main complications of endovascular treatment include intra-procedural rupture, muscle necrosis depending on the extent of embolization, and hematoma at the puncture site [4,12].

Endovascular treatment is less invasive and is considered the first-line approach. Open surgery is reserved for cases where embolization fails or when compressive symptoms persist despite endovascular intervention [4].

The prognosis is favorable after treatment, but the risk of catastrophic rupture is significant if left untreated [1,2].

4. Conclusion

Radiology plays a crucial role in both the diagnosis and treatment of gluteal artery pseudoaneurysms, particularly through selective embolization of the feeding arterial branch.

Surgical treatment is considered a second-line option or is indicated when endovascular treatment is not feasible.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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