# Lone Stent-Graft Treatment of Symptomatic Gluteal Artery Aneurysm

*Catherine E. Western*[1] *Theodora Stasinou, Denis Kinsella, Richard Guinness, Anthony Watkinson, and John F. Thompson, Exeter, Devon, United Kingdom*

We report the case of a large superior gluteal artery aneurysm treated with covered stent-graft insertion. Exclusion of the aneurysm was achieved, with resolution of symptoms and shrinkage of the sac, without the need for embolization.

This 75-year-old gentleman, with a history of prostate carcinoma, presented to the orthopedic outpatient department complaining of a several month history of right buttock pain, radiating down to the posterior calf and anterolateral shin. The pain was worse on walking and lying down. There was no history of trauma. On examination there was a full complement of peripheral pulses, with a positive straight leg raise but nil else abnormal to find. An L5/S1 (sciatic) nerve root pathology was suspected and so a magnetic resonance imaging (MRI) spine was arranged but did not demonstrate any significant root compression.

Given the history of prostate carcinoma and the presence of some bony hip tenderness, an MRI pelvis was subsequently arranged to rule out recurrent malignancy. This revealed a 6 × 6 × 8 cm complex collection deep to the right gluteus maximus muscle, closely related to the superior gluteal artery.

A computed tomography (CT) angiogram was performed, based on a likely diagnosis of superior gluteal artery aneurysm and this confirmed a saccular aneurysm of the posterior division of the internal iliac artery (Fig. 1). There was no evidence of rupture nor other peripheral aneurysms.

The aneurysm (Fig. 2) was treated with angiographic placement of a 7 × 38 mm V12 Advanta (Atrium Medical) balloon-expandable, covered stent across the neck. The stent was deployed through a left common femoral artery puncture, via a 7-French destination sheath (Terumo) (Figs. 3 and 4).

A completion angiogram demonstrated exclusion of the aneurysm sac and continuity of flow in the distal superior gluteal artery (Fig. 5).

The patient was discharged at day 5 following inpatient resumption of anticoagulation to therapeutic levels for a prosthetic heart valve and his presenting symptoms resolved over the following weeks.

CT angiogram was repeated at 3 months and demonstrated complete thrombosis of the aneurysm, with a reduction in size of the sac (Fig. 6). The stent graft was also found to be occluded on this scan. However, on clinical review, the patient was only suffering mild right buttock claudication and was still able to go dancing.

## DISCUSSION

The superior gluteal artery is the terminal branch of the posterior division of the internal iliac artery. Aneurysms of the superior gluteal artery are rare, although more common than those of the inferior gluteal.[1–3] They are thought to represent <1% of all aneurysms,[3] but true incidence is not certain (there are less than 150 case reports in the literature[4]). They are more common on the left than

*Department of Vascular Surgery, Royal Devon and Exeter Hospital, Exeter, Devon, UK.*

[1] *Present address: Department of Vascular Surgery, Derriford Hospital, Derriford Road, Plymouth, Devon PL6 8DH, UK.*

*Correspondence to: Catherine E. Western, MBBS, BSc, Department of Vascular Surgery, Royal Devon and Exeter Hospital, Barrack Road, Exeter, EX2 5DW, UK; E-mail: catherine.western@nhs.net*

*Ann Vasc Surg 2016; 35: 205.e1–205.e4*
*http://dx.doi.org/10.1016/j.avsg.2016.01.038*

*Manuscript received: April 12, 2015; manuscript accepted: January 5, 2016; published online: 26 May 2016*


**Fig. 1.** Computed tomography angiogram showing aneurysm of the superior gluteal artery, lying deep to the right gluteus maximus muscle.


**Fig. 2.** Angiogram showing saccular aneurysm arising from the superior gluteal artery.


**Fig. 3.** Angiogram demonstrating placement of the covered stent graft across the aneurysm neck.

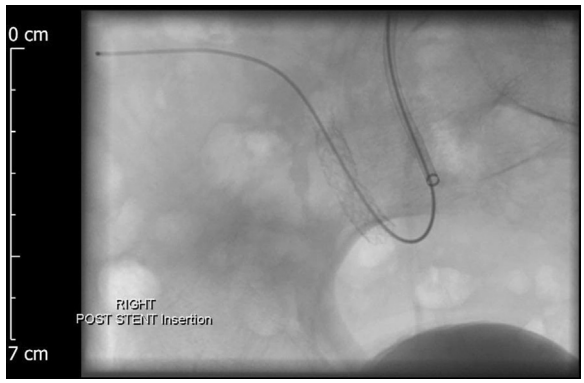


**Fig. 4.** Angiogram demonstrating successful deployment of the stent graft.

the right[4] and there is a risk of rupture, therefore treatment is advised. However, the exact incidence of rupture also remains undetermined.

Most are traumatic pseudoaneurysms secondary to penetrating injury, iatrogenic causes, or pelvic fracture, with a lesser proportion being mycotic or as a result of atherosclerosis, vasculitis, or connective tissue disease.[1,2,5–9] In this case, the etiology was unclear, with no history of trauma or infection and no evidence of atherosclerosis on imaging or examination. True aneurysms of the superior gluteal artery are extremely rare, only representing 4% in one series.[2]

Patients often present with a buttock mass, which may be pulsatile. In the reported case, the predominant presenting symptoms are related to sciatic nerve compression, as are also frequently seen. There may also be symptoms of venous occlusion, urological outflow obstruction, bowel dysfunction,[4,5] or they may present with hemorrhage following rupture, with mortality in the region of 50–75%.[10]

Until recently, the mainstay of treatment of these aneurysms was open surgery. This was generally performed through a transgluteal approach, with prior transperitoneal or retroperitoneal approach for proximal control, arterial ligation, and aneurysmorrhaphy.[1,3,5,11] However, these procedures are relatively high risk, with a significant associated morbidity and mortality. Hemorrhage, sciatic nerve injury, and muscle necrosis[4,12,13] have all been reported.

The first reported endovascular treatment of a gluteal artery aneurysm occurred in 1977, where successful embolization was carried out.[1] Over the last few years, endovascular treatment of these rare aneurysms has become more commonplace, with techniques ranging from embolization with coils or microspheres[1,4,6,7,14,15] to fibrin injection,[12] prolonged balloon occlusion,[9] or even a combination of these techniques.[5,14] Other techniques