SHORT REPORT

A Pulsating Buttock Mass as a Rare Presentation of a Persistent Sciatic Artery

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Persistant sciatic artery; Sciatic artery aneurysm; Peripheral vascular disease; Pulsatile buttock mass; Femoral artery variations

Abstract
Introduction: The persistent sciatic artery (PSA) represents a rare vascular anomaly of the embryological axial artery.
Report: We present a case of a unilateral left-sided aneurysm formation in bilateral PSA of the complete type in a 69-year-old patient with unspecific pain in the left buttock with weakness and numbness of the lower limb. After treatment with an autologous reversed vein graft interposition using the transgluteal approach, the patient recovered completely and remains asymptomatic, 16 months after surgery.
Discussion: Although this condition is not prevalent in daily clinical situations, especially surgeons must be aware of PSA during surgical interventions in this area.

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Very rarely during the early embryonic phase, the sciatic artery remains as persistent sciatic artery (PSA) and becomes a major or co-existing route of blood supply to the lower extremities. Different detailed classification systems have been proposed. The PSA has been reported to tend to formation of aneurysm or distal embolisation in older patients aged at least 50 years. The course of PSA close to the sciatic nerve or inside the nerve sheath with neurological symptoms, such as pain, numbness or motor impairment of the involved extremity, leads to difficulties in establishing the correct diagnosis.

We present a case of a symptomatic PSA aneurysm, which was misdiagnosed first in the outpatient department. After making the correct diagnosis, successful surgical treatment was performed.

Report
A 69-year-old woman presented with a 6-week history of a painful, pulsatile swelling at her left buttock. Left lower
leg weakness and numbness without ischaemic symptoms have been intermittently presented over a 6-month period. The past medical history included a direct trauma caused by a tumble on her left buttock with stretching of thigh 2 years prior. Because of obesity, she drastically reduced weight in the last 10 months. An outpatient radiology magnetic resonance (MR) scan supposed an extrinsic compression of the sciatic nerve by a gluteal artery aneurysm (Fig. 1). Aneurysm embolisation was now planned.

On admission to our hospital, vital signs and laboratory tests were normal. Physical examination demonstrated a 5-cm pulsatile swelling on her left buttock. The arterial pulses were normal. Angiography exposed bilateral large PSA with a 3-cm left-sided aneurysm at the proximal region. PSAs originate from the internal iliac artery and run down the posterior aspect of the thigh to form the popliteal arteries (Fig. 2). The left superficial femoral artery (SFA) was hypoplastic, whereas the right SFA and distal vessels were normal. The above findings established the diagnosis of the complete type of bilateral PSA. The weakness and numbness were believed to result from sciatic nerve compression due to the PSA aneurysm.

Surgery using the transgluteal approach revealed the PSA aneurysm, which compressed laterally the sciatic nerve. The aneurysm sac was opened; a thrombus was removed. A reversed greater saphenous vein graft was interposed (Fig. 3). Postoperatively, the patient made an uncomplicated recovery. Two weeks after surgery, the patient reported relief of weakness and numbness and remains asymptomatic on aspirin. Sixteen months after surgery, arterial Doppler ultrasound showed good graft patency without clinical symptoms on both sides.

Discussion

Aneurysm formation is the most common complication of PSA in approximately 46% of cases.¹ The high incidence is probably related to an external trauma in a vulnerable anatomic position under the gluteus maximus muscle.³ Congenital lack and/or hypoplasia of arterial elastic tissue may are also discussed.²

Theoretically, PSA can be diagnosed on physical examination. Besides a painful, pulsatile gluteal mass, Cowie’s sign is the pathognomonic finding of complete PSA with normal popliteal, but diminished or absent femoral pulse. Vague discomfort or numbness of the lower limbs caused by sciatic nerve compression makes the diagnosis very difficult.

The radiological gold standard for the diagnosis of PSA is digital subtraction angiography.¹ Computed tomography (CT) and MR angiography allows detection of PSA occlusion and its relation to the sciatic nerve.³

The choice of treatment mainly depends on vascular anatomy and the patient’s symptoms. Asymptomatic PSA does not require operative management. In the presence of an aneurysm, indication of treatment is absolute.² In complete PSA and hypoplastic SFA, options of revascularisation of the lower limbs include aneurysm resection with graft interposition, bypass procedure or endoaneurysmorrhaphy.¹ In case of extrapelvic location of PSA aneurysm and symptomatic sciatic nerve compression, the posterior transgluteal approach is recommended.³,⁴ Careful aneurysm resection is necessary not to cause any lesion of the sciatic nerve.¹ Because there have been no reports in literature of multiple PSA aneurysms, graft interposition appears to be acceptable for revascularisation. The advantage of this approach is the avoidance of a long bypass graft, inadequate graft inflow and staged operations.² However, PSA remains subject to trauma and must be monitored by regular physical examination and duplex imaging.⁴
When there is a good network of collateralisation, endovascular procedures avoid need and risks of surgery on the sciatic nerve. However, neurologic symptoms may still persist.

In conclusion, PSA should be kept in mind in the evaluation of patients with sciatic or buttock pain, because this anomaly could be a potential hazard during surgical manipulations in this area. This case demonstrates the need

Figure 2  Digital subtraction angiography imaging. A. Bilateral tortuous complete PSA (asterisk) originating from the internal iliac artery with an aneurysm (arrow) at the proximal region of the left sciatic artery, and a left-side hypoplastic superficial femoral artery (arrowhead). B. 0-degree left anterior oblique (LAO) projection and C. 27-degree LAO projection with the PSA aneurysm (arrow).

Figure 3  Operative findings. A. Left transgluteal approach showing the PSA with the aneurysm (A) and the laterally compressed sciatic nerve (arrow). B. After removing the aneurysm, a reversed saphenous vein graft (v) was interposed.
of careful interpretation of the imaging study in preoperative diagnosis.

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References