

Persistent sciatic artery originating from left common iliac artery

Vedat Sabanciogullari¹, Ismail Salk², Mehmet Yanartas³, Ali Cetin⁴

ABSTRACT

Persistent sciatic artery is a very rare seen variation of the lower limb vessels. Anatomically the persistent sciatic artery is the continuation of internal iliac arteries and usually leads to several symptoms such as intermittent claudication, pulsatile mass in the buttocks, and pain radiating to the lower limb. However, in untreated patients with serious complications, amputation can occur. In this case report, we describe persistent sciatic artery originating from left common iliac artery in a 72-year-old male patient who complained pain in the left leg, because of the importance of clinical and diagnostic challenges.

KEY WORDS: Persistent sciatic artery, Anatomic variation, Angiography.

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INTRODUCTION

The persistent sciatic artery (PSA) is a very rare congenital vascular anomaly. Estimate of incidence, ranges from 0.025% to 0.04% of the population, based on angiographic studies.¹

There are potentially serious complications of the PSA. It is prone to early atheromatous degeneration. This change leads to aneurysmal dilatation, occlusive thrombosis, distal embolization, and sciatic neuropathy.^{2,3} In addition, the determination of PSA can be helpful for the surgeon with respect to the potential problems that may be encountered during surgery.

We present a male patient with acute left lower extremity ischemia. In addition, the present case was documented together with articles that emphasize the clinical importance, including manifestations, of the PSA.

CASE REPORT

A 72-year-old man with a history of hypertension and hyperlipidemia who complained of sudden onset of severe pain in the left leg was admitted to the cardiovascular surgery service. When a more detailed history was obtained, we found that left leg had chronic arterial insufficiency with intermittent claudication symptoms which had been noted for 10 years. Nevertheless, the patient was smoking two packs a day for thirty years. Physical examination proved that the left leg was smaller and weaker than the right leg that caused lower limb ischemia. Pulsation of left femoral artery was weak as compared to that of the other leg. The pulsations of the left dorsal artery of the foot, posterior tibial artery, and popliteal artery were not palpable. However, excluding pulsation of the right dorsal artery of the foot, all the right lower limb pulsations were normal. Sensory function in the left leg was found as diminished; however, motor function could not be precisely determined because of a severe pain radiating to the lower limb.

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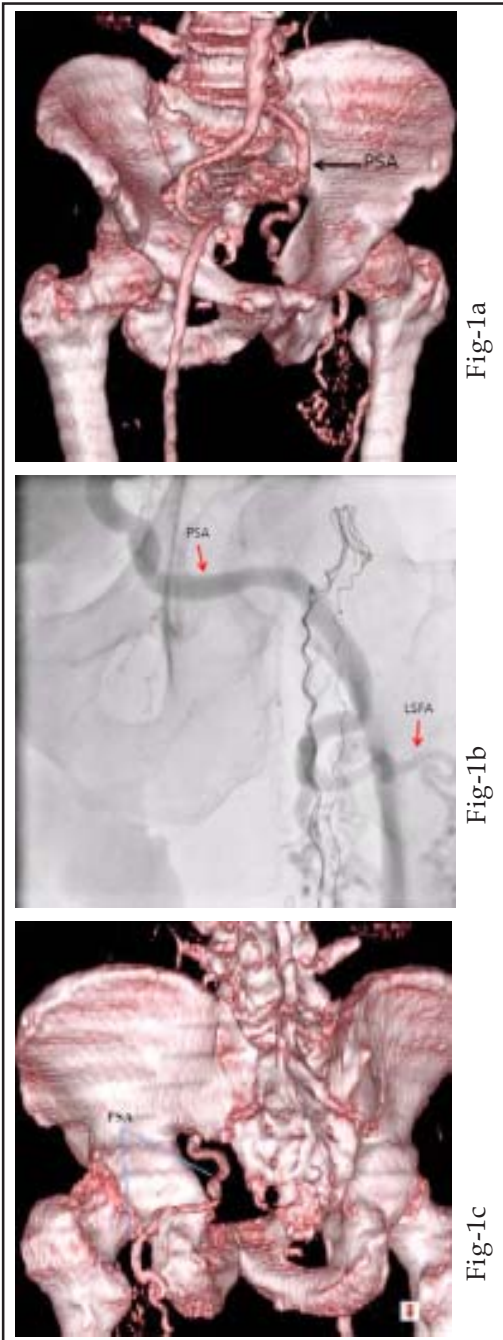


Figure 1:

- A) Anterior view three-dimensional reconstruction of the computed tomographic angiogram of the left persistent sciatic artery.
- B) Selective left common iliac arteriogram. Persistent sciatic artery (PSA) is seen as continuation of the left common iliac artery and hypoplastic left superficial femoral artery (LSFA) is seen.
- C) Posterior view three-dimensional reconstruction of the computed tomographic angiogram of the left persistent sciatic artery. It is passing out of the pelvis via the greater sciatic foramen.



Figure 2:

- A) Anterior view three-dimensional reconstruction of the computed tomographic angiogram of the right superficial femoral artery.
- B) Posterior view three-dimensional reconstruction of the computed tomographic angiogram of the right and left lower limb arteries. Right deep femoral, anterior tibial, and peroneal arteries are not visualized.

Angiography revealed left complete persistent sciatic artery. The left superficial femoral artery (SFA) was hypoplastic, while the left persistent sciatic artery was hyperplastic and terminated in the distal thigh. PSA was seen as continuation of the left common iliac artery, passing out of the pelvis via the greater sciatic foramen. At the proximal one third of thigh, it was terminated spirally. Left superficial femoral artery filling from collateral vessels was

terminated at the middle one third of thigh. The diameter of the left popliteal artery that filling from collateral vessels was small and it was continued as trifurcation arteries. The distal portions of anterior tibial, posterior tibial, and peroneal arteries were not visualized [Figures-1 a,b,c].

Right superficial femoral artery was hyperplastic and terminated in the distal thigh. In addition, right deep femoral, anterior tibial, and peroneal arteries were not visualized [Figures-2 a,b].

After we gave information about the surgical management required for revascularization of the left leg, the patient was lost to follow-up.

DISCUSSION

Persistent sciatic artery is extremely rare congenital anomaly. Based on femoral angiograms, its incidence is 0.025% to 0.04%. In the embryo, PSA is a branch of the umbilical artery supplies blood to the developing lower limb.¹

By the third month, the upper portion of the sciatic artery disappears. Instead of, the superficial femoral artery (SFA), that originates from the external iliac artery, supplies blood to the lower limb. The persistent sciatic artery originates from the enlarged internal iliac artery which passes out of the pelvis via the greater sciatic foramen near the sciatic nerve.⁴

In our case, PSA was originated from left common iliac artery and passing out of the pelvis via the greater sciatic foramen [Fig-1 a,b,c]. The SFA may be normal in diameter, aplastic in 7.4% and hypoplastic in 46.8% of patients with PSA.^{2,4} In our case, the left SFA was hypoplastic, while the right SFA was normal in diameter [Figure-1 a].

PSA is classified into complete and incomplete forms and continuing as the popliteal or anastomosed with it. The majority of PSAs are unilateral (70%) and of the complete type (79%).⁵⁻⁷ Our patient had complete form of left PSA [Figures 1 a,b,c].

PSA can occur in ages ranging from 15 to 85 years, is detected on average around age 57, and the PSA affects both genders equally. The majority of patients present with symptoms including intermittent claudication, acute lower extremity ischemia, pulsatile buttock mass, or sciatic neuropathy.^{5,8} Our patient who complained of sudden onset of severe pain in the left leg was referred to the cardiovascular surgery service.

The incidence of sciatic artery aneurysm formation is almost 50%, resulting in aneurysm thrombosis or atheroembolization of the involved limb and that can lead to a life threatening hemorrhage. However, in patients with PSA there may be occlusion of the PSA

(9%), stenosis (7%) and occlusion of an artery distal to the PSA (6%). These complications may lead to an amputation in 8% of the cases.^{5,8,9}

In some patients with PSA, other abnormalities may be accompanied to the PSA. These are specified in order of frequency as varicoses, gunshot, hemi-hypertrophy leg and post operative bleeding. In diagnosis of the PSA diagnostic tools are used such as angiography, CT, computed tomography angiography (CTA), magnetic resonance imaging, doppler, ultrasound.⁵

Aneurysm formation of PSA was not visualized in our patient's CTA and angiography. [Figure-1A]. Besides, physical examination of the left leg was seen less development than right leg. Pulsation of left femoral artery was weak and pulsations of the left dorsal artery of the foot, posterior tibial artery, and popliteal artery were not palpable. In addition, the left lower extremity sensory function was decreased. The patient's treatment depends based on the severity of symptoms and classification of the PSA. Surgical intervention is not indicated in the patients with an asymptomatic PSA.⁵

In conclusion, in angiographic examination of the lower extremity one should be especially careful to the PSA that is rare congenital vascular anomaly. Its late or misdiagnosis can lead to loss of limb due to aneurysm formation, occlusion, stenosis and ischaemia.

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