

Acute limb ischemia secondary to thrombosed persistent sciatic artery

A Case Presentation

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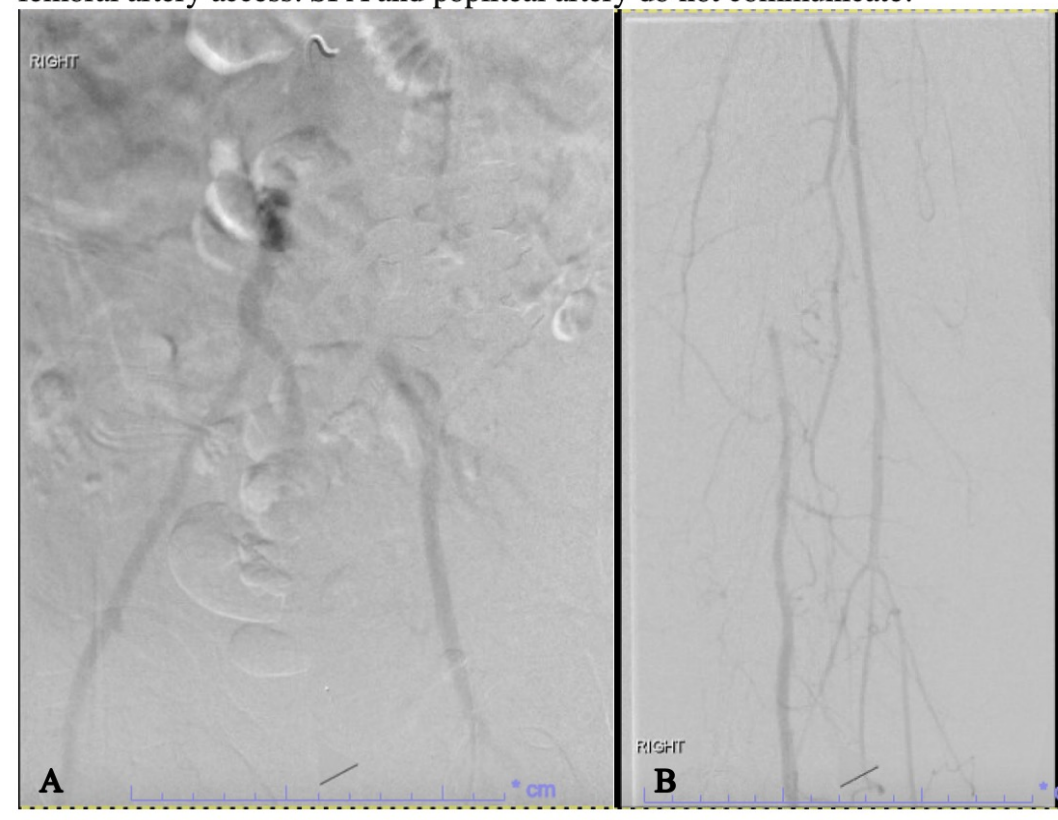
Background:

- A persistent sciatic artery (PSA) is a rare congenital anomaly of the lower extremity vasculature.
- Anatomical variation of perfusion to the lower extremity places patients at risk for distal ischemia.
- Though rare, patients who present symptomatically most commonly do so secondary to pseudoaneurysm and peripheral thromboembolism.

Case Report:

- 48-year-old male with previous right middle cerebral artery stroke, hypertension, hyperlipidemia, diabetes mellitus, and 30 pack year tobacco use presented to the emergency department (ED) after being found unresponsive with a blood glucose of 1600 mg/dL.
- Intubated in the ED and admitted to the medical ICU for ventilator management, blood pressure control, and glucose control.
- CT of the head revealed a left subarachnoid hemorrhage.
- Patient had a cold, pulseless right foot.
- Arterial duplex was obtained revealing an occluded right popliteal artery. At the time of vascular surgery consult, the patient was intubated and on vasopressors in the medical ICU.
- Open thrombectomy or anticoagulation with a heparin infusion was felt to be too high risk in the setting of the acute SAH.
- Several days after the initial vascular surgery consult, the SAH was felt to be stable and a heparin infusion was started.
- Patient developed monophasic signals within his foot. He was noted to have gangrenous changes of all toes with plan for arteriogram and possible revascularization of RLE once medically stable.

Fig 1. A Aortogram in right anterior oblique view showing R persistent sciatic artery from R hypogastric artery. B Right leg angiography via left common femoral artery access. SFA and popliteal artery do not communicate.



• **Aortogram and RLE arteriogram:** Persistent right sciatic artery emanating off of the hypogastric artery with thrombus from the level of the femoral head distally for approximately 5-7 cm.

• Popliteal artery was noted to be patent with patent trifurcation vessels.

• **Open thrombectomy of the supra-geniculate popliteal artery:** An arteriotomy was made and a Fogarty catheter was inserted. A large amount of thrombus was removed proximally obtaining rapid inflow. The patient developed strong biphasic signals in the posterior tibial and dorsalis pedis arteries.

• **Amputation of first through fifth distal metatarsal heads** as well as excisional debridement of right heel wound for full-thickness dry gangrenous necrosis one week later.

• Echocardiogram was negative for embolic source. A CT angiography of bilateral lower extremities showed no aneurysmal degeneration of systemic vasculature.

• Patient recovered well, was extubated, transferred out of the ICU, and was discharged to an acute rehabilitation center twenty-seven days after admission.

Discussion:

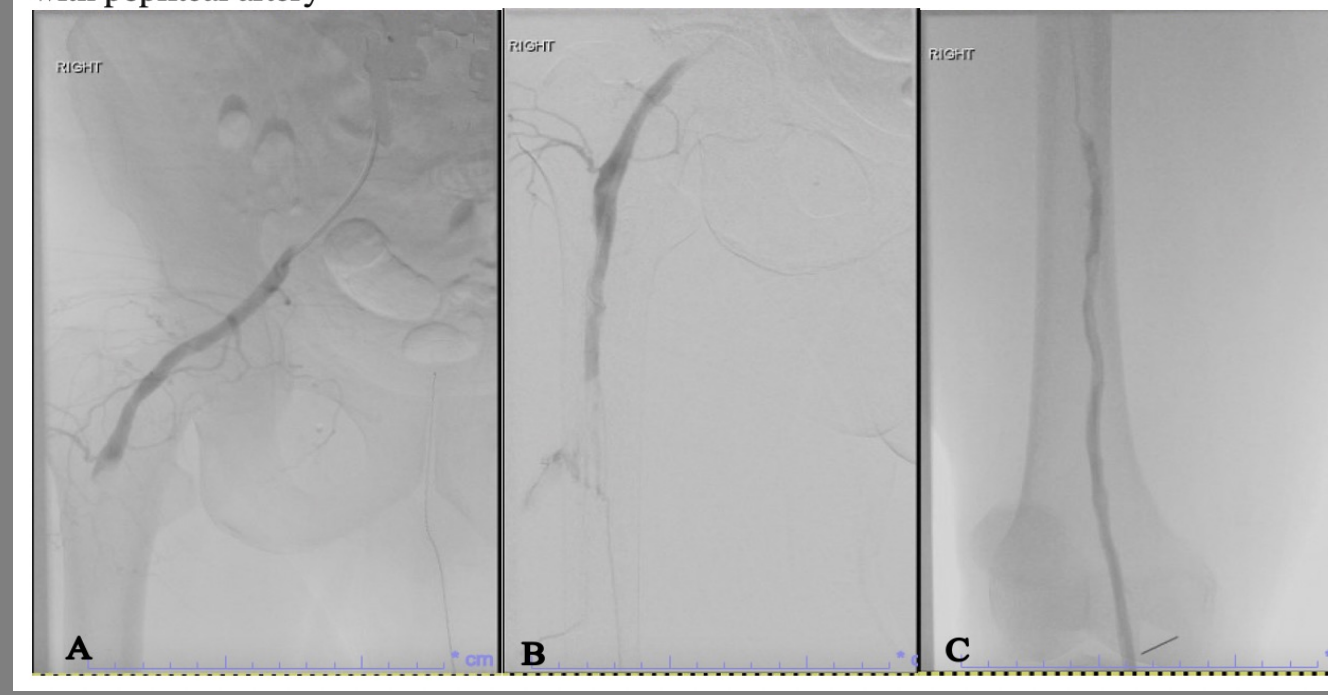
- The presence of a persistent sciatic artery (PSA) was first discovered in a post-mortem dissection performed by Green in 1832.¹ Since then, we have learned of the many anatomical variants that exist for lower extremity blood supply.
- In embryonic development, the sciatic artery is a branch of the umbilical artery that primarily supplies the developing lower limb. It eventually develops into the common and superficial femoral artery (SFA).²
- By the third month of development, the SFA is the primary arterial supply to the lower extremity and the sciatic artery involutes or persists.³ Its proximal portion becomes the inferior and superior gluteal arteries, and the distal sciatic artery develops into the peroneal and popliteal arteries.⁴
- Anatomical variation occurs when the femoral system fails to develop, or the embryonic blood supply fails to involute and the sciatic artery persists as a continuation of the hypogastric artery.⁵
- Given the complex anatomical variation of arterial supply to the lower extremity, patients with PSA may be at risk of limb loss.

- The incidence of PSA is estimated to be 0.025%-0.04%, right-sided in 50% of known cases, left-sided in 20%, bilateral in <30%.⁷ Both sexes are equally affected.⁸
- Most patients with PSA are asymptomatic in their youth and present between the ages of 40-50 years old (mean age of 44 years) with claudication, aneurysm, and, rarely, sciatica.^{5,8}
- A complete PSA is the most common variant and accounts for 70%-80% of recorded cases, as in the case of our report.⁶

Conclusion:

- PSA is a rare congenital anomaly of the lower extremity that may have varying presentations depending on anatomic blood supply to the lower limb.
- In rare cases, patients can present with acute limb ischemia requiring urgent surgical intervention for limb salvage.
- To adequately diagnose and treat this rare complication of a vascular anomaly, physicians must be aware of PSA and consider this a differential diagnosis when determining cause of acute lower limb ischemia.

Fig 2. Right leg angiography via left common femoral artery access. A R PSA with thrombus at level of greater trochanters. B R PSA thrombosis extends to mid femur. C R PSA communicates with popliteal artery



References:

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