



Case Report

Peroneal/posterior tibial nerves delayed dysfunction due to traumatic popliteal artery pseudoaneurysm resulting from trivial stab wound: A case report

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Received : 04 August 2021

Accepted : 05 September 2021

Published : 30 September 2021

DOI

10.25259/SNI_770_2021

Quick Response Code:



ABSTRACT

Background: Popliteal artery pseudoaneurysms due to stab wounds are extremely rare. Even more infrequently, they can contribute to the compression of multiple peripheral nerves.

Case Description: A 23-year-old male, following a trivial stab wound, developed the delayed occurrence of a pseudoaneurysm of the popliteal artery. This resulted in the delayed onset of a compressive popliteal/posterior tibial neuropathy. Following restoration of blood flow through the popliteal artery utilizing saphenous vein grafting, additional neurolysis resulted in resolution of the compressive neuropathy.

Conclusion: A 23-year-old male developed a pseudoaneurysm following minor trauma that resulted in peripheral nerve dysfunction.

Keywords: Concomitant peroneal, Popliteal artery, Posterior tibial nerves, Pseudoaneurysm, Trivial stab wound

INTRODUCTION

Rarely, gunshot wounds and blunt/iatrogenic traumas can cause popliteal artery injuries resulting in pseudoaneurysm formation.^[2,4] A subset of these patients may go on to develop delayed neurological deficits due to the pseudoaneurysms' peripheral nerve compression.^[2,6]

Here, we describe a 23-year-old male who, following a mild traumatic event, developed a popliteal artery pseudoaneurysm. Following saphenous vein grafting and delayed peroneal/posterior tibial nerve neurolysis, the patient's symptoms resolved.

CASE DESCRIPTION

A 23-year-old male was admitted with weakness of his right foot of 6 weeks' duration. About 70 days earlier, he had received several trivial puncture wounds to the upper side of his right popliteal fossa.

On examination, he had right-sided L5-distribution weakness 2/5 extensor hallucis longus, dorsiflexors 4/5 level, and numbness. Inspection and palpation of the right popliteal fossa

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revealed a large pulsating mass. Selective angiography revealed a pseudoaneurysm arising from the popliteal artery [Figure 1]. Contrast-enhanced computed tomography further confirmed a large pseudoaneurysm containing a round, isointense mass (i.e., an intraneurysmal organized thrombus surrounding/encompassing a hyperdense area; the patent portion of the popliteal aneurysm) [Figure 2].

Surgical management

Initially, excision of the aneurysmal sac with restoration of arterial flow was accomplished utilizing a greater saphenous vein graft. Subsequently, neurolysis of the proximal parts of the peroneal and tibial nerves was performed [Figure 3].

Postoperative course

The patient's postoperative course was uneventful. He was discharged on the 5th postoperative day with palpable distal pulses, and restoration of normal blood flow confirmed by

angiography [Figure 4]. Six months later, the patient's right-sided motor/sensory deficits had fully resolved.

DISCUSSION

A pseudoaneurysm or false aneurysm develops following an unrecognized injury affecting all three layers of the artery.^[3,6] Low-flow bleeding at the site of injury gradually results in a local tissue reaction that contributes to the formation of a fibrous capsule around the hematoma.^[3,6,7] It typically takes several weeks to months for the pseudoaneurysm to develop to the point where it becomes visible and/or palpable in the popliteal fossa.^[2,5,6] Even less frequently, it may contribute to peripheral nerve dysfunction, due to local peripheral nerve compression.^[2,5,6]

Diagnosis

Diagnosis of a pseudoaneurysm can be confirmed either with noninvasive procedures (duplex ultrasonography,

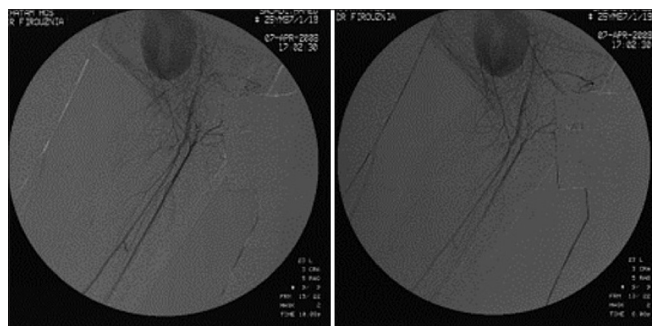


Figure 1: Conventional angiography shows the pseudoaneurysm arising from the infragenicular part of the popliteal artery.

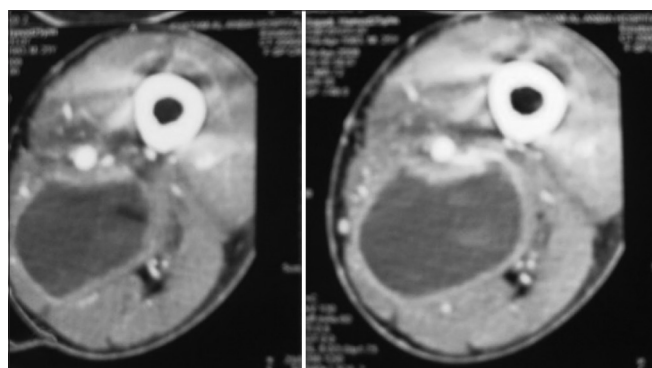


Figure 2: CT scan of the distal thigh shows a large mass compatible with the exact size of the aneurysm. The mass has two different compartments: An isointense mass at the periphery filled with old clot encompassing a hyperdense area which is the patent part of the aneurysm.

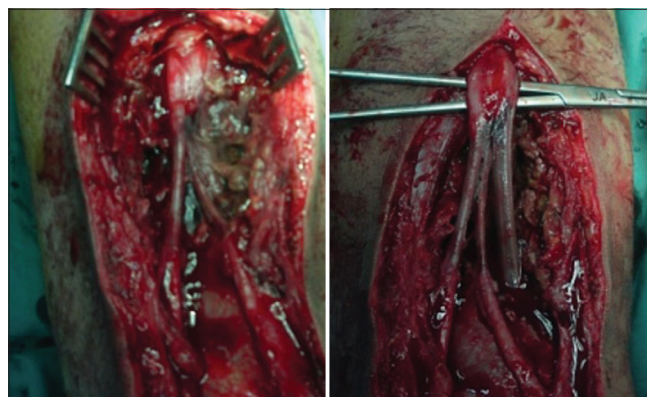


Figure 3: The surgical scene after excision of the aneurysm and restoration of the continuity of the arterial blood flow, note that discoloration of the peroneal, sural, and tibial nerves has remained even after neurolysis.

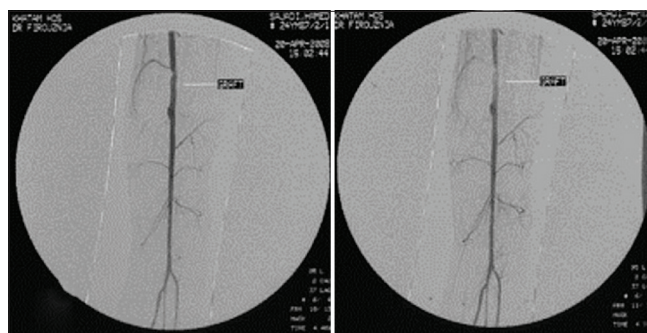


Figure 4: Reconstitution of the continuity of the popliteal artery after repair with saphenous vein graft.

CT angiography, or MR angiography) or invasively with conventional angiography.^[3,6,7]

Treatment

Popliteal artery pseudoaneurysms can be treated with ultrasound-guided compression or percutaneous thrombin injection,^[6] endovascular covered stent grafts,^[1,3] or open surgical procedures.^[4-7]

Certainly, in those with compressive neuropathy where neurolysis of the affected nerve is a cardinal part of the management, open surgical management of the pseudoaneurysms is typically indicated.^[3,11]

Outcome

The degree of postoperative neurological recovery depends on the size of the aneurysm and the preoperative duration and severity of the compressive neuropathy.^[2,5,6]

CONCLUSION

Traumatic pseudoaneurysms should be suspected when patients develop delayed progressive neurological deficits after a penetrating vascular injury resulting in a pulsatile mass.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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How to cite this article: Rahimizadeh A, Marashi SA, Rahimizadeh S, Amirzadeh M, Williamson WL. Peroneal/posterior tibial nerves delayed dysfunction due to traumatic popliteal artery pseudoaneurysm resulting from trivial stab wound: A case report. *Surg Neurol Int* 2021;12:488.