

Profunda femoris medial circumflex branch aneurysm: A case report

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ABSTRACT

True profunda femoris artery aneurysm is a very rare. Herein, we present a very rare case of an aneurysm of the profunda femoris medial circumflex branch in a geriatric male patient. Operative management by ligation was safe and effective with no major complications after two years of follow-up.

Keywords: Arterial surgery, peripheral arterial aneurysm, profunda femoris artery aneurysm.

True profunda femoris artery aneurysm (PFAA) is a very rare condition. It accounts for only 0.5% of the peripheral aneurysms and 1 to 2.6% of the femoral aneurysms.^[1] Its deep anatomical position may be the reason for less than 2.6%.^[2] In addition, PFAAs are associated with synchronous aneurysms in 65 to 75% of cases, most frequently in the popliteal artery.^[3] These aneurysms may present with symptoms of venous or nerve compression or pain. Complications such as distal embolism, limb-threatening ischemia, and rupture may also occur.^[4] A Mayo Clinic, retrospective study of their 21-year-experience included 17 PFAAs in 15 patients and most of PFAAs were confined to the initial portion of the artery (58%) and not extending to the common femoral artery (CFA) bifurcation (76%).^[1]

In this article, we present a very rare case of an aneurysm of the most proximal (medial) branch of the profunda femoris artery in a geriatric patient.

CASE REPORT

An 85-year-old male patient was referred to our vascular surgery outpatient clinic by his general practitioner due to left lower limb pain. The patient reported pain during walking or moving the limb.

He was asymptomatic on the right side. He had a past medical history of polymyalgia rheumatica, hypercholesterolemia, gastroesophageal reflux disease, and sciatica. He had both his right hip and left knee surgically replaced, both of which were more than a year before his current presentation. He was on regular simvastatin, acetylsalicylic acid, prednisolone, alendronic acid, vitamin D3, and lansoprazole. He was an ex-smoker who quit 34 years ago. Swelling was felt in his right thigh proximally.

An ultrasound scan of his left symptomatic lower limb showed a thrombosed popliteal artery aneurysm. A magnetic resonance angiography (MRA) showed a right-sided aneurysm in a very uncommon site which is the most proximal branch of the profunda femoris artery (medial circumflex branch) (Figure 1). Angiography confirmed the presence of a 3-cm aneurysm (Figure 2). No other aneurysms were found.

The case was discussed in the vascular surgery multidisciplinary team meeting and the patient was consulted about the conservative versus the operative management and he opted for the latter. A written informed consent was obtained from the patient.

Elective surgery was performed through an oblique right groin incision. A saccular aneurysm was found

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Figure 1. A magnetic resonance angiography scan showing aneurysm of first branch of right profunda femoris artery.



Figure 2. A computed tomography angiography of right femoral artery showing aneurysm of the first branch of profunda femoris artery.

which was dissected out from the subsartorial position with sharp dissection of the surrounding dense adhesions. The femoral vein was found to be densely adherent to and almost obstructed by the aneurysm. The aneurysm was ligated proximally and distally with 6-mm nylon tape. The sac was opened, and the enclosed thrombus was removed. Decompression of femoral vein was immediately detected.

Early postoperative period was complicated by a superficial seroma which needed operative drainage. The wound was left open to heal by secondary intention and a negative pressure dressing was applied. There was no evidence of any change in the perfusion status of the leg postoperatively. No other complications were observed during two-year follow-up.

DISCUSSION

The rate of spontaneous rupture of PFAAs has been reported to be higher than other peripheral artery aneurysms by 30 to 45%.^[1,2,5] This may be due to their deep anatomical position which makes them difficult to feel and late to symptomize.

There is no consensus in the literature on the repair threshold for PFAAs. Harbuzariu et al.^[1] advocated elective repair in high-risk patients with a PFAA of >2 cm. However, higher thresholds for intervention were advocated by other authors.^[6] Lawrence et al.^[7] suggested a 3.5-cm threshold for repair of pooled femoral artery aneurysms. However, in their study, most of the patients had CFA or superficial femoral artery aneurysms and, therefore, the results should be viewed cautiously in case of PFAAs. None of these reports provided an evidence base for the threshold they suggested. Furthermore, the rupture of much smaller aneurysms (1.5 cm) has been reported in the literature.^[1]

Open aneurysmal repair remains the most common approach for the treatment of femoral artery aneurysms. There is no evidence available in the literature to support the use of endovascular approach over the open repair method.^[8] This can be due to the paucity of cases. The use of coil embolization was not attempted due to concerns about the ability to engage the ostia of all run-off vessels from within the aneurysm with a suitable microcatheter. The need for adequate proximal and distal vessel landing zone

and not too much size mismatch between the top and the bottom landing zones were the reasons of not adopting the Viabahn stenting option. In addition, the Viabahn stenting is intended to treat popliteal and not profunda femoris artery aneurysms, and there is no data available for its patency rate in profunda femoris artery. The inherent risks of an anastomosis along with the technical difficulties of anastomosing very small vessels were the main reasons for the fact that an interposition graft was not considered.

Given the fact that the patient had previous hip replacement, the possibility of iatrogenic injury increases. Femoral artery pseudoaneurysm has been well-documented in the literature following hip replacement surgery.^[6] However, on intraoperative examination, the aneurysm was found to be a true aneurysm. A non-ruptured aneurysm would maintain all layers of the arterial wall, which was what was encountered during surgery, at least macroscopically. We believe that pathology would have been ideal, but a pseudoaneurysm of this size could reasonably be expected to have a macroscopic defect in the vessel wall. Also, there was no history of intravenous access through the right groin which excludes a pseudoaneurysm due to access for endovascular interventions which has been shown to have a higher rate than that of the true aneurysms, possibly due to the large number of interventions with the advancement of the endovascular treatments.^[8,9]

Although our patient did not present with symptoms of venous compression, the aneurysm was found intraoperatively to significantly compress the femoral vein. Potentially, this could have progressed to symptomatic venous compression, a finding which has previously been reported in the literature.^[10,11]

In conclusion, profunda femoris medial circumflex branch aneurysm is a rare entity which can be present in patients with other types of aneurysms. Operative management by ligation is safe and effective with no major complications.

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