

SPONTANEOUS FEMORAL ARTERY DISSECTION: A CASE REPORT

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ABSTRACT

Spontaneous non-aneurysmal dissection of a peripheral artery is extremely rare. Most recorded cases involved inciting events such as collagen vascular disease, pregnancy, or intense exercise in athletes. Ultrasound, computed tomography angiography (CTA), magnetic resonance angiography (MRA), and conventional angiography can all diagnose femoral artery stenosis.

This case is of a 37-year-old Caucasian female patient with a history of type 2 diabetes mellitus, hypercholesterolaemia, equivalent angina, and atherosclerosis with intermittent claudication of bilateral lower extremities. The diagnosis of stenosis of the focal high-grade stenosis of the proximal left superficial femoral artery (SFA) was made through computer tomography angiography due to a thin linear filling defect consistent with thromboembolism, and she underwent a stent placement, which demonstrated positive results.

Keywords: diabetes mellitus, hypercholesterolaemia, CTA

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INTRODUCTION

Spontaneous non-aneurysmal dissection of a peripheral artery is an extremely rare event [1]. Most documented cases involve an inciting event such as collagen vascular disease, pregnancy, or intense exercises in athletes [2, 3]. Peripheral artery spontaneous dissections, as previously documented in the literature, occur in patients under the age of 50 more commonly, with a 2:1 male-to-female ratio [4]. The most frequently affected arteries in spontaneous dissections are the pulmonary, coronary, and renal arteries [5]. This case, which discusses a spontaneous dissection of the superficial femoral artery, adds to the very rare literature and assists in identifying and properly treating spontaneous dissections of peripheral arteries.

Case Presentation:

A 37-year-old Caucasian female presented to the emergency department complaining of a wound on her left lower extremity. Past medical history is significant for type 2 diabetes mellitus, hypercholesterolemia, equivalent angina, and atherosclerosis with intermittent claudication of bilateral lower extremities. She is a non-smoker. She was subsequently diagnosed with cellulitis and was treated with a seven-day course of oral penicillin. Upon completion of the antibiotic, her wound had still not healed, and she presented to the emergency department again. She was then diagnosed with an abscess on her left foot, which received an incision and drainage. The patient was referred to a wound clinic but became non-compliant with attending her appointments after a few appointments. Five months later, the patient presented to the emergency department again for the same wound, stating it would not heal. On exam, the patient had a 1-

centimeter ulcer on the lateral plantar surface of the left foot (image 1). At this time, the patient started seeing a wound care provider again and was referred to a cardiologist for a Computer Tomography Angiography (CTA) of the bilateral lower extremities to examine the cause of the non-healing wound.

The CTA of the bilateral lower extremities was performed, and results showed focal high-grade stenosis of the proximal left superficial femoral artery (SFA) due to a thin linear filling defect consistent with thromboembolism (image 2). A non-calcified plaque within the middle third of the right superficial femoral artery also produced approximately 40-50% stenosis. There was three-vessel runoff on both feet. The patient was subsequently scheduled for a left superficial femoral artery angiography with distal runoff.

During the angiography, the right femoral artery was catheterized using a modified Seldinger technique and a needle. A 6-French sheath was inserted into the right femoral artery without complications. The wire and catheter were advanced into the proximal part of the left SFA, where angiographic images with distal runoff were performed. Images revealed an old spontaneous dissection of the left SFA without the presence of an embolus (image 3). At this time, intravascular ultrasonography revealed a dissected flap of the proximal SFA. Subsequently, a 6.0 x 100-millimeter-long self-expanding smart stent was advanced and positioned at the site of the lesion and was deployed. The patient was transferred out of the catheterization lab in stable condition. The angiographic findings after stent placement showed a patent left superficial femoral artery (image 4). She was seen in the office four weeks later, and her wound was completely healed. She had no symptoms of claudication.

DISCUSSION

Occurrence of spontaneous peripheral artery dissection is rarely documented, with the superficial femoral artery being less common and the iliac artery being the most common location [6]. The Femoral artery continues to become the common femoral artery (CFA) and the superficial femoral artery (SFA). The Superficial femoral artery extends from the point where the profunda femoris branches

off to the adductor hiatus, supplying the lower limbs [7].

A 62-year-old female with a past history of arterial hypertension and childhood polio reported a case of superficial femoral artery dissection in 2024. She presented with severe pain and tingling in her left calf, which improved when she rested. CT angiography revealed stenosis of the superficial femoral and popliteal arteries, suggesting a potential arterial dissection. We performed a balloon angioplasty to expand the superficial femoral and popliteal arteries, yielding favourable angiographic results [8].

The cause of spontaneous superficial femoral artery dissection is unknown. Patients may be asymptomatic until presented with vessel occlusion, develop aneurysmal dilatation in the affected segment, or undergo embolisation and become symptomatic [9].

Regarding our patient, the initial imaging showed that an embolus was likely present in the left SFA. However, catheterisation revealed a spontaneous rupture of the artery instead of an embolus. These dissections are rare, making them difficult to identify on imaging. Additionally, as previously mentioned, most causes of spontaneous peripheral dissections occur in patients with a predisposing factor such as pregnancy, collagen disorder, or intense athletic training. Our patient mentioned above has no history of these factors, making a dissection less likely on the differential diagnosis.

The treatment has no agreement regarding artery dissection, depending on how acute or severe the case is. Surgical options may include bypass and interposition grafting, which is preferable. Endovascular management, which includes angioplasty, stent placement, or endoluminal stent grafting, is an emerging treatment option, although its long-term stability remains unknown [9].

In our case, we performed a left superficial femoral artery angiography to widen the left superficial femoral artery before placing the stent. Four weeks later, the patient presented for follow-up, which showed favourable results.



Figure 1: Wound on the left lower extremity



Figure 2: CTA of the lower extremity



Figure 3: Arterial imaging prior to stent placement



Figure 4: Arterial imaging after stent placement

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Informed Consent:

Written informed consent was obtained from the patient to publish this report.

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