CASE REPORT

Superficial Femoral Artery Aneurysm — an Uncommon Site of Aneurysm Formation

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Introduction

True arteriosclerotic aneurysms of the superficial femoral artery (SFA) are rare. The deep position in the thigh hides it from early detection and often the first symptom is rupture. We report two cases of ruptured superficial femoral artery aneurysms.

Case Reports

Case 1

A 79-year-old man with known hypertension and renal impairment was admitted because of swelling of the left thigh. Ten days earlier he had noticed the swelling after a fall and it had subsequently increased in size and become markedly painful. On admission the patient was in acute renal failure. Examination of the left thigh revealed a 10 × 15 cm pulsatile mass with bruising. The left lower limb was not ischaemic and had palpable pulses. Haemoglobin was 4.2 g/dl with a haematocrit of 12.5%. Shortly after arrival the patient went into hypovolaemic shock and required resuscitation including volume replacement, blood transfusion and haemodialysis.

During resuscitation a Duplex scan confirmed a saccular aneurysm with a maximum diameter of 15 cm originating from the mid-portion of the SFA. It was surrounded by haematoma and had obviously ruptured (Fig. 1). A 5 cm saccular aneurysm of the abdominal aorta just below the renal arteries was also found.

After resuscitation, the superficial femoral and profunda arteries were controlled at the femoral bifurcation and the SFA distally above the knee. The

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Fig. 1. Longitudinal image of the saccular aneurysm (1) and its connection with the superficial femoral artery (2) using colour Duplex Doppler scanning. The varying colour indicates the turbulent flow in the aneurysm.
mid thigh aneurysm was then approached directly and a $15 \times 5$ cm saccular aneurysm was found. The aneurysm originated from the medial aspect of the artery and its neck was only 2 cm wide. The aneurysm had ruptured and was surrounded by a large amount of clot. The clots were removed, the sac of the aneurysm opened and the defect reconstructed by an in-lay 3 cm long interposition graft (expanded polytetrafluoroethylene (ePTFE) prosthesis, 6 mm diameter). Distal pulses were maintained postoperatively. Histopathology of the wall of the aneurysm showed unspecific calcification and atherosclerosis. Culture of the aneurysmal wall was negative.

Postoperatively the patient developed end-stage renal failure requiring peritoneal dialysis. Otherwise his course was uneventful. He refused repair of the abdominal aneurysm.

**Case 2**

An 80-year-old man sought help for a swelling of the inner aspect of the thigh of 5 days duration which had suddenly increased in size and become painful. His temperature was elevated and an abscess or infected hematoma was suspected. An incision under local anaesthesia was performed in the groin and when clotted blood was removed, massive fresh bleeding started. The wound was packed under pressure and the patient urgently referred to the hospital.

On admission the patient was in hypovolaemic shock with a haemoglobin of 4.4 g/dl and haematocrit of 15%. No abdominal mass was felt. After resuscitation he was taken to the operation room and the SFA clamped at its origin and dissected distally. A 10 cm wide saccular aneurysm was found at the level of the adductor channel with a 1 cm arterial wall defect at the neck. A 2 cm segment of the artery was resected and an end-to-end anastomosis was performed. Histopathology of the wall of the aneurysm showed degenerative arterial media with Mönckeberg's calcification. Culture of the aneurysmal wall was negative.

Postoperatively the patient did well. Circulation was restored to the limb. The groin wound developed lymphorrhea which subsided spontaneously 3 weeks later.

**Discussion**

Isolated true arteriosclerotic aneurysms of the SFA are rare. Previously, only 21 patients have been described. The disease tends to occur in the elderly population and more often in males than in females (3:1). Thrombosis (13%) and distal embolisation (9%) are known complications of SFA aneurysm although less common than with popliteal aneurysm (63%). Rupture of SFA aneurysm has been reported more commonly. On review 9/21 patients were diagnosed at rupture. Adding our two patients would give a rupture rate of 11/23 (48%).

Peripheral aneurysms of the limb arteries are usually easily palpated but aneurysms of the SFA are often in the middle or lower portion of the artery deep to the fascia and muscle. Therefore they may sometimes be difficult to palpate even when they reach a large size, and go undetected until they bleed. Aneurysms of the SFA are frequently associated with abdominal aortic aneurysm (40%) or other peripheral aneurysms (27%). Therefore, it is mandatory to evaluate the state of the abdominal aorta and the contralateral limb in all patients with SFA aneurysm.

The small number of published cases prevent conclusions regarding the surgical treatment of asymptomatic SFA aneurysms. Saccular aneurysms should be operated on when diagnosed, in accordance with treatment of saccular aneurysms elsewhere. Fusiform aneurysms of the SFA may be managed like those of the common femoral and popliteal arteries. Repair may be recommended when the maximum diameter is greater than 2–2.5 cm, or when it is more than twice the diameter of normal artery. All patients with symptomatic aneurysms should be reconstructed. Our two patients were repaired by end-to-end anastomosis and interposition graft using ePTFE prosthesis, respectively. Autologous vein remains the graft of choice. However, the ePTFE graft is an acceptable alternative in these elderly patients to save time, especially when reconstruction is performed in a non-bending position.

As for all arterial aneurysms, early detection and reconstruction before complications occur is desirable. Use of ultrasound scanning as a first line investigation in patients with thigh swellings should be encouraged.

**References**


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