CASE REPORT

Adventitial Cystic Disease: Multiple Cysts Causing Common Femoral Artery Occlusion

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Introduction

Adventitial cystic disease is an unusual cause of acute arterial insufficiency. The artery most commonly affected is the popliteal artery, over 200 cases having been reported between 1954 and 1991.1,2 It has been detected far less frequently in other arteries including the radial, ulnar, external iliac and common femoral arteries.3,4

A case of two cysts, one in the profunda femoris and the other in the superficial femoral artery, is reported.

Case Report

A 44-year-old boat builder presented with a 9-month history of right calf and thigh claudication. This had developed during a 1-month period and his claudication distance was now 50 metres. During the period of onset he had noted a persistent ache in the right groin, which had subsequently disappeared. His general health was satisfactory. He had been an occasional smoker of cigars but had ceased this when first seen. There was no history of hypertension, hyperlipidaemia, diabetes mellitus or atheroma.

On examination the patient was normotensive with a pulse rate of 76/minute. Femoral pulses were present bilaterally but popliteal and pedal pulses were absent on the right. Doppler assessment of the right lower limb revealed a damped signal and dorsalis pedis and posterior tibial pressures of 95 mm and 100 mmHg respectively.

Angiography showed a localised occlusion of the distal right common femoral artery at the origins of both the superficial femoral and profunda femoris arteries. These reconstituted via short collaterals from

Fig. 1. Femoral arteriogram showing site of arterial occlusion.
the common femoral artery. The remainder of the arteries of this limb were free of disease.

Exploration of the right common femoral artery was undertaken. At operation, considerable periarterial fibrosis was present. The distal common femoral artery and the proximal superficial femoral artery were occluded by thrombus. Two centimetres from the origin of the superficial femoral artery was an adventitial cyst compressing the lumen. A second cyst was found close to the origin of the profunda femoris artery, occluding its origin. A longitudinal arteriotomy was made and thrombus and cysts evacuated. Endarterectomy of the common femoral, profunda origin and proximal superficial femoral artery was performed. The arteriotomy was closed with a PTFE patch, giving a satisfactory calibre to the common femoral artery at its bifurcation. Right pedal pulses were present on completion of the procedure. The postoperative course was uneventful and on follow-up at 3 months all pedal pulses were present and exercise tolerance normal.

Histology of resected tissue confirmed adventitial cystic degeneration.

Discussion

Multiple adventitial cysts in the region of the common femoral artery is an unusual case of a relatively rare condition. The incidence is estimated at 1 in 1200 claudicants.5

The lesion is usually seen in the popliteal artery, and far less commonly in the external iliac, common femoral and wrist arteries, which represent approximately 15% of reported cases. There are rare reports of its occurrence in veins.6,7 Typically, young to middle-aged males are affected, presenting with acute onset of calf claudication. The diagnosis may be made by ultrasound, computerised tomography or arteriography. Where the artery is occluded, ultrasound and computed tomography are useful.8

The cyst of gelatinous material under tension forms between the media and adventitia. Periarterial fibrosis suggestive of previous inflammation may be present. One arterial site only is usually affected, and recurrence after definitive treatment is rare.

The most common treatment option has been surgical, consisting either of cyst evacuation or vein graft replacement. More recently, percutaneous aspiration has been attempted. In the case described in this report, cyst evacuation alone was not possible, as the artery was occluded by thrombus. Thrombectomy was necessary, with endarterectomy and patching of the vessel to normalise its calibre, narrowed by periarterial fibrosis. Replacement with a vein segment or prosthetic segment was not performed because the lesion involved common femoral, a bifid profunda femoris and the superficial femoral artery.

The aetiology of adventitial cystic disease remains unclear. Three hypotheses have been proposed:

1) that there is cystic degeneration of the adventitia, as a result of repeated “micro-trauma”;
2) that the cysts are “inclusion cysts” of mucin-secreting cells, possibly of developmental origin; and
3) that the cysts may be variants of ganglia, in direct communication with adjacent joint spaces.10

Support for the last hypothesis has been based on histological similarities between adventitial cysts and synovial membrane, as well as demonstration of communication with the adjacent joint along a capsular artery.11 It is tempting to hypothesise that the initiating event may be related to repeated activity at the joint. This might explain why it has occurred historically mainly in young males, particularly those with physically active jobs or pastimes.

References


Accepted 6 September 1993