Mycotic aneurysm of the popliteal artery following right hemicolectomy

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Summary: A case of mycotic aneurysm of the popliteal artery, following right hemicolectomy for carcinoma, is described. This was treated by ligation and excision without bypass grafting. The clinical features are discussed and the literature reviewed.

Introduction

The term 'mycotic aneurysm' was first used by Osler in 1885 in his Gulstonian lectures.¹ At that time such aneurysms were most often a result of bacteria endocarditis. Today this is an uncommon cause; most cases occur in intravenous drug users.^{2,3} Mycotic aneurysms are rare vascular lesions but are associated with a high mortality and morbidity and their incidence is increasing.⁴ There is no previous published report of a mycotic aneurysm following colonic surgery to our knowledge.

Case report

A 76 year old man was admitted to hospital with a 3-month history of episodes of central abdominal colic. His bowel habit was normal and he had not lost weight. On examination he was anaemic (haemoglobin 9.3 g/dl), pyrexial (38.5°C) and tender in the lower abdomen and right iliac fossa. He was treated with intravenous cefuroxime and metronidazole and transfused. His pyrexia and tenderness settled over a period of 3 days and antibiotics were continued for a total of 9 days. Out-patient barium enema revealed a filling defect in the caecum and right hemicolectomy was planned. Before his elective admission, however, he was readmitted as an emergency with recurrence of abdominal pain and a pyrexia of 38.6°C. Laparotomy and right hemicolectomy were performed under antibiotic cover, commencing with intra-

venous cefuroxime and metronidazole at induction of anaesthesia and continuing for a total of 5 days. Histology showed poorly differentiated adenocarcinoma, Dukes' stage C, with no evidence of perforation.

Two days post-operatively he complained of pain in the right thigh and popliteal fossa and had a temperature of 38.0°C but there were no demonstrable physical signs in the leg. The pyrexia settled but on the tenth post-operative day he again became pyrexial with a temperature of 38.8°C and was found to have erythema, swelling and tenderness of the medial aspect of the right lower thigh and upper calf which was thought to be cellulitis. The next day there was a tender hot pulsatile swelling in this region and a diagnosis of mycotic aneurysm was made. The pedal pulses were not palpable due to oedema but the foot was well perfused. Ultrasound confirmed an expansile aneurysm and transfemoral arteriography via the contralateral common femoral artery showed a 6 cm saccular false aneurysm (Figure 1). At no stage were there any signs suggestive of infective endocarditis.

Urgent operation was performed. The common femoral artery was controlled at the groin and the aneurysm was explored. A false sac was found containing an infected blood clot. The superficial femoral and popliteal arteries were ligated above and below and the sac was excised together with all obviously infected tissue. No attempt was made to reconstruct the vascular defect in view of the extent of the infection and the presence of a very adequate profunda femoris on arteriography. The wound was closed with vacuum drainage and antibiotics were continued for 2 weeks post-operatively. No orga-

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Figure 1 Transfemoral arteriogram showing the sacular false mycotic aneurysm.

nisms were seen on histology or grown on blood culture but culture of the sac contents grew *Clostridium septicum* sensitive to both cefuroxime and metronidazole. The patient made an uneventful recovery and has not subsequently required vascular reconstructive surgery.

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Discussion

The diagnosis of mycotic aneurysm can only be made if bacteria are identified on microscopy or culture of the aneurysm wall.⁵ Mycotic aneurysms may arise in three ways. Infected emboli from bacterial endocarditis may lodge in the vasa vasorum or lumen of a vessel. During episodes of bacteraemia organisms may lodge in intimal lesions. Organisms may be introduced directly into haematoma surrounding an arterial lesion at the time of arterial trauma, most commonly in intravenous drug users. *Clostridium septicum* bacteraemia is known to be associated with cancer of the colon.⁶ Its portal of entry is probably the distal ileum or caecum. Its growth from the aneurysm sac in this case showed that the aneurysm resulted from the colonic pathology.

It is not certain whether the causative episode of bacteraemia occurred at primary presentation or during operative manipulation, although on both occasions the patient received antibiotics to which the organism was sensitive and it is surprising that the bacteria survived and proliferated in the presence of adequate doses of bactericidal antibiotics. It is probable that the artery at this site was affected by atheroma and that this predisposed to the lodging of bacteria, subsequent destruction of the arterial wall and development of a false aneurysm.^{7,8}

The initial presentation of the aneurysm was mistaken for cellulitis. Pain, erythema and fever are the hallmarks of a mycotic aneurysm,^{2,5,8} therefore such diagnostic error is easy to understand and has been reported before.^{3,9} Treatment of mycotic aneurysms should be by ligation of healthy segments of artery and excision of all infected tissue.³ Vascular reconstruction may not be necessary as demonstrated by this case and others.^{2,3} If reconstruction is required, native vein should be used whenever possible and the graft placed through uninfected tissues.³

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