SHORT REPORT

Bilateral Long Saphenous Bruits: A Marker of Aortocaval Fistula

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Introduction

The authors present a case of an aortocaval fistula manifesting clinically with bilateral long saphenous bruits. This sign has not been previously described.

Report

An 85-year old lady presented with a 3-week history of abdominal pain radiating to her back. Examination revealed a bruit to the right of the midline associated with bilateral long saphenous bruits. A provisional diagnosis of an aortocaval fistula was confirmed on computerised tomography. The fistula was excluded by aortobiiliac bypass and the patient made an uneventful recovery.

Discussion

Aortocaval fistulae are rare. They should be suspected if abnormal pulsations are felt to the right of the midline in association with bruits in the region of the inferior vena cava. The presence of long saphenous bruits suggests sapheno-femoral incompetence due to arterialised, reversed venous flow dynamics and strengthens the clinical diagnosis of aortocaval fistula.

Keywords: Aortocaval fistula; Long saphenous vein bruit.

Introduction

Aortocaval fistulae (ACF) are rare and a lack of obvious symptoms can often result in a missed diagnosis. The authors discuss a case of a clinically diagnosed aortocaval fistula, supported by the sign of bilateral long saphenous vein (LSV) bruits.

Report

An 85-year old lady presented with a 3-week history of abdominal pain radiating to her back, associated with retrosternal discomfort. The patient had a history of ischaemic heart disease, but was asymptomatic following coronary artery stenting 10 years ago. She was a non-smoker, active and independent.

She was haemodynamically stable at presentation (heart rate 100/min, BP 120/70 mmHg). There was no obvious jugular venous engorgement, heart sounds and ECG were normal. Abdominal examination revealed a pulsatile abdominal mass approximately 3 cm across with an obvious thrill to the right of the umbilicus. The left lower limb had become oedematous over the preceding 24 hours, measuring 5 cm greater in circumference than the right limb, both in the calf and the thigh, using fixed reference points. Auscultation of the abdomen revealed a loud bruit. A bruit could also be heard to the level of the knee bilaterally along the course of the LSVs, with the right bruit, in the non-oedematous leg, being considerably louder. She did not have any documented evidence of previous varicose veins or saphenofemoral incompetence.

A provisional diagnosis of aortocaval fistula was confirmed by computerised tomography (CT). This showed contrast filling the abdominal aorta (AA) and inferior vena cava (IVC) simultaneously (Fig. 1). The report suggested communication between the junction of the distal AA with the origin of the right common iliac artery (RCIA) and the distal IVC. There was no abdominal aortic aneurysm (AAA). The left common iliac vein (LCIV) was distended at the level of the fistula, mimicking a RCIAA (Fig. 2a, b). There was evidence of preferential flow down the left common femoral vein (LCFV) and reflux into the superficial epigastric venous system (Fig. 3).
The patient was taken to the operating theatre on the same day and explored through a midline laparotomy under combined general and epidural anaesthesia. Excellent intra-operative control was obtained by use of Dardik clamps and a spongestick on the distal IVC, resulting in immediate reduction of her pulse rate. At exploration, the fistula was seen to originate from a linear atherosclerotic ulcer at the aortic bifurcation, going down the right common iliac artery. The fistula was excluded by oversewing from within the AA and performing an aortobifiliac bypass using Dacron prosthesis. She made a full recovery after a short stay in the intensive care unit (ICU) and was discharged on the twelfth postoperative day. She remains well on follow up.

Discussion

Aorto-caval fistula usually occurs due to rupture of the atherosclerotic or aneurysmal AA into the IVC. Other causes include penetrating trauma, with the most frequent iatrogenic cause being lumbar spine surgery. Predisposing factors include Marfan and Ehlers-Danlos syndromes, tumour invasion, previous AAA surgery (particularly at suture lines) and, in the past, syphilitic aortitis.1

The incidence of ACF has been reported as 3.6% following AAA operations and 3–5.7% after operations for ruptured AAAs.1,2 Recently, it has been described as a complication following endovascular aneurysm repair (EVAR).3

James Syme first reported a case of an aortocaval fistula in 1831 describing it as a complication of an AAA.4 Repair was attempted first by Lehmann in 1938 by ligating both IVC and AA. The first successful repair was described by Cooley in 1955.5 Reported operative mortality varies from 6–30%.1,6

Common symptoms and signs of ACF include the often-described but relatively uncommon triad of abdominal pain, bruit (which is pathognomically loud during diastole) and a pulsatile abdominal mass.7 Patients also may present with flank pain, haematuria, rectal bleeding, disordered renal or hepatic function, angina and congestive cardiac failure.7 In this instance,
unilateral leg oedema with CT-confirmed absence of any proximal venous occlusion suggests venous hypertension in the left leg. In the past, this has been mistakenly treated as a deep vein thrombosis. The audible bruit along both LSVs was, in the authors’ opinion, due to the reversed, hypertensive venous flow dynamics resulting in acquired saphenofemoral incompetence. This represents a sign not described previously. A Medline search (1966-present) using the keywords “aortocaval fistula”, “long saphenous vein”, “bruit” with the Boolean operator “and” resulted in no previous reports. Obviously, prior bilateral saphenofemoral incompetence will manifest similarly.

The identification of an ACF pre-operatively allows an appropriate surgical strategy to be planned in advance, with planned early control of the IVC, reducing the chance of pulmonary atheroembolism. Ultrasoundography may not always identify a fistula, especially in the presence of an AAA. Contrast CT was certainly beneficial in this instance in confirming the diagnosis, although eliciting straightforward clinical signs had allowed a strong suspicion of the diagnosis. However, CT also can miss ACF if the fistula is occluded by thrombus.

We felt it was appropriate to proceed to operation immediately, given radiological confirmation of the diagnosis. Furthermore, as the patient had presented with retrosternal discomfort, with history of cardiac disease, waiting for further investigations such as angiography, or even a 3D reconstruction of the CT scan would not have altered our decision to operate and may have heightened the risk of high-output cardiac failure developing. The reduction in her pulse rate after control of the fistula, which equates to a Branham’s sign, supports this. Although endografting might have been considered the most appropriate procedure, surgery was performed at the weekend, and we had no facilities to deploy prefabricated in-house stent-grafts.

We recommend that if an ACF is suspected clinicians should examine for the presence of LSV bruits. A high index of suspicion of ACF and early referral to the vascular surgeons is vital.

References


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