Inadvertent left internal mammary artery (LIMA): great cardiac vein anastomosis

Matthew Lumley, Alice Booker, Brian Clapp

Department of Cardiology, St Thomas' Hospital, London, UK

Correspondence to
Dr Matthew Lumley,
mattlumley@doctors.org.uk

DESCRIPTION

A 70-year-old man was transferred due to progressive angina with a history of severe aortic valve stenosis and multivessel coronary artery disease treated with biological aortic valve replacement and two-vessel coronary artery bypass surgery (CABG) 1 year previously. A recent myocardial perfusion scan was positive for reversible ischaemia in the left anterior descending artery (LAD) territory. Invasive coronary angiography revealed moderate stenosis in the left main stem, a significant lesion in the proximal LAD and a small non-dominant left circumflex with moderate disease. The dominant right coronary artery (RCA) was severely diseased (figure 1). The saphenous vein graft to the RCA was found to be patent. The inadvertent left internal mammary artery (LIMA) graft was anastomosed to the great cardiac vein (GCV), and contrast was seen passing through the GCV and draining into the coronary sinus (figure 2; video 1). Transthoracic echocardiogram (TTE) and the right heart catheter revealed $Q_p:Q_s$ of 1.1:1 and normal right heart volume. He was treated with drug eluting stent percutaneous coronary intervention to the proximal LAD with good symptomatic relief. The iatrogenic arteriovenous fistula was managed conservatively and will be followed up with serial TTEs.

There are over 20 reported cases of iatrogenic arteriovenous fistula.^{1 2} Presenting symptoms predominantly relate to ischaemia in the territory of the

Figure 2 Still image of an invasive coronary angiogram. The distal end of the inadvertent left internal mammary artery (LIMA) is anastomosed to the great cardiac vein. The insertion point is shown. Contrast can be seen to drain into the coronary sinus.

ungrafted artery and include angina, dyspnoea, volume overload and ventricular arrhythmia.¹ Volume overload of the right heart is a common finding in congenital fistula but has not been reported in iatrogenic cases.

Inadvertent anastomosis of the LIMA to the GCV is a rare complication of CABG. Treatment should

Figure 1 Still image of an invasive coronary angiogram. The right coronary artery (RCA) has been engaged with a Judkins Right 4 Catheter. The RCA is severely diseased along its entire course. The saphenous vein graft anastomosed to the RCA is also visible on this image. Sternotomy wires and previous biological aortic valve replacement are highlighted.

Video 1 An internal mammary artery (IMA) catheter is engaged in the left internal mammary artery (LIMA). Contrast can be seen to be opacifying the patent LIMA. The LIMA has been grafted to the great cardiac vein (GCV) and contrast is seen filling the GCV and draining into the coronary sinus.

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depend on the patient's symptoms and the severity of left to right shunting or development of right ventricular volume overload. Management can be conservative or, by occlusion, percutaneously with vascular plugs and embolisation coils, and if this is not possible, by surgery.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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