

Coronary angiography in chronic aortic dissection

Introduction

Aortic dissection is one of the most catastrophic conditions affecting the aorta with a mortality rate of more than 70% at 48 hours (MacKenzie et al, 2004). DeBakey and Stanford classified aortic dissections based on their location in the aorta. The essential feature of such dissection is tearing of the intimal layer and creation of false lumen as a result of blood entering between the intima and media. Type B dissections are all dissections involving the descending aorta (Stanford classification).

This article highlights the importance of performing a coronary angiogram before repairing chronic aortic dissections and

also shows the difficulty in performing a coronary angiogram on a patient with type B aortic dissection.

Discussion

Patients with chronic dissection of the aorta may develop an associated aneurysm, characterized by a high rate of expansion and risk of rupture.

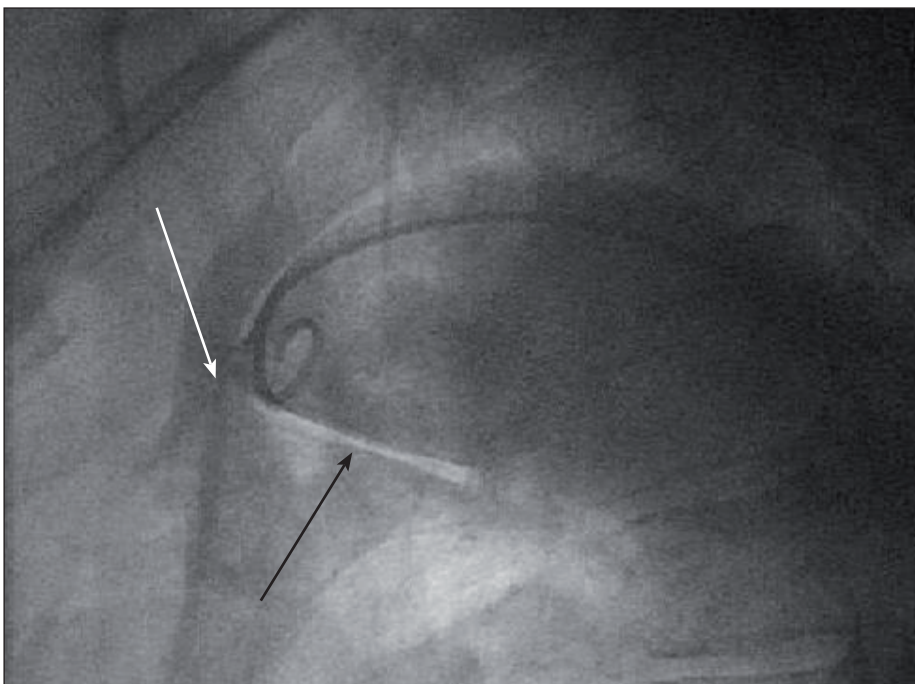
In addition to echocardiogram and computed tomography, a coronary angiogram is useful before planning surgery (Nataf and Lansac, 2006). Since coronary artery disease remains a major predictive factor for early and late mortality following repair of aortic dissection, stable patients

with a strong history or clinical features suggestive of coronary artery disease should undergo a coronary angiogram before major aortic surgery (Miller et al, 2000).

Cardiac catheterization in chronic dissections is technically difficult as the dissection may not allow access to the true lumen of the aorta and advancing the catheter or guide wire risks extending the dissection (Hart et al, 1963). Careful access site selection and using larger arterial sheaths and guide wires for better visualization and torque control are few of the tips for carrying out the angiogram safely and effectively (Israel et al, 1994). **BJHM**

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- Miller JS, Lemaire SA, Coselli JS (2000) Evaluating aortic dissection: when is coronary angiography indicated? *Heart* **83**: 615–16
- Nataf P, Lansac E (2006) Dilation of the thoracic aorta: medical and surgical management. *Heart* **92**: 1345–52

Figure 1. The dissection flap (black arrow) is seen just after the origin of the left subclavian artery, and a small communication noted between the true and false lumen (white arrow). The guide wire is within the false lumen.

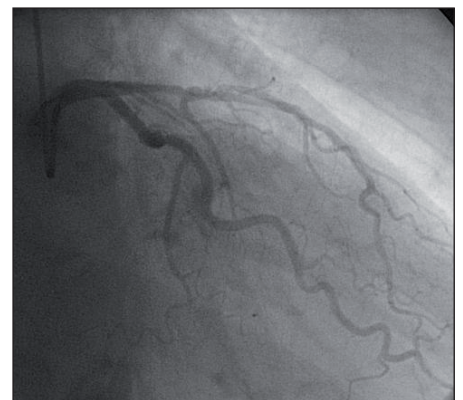


Case Report

A 67-year-old man was followed up by the thoracic surgeons with annual computed tomography (CT) scans for a chronic type B dissection of his thoracic aorta. He had medically treated hypertension and was a smoker. On the CT scan the descending aorta measured 6.4 cm and elective surgical intervention was planned. The patient was well and relatively asymptomatic with normal renal function. All peripheral pulses were present.

He was listed for a coronary angiogram preoperatively. The procedure was undertaken via the right femoral artery. Access was gained easily but it was not possible to advance the guide wire beyond the arch. An arch aortogram was undertaken (Figure 1) which confirmed that the guide wire was in the false lumen. The coronary arteries were intubated via the right brachial approach (Figure 2). It appears that coronary and upper limb perfusion was from the true lumen and the rest from the false lumen.

Figure 2. Coronary angiogram undertaken via the right brachial route.



Dr Archana Rao is Specialist Registrar in Cardiology, **Dr Abdul Hakeem** is F2 Senior House Officer in Cardiology and **Dr Lindsay Morrison** is Consultant Cardiologist in the Cardiothoracic Centre, Liverpool L14 3PE

Correspondence to: Dr A Hakeem