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Case report

Aneurysm of ascending aorta following aortic valve replacement and ascending-to-descending aorta bypass

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Abstract

We report the case of a man diagnosed with coarctation of the aorta and mixed aortic valve disease secondary to a bicuspid aortic valve in his twenties which was treated non-operatively in the first instance. He was diagnosed with severe regurgitation and complete heart block and underwent surgery to replace the aortic valve and the coarctation bypassed. A further deterioration in his condition revealed a severe coarctation of the aorta and dissecting aneurysmal dilatation of the ascending aorta just above the mechanical prosthesis. He underwent surgery to remove the mechanical heart valve and excise and replace the aneurysmal ascending aorta. The pre-existing conduit was anastomosed to the side of this new conduit.

This case highlights the late surgical complications of aortic root and valve surgery as well as emphasising the importance of computed tomography angiography as a diagnostic tool in the investigation of patients with a cardiac history who present with non-specific symptoms.

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Q2 *Keywords:* Aneurysm; Aorta; Aortic valve replacement; Coarctation; Computed tomography angiography

Q3 1. Introduction

We report the case of a man diagnosed with coarctation of the aorta and mixed aortic valve disease secondary to a bicuspid aortic valve in his twenties which was treated non-operatively in the first instance. He was diagnosed with severe regurgitation and complete heart block and underwent surgery to replace the aortic valve and the coarctation bypassed. A further deterioration in his condition revealed a severe coarctation of the aorta and dissecting aneurysmal dilatation of the ascending aorta just above the mechanical prosthesis. He underwent surgery to remove the mechanical heart valve and excise and replace the aneurysmal ascending aorta. The pre-existing conduit was anastomosed to the side of this new conduit.

This case highlights the late surgical complications of aortic root and valve surgery as well as emphasising the importance of computed tomography angiography as a diagnostic tool in the investigation of patients with a cardiac history who present with non-specific symptoms.

2. Case report

This 68 year-old man was diagnosed with coarctation of the aorta and mixed aortic valve disease secondary to a bicuspid aortic valve at the age of 23. The coarctation was deemed mild with a gradient of less than 40 mmHg and good femoral pulses. Furthermore the aortic valve was only mildly stenotic and regurgitant. As a result he was treated non-operatively.

In 1997 his condition deteriorated acutely with 5-pillow orthopnoea, paroxysmal nocturnal dyspnoea, exertional breathlessness and ankle oedema. Investigation revealed

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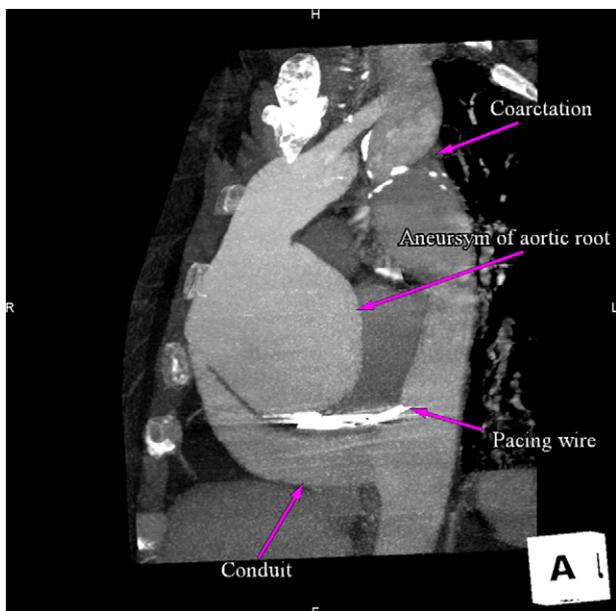


Fig. 1. Sagittal CT angiogram.

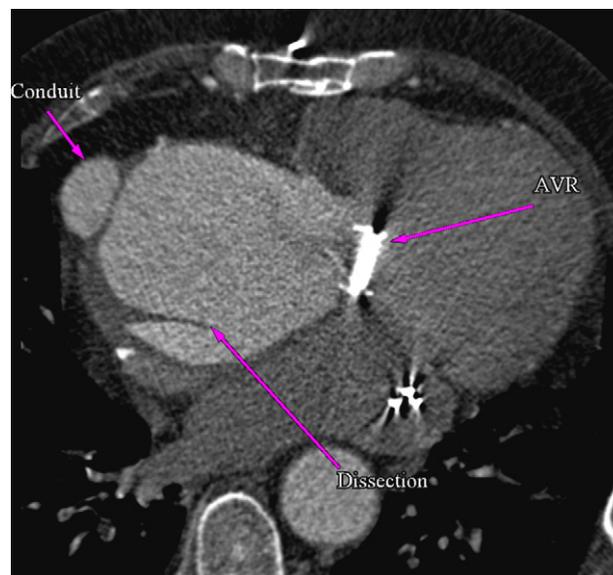


Fig. 3. Trans-axial CT angiogram.

severe aortic regurgitation and complete heart block. A DDD permanent pacemaker was inserted after which he underwent aortic valve replacement with a 27 mm St. Jude Medical® (SJM) bileaflet prosthesis. The coarctation was bypassed with 18 mm Gelseal Vascutek® graft from the ascending to the descending aorta. His post-operative recovery was uneventful and he remained well for several years.

In 2007 he was re-admitted for investigation of worsening exercise tolerance. Computed tomography angiography (CTA) showed the aortic valve prosthesis was seated appropriately and functioning well. The Gelseal conduit from the ascending to the descending aorta was widely patent although

he had developed mild coronary artery disease in the proximal and mid segments of the left anterior descending artery. However, CTA showed severe coarctation of the aorta and aneurismal dilatation of ascending aorta (maximal diameter of the aneurysm was 11.0 cm × 8.5 cm), starting just above the mechanical prosthesis with a short dissection flap. The Echocardiography demonstrated severely impaired left ventricular function. Given the severity of his symptoms he underwent surgery. The SJM prosthesis was removed, the aneurismal ascending aorta excised up to the level of the origin of the innominate artery and replaced with a 31 mm SJM valve graft. The pre-existing Gelseal conduit was anastomosed to the side of this new conduit. Despite severely

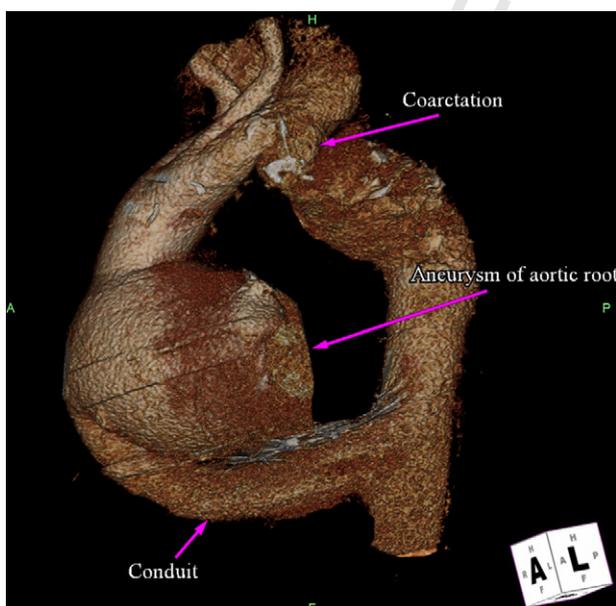


Fig. 2. Volume rendered view.

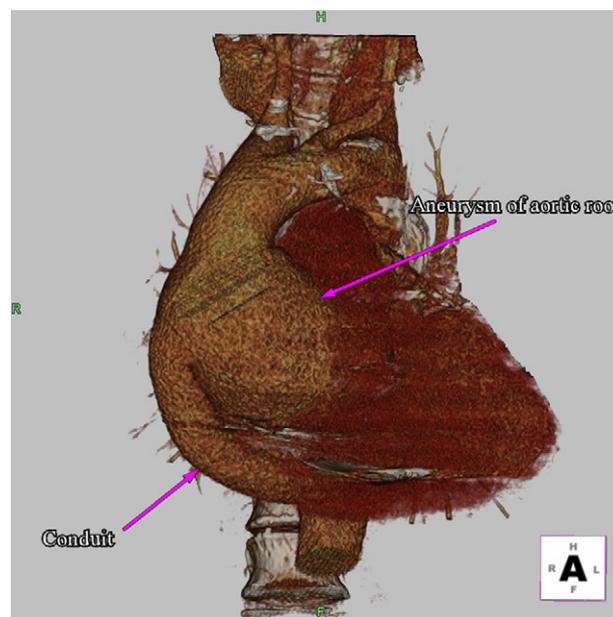


Fig. 4. Volume rendered view.

55 impaired ventricular function, he went on to make a pro-
56 Q4 longed but satisfactory recovery (Figs. 1–4).

57 3. Discussion

58 This case exemplifies some of the late surgical compli-
59 cations of aortic root and valve surgery. More importantly it
60 illustrates the usefulness of computed tomography angiog-
61 raphy as an informative and reliable tool in the picking up
62 these late surgical complications [1]. Furthermore it is a
63 non-invasive tool that is being used more frequently in prefer-
64 ence to diagnostic catheter angiography in the post-operative

care of patients with coarctation, providing the clinician with
valuable information concerning further invasive procedures
[2].

References

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