Cardiac Imaging

Unexpected Aortic Dissection

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Key words:
Multislice computerised tomography, aortography.

Manuscript received:
October 14, 2005;
Accepted:
October 27, 2005.

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A 52 –year– old smoker with a history of hypertension and hyperlipidaemia complained of typical effort angina symptoms for the last two months and an episode of prolonged retrosternal pain with no radiations 15 days before admission. The ECG was compatible with an inferior wall myocardial infarction (Q waves in leads III and aVF), while the echocardiogram showed inferior wall hypokinesia. Aortic root dilatation was also noted (44 mm) with no signs of dissection or aortic valve regurgitation.

Coronary arteriography was performed, showing severe stenosis of the left anterior descending artery proximal to the diagonal branch, occlusion and slow filling of the two marginal branches from the circumflex artery, and occlusion of the right coronary artery at its middle third. Left ventriculography showed inferior segment hypokinesia. Because of the aortic root dilatation, aortography was performed and showed an unexpected aortic dissection (Figure 1). A more detailed investigation with multislice computerised tomography (MSCT) confirmed the dissection at the level of the Valsalva sinuses, originating above the origin of the right coronary artery and extending up to 3.5 cm proximally to the innominate artery (DeBakey type 2) (Figure 2). Three-dimensional reconstruction of the MSCT and the morphology of the ascending aorta during the operation that followed (replacement of the ascending aorta, aortic valve replacement and coronary artery bypass grafting) are shown in figures 3 and 4. Macroscopically, the dissection can be seen in figure 5, while histology of the aorta revealed chronic inflammation with degeneration of the inner media and focal inflammatory changes of the medial layers.

In this case, there was no clinical suspicion of aortic dissection,[1] which could have been missed since echocardiography was compatible with simple aortic root dilatation as seen in hypertension. The preoperative diagnosis prevented the discovery of the dissection in the operating room and avoided the intraoperative modification of the surgical approach with possible increase of the operative risk.

References

1. Task Force Report. Diagnosis and management of aortic dissection. Eur Heart J 2001; 22: 1642-1681.

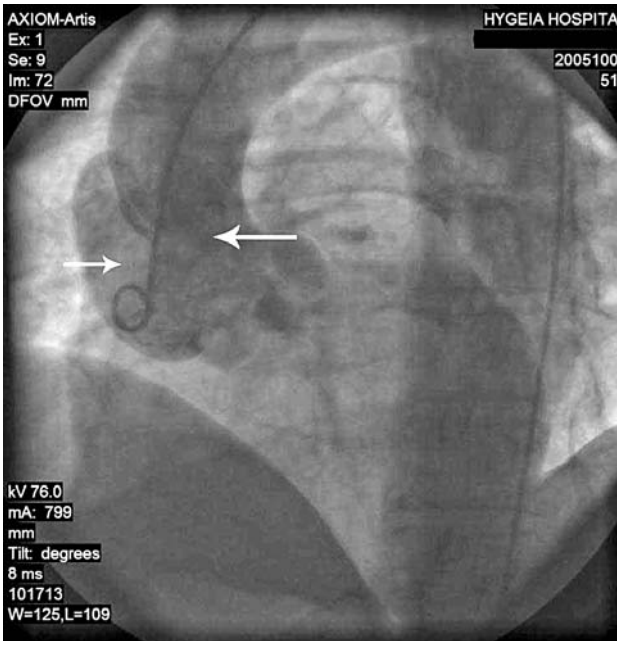

Figure 1. Selective angiography of the ascending aorta. Dissection with flap and visualisation of the false (small arrow) and true (large arrow) lumen.

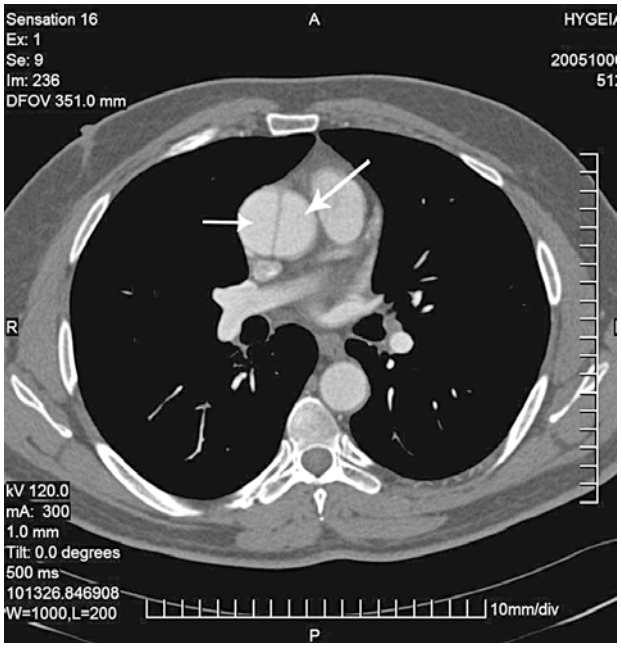

Figure 2. Multislice computerised tomography. Dissection with visualisation of the true (large arrow) and false (small arrow) lumen.

Figure 3. Three-dimensional reconstruction of the ascending aorta.

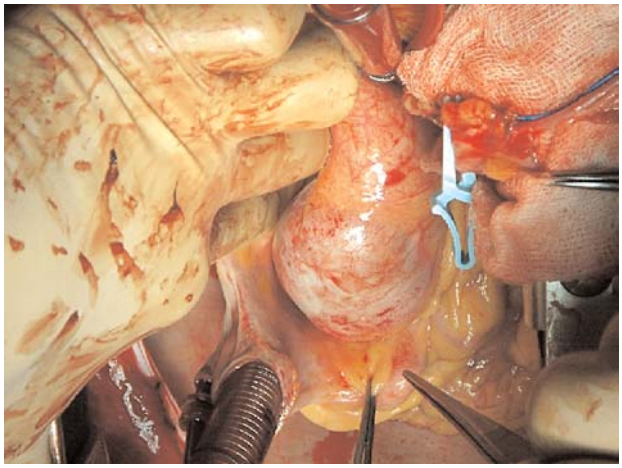

Figure 4. Intraoperative view of the ascending aorta.

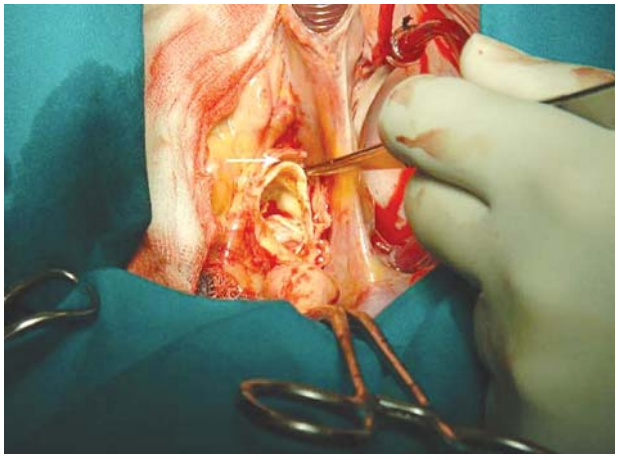

Figure 5. Intraoperative view of the dissected (arrow) inner and medial layers.