Life-threatening bilateral aorto-ostial coronary artery disease in an octogenarian

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Aorto-ostial disease is difficult to approach percutaneously; therefore, a surgical option may be more desirable. We describe a case of an octogenarian in which the clinical arguments and technical approach have been summarised for a successful percutaneous therapeutic strategy. (*Neth Heart J* 2009;17:30-2.)

Keywords: aorto-ostial disease, Angioplasty, stenting

The continuous presentation of cases from daily practice to the practising physician may improve clinical reasoning and the impact of specific messages. So it is with this example of degenerative aortic disease in an octogenarian. Early awareness of a severely diseased aorta facilitated the appropriate management in this patient. The incidence of coronary ostial stenosis in patients undergoing coronary arteriography has been found to range between 0.07 and 0.25%. A slightly higher incidence has been observed in patients with angiographically confirmed coronary artery disease: between 0.13 and 2.7%. Bilateral ostial stenosis is even less common.¹ We would like to present a case in which clinical decision-making appeared to be crucial for a rapid and uneventful outcome.

Case report

An 81-year-old male with known hypertension, cerebrovascular accident, aorto-bifemoral prosthesis for an abdominal-aortic aneurysm and documented

ischaemia presented to the emergency department with chest pain at rest. He was taking aspirin 100 mg, metoprolol 50 mg slow release and amlodipine 10 mg per day. There were no abnormalities on physical examination. His blood pressure was 120/85 mmHg and pulse 64 beats/min.

His electrocardiogram was within normal limits but when interpreted against the background of the clinical presentation could also be interpreted as showing discrete signs of multivessel disease (figure 1). He was admitted under the clinical suspicion of an acute coronary syndrome.

However, the chest X-ray showed a wide superior mediastinum actually caused by an elongated aorta (figure 2). There appeared to be a significant difference of 45 mmHg between the blood pressure measured at the left and right upper arm. The aforementioned clinical signs raised the clinical suspicion of an aortic dissection. Emergency computer tomography of the aorta showed no signs of an acute dissection but revealed a stenosis of the left subclavian artery, explaining the left right bloodpressure difference and a thoracic aneurysm of 5 cm. After stabilisation of the chest pain symptoms with nitroglycerin, aspirin, β -blockers and heparin, coronary angiography was performed by the right radial approach. This entrance route was chosen to avoid manipulation within the severely diseased aorta. However, this approach also appeared to have several mechanical obstacles, especially at the brachiocephalic trunk. As the operator assumed that the degenerative process could also have involved the proximal parts of the coronary arteries, the technical aspects of the procedure were tailored to these findings.

Careful manipulation within the ascending aorta showed significant bilateral aorto-ostial disease of both the left and right coronary artery after subselective cannulation (figures 3A and B). The cardiac surgeon was immediately consulted about this patient. Considering the overall clinical presentation it was decided in this case to perform a minimally invasive approach by double aorto-ostial stenting. As it was impossible to insert an intra-aortic balloon without significant risk

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Figure 1. Electrocardiogram.

for additional complications, such as aortic dissection or a cerebrovascular accident, the operating team knew they had a small safety window for a successful procedure. During engagement of the ostiae by the floating technique a drop in blood pressure to life-threatening values of 50/20 mmHg confirmed the high-risk clinical state.

A short procedural time by direct stenting appeared to be feasible (figures 3C and D). The patient recovered

uneventfully and was discharged 24 hours after the intervention.

Discussion

Generalised degenerative disease of the aorta and specifically aneurysmatic changes of the ascending aortic wall should warrant the simultaneous involvement of the ostiae of the left and right coronary artery. The most probable cause in this subject was atherosclerotic disease. Other causes that were ruled out by laboratory findings were syphilis and systemic vasculitis. Postradiation and catheter-induced vasospasm were not applicable.² In the presented case surgical intervention by a Bentall procedure of the aneurysmatic ascending aorta and concomitant severe coronary artery disease could be considered as the approach of choice.³ However, it may be debatable whether it would be the right route forward for this patient.

Considering his age, clinical presentation of unstable angina pectoris and potentially protracted postoperative clinical course we decided to proceed with a high-risk percutaneous strategy for bilateral aorto-ostial stenting. The technical obstacles in this case were rapidly reviewed by the operating cathlab team, as angioplasty of aorto-ostial stenosis has many peculiarities. Experience and effectiveness are increasing more and more, but this procedure still has intrinsic risks such as aorta dissection and can give suboptimal results including imprecise stent positioning. Stent protrusion into the aorta is usually without significance in the following clinical course; however, it can complicate

Figure 2. Chest X-ray.

Figures 3A-D. Coronary angiography before and after angioplasty.

future catheterisations or operations, or at least make them more demanding.⁴ This case illustrates a customised approach based on clinical assessment of findings. Close collaboration between cardiac surgeons and cardiologists is important in daily practice. This should be characterised by open and readily accessible communication patterns about clinical management and technical issues as it forms a fundamental basis to plan the best treatment for our patients. ■

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