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Image of the Issue

Transcatheter Treatment of Pure Aortic Regurgitation in a Horizontal Aorta Complicated by Valve Embolization and Aortic Dissection☆

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ABSTRACT

A 83-year-old female with severe aortic regurgitation (AR) and an horizontal ascending aorta was scheduled for a transcatheter aortic valve replacement. After the complete deployment, a Portico 29 mm valve embolized in the ascending aorta due to the unfavorable anatomy of the anchoring zone. A second Portico 29 mm was successfully implanted using the embolized valve for superior anchoring. The patient died 7 days after the procedure due to a retrograde aortic dissection. This case shows a rare but possible complication that occurs especially in unfavorable and complex aortic anatomies.

1. Clinical history

A 83-year-old female with severe aortic regurgitation (AR) was admitted in New York Heart Association functional class-III. She had a clinical history of obstructive sleep apnea syndrome and a pacemaker implant for brady-tachy syndrome.

Multislice computed tomography and transthoracic echocardiography (TTE) that revealed a type I bicuspid aortic valve (Fig. 1d) and a horizontal ascending aorta with moderate dilation (Fig. 1a, b, c). After heart team discussion, patient was scheduled for percutaneous treatment of the AR using a Portico 29 mm (Abbott, Lake Forrest, Illinois, USA). After the complete deployment, the valve embolized in the ascending aorta without any consequence (Fig. 1e–f, Video 1). A second Portico 29 mm was successfully implanted using the embolized valve for superior anchoring (g, g1). In the 7th post-operative day, the patient experienced an abrupt cardiogenic shock. The transesophageal echocardiography showed a consistent coagulated pericardial effusion not drainable that lead patient to death. Autopsy revealed ascending aortic dissection with vessel dehiscence between the two prosthesis and organized pericardial thrombus (1 h). Percutaneous treatment of aortic regurgitation is still challenging and even with next generation devices the risk of aortic injury is around 2% [1]. In patients with a horizontal aorta the risk of dehiscence can be not negligible using valves with high frame height: the upper part of the prosthesis can cause aortic injury due to friction between the aortic wall and the frame of the valve. This risk can be even higher in patients with bicuspid valve because of the concomitant aortopathy: in those patients the therapeutic decision making should take into account also this possible life-threatening complication.

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Abbreviations: AR, aortic regurgitation; TTE, transthoracic echocardiography.

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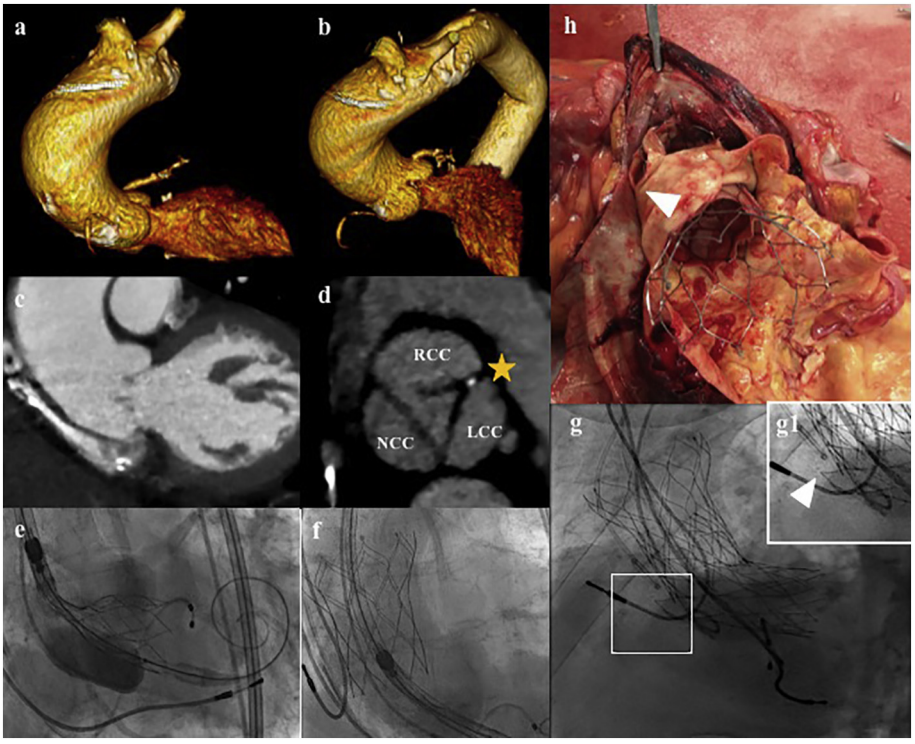

Fig. 1. Case description: the pre-operative CT scan showed a horizontal, tortuous, dilated aorta (a,b,c) with a type 1 bicuspid anatomy (partial fusion between the RCC and LCC, yellow arrow) (d). A Portico valve was delivered after one repositioning (e); after complete deployment, the valve embolized in the ascending aorta (f). A second valve was anchored to the previous valve (g, g1). The patient experienced cardiogenic shock leading to death with associated pericardial effusion; the autopsy showed a dehiscence of the ascending aorta between the two valves (head of arrow) which caused a retrograde dissection and pericardial effusion (h). Abbreviations: NCC: non-coronary cusp; LCC: left coronary cusp; RCC: right coronary cusp.

Reference

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