Case report - Aortic and aneurysmal

Asymptomatic false aneurysm of the right coronary sinus treated by a reimplantation valve sparing technique

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Received 9 May 2009; received in revised form 31 May 2009; accepted 4 June 2009

Abstract

We describe the case of a 65-year-old man who presented with a false aneurysm of the right aortic coronary sinus, discovered after a routine medical examination. A complete resection of the aortic root and a reimplantation technique were performed. Herein, we describe the technical approach and immediate follow-up.

Keywords: Valsalva; False aneurysm; Valve sparing

1. Case report

A 65-year-old man without past medical history except treated arterial hypertension, was admitted after discovery of a voluminous aneurysm of the right coronary sinus, revealed by a de novo cardiac systolic murmur. The extension of the lesion was sized at 9 × 9 cm using computed CT-scan (Fig. 1a). A preoperative angiogram showed a normal left coronary network but catheterisation of the right coronary artery was impossible (Fig. 1b). The patient was scheduled for a replacement of the aortic root with, if possible, a valve sparing technique.

Preoperative findings confirmed that the aneurysm developed inside the anterior wall of the right ventricle, compressing the pulmonary artery infundibulum. After aortic opening, the aortic wall at the level of the right coronary sinus revealed to be totally leaking, starting at the annulus level (Fig. 2). Beside, we could perfectly see the ostium of the right coronary artery with enough adjacent tissue to prepare a coronary button for reimplantation. The left and the non-coronary sinuses were resected leaving 3 mm of aortic remnants above the annulus level for the reimplantation technique. At the level of the right coronary sinus, the right ventricle was scalloped progressively, over about a 1 mm thickness and 3 mm height then returned to create a pseudo remnant for the reimplantation suturing line.

A 30 mm Valsava polyester tube was used to perform the reimplantation procedure. After aortic declamping, we could not note any leakage at the root of the tube despite the fragility of the tissues. The postoperative course was marked by an atrial fibrillation episode resolved by amiodarone. Pathological examination of the operative biopsies showed unspecific dysplastic aortic tissue. Further course was uneventful, and especially was free from right ventricular failure.

2. Discussion

Pseudo aneurysm of the sinus of Valsalva is a very rare lesion [1]. Congenital extra cardiac isolated aneurysms of sinus of Valsalva have been previously reported, and the pathology of congenital aneurysmal formation is thought to be a separation of the aortic media of the sinus from the media adjacent to the hinge line of the aortic valve cusp. Therefore, the orifice of the aneurysm has to be adjacent to the aortic annulus. In the present case, the leak in the right coronary sinus was precisely located below the right coronary artery, leaving no aortic tissue adjacent to the aortic annulus. Yet, the patient was followed by a cardiologist with a transthoracic echography every two years because of common arterial hypertension. The sinus lesion was absent during the previous examination two years before. Acquired aneurysms of the sinus of Valsalva caused by mediocrosis, syphilis, arteriosclerosis, endocarditis, or injury are more diffuse, involving more of the sinus or multiple sinuses [2]. In the present case, none of all these lesions was present, no more than a recent history of chest trauma. Moreover, histological examination of the aortic root showed unspecific dysplastic aortic tissue. In addition, the macroscopic aspect of the lesion involving the anterior wall of the right ventricle seems to be more likely a pseudo aneurysm than a true aneurysm. This fact means that perforation or rupture of the sinus of Valsalva had extended...
into the wall of the right ventricle consequently avoiding a sudden death of the patient, with a secondary formation of a pseudo aneurysm. For this reason, we cannot identify any apparent underlying cause of the formation of the pseudo aneurysm by the patient’s past history or by the pathologic examination.

The last aspect of this case report is the type of repair [3]. Since the pathology leading to the present lesion was unclear, we could not satisfy from closing the leak using a pericardial or artificial patch. The treatment of the whole aortic root seemed mandatory for us. The reimplantation technique was chosen with regard to the normal macroscopic aspect of the aortic valve. At the level of the right coronary sinus, the absence of aortic wall led us to recreate a suturing line using the adjacent wall of the right ventricle. The tissue revealed to be resistant enough to allow the suturing to the Valsalva tube without residual leakage.

References