CHALLENGE OF THE MONTH

M. Siepe et al. / Interactive CardioVascular and Thoracic Surgery 885

Aortic-root aneurysm repair: how to deal with an abnormal circumflex artery from the right coronary sinus

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I read with great interest the clinical scenario by Siepe et al. about the detection of abnormal circumflex artery from the right coronary sinus in a patient scheduled for root aneurysm repair [1]. Aortic-valve sparing operations is a safe and useful surgical operation for treating patients with aortic root aneurysms and ascending aorta aneurysms with dilated aortic sinuses. The long-term results are excellent [2]. Our treatment plan would be the following: in this patient with an aortic root aneurysm, as we decide that the native cusps are normal, the ascending aorta and the sinuses of Valsalva are excised, leaving a rim of 5 mm above the aortic annulus. The right coronary button is left in situ. The circumflex artery button, which is in close proximity to the commissure between the non- and the right coronary sinus is also left in situ (the right coronary sinus is left in situ containing both ostia, it is a composite button). The left anterior descending artery button which is not displaced is prepared as normal. A suitable Dacron graft is then selected and a vertical slit of 2 to 3 mm is made in its proximal end so as to accommodate the in situ coronary sinus with both ostia. The Dacron graft is tied down to the subannular plane. The slit in the Dacron graft is trimmed to create an orifice to house the in situ coronary sinus. The coronary arteries are checked to see if there is kinking or compression by the Dacron. The right aortic sinus with both ostia is then sutured to the Dacron graft by continuing the polypropylene suture that will be used to re-suspend the adjacent commissure. The upper and the lateral border of this sinus with both ostia is sutured when reaching the lower border, the remaining aortic annulus and sinus remnants are re-suspended in the usual way. The other coronary button is re-implanted as normal. The rest of the operation is performed as usual [3].

Conflict of interest: none declared.

References


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Conflict of interest: none declared.

References


The left internal thoracic artery to bypass an abnormal circumflex artery arising from the right coronary sinus in a patient scheduled for root aneurysm repair

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Although classic valve-sparing root repair yields excellent results (survival at 10 years of 93.5%, freedom from structural valve deterioration at 10 years of 96.1% [1]), I agree with Siepe and colleagues [2] that extensive skeletonization of the aortic root might jeopardize an abnormal circumflex artery arising from the right coronary sinus and crossing the dorsal aspect of the annulus. I also agree with the authors’ suggestion that prosthetic valve and root replacement (Bentall procedure) with reimplantation of all three ostia is a possibly dangerous procedure due to potential distortion of the circumflex artery during suture and prosthesis placement. On the other hand, the left internal thoracic artery (LITA) graft has excellent long-term patency when grafted to the circumflex coronary artery (almost 90% at 10 years [3]) Therefore, in my opinion, the ostium of the abnormal circumflex artery should be oversewn, and the in situ LITA graft (skeletonized or pedicled) should be used to bypass the circumflex artery (if possible, the circumflex artery should also be ligated and oversewn proximal to the anastomotic site). The oversewing of an abnormal circumflex coronary artery ostium originating from the right coronary sinus in close proximity to the commissure between the non- and the right coronary sinus could jeopardize annular geometry and outcome of valve sparing root repair procedure. Therefore, my final choice would be to perform prosthetic valve and root replacement (Bentall ‘button’ procedure) with reimplantation of the right and left coronary ostia. The ostium of the abnormal circumflex artery should be oversewn, and the LITA conduit should be used to graft the circumflex coronary artery. This approach can make the whole procedure very safe and simple.

Conflict of interest: none declared.

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