Which repair technique for which aortic root anatomo-pathology? Still a lack of evidence

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An editorial comment was published by Carrel [1], which I read with great interest, regarding our recent contribution to the topic of aortic root repair in acute dissection [2]. I appreciate his kind comments acknowledging our results; however, I feel the need to clarify some aspects.

The technique of partial root remodelling is almost as old as the remodelling method itself. The illustrations of the tongue-shaped grafts, as reproduced in Carrel's critique [1], from Westaby's original article published in 2002, are identical to the drawings already presented by David et al. [3] in their paper from 1995. To enable an anatomical patient-tailored root repair regardless of the number of sinuses to be replaced, I introduced a remodelling modification consisting of the replacement of isolated sinuses using single patches. Even if cut out from straight Dacron, the tear-drop shape of the patches alone ensures the creation of convex pseudo-sinuses as documented and described previously [4].

The aortic aneurysm in elderly patients presents mostly an atherosclerotic aetiology, in which the unequal dilatation of particular sinuses of Valsalva is characteristic. This patient group is ideal for partial remodelling, which offers simple, reproducible and expeditious surgery for the elimination of aortic insufficiency—provided that the valve cusps are normal. Avoiding aortic valve replacement in these patients is particularly advantageous because the risk of endocarditis increases in elderly patients. The long-term results after selective sinus repair in patients without additional cusp pathology are excellent, regardless of the patients' age [5].

As demonstrated in our recent report, the same goes for patients with acute dissection in whom curative aortic root replacement can also be achieved by limited, albeit valve-sparing surgery [2]. Even if Carrel finds the clamp time to be rather long for this kind of surgery, it is to the contrary. The cross-clamp time in the cohort reported by Carrel was indeed shorter; however, no patient underwent a valve-sparing root repair in this group, and the rate of total arch replacement was ~2% [6]. In contrast, this rate was ~60% in our study population, which explains the prolonged surgery time. We strive for a curative replacement of the dissected aortic wall not only in the proximal but also in the distal part of aorta to prevent dissection-related aortic sequelae and the need for re-intervention.

There is still a lack of evidence on which repair technique should be used in particular aortic root pathology. Constrained by the limitations on space in this letter, I am not able to comment on this aspect extensively, yet on the basis of ~900 aortic valve and root repairs performed during the last 13 years, and, particularly, having a database of >140 perioperative parameters collected prospectively, I am convinced that neither the aortic pathology nor the aortic annulus size is decisive for the choice of the repair technique. The cusp pathology is the most important factor to be considered during the decision-making phase, taking into account that complete root replacement with a valve composite graft is a safe and reproducible procedure.

REFERENCES