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CARDIAC SURGERY IN PATIENTS WITH A PORCELAIN AORTA

Reply to the Editor:

We thank Urbanski for his valuable comments on our report describing an alternative technique for enabling open cardiac procedures in patients with a porcelain aorta.

We agree that total arch replacement might be the preferred treatment option for a patient of this age. We disagree, however, with Urbanski's generalization concerning total arch replacement in typical radiation-related aortic calcifications with regard to our patient. As is clearly visible in **Figure 1**, the major branches of the aortic arch were severely involved as well. In addition, the calcifications of the aorta extended well beyond the left subclavian artery into the thoracic descending aorta. This finding raised the potential impossibility of realizing the required vessel connections for arch replacement in a safe and timely fashion

FIGURE 1. Computed tomographic scans show the calcified aorta with its 3 branches, as well as the calcified thoracic descending aorta (yellow arrows).

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and inspired us to look for an alternative, more cautious technique. Intraoperatively, the ascending aorta and arch proved to consist of a homogeneous stone tube without any identifiable remaining soft tissue. This remarkable anatomy unfortunately prevented the insertion of antegrade cerebral perfusion catheters and necessitated deep hypothermia and circulatory arrest. For a more detailed description and intraoperative view we refer to our article.¹ These findings strengthen our view that handling a porcelain aorta during cardiac surgery requires tailored strategies involving a choice from multiple techniques.

With respect to the use of an aortic homograft for the treatment of endocarditis with root destruction, recent observational studies, including the study by Jassar and colleagues² to which Urbanski refers, show similar postoperative long-term survival, complications, and risk of recurrent endocarditis to those associated with biologic or mechanical prostheses.³⁻⁵ A homograft may be preferred for its ease of handling, its hemodynamic performance, and the possibility of using its mitral leaflet for the reconstruction of subannular defects. As Urbanski correctly states, aortic homografts may calcify in the very long term. We would like to point out, however, to elegant solutions like sutureless valves to facilitate future redo surgery. More importantly, we would like to mention the growing potential of percutaneous valve-in-valve implantations that may offer an acceptable alternative treatment pathway

for younger patients wishing to avoid the lifelong anticoagulation associated with mechanical prosthetic valves. Finally, we inserted a segment of woven prosthetic graft into the ascending aorta with the intention to allow aortic cannulation and clamping in redo operations for any indication.

In conclusion, cardiac surgery in patients with a porcelain aorta remains a technical challenge. For optimal treatment outcomes, surgeons should carefully weigh the individual patient characteristics and should have a choice from multiple technical strategies. We believe the technique we described may be useful in selected cases.

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