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REPLY: HYBRID AORTIC ARCH REPLACEMENT AS INNOVATIVE TREATMENT OPTION FOR ACUTE TYPE A AORTIC DISSECTION



Reply to the Editor:

We appreciate the insightful commentary of Pichlmaier and colleagues regarding our recent article on the EB-SAFER technique, which allows for simple and fast anastomosis of arch branches.¹ In their commentary, they describe their group's more than 10 years of experience in using covered stent grafts for bridging the supra-aortic anastomoses during total arch replacement (SAVSTEB [The supraaortic vessel anastomosis stent bridging] technique) using VIABAHN (W. L. Gore & Associates, Inc) as the covered stent graft.²

The concept of their SAVSTEB technique is consistent with that of our EB-SAFER technique. The advantage of our EB-SAFER technique is that it does not expose the subclavian artery. Pichlmaier and colleagues pointed out that unsupported fabric fenestrations have unpredictable long-term results (eg, endoleaks and migration, among

others). From our perspective, we believe that endoleaks and migration also may be prevented.

Our experience with stent grafts has indicated that deformation and migration caused by high forces in the aortic arch anastomosis also would be a problem. In our EB-SAFER technique, we used the J Graft FROZENIX (FET; Japan Lifeline), composed of one wire and a double-layered configuration, which maximizes contact surface to the aortic wall. Thus, it is considered to be more stable than other Z- or ring-shaped stent grafts and can minimize the risk of left subclavian artery migration and occlusion after VIABAHN deployment.

As a countermeasure, the stent skeleton portion of FROZENIX (FET) can be used at the peripheral anastomosis of the aortic arch and fixed to prevent deformity in the remote phase. VIABAHN is inserted into the cervical branch along the long axis of the branch to prevent bending. The proximal end is then secured to the FET with a 5-0 polypropylene thread to prevent long-term migration (Figure 1, A and B). The absence of occlusion of the supra-aortic trunk to the fenestrated surgeon-modified stent graft is expected to show good results in the remote period.³

The most important point is whether to use balloon-expandable or self-expanding stent grafts. We believe that the balloon-expandable type, which is secured by flaring the proximal side during circulatory arrest, carries the risk of arterial injury without fluoroscopy. Therefore, the technique should be performed by experienced surgeons.

In contrast, the use of self-expandable stent grafts appears to be a simple method that requires attention to only the length from the origin of the subclavian artery to the vertebral artery. Kuo and colleagues⁴ also reported



FIGURE 1. A, Postimplant view showing VIABAHN inserted in the long axis. B, Fenestrations are created within the oval stent skeleton, and the edges of the polyester material are solidified by thermal cauterization.

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good outcomes with VIABAHN, and it is thought that a self-expandable type can prevent endoleak when the landing length can be sufficiently long with a small fenestration. We are also developing a hybrid graft with inside-lying branches.

Essentially, the innovative technique discussed by Pichlmaier and colleagues for hybrid aortic arch replacement shares important features with our routine EB-SAFER technique strategy for acute type A aortic dissection. Reasonably, EB-SAFER serves as a transitional technology, and understanding the disadvantages pointed out by Pichlmaier and colleagues and selecting a treatment method appropriate to individual aortic pathology are well appreciated as we all continue with our collective efforts to further improve clinical outcomes.

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