



**REPLY: HOW TO
DEFINE OVERSIZING
OR UNDERSIZING OF
FROZEN ELEPHANT
TRUNK**



Reply to the Editor:

We appreciate the commentaries from Dr Yu and colleagues. There are indeed several factors to be considered when determining frozen elephant trunk (FET) size in acute type A aortic dissection (ATAAD).¹ Patients with connective tissue disorders, such as Marfan syndrome, commonly require aortic reintervention after index ATAAD repair, although favorable late outcomes after arch repair using an FET have been reported even in Marfan syndrome.² Regarding the size of the FET, it remains unclear whether postdissection aortic expansion rates differ between patients with and without Marfan syndrome. Our study included only 2 patients with Marfan syndrome. The postdissection aortic expansion rates were 114% and 117% at the 10 cm level from zone 2, respectively, which were similar to the average expansion rates in the total cohort. Therefore, we currently use a similar sizing method, regardless of the presence of connective tissue disorders.

The number, size, and location of intimal tears vary among patients and can affect the fate of the distal dissected aorta. Iida and colleagues³ classified remodeling patterns in the distal aorta after arch repair using a FET into 3 groups, which were affected by the locations of the re-entries. However, at the proximal descending aorta covered by the FET, excellent remodeling was achieved, regardless of the number, size, and location of the intimal tears.

In some patients, the true lumen is compressed by the false lumen, and the size selection of the FET is controversial. However, even if the true lumen is severely compressed, the long-axis diameter of the postdissection true lumen must be smaller than or similar to the pre-dissection true lumen diameter in the acute phase. By choosing an FET with a diameter identical to the postdissection true lumen long-axis diameter, we can avoid oversizing the FET compared with the diameter of the pre-dissection aorta.

Severe atherosclerosis is uncommon in patients with ATAAD. Nonetheless, caution should be exercised when using FETs in patients with severe atherosclerosis. Inter-costal artery atheroemboli are one of the causes of spinal cord injury after FET deployment.⁴ When severe atherosclerosis is noted on preoperative computed tomography, avoidance of FET with a lower risk of spinal cord injury should be prioritized over the long-term benefits of FET, such as better remodeling.

Better remodeling and avoidance of stent graft-induced new entry (SINE) are 2 important factors affecting long-term outcomes after FET. There is no consensus on the optimal FET size for ATAAD.⁵ FET oversizing may result in SINE, and undersizing may result in insufficient distal aortic remodeling. However, at the time of surgery, we did not have a reference aortic diameter, which may be the pre-dissection aortic diameter, to judge oversizing or undersizing. Therefore, we require an optimal and simple index for FET sizing.

We acknowledge the limitation of solely relying only on our new prediction method for FET sizing in ATAAD due to varying aortic expansion rates. However, our findings can help aid in determining the appropriate FET size and support clinical investigations, including long-term remodeling and incidence of SINE.

Yuichiro Kitada, MD^a

Homare Okamura, MD, PhD^b

^aDepartment of Cardiovascular Surgery
Nerima Hikarigaoka Hospital
Tokyo, Japan

^bDepartment of Cardiovascular Surgery
Saitama Medical Center
Jichi Medical University
Saitama, Japan

Conflict of Interest Statement

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