We thank Ugur et al. for taking the time to respond to our study [1, 2]. Although we share their concern about choosing a safe and effective treatment, we draw quite different conclusions. First, we appreciate Ugur et al.’s concerns about the safety of our catheter-pulling technique, but we think they are misplaced. As we described [2], the elephant trunk is inserted into the descending aorta in the open distal condition, which does not require force, and the catching catheter safely retains the elephant trunk in the aortic lumen without rupturing it or causing peripheral thromboembolism, at least among our cases [2]. Following the distal anastomosis, any debris or air is meticulously removed by retrograde perfusion via a small cannula placed in the right femoral artery. Thus, the catheter-pulling technique we used seems both easy and safe [2, 3].

Ugur et al. also asserted that the frozen elephant trunk (FET) procedure is safer than ours, citing a multicentre evaluation of the FET technique [4] to support their statement. We found this puzzling, because the report by Pacini et al. actually showed a higher incidence of almost all postoperative complications with FET, including hospital mortality, bleeding, neurological complications, permanent paraplegia and paraparesis, than we reported, as well as a much longer visceral ischaemic time (75 min) than ours (25 min) [2, 4].

With regards to reoperation, Ugur et al. are correct that the distance between the coronary arteries and the arch branches is insufficient to permit cross-clamping of the aorta. Therefore, for reoperation, the first and second branches of the aorta are clamped and a reoperative arch graft must be canulated to permit selective anterograde cerebral perfusion, and the aortic cross-clamping must be placed between the second and third branches. Thus, an additional manoeuvre is indeed required for reoperation; however, we believe that this difficulty is compensated by the ease and safety of performing the total arch replacement [2].

Finally, we agree with Ugur et al. that thrombo-exclusion of the aneurysm and peri-graft space should be accomplished as early as possible. However, we do not agree with achieving this by placing the distal end of the elephant trunk beyond the eighth vertebral level, because of the associated increased risk of spinal-cord injury [5]. Moreover, Karck and Kamiya recently reported that implantation of a FET is indicated only for patients with extended pathology of the first half of the descending aorta [6], which is effectively the same as our criterion, i.e. using the diameter of the descending aorta at the T6-8 vertebral level to determine whether to choose the single-elephant trunk or the staged-elephant trunk surgery [2]. Therefore, we continue to believe that our procedure is promising regarding safety, a decreased need for a second-stage operation, and favourable long-term survival, and we disagree with Ugur et al. that the elephant trunk procedure combined with the endovascular technique is safer. Nonetheless, we emphasize that the only empirical resolution of this debate will require the performance of appropriately powered randomized controlled trials.

REFERENCES