Stent grafting: purpose or means

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Thirty years after the introduction of the elephant trunk by Borst, surgical teams keep searching for novel strategies to treat thoracic and thoracoabdominal aortic aneurysms. Particularly when both the ascending and descending aortic segments are involved, extensive surgery is necessary with significant complication and mortality rates. The techniques of the elephant trunk, the frozen elephant trunk, aortic arch debranching and subsequent stenting as well as the use of branched or fenestrated grafts were developed, in turn, to address this kind of extensive aortic disease. None of the current techniques can be considered to be an ideal solution, as each of them causes specific complications. It goes without saying that new techniques should present complication and mortality rates not exceeding those of validated procedures.

The authors present the results [1] of their hybrid approach, creating landing zones proximal and distal if needed, and completing the exclusion of the affected aortic segment by endovascular stenting. The overall procedure-related mortality (n = 11; 9.3%) indicates that even this so-called less invasive technique is still burdened by serious complications. It is remarkable that the neurological complication rate is very low, with no stroke or spinal cord injury occurring in this series.

Comparison of these results with those of other techniques would need to be addressed. A comparison between this technique and validated techniques should be made, between similar groups, preferably with a randomized controlled trial. Long-term results are still lacking. The long-term patency of the very long extra-anatomical bypass to the visceral vessels in MAS II patients is disputable. Current endovascular stent grafts are designed for a straight or slightly curved trajectory as in the descending aorta, not for a 180° curve as in the aortic arch. This potentially increases the risk of stent graft tears and migration, and consequently the development of endoleaks. Cardiac reoperation for any reason will become very challenging if not impossible because of the presence of a stent graft in the distal ascending aorta. Dacron has the property to dilate in the course of time, and this effect could even be enhanced by the radial forces exerted by the stent graft.

Before applying this technique widely, some concerns would need to be addressed. A comparison between this technique and validated techniques should be made, between similar groups, preferably with a randomized controlled trial. Long-term results are still lacking. The long-term patency of the very long extra-anatomical bypass to the visceral vessels in MAS II patients is disputable. Current endovascular stent grafts are designed for a straight or slightly curved trajectory as in the descending aorta, not for a 180° curve as in the aortic arch. This potentially increases the risk of stent graft tears and migration, and consequently the development of endoleaks. Cardiac reoperation for any reason will become very challenging if not impossible because of the presence of a stent graft in the distal ascending aorta. Dacron has the property to dilate in the course of time, and this effect could even be enhanced by the radial forces exerted by the stent graft.

It is the great merit of these authors that they seek improvements to the existing imperfect surgical techniques. We should, however, remain cautious not to see the endovascular stent graft as a purpose in itself, but only as a means in order to achieve a specific goal: offering patients a safe and durable solution for their complex aortic disease. Future studies will have to show whether this technique actually is the appropriate way to achieve this goal.

REFERENCE