Re: Distal aortic reintervention after surgery for acute DeBakey type I or II aortic dissection: open versus endovascular repair

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Bartosz Rylski et al. have evaluated the outcomes following open versus endovascular approaches to distal aortic pathologies after surgery for acute dissection at two tertiary centres in the USA and Europe [1]. A total of 141 patients underwent aortic reintervention for pathologies of the aortic arch, thoracic or descending or abdominal aorta between 2000 and 2014. Most of these patients had a history of DeBakey type I aortic dissection. Overall survival was 74 ± 8, 70 ± 8 and 65 ± 9% in the open and 96 ± 3, 92 ± 5 and 92 ± 5% in the endovascular group at 1, 2.5 and 5 years with 13 and 12 patients remaining at risk at 5 years, respectively. Freedom from distal re-reintervention was 100 ± 0, 100 ± 0 and 93 ± 7% in the open patients and 96 ± 3, 90 ± 5 and 90 ± 5% in the endovascular patients at 1, 2.5 and 5 years, respectively.

Although open surgical repair has been regarded as the gold standard for treating aortic events following type I or II dissection repair, in-hospital mortality after descending aorta reintervention was lower in patients classified for endovascular treatment in this study. However, despite a technically successful endovascular reintervention, over 10% of patients attained threshold aortic diameter values for re-reintervention during this study. In addition, patients with aortic arch involvement received an open repair (58 vs 7%), explaining to some extent this difference in mortality.

Although regarded as controversial until now, this study may lead to more endovascular procedures to treat patients with residual dissection after proximal aortic repair for type I or II dissection.

The authors have rightly quoted Dr Crawford’s saying ‘No patients should be considered cured of the disease’. This study also demonstrates that it is of utmost importance to keep the patients after aortic dissection in strict follow-up. This way, surgeons can ‘catch’ the patients early enough so that either of the two techniques: open or endovascular repair can be performed tailored to suit the patients.

Another lesson from this study is that it may be better to treat the patients more ‘aggressively’ during initial surgery for acute De Bakey type I aortic dissections.

The main goal of emergency surgery for acute aortic dissection, type A (AAADA) is to prevent rupture of the ascending aorta causing pericardial tamponade. Therefore, many surgeons advocate only an ascending aortic replacement with or without replacement of the proximal arch or aortic root repair. In such cases, the dissection in the aortic arch and descending ‘untreated’ aorta remains at the risk of subsequent dilatation and even rupture. Furthermore, even in DeBakey type II dissections, initial replacement of all dissected aortic tissue does not eliminate the risk of later adverse aortic events.

To prevent this risk, several groups such as Ando et al. as well as Kazui et al. recommended a more aggressive strategy with total aortic arch replacement to improve late surgical outcome [2, 3]. However, performing a technically demanding total aortic arch replacement in acute DeBakey type I aortic dissection patients for supposedly better long-term results is controversial. Therefore, in the initial years, Borst’s ‘Elephant trunk technique’ was performed exclusively ‘in-bail out situations’ [4, 5].

With advances in surgical techniques and availability of ‘frozen elephant trunk’ (FET) prostheses, several groups, including ours, have proposed a total aortic arch replacement with an FET implantation to stabilize the dissecting membrane in the proximal descending aorta and seal the false lumen in to prevent its dilatation and possibly reduce subsequent downstream problems [6-9]. In countries such as the USA, where the prefabricated FET grafts are not available, at least, a ‘stented graft’ should probably be introduced into the proximal descending aorta in addition to the ascending aortic and proximal aortic arch repair during the initial surgery. However, it is important to ‘fix/suture’ this stented graft proximally to prevent migration.

Deployment of the stented graft into the proximal descending aorta is technically simpler than the total aortic arch with FET. Probably, a length of ~10 cm for the stented graft is enough as its primary purpose is to stabilize the dissecting membrane and favour true lumen expansion downstream, and help in the treatment of visceral malperfusion. This could also reduce the risk of spinal cord injury.

This technique of ‘aggressively’ resecting all the dissected ascending aorta and aortic arch with implantation of a ‘stented graft’ in the descending aorta at least in younger patients, should help in reducing the need for future reinterventions in the
downstream aorta. Even if the need for such an intervention arises, because of the presence of a 'pre-existing' stent acting as an 'ideal landing zone' in the proximal descending aorta, an endovascular procedure should be technically easier. This would not only reduce the need for redo open repair for distal aortic arch pathologies but also result in further increasing the proportion of endovascular treatment of distal aortic pathologies after previous surgery for acute dissection. This, in addition, should help us to further reduce the mortality and morbidity of these patients at follow-up.

REFERENCES


