Open surgery for thoracic aortic disease

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While new technologies appear to offer potential advantages over traditional therapies for thoracic aortic disease, open surgery is still the mainstay of treatment for the overwhelming majority of patients.
intervention for type B dissection, patients are treated medically. This is primarily with the use of aggressive antihypertensive medication and analgesia. Surgical intervention is reserved for emergency patients threatened by aortic rupture, ischaemic complications, uncontrollable hypertension, or intractable pain.

The 30 day mortality rate for surgery delayed until the chronic stage is 7–14%, with no greater risk than that for aneurysm graft replacement of the descending thoracic or thoracoabdominal aorta. Chronic type B aortic dissection was previously considered a risk factor for neurological complications, particularly during the “clamp and go” era. However, in 854 patients operated on for descending thoracic and thoracoabdominal aortic aneurysms, we found no difference in neurological outcome between patients with or without chronic dissection. Risk factors for neurological complications include prolonged aortic clamp time, extensive (type II) chronic dissection. Risk factors for neurological complications include prolonged aortic clamp time, extensive (type II) thoracoabdominal aortic aneurysms, and renal failure. The adjunctive techniques of distal aortic perfusion and cerebrospinal fluid drainage have reduced the overall incidence of neurological deficits to 0.9% for descending thoracic aortic aneurysm repair and to 3.3% for thoracoabdominal aortic aneurysm repair. The most troublesome group of patients is still type II thoracoabdominal aortic aneurysms, with the highest rate of neurological complications. However, the beneficial effect of adjuncts is also most apparent in this group, having reduced the rate of paraplegia to approximately 7% from a former high of 33%.

CURRENT STATUS OF ENDOLUMINAL TREATMENT

New technology is always attractive when it is associated with potential advantages over current treatment. Stent grafts have been used to treat pathology of the descending thoracic aorta. Avoiding thoracotomy, full heparinisation, and aortic cross-clamping is beneficial. Reducing distal ischaemia to a minimum should decrease the incidence of paraplegia and visceral and renal ischaemia. However, the initial period of enthusiasm has been tempered with the publication of complications associated with these devices. These include rupture of the aorta caused by gross oversizing of the graft and fatal consequences associated with covering the coeliac axis. The number of neurological complications associated with endoluminal thoracic repair is increasing steadily, particularly paraplegia and stroke. Experience with stent grafts in the infrarenal aorta has shown that there is a risk of rupture of 1% per annum. The stent graft may become displaced and migrate, allowing the sac to become pressurised and therefore at risk of rupture. Several stent grafts have had to be withdrawn to be redesigned, often because of fractures of the stent or hooks. The definitive stent graft has not yet been manufactured, and although open surgery is associated with higher risks in the short term, the long term integrity of the grafts is not in doubt.

Randomised controlled trials offer the best way to compare open surgery and endoluminal repair. Although these are underway for infrarenal aortic aneurysms, no randomised trial has yet made this comparison for repair of the thoracic aorta. The use of registries may be a way forward to prove the efficacy of these devices outside the constraints of a randomised trial. However, until information is available on the long term durability for stent grafts placed in the thoracic aorta, open surgery for thoracic aortic pathology is still the mainstay of treatment for the overwhelming majority of patients.

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REFERENCES