FIGURE 2. Computed tomography angiogram of HeartMate II (Thoratec Corp, Pleasanton, Calif) LVAD pump demonstrates proper alignment of inflow cannula and outflow graft. H, Head; F, foot; R, right.

retractor (Rultract, Cleveland, Ohio) is secured to the head of the operating table and used to retract the left costal margin cephalad. The abdomen and preperitoneal pump pocket are entered. Dissection is conducted to mobilize the outflow graft screw and the inflow segment screw, displacing these downward into the abdomen, thus enabling detachment of the body of the pump for replacement (Figure 1). Before attempting replacement of the pump, CPB is established and the ascending aorta is vented as described above. Next,

under conditions of temporarily decreased CPB flow, the body of the pump is removed by loosening the outflow graft screw and the inflow segment screw. The back bleeding from the outflow graft is controlled by introducing a Foley balloon catheter into the graft and inflating the balloon with saline. After the outflow graft is controlled, full CPB pump flow is restored. Bleeding from the inflow segment is controlled by placing a pump sucker into the inflow segment. Next, the new pump is brought up to the field and the drive-line is tunneled. If the old inflow segment is not obstructed, then the new inflow segment can be removed from the new pump. The new pump body is attached to the old inflow segment using the old inflow segment screw (Figure 1). Next, the old outflow graft is attached to the new pump using the old outflow graft screw (Figure 1). Before attaching the outflow graft, CPB flow is again reduced, and the Foley balloon is taken down and removed from the outflow. With these components securely attached to the new pump, the pump is submerged in saline and the left ventricle is allowed to fill. The patient is gradually weaned from CPB with increasing LVAD pump speeds; simultaneously, the ascending aorta is vented and TEE is used to monitor for air.

CONCLUSIONS

This left subcostal approach to LVAD pump replacement is less invasive than redo median sternotomy, and may result in reduced bleeding and RV dysfunction.

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Aortocarotid bypass at the time of central aortic repair for type A acute aortic dissections

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The management of patients with acute type A dissections complicated by cerebral malperfusion remains controversial. A recent study showed that some of the occluded carotid vessels remained blocked after central aortic repair, and this phenomenon could be related to unfavorable outcomes.¹ We report a patient with type A aortic dissection who underwent aortocarotid bypass at the time of central aortic repair.

FIGURE 1. A, Enhanced computed tomography scan showing acute type A dissection. B, Three-dimensional reconstructed preoperative computed tomography image. The left carotid artery was totally occluded by a thrombosed false lumen 7 cm in length from its origin to the level 4 cm below the carotid bifurcation. The intimal flap in the ascending aorta (*arrow*). *The left carotid artery.

CLINICAL SUMMARY

A 57-year-old man was brought to the emergency department by ambulance for right hemiparesis and loss of consciousness 1 hour after the onset of the symptoms. His Glasgow Coma Scale was 9 (E3, V2, M4), and he had right hemiparesis. The pulse was absent at the left carotid artery. An enhanced computed tomography scan from head to groin was ordered by an emergency physician. The scan showed an acute type A dissection (Figure 1, A) and

FIGURE 2. Three-dimensional reconstructed postoperative computed tomography scan taken 3 months after surgery. A 6-mm ringed PTFE graft for aortocarotid bypass is seen. The left carotid artery had regained its continuity to the aorta by this time, although the persistent occlusion in the earlier period had been shown by a previous computed tomography scan 2 weeks after the surgery.

complete occlusion of the left carotid artery by a thrombosed false lumen of 7 cm in length from its origin to the level 4 cm below the carotid bifurcation (Figure 1, B).

The patient was transferred to the operating room. After induction of general anesthesia, his neck was incised, and the pulseless left carotid bifurcation was exposed. A median sternotomy was made. Cardiopulmonary bypass was established by right femoral arterial cannulation and bicaval venous cannulation. A 6-mm ringed polytetrafluoroethylene (PTFE) graft was anastomosed to the left common carotid artery in an end-to-side fashion. Blood started to be infused into the left carotid artery via the PTFE graft. The patient was cooled, and the pump was stopped at a core temperature of 25°C. The ascending aorta was incised, revealing a large intimal tear in the ascending aorta. A cannula was inserted into the brachiocephalic artery for selective cerebral perfusion,² and the left carotid artery continued to be perfused through the graft. The left subclavian artery was blocked by a balloon catheter. No backflow was observed from the orifice of the left common carotid artery despite continuous infusion. After completion of the distal anastomosis for hemiarch replacement with a 28-mm Dacron graft, the proximal end of the PTFE graft was sewn to the Dacron graft (Figure 2). The rest of the surgery was completed in the usual manner.

The patient woke up without any neurologic deficits and showed normal recovery. Enhanced computed tomography

showed persistent occlusion of the left carotid artery 2 weeks after surgery, although the artery later regained its continuity to the aorta (Figure 2). As of 6 months after the surgery, the patient is doing well. He can move his neck with no restriction.

DISCUSSION

The management of patients with acute type A dissections complicated by cerebral malperfusion remains challenging.¹ Although favorable results of immediate central aortic repair have been reported in recent years,^{1,3} a significant number of patients remain disabled,^{1,3} and some have shown exacerbation and eventual death.¹

In contrast with malperfusion syndrome involving the coronary arteries or iliofemoral arteries, vascular reconstruction has almost never been performed for carotid arteries.⁴ There are 2 main reasons for this. First, occlusion of the carotid vessels is resolved in most cases after completion of routine central aortic repair. Second, revascularization therapy after acute ischemic stroke is often ineffective and can even harm some patients.⁵

In regard to the first point, it now is clear that some carotid arteries remain occluded after central aortic repair.¹ These patients tend to have poor postoperative courses.¹ Intuitively, this case was thought to have a high probability of persistent occlusion considering the long and thrombosed occlusive lesion and the absence of backflow from the orifice despite continuous distal carotid artery perfusion.

In regard to the second point, this patient was judged to be a good candidate for revascularization because he presented early after the onset of symptoms. Although it is not clear which patients will benefit specifically from this additional surgical revascularization for an aortic

dissection, general guidelines about patient selection for re-perfusion therapy in acute ischemic stroke can be used as a reference at this time.⁵

Additional imaging tests may be necessary for carotid vascular reconstruction, and these tests may unduly delay surgery in certain institutions. Given the poor natural course of acute type A dissection, the judgment to plan aortocarotid bypass should be individualized.

CONCLUSIONS

Aortocarotid bypass was performed in a patient with type A acute aortic dissection with good results. On the basis of accumulating evidence, we believe it is reasonable to perform vascular reconstruction in the carotid vessels in selected cases.

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Single-stage subchordal resection and reconstruction of idiopathic laryngotracheal stenosis in a male patient

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Idiopathic laryngotracheal stenosis (ILTS) is a rare condition of inflammatory fibrotic stenosis of the subglottic airway that is mostly circumferential and centered in the cricoid cartilage. To date, the largest series of patients with ILTS has been reported by Ashiku and colleagues.¹ Patients with ILTS have no recent history of intubation, trauma, or intervention to their airways. Patients with subglottic or tracheal stenosis but with no infectious and vasculitic pathologies, such as Wegener granulomatosis, relapsing polychondritis, polyarteritis, scleroderma, or