Aortic Arch Graft Wrapping with Pedicled Omentum: Angiographic Assessment of the Omentum

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Introduction

Although the placing of a pedicle of omentum to wrap replaced aorta in an infected field is a well established procedure, there have been few reports that have demonstrated the postoperative vascular supply to such omental wraps. In our series of patients undergoing this procedure, postoperative selective angiography of the right gastroepiploic artery (RGEA) was performed in one case, and showed well developed vascularity of the omentum surrounding the replaced graft. This ample blood supply might explain the role played by omentum in the prevention of postoperative graft infection.

Case Report

The patient was a 62-year-old female who presented with a febrile episode due to sepsis, with a blood culture positive for salmonella. The chest X-ray revealed a mass which a contrast-enhanced CT revealed to be an 8 cm saccular aneurysm arising from the aortic arch. A diagnosis of aortic arch aneurysm caused by mycotic infection was made, and the patient was referred to our hospital for surgery.

The aneurysm was situated mainly at the distal arch, and extended to the descending thoracic aorta.

Under hypothermic cardiopulmonary bypass with selective cerebral perfusion, aneurysmectomy and in situ graft replacement were carried out using a woven dacron graft with four branches. Cultures of the fluid from the operative field and the aneurysmal wall were positive for salmonella. The wound was left open except for the skin, and iodine soaked swabs were packed around the replaced graft for 2 days after surgery, changed daily to disinfect the operative field. On the third postoperative day a section of omentum attached by a vascular pedicle was prepared, transferred into the mediastinum, and installed as a wrap around the replaced graft, after which the wound including sternum and ribs was closed. Appropriate antibiotics were given for 4 weeks. Postoperative angiography of the replaced graft (Fig. 1) and selective angiography of the right GEA were performed, which demonstrated that the pedicled omentum had a well-developed vascular supply (Fig. 2). The patient was discharged 5 weeks after surgery.

Discussion

We have treated 10 patients with thoracic mycotic aneurysm surgically, and in all patients in situ reconstruction was performed. In an attempt to prevent postoperative graft infection, in six cases including the current one pedicled omentum was prepared and transferred into the thorax to wrap the implanted graft. Four patients did not undergo omental wrapping because of omental disruption due to a previous gastrectomy, or because of...
emergency surgery of an impending rupture before the diagnosis of mycotic aneurysm was established. Although in this case report the aortic arch was located in a position farther away from the abdomen than in several of our other cases, the omentum could easily be deployed to reach to the top of the graft, and the whole extent of the graft could be wrapped. This is demonstrated in Fig. 2 which also shows the RGEA vascular supply to the omentum. This vascular supply probably becomes even better with the passage of time. Although there is no conclusive evidence of a role for omental wrapping in preventing postoperative

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**Fig. 1.** The postoperative grafts are shown in lateral and PA view. The left subclavian artery was reconstructed using an extraanatomical route (indicated by arrows). The distal anastomosis of the arch graft was performed at the sixth thoracic vertebral level.

**Fig. 2.** Postoperative RGEA selective arteriography is shown in the PA (a) and lateral (b) views, with combined films for each view depicting the proximal (lower photo) and distal (upper photo) phase of RGEA angiography. The RGEA vasculature (small arrows) extends from the top of the arch graft to the T6 level where the distal anastomosis had been carried out. Large arrows indicate the T6 level.
infection, results and angiographic findings in this case, with the excellent outcomes in the other five cases that are alluded to above, suggest a possible important role for this procedure.

References


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