

Left anterior intrathoracic reconstruction of the esophagus with omental flap for infective proximal aortic repair



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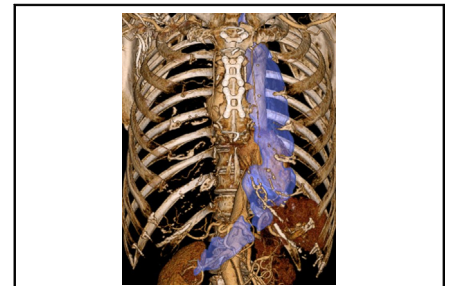
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The gastric tube colored *blue* was routed the left anterior intrathoracic space.

CASE PRESENTATION

A 63-year-old woman presented to the emergency department with chest and back pain at 5 months after undergoing graft replacement surgery for acute type A aortic dissection (AAAD). Computed tomography angiography (CTA) revealed an abscess around the middle portion of the intrathoracic esophagus and a pseudoaneurysm at the proximal anastomosis of the previous surgery (Figure 1, A).

The patient required ascending aortic repair and esophagectomy owing to the risk of developing an aorto-esophageal fistula, as well as the a possibility of infection of the ascending aorta. Pseudoaneurysm repair needed to be done first because of the high risk of rupture.

Under general anesthesia, a repeat median sternotomy was performed. After systemic heparinization, cardiopulmonary bypass was established by cannulating the right femoral artery and vein. The ascending aortic graft was clamped, and the proximal anastomosis was repaired using a new prosthetic graft. The pump-off was smooth and hemostasis was completed.

The intra-abdominal esophagus was stripped off by laparoscopy. A total of 5 ports were installed, and the esophagus was resected from the adjacent tissue at the level of the trachea bifurcation.

Next, a supraclavicular incision was made, the sternocleidomastoid muscle was placed outside, and the esophagus was secured. The left sternoclavicular joint was not removed, but instead, the posterior region of the left clavicular head was shaved. Through the incision, the periesophageal tissue was resected, and a connection was made to the earlier released layer from the abdominal esophagus. An upper abdominal medial incision was created, and the connection

CENTRAL MESSAGE

The left anterior intrathoracic route is useful for attaching the omental flap to the ascending aorta and reconstructing the gastric conduit through a median sternotomy.

of the esophagus and stomach was released using EndoGIA (Medtronic). The esophagus was then removed in an inverted position through the supraclavicular incision.

We selected simultaneous reconstruction in this case because an omental flap was necessary to prevent infection. Esophageal reconstruction via the left intrathoracic route was possible when median sternotomy was performed simultaneously because the left internal mammary artery had to be dissected and the lung stripped from the chest wall from the medial side. Moreover, omental fixation around the ascending aortic prosthesis through a left thoracotomy is extremely difficult after a median sternotomy is closed.

After the left internal mammary artery was mobilized toward the lateral side, the gastric tube was routed to the left thoracic ventral space, which represented the posterior of the left ribs and where the internal mammary artery was located (Figures 1, B and 2). Then the proximal site of the gastric tube was placed in the left supraclavicular space, and end-to-end anastomosis to cervical esophagus was accomplished using an EEA Circular Stapler with Tri-

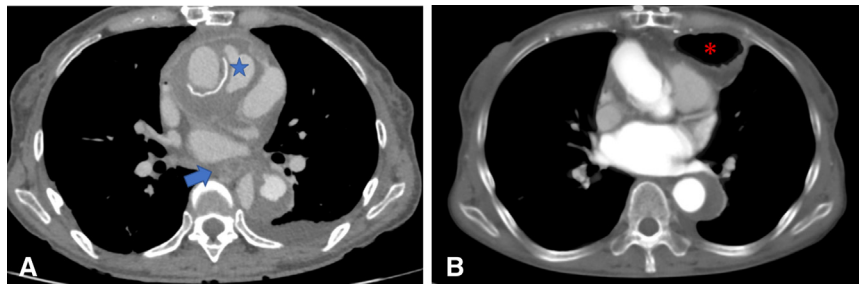


FIGURE 1. A, Preoperative computed tomography showing apseudoaneurysm at the proximal anastomosis (*blue star*) and an esophageal abscess (*blue arrow*). B, Postoperative computed tomography scan showing the primary gastric conduit (*red asterisk*).

Staple technology. The sternum was then closed without injuring the gastric tube.

The patient's clinical condition improved after surgery, and she was discharged at 1 month postoperatively. Follow-up at 2 years postoperatively was unremarkable.

The patient provided informed written consent for the publication of study data (IRB/ERB TGE02114-025; January 26, 2023).

DISCUSSION

To our knowledge, there are no published reports on aorto-esophageal fistula treatment with ascending aortic repair, left intrathoracic esophagus reconstruction, and

omentopexy through median sternotomy. Three common reconstructions are performed using a gastric tube after esophagectomy: antesternal, retrosternal, and posterior mediastinal. Most procedures involve the retrosternal and posterior mediastinal reconstruction routes because of a shorter gastric conduit length and fewer cosmetic changes after esophagectomy.^{1,2}

Most aorto-esophageal fistulas occur between the thoracic esophagus and descending aorta. In this situation, the antesternal or retrosternal route is selected to prevent severe adhesion between the artificial graft of the descending aorta and the esophagogastric anastomosis. Meanwhile, the posterior mediastinal route is used to attach the omentum around the graft.³

In our case, the patient underwent ascending aortic graft replacement via median resternotomy, and thus we performed esophagogastric reconstruction through the left intrathoracic route and fixation of the omental frap in situ. This procedure also prevented gastric tube injury during sternal closure and prepared the patients for possible resternotomy in the future.

Esophageal exclusion may be invasive, but it eliminates the risk of dehiscence due to primary esophageal repair and prevents reinfection of the new aortic prosthetic graft. An omental flap is a valid surgical treatment option for aorto-esophageal fistulas and infected grafts and can prevent infections because of its high vascularity and potential for neovascularization.³⁻⁵ We completed simultaneous reconstruction because we believed that omentopexy was crucial to prevent prosthetic graft infection. Our operative procedure can be useful in such cases.

CONCLUSIONS

Left anterior intrathoracic reconstruction of the esophagus with a median sternotomy is a feasible technique for fixation of the omentum to ascending aorta.

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FIGURE 2. Postoperative computed tomography scan showing the gastric conduit (*blue*) in the left thoracic space.

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