

Latissimus Dorsi Muscle Flap with a Distally Based Serratus Anterior Extension for Salvaging Aortic Graft Infection

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Sir,

Thoracic aortic graft infection is a life-threatening issue in the clinical practice of cardiovascular surgery.¹ Esophageal or pulmonary fistula has been reported to be one of the fatal causes associated with thoracic aortic graft infection.² The most reliable treatment is fistula excision and graft replacement followed by graft coverage with autologous vascularized tissue.³ Omental flaps or latissimus dorsi (LD) muscle flaps are examples of flaps suitable for covering a replaced graft if the site of replacement is limited to the descending part.⁴ In contrast, there is no suitable local flap method for covering an extensive graft replacement from the descending part to the arch. We herein describe our experience in the use of combined LD muscle and distally based serratus anterior (SA) muscle flaps for salvaging extensive aortic graft infection.

We applied this technique in 2 patients. The first was a 49-year-old man with thoracic and abdominal aorta graft infection caused by a pulmonary fistula. Partial lung resection and replacement of the infected aortic grafts from the aortic arch to the abdominal aorta were performed. The omental flap volume was insufficient and only reached the abdominal graft; thus, the replaced graft from the aortic arch to the descending thoracic aorta required muscle flaps. We elevated the combined LD and SA muscle flap; however, it did not reach the aortic arch. We then coincidentally noticed distal continuity between the LD and SA and cut the SA branch to

make a Y-shaped muscle flap (see figure 1, Supplemental Digital Content 1, which shows a distal anatomical connection between the LD and SA, <http://links.lww.com/PRSGO/B415>). Since the proximal part of the SA was bleeding well, we used the Y-shaped muscle flap to wrap the aortic arch with the distally based SA muscle and the descending part with the LD muscle. Postoperative contrasted computed tomography showed vascularized muscle coverage.

The second case was a 69-year-old man with thoracic aorta graft infection caused by an esophageal fistula. Esophageal resection and replacement of the infected aortic graft from the aortic arch to the descending thoracic aorta were planned. A vascularized omental flap had been used in a previous operation; thus, we elevated

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Received for publication April 10, 2020; accepted April 30, 2020.

Related Digital Media are available in the full-text version of the article on www.PRSGlobalOpen.com.

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Plast Reconstr Surg Glob Open 2020;8:e2926; doi: 10.1097/GOX.0000000000002926; Published online 15 June 2020.

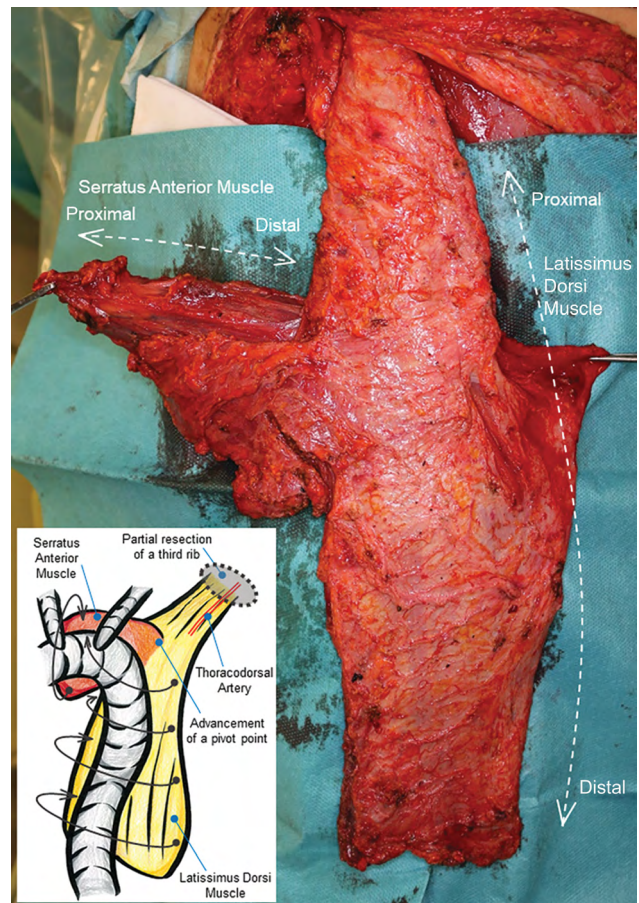


Fig. 1. A Y-shaped muscle flap constructed with combined latissimus dorsi and distally based serratus anterior muscle using a distal vascular network.

a similar muscle flap (Fig. 1). We verified the blood flow from the distal LD to the distal SA using an indocyanine green test (see Video [online], which demonstrates ICG fluorescence imaging showing the distal vascular network between the latissimus dorsi and serratus anterior muscle). The third rib was partially resected to pass the muscle flaps into the chest cavity (see figure 2, Supplemental Digital Content 2, showing the wrapping of the aortic arch and descending thoracic aorta with the Y-shaped muscle flap. <http://links.lww.com/PRSGO/B416>.) Secondary esophageal reconstruction using free jejunum transplantation was performed after 9 months. There was no recurrence of infection in his chest cavity.

We showed a technical proposal for treating aortic graft infection. There are no reports about the vascular network between distal LD muscle and distal SA muscle. Although we are surveying cadaveric studies to prove the vascular anatomy in detail and evaluate variations, we need to provide a brief report for the consideration of patients and surgeons facing similarly urgent life-threatening cases.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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