

## Emergent open repair of a symptomatic type III thoracoabdominal aneurysm

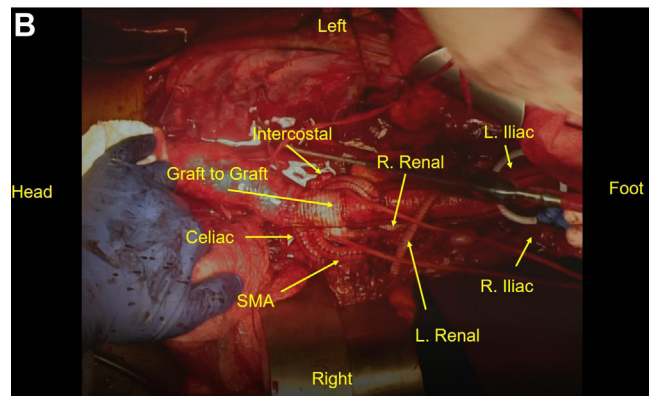
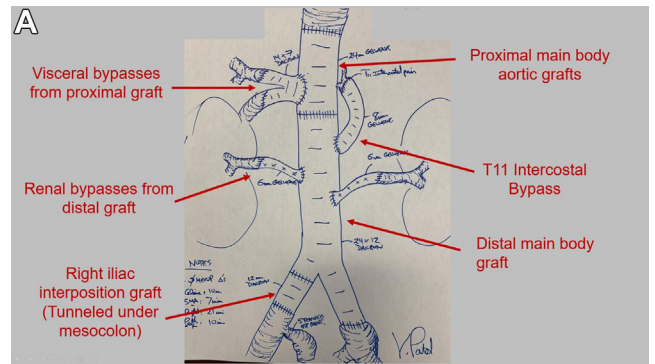
Jacob Schwartzman, MD, MPH,<sup>a</sup> Tomaz Mesar, MD,<sup>a</sup> Stephanie N. Nguyen, MD,<sup>b</sup> Lydia Miller, MD,<sup>b</sup> Hiroo Takayama, MD,<sup>b</sup> and Virendra I. Patel, MD, MPH,<sup>c</sup> New York, NY

Symptomatic aortic aneurysms are associated with high rates of rupture, with significant morbidity and mortality, and can be associated with inflammatory pathophysiology. Prompt surgical intervention can prove lifesaving for these patients but can be technically challenging.<sup>1-5</sup>

A 69-year-old woman with a known extent III thoracoabdominal aortic aneurysm had presented with 2 weeks of worsening abdominal pain and tenderness. Computed tomography angiography showed interval growth of her aneurysm from 4.3 to 7.2 cm within a 9-month period. Fat stranding, retroperitoneal adenopathy, and irregularities in the aortic wall were present that were concerning for an inflammatory aneurysm with impending rupture. Despite adequate blood pressure control, her symptoms worsened, and she was taken for emergent open repair (Video).

A thoracoabdominal incision was made in the seventh interspace with the patient in right lateral decubitus position. The diaphragm was divided. A left medial visceral rotation was performed. Extensive scarring was present in the retroperitoneum without signs of bleeding. Circumferential control of the descending thoracic aorta (DTA) was obtained. The major visceral vessels were controlled, except for the right renal artery. The bilateral iliac arteries were dissected to their bifurcations. Two main body grafts were constructed to ensure an adequate length to reach the DTA (A).

The patient was placed on left heart bypass. The DTA was cross-clamped and transected, and an end-to-end anastomosis was created to the proximal main body graft. A graft-to-graft anastomosis was created between the main bodies, and the celiac, superior mesenteric, left renal, and right common iliac arteries were reimplemented. At this point, the left heart bypass was providing perfusion only to the right kidney and the left leg. The left common iliac artery was clamped, and the aortic sac was opened. The back-bleeding intercostal arteries were ligated. The right renal artery and left common iliac artery were reimplemented. The left heart bypass was discontinued. Finally, the T11 intercostal arteries were reimplemented because of some minor motor-evoked potential changes (B).



From the Division of Vascular Surgery, New York Presbyterian Hospital<sup>a</sup>; the Division of Cardiothoracic Surgery<sup>b</sup> and Division of Vascular Surgery,<sup>c</sup> Columbia University Medical Center.

Author conflict of interest: none.

Presented at the How I Do It Video Session at the Seventy-fifth Society for Vascular Surgery Vascular Annual Meeting, Boston, MA, June 15-18, 2022.

E-mail: [vp2385@cumc.columbia.edu](mailto:vp2385@cumc.columbia.edu).

The editors and reviewers of this article have no relevant financial relationships to disclose per the Journal policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest.

J Vasc Surg Cases and Innovative Techniques 2023;9:1-2

2468-4287

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<https://doi.org/10.1016/j.jvscit.2022.08.025>

The patient recovered without additional major incidents. Repeat computed tomography angiography at 6 months of follow-up showed intact aortic repair with patent visceral bypasses. The patient provided written informed consent for the report of her case details.

## REFERENCES

1. Kuzmik GA, Sang AX, Elefteriades JA. Natural history of thoracic aortic aneurysms. *J Vasc Surg* 2012;56:565-71.
2. Rosenblum JM, Chen EP. Thoracoabdominal aortic aneurysm repair: open, endovascular, or hybrid? *Gen Thorac Cardiovasc Surg* 2019;67:175-9.
3. Tang T, Boyle JR, Dixon AK, Varty K. Inflammatory abdominal aortic aneurysms. *Eur J Vasc Endovasc Surg* 2005;29:353-62.
4. Safi HJ, Miller CC III, Huynh TT, Estrera AL, Porat EE, Winnerkvist AN, et al. Distal aortic perfusion and cerebrospinal fluid drainage for thoracoabdominal and descending thoracic aortic repair: ten years of organ protection. *Ann Surg* 2003;238:372-80.
5. Mohebali J, Carvalho S, Lancaster RT, Ergul EA, Conrad MF, Clouse WD, et al. Use of extracorporeal bypass is associated with improved outcomes in open thoracic and thoracoabdominal aortic aneurysm repair. *J Vasc Surg* 2018;68:941-7.

Submitted Jun 30, 2022; accepted Aug 25, 2022.