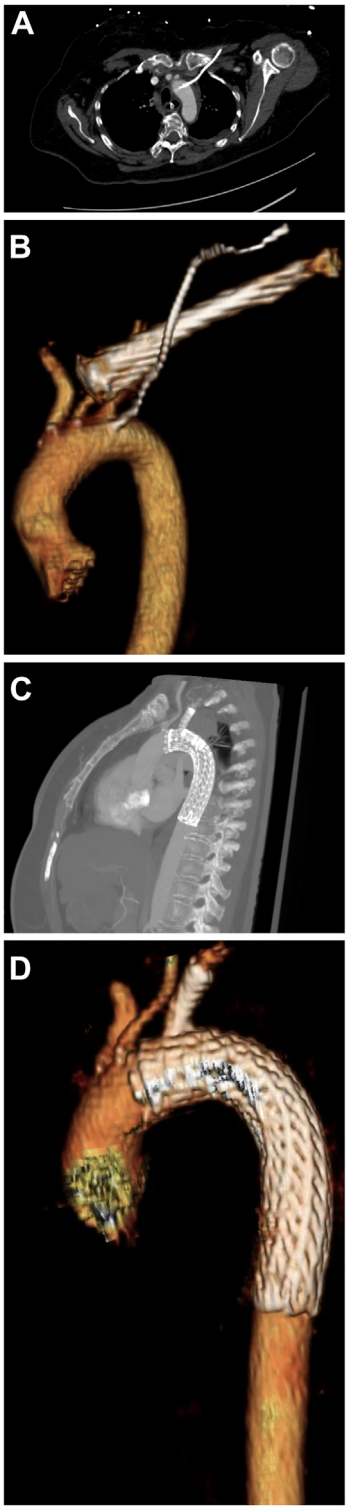
Endovascular repair of iatrogenic zone 2 aortic injury after attempted central line placement

Ashley Amundson, BS,[a] Besher Tolaymat, MD,[b] Tanya Egodage, MD,[c] Bruce L. Tjaden, MD,[b] Katherine K. McMackin, MD,[b] *and* Joseph V. Lombardi, MD, MBA,[b] *Camden, NJ*

A 62-year-old female patient presented to the emergency department after being found unresponsive at home. She had a Glasgow coma scale score of 6, and her workup was significant for subdural hematoma and elevated anion gap metabolic acidosis. Hemodynamic instability prompted emergent triple-lumen central line placement via a left subclavian vein approach without ultrasound guidance. Concern arose for potential arterial placement following a chest radiograph and transduction of pressure waveform. At this time, the vascular surgery service was consulted, and computed tomography angiography of the chest was performed, which revealed direct puncture and cannulation of zone 2 of the aortic arch by the central line with an associated intramural hematoma (*A* and *B*/Cover). The treatment modalities considered but not chosen were (1) open exposure with trapdoor thoracotomy vs sternotomy, catheter removal, and primary repair of aortic arch; and (2) thoracic endovascular aortic repair landed in zone 2 with or without carotid–subclavian bypass. Given the patient's stabilized hemodynamics and site of injury and to minimize risk of arm ischemia, thoracic endovascular aortic repair was performed with a thoracic branch endoprosthesis (W.L. Gore & Associates) was performed. The left axillary artery was accessed percutaneously under ultrasound guidance. The catheter was removed from the aorta over a wire after positioning the thoracic branch endoprosthesis device in the arch but just before its deployment. Neither extravasation nor an endoleak was noted. The catheter was found to be intact. A small, flow-limiting dissection of the left axillary access site necessitated covered stent placement with a Viabahn stent (W.L. Gore & Associates). Her postoperative course was uncomplicated without evidence of stroke, arm ischemia, or spinal cord ischemia. Follow-up computed tomography angiography at 1 month (*C* and *D*) showed a stable appearance of the stented thoracic aorta and left subclavian artery with resolving intramural hematoma. The patient provided written informed consent for the report of her case details and imaging studies.

Submitted Jul 3, 2023; accepted Jul 17, 2023.



From the Cooper Medical School of Rowan University[a]; the Division of Vascular and Endovascular Surgery,[b] and Division of Trauma Surgery,[c] Department of Surgery, Cooper University Hospital.

Author conflict of interest: none.

E-mail: amunds47@rowan.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 Innov Tech 2023;9:101285

2468-4287

https://doi.org/10.1016/j.jvscit.2023.101285