

Management of a Zone 1 Arch Aortic Arch Aneurysm in Right Sided Aortic Arch Complicated by Postoperative CVA

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INTRODUCTION

Right sided aortas are a rare finding in the general population. They are formed when the left fourth arch or the left dorsal aorta degenerates and the right dorsal aorta remains patent. Most right sided aneurysms form from an aberrant Kommerell's Diverticulum. Given this challenging anatomy, there is no gold standard in treatment of these aneurysms. We present a case of a patient with a right sided arch aneurysm who was deemed high surgical risk, and treated with a novel endovascular stent graft (TBE)

CASE DESCRIPTION

- 66 M with PMH of chronic backpain, HTN, CAD, CHF (EF 25%), referred to vascular surgery for repair of right sided aortic arch aneurysm (8.1 cm).
- Patient was evaluated by cardiothoracic surgery and deemed not a surgical candidate given cardiac comorbidities.
- CTA demonstrated individual vessels in order of proximal to distal: left carotid, right carotid, right subclavian, left subclavian. The aneurysm started in zone two and would require the stent graft to include the right carotid artery given the patient's aberrant anatomy.
- The patient elected to proceed with an endovascular treatment option.

DISCUSSION

Patient had a previous left carotid-subclavian bypass with embolization of proximal left subclavian in preparation for TBE. A right carotid-subclavian artery bypass was performed and a PTFE conduit was sewn into the bypass for our through and through access for the TBE side branch. Aortogram was performed and a distal Gore C-TAG was deployed (37 x 37 x 15 cm). The through and through wire was snared and the proximal thoracic branched endoprosthesis (45 x 150 mm with 8mm portal) was advanced. We encountered wire wrap during advancement with several attempts to correct orientation of the graft. We were able to position the graft with the side port laying flush into the right carotid. The right carotid stent (8 mm x 6 cm side branch) was advanced and successfully deployed with the proximal aspect being flared inside the stent graft. Lastly the proximal right subclavian was occluded with coil embolization proximal to the vertebral artery.

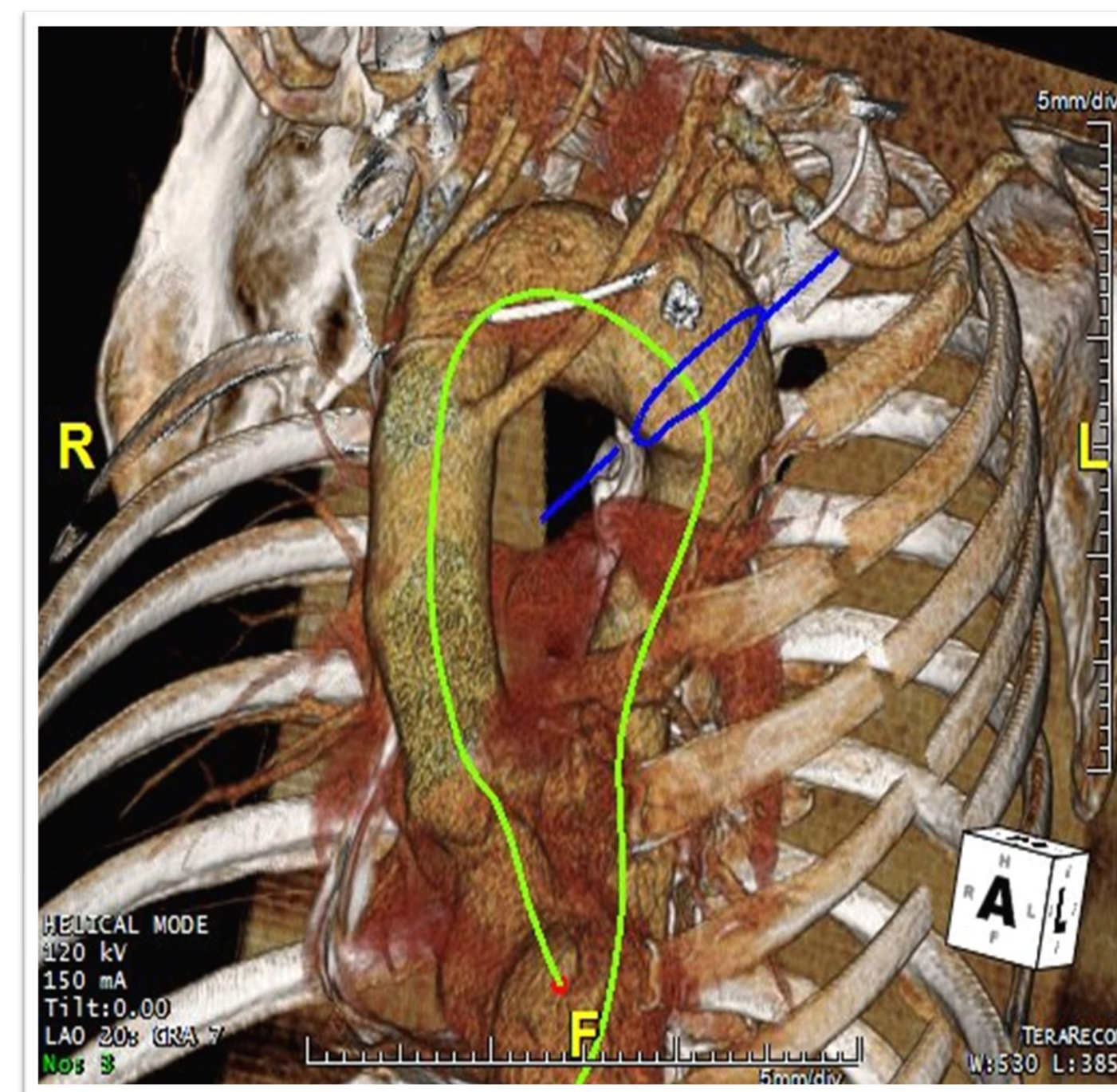


Figure 1. 3D reconstruction showing aberrant arch anatomy

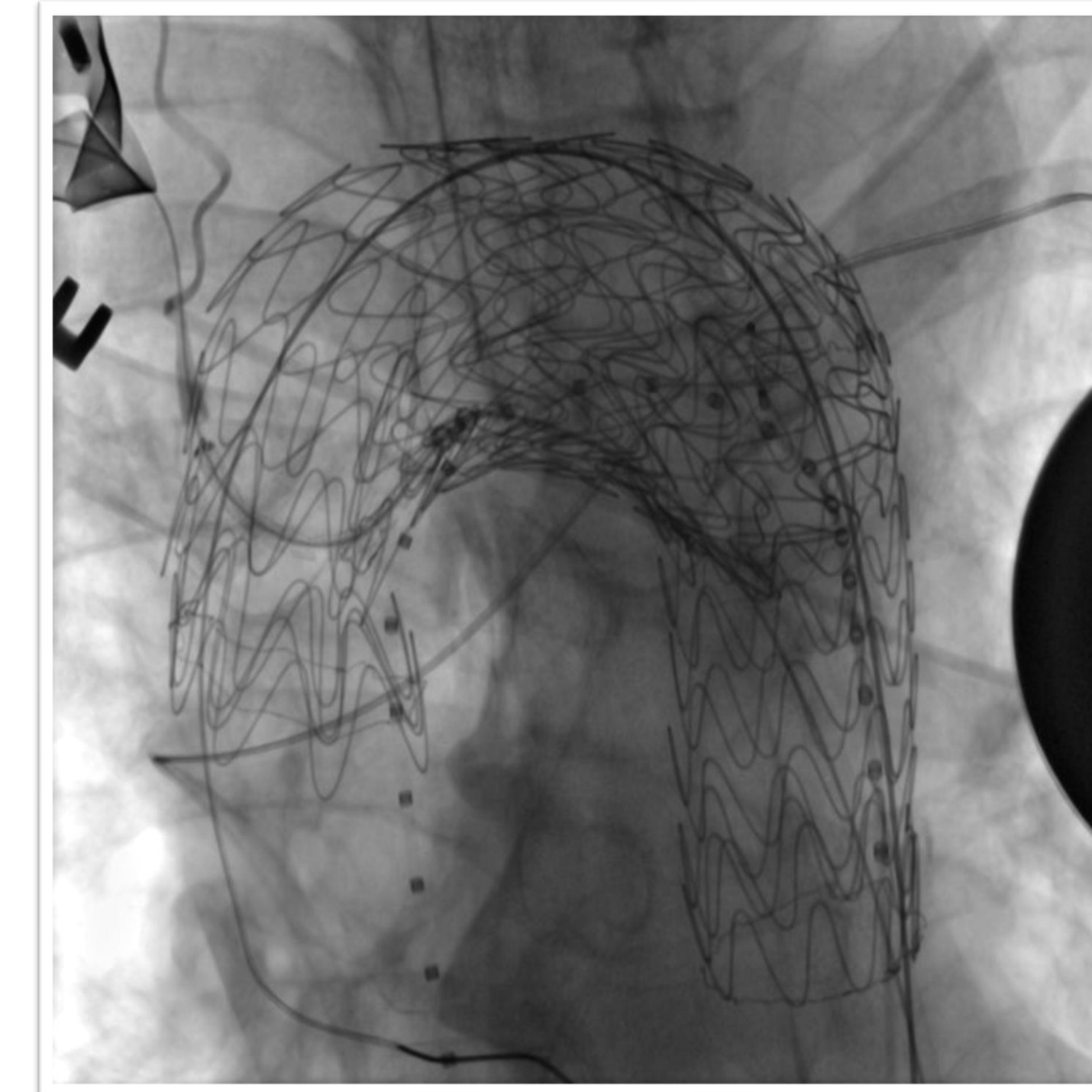


Figure 2. Multiple attempts were made to remove wire wrap while advancing the TBE device. This likely caused the embolic event to occur



Figure 3. Completion angiogram showing excellent exclusion of aneurysm with patent flow through both carotid-subclavian bypasses.

POST-OPERATIVE COURSE

Patient worked with physical therapy on POD 1 without any neurological deficits and was subsequently discharged. He presented to the ED on POD 4 with new left leg weakness. CT head showed new multiple global infarcts. Patient was admitted and managed conservatively with physical therapy. He was discharged to SAR with improved strength and mobility.

CLINICAL RELEVANCE

While risk of stroke is not negligible TBE can offer high risk surgical patients a safe alternative treatment for complex aortic arch disease.

REFERENCES

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