

Multidisciplinary Staged Hybrid Repair of Aortic Dissection and Multiple Aneurysms in a Patient with Large Vessel Vasculitis

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Purpose

- Patients with large vessel vasculitis (LVV) often suffer from varied aortopathies with significant morbidity due to vascular stenosis, dissection, or aneurysm formation.
- A staged approach to treatment addresses complex anatomical challenges unique to patients with LVV.
- We present a patient with LVV, type B aortic dissection, ascending and bilateral carotid aneurysms who underwent multidisciplinary staged hybrid repair.

Materials and Methods

- A 58-year-old male with history of LVV presented with a complicated type B aortic dissection.
- He underwent a left carotid-subclavian bypass and zone 2-5 thoracic endovascular aortic repair (TEVAR) (Figure 1A).
- He subsequently underwent a valve-sparing aortic root and ascending replacement for a 5.4 cm ascending aortic aneurysm and aortic insufficiency.
- Following this, he developed an enlarging 2.4cm left common carotid artery (CCA) aneurysm for which he underwent cervical arch debranching (right to left carotid bypass) and zone 0-2 TEVAR with thoracic branch endoprosthesis (Figure 1B).
- His postoperative course was complicated by vocal cord paresis.

Materials and Methods

- After one year, his right CCA aneurysm rapidly enlarged from 19 to 23 mm.
- The patient underwent open repair of the right carotid artery aneurysm using a bifurcated Dacron graft from the innominate artery to the right subclavian and right carotid arteries (Figure 1C, D, E).
- Open exposure was obtained via redo partial median sternotomy while on partial cardiopulmonary bypass.
- A left axillary arterial conduit was used for cerebral perfusion which was monitored via cerebral oximetry without any changes.

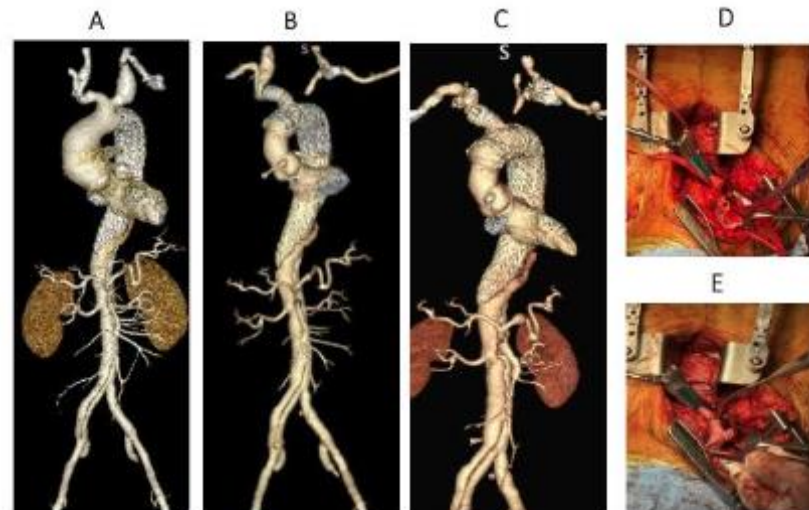


Figure 1. Stages of Aortic Repair

Results

- Postoperatively, the patient was monitored in the intensive care unit and weaned from ventilatory support
- A stroke code was called six hours postoperatively for acute left-sided hemiplegia with a right-sided gaze deficit.
- CT imaging demonstrated a right middle cerebral artery (MCA) stroke with decreased perfusion in the right posterior cerebral artery (PCA) territory.
- He was deemed not to be a candidate for intravenous thrombolytics due to his recent procedure.
- He was subsequently extubated on postoperative day (POD) two and remained hemodynamically stable.
- He then required percutaneous endoscopic gastrostomy (PEG) tube placement due to dysphagia and was ultimately discharged to a rehabilitation facility on POD 19.
- After four months postoperatively, the patient had made significant progress after rehabilitation therapies including walking 30 minutes daily, climbing stairs, and PEG tube removal

Conclusions

- This case demonstrates the challenges of managing patients with LVV who often require multiple interventions.
- In this patient, staged hybrid repair of type B aortic dissection, ascending aortic aneurysm, and bilateral carotid aneurysms was required over a three year period.
- Meticulous surgical planning and a multidisciplinary approach at major aortic centers that offer the expertise, infrastructure, and resources are essential for optimizing patient outcomes.