Management of an Innominate Artery Aneurysm Complicated by Focal Dissection with Head Vessel Extension

Montefiore

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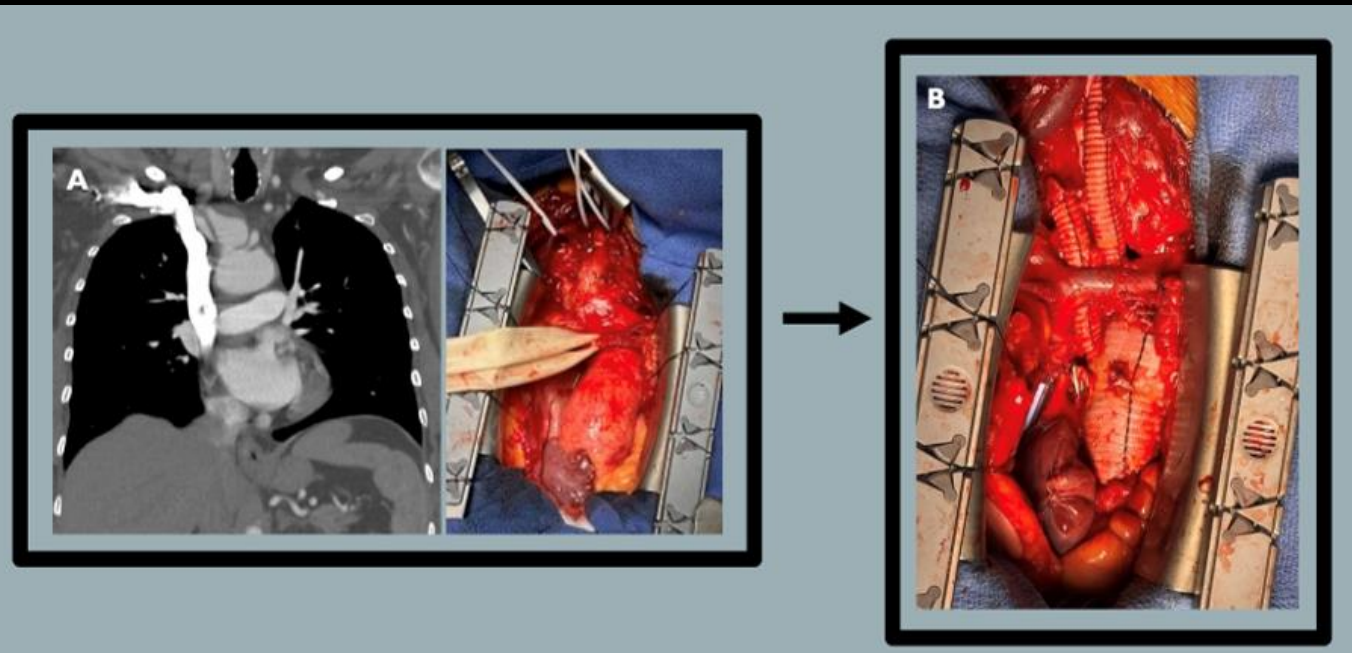
BACKGROUND

- Aneurysmal degeneration of the innominate artery (IA) poses risks of cerebral and extremity thromboembolism, rupture, and compression of surrounding structures, resulting in chest pain, dysphagia, dysphonia, dyspnea, SVC syndrome, or upper extremity deficits.
- Spontaneous carotid and/or subclavian dissection are rare, but have been reported in cases of patients with genetic arteriopathy.
- Clear guidelines for operative management of dissecting IA aneurysms do not exist. This case report presents an operative strategy for addressing this pathology.

CASE REPORT

- A 67-year-old female with a history of spontaneous carotid artery dissection in a first degree relative presented with incidentally identified 3.8 x 3.0 cm Group B IA aneurysm. A focal dissection flap was noted with extension into the right common carotid (RCCA) and right subclavian artery (RSCA) orifices. The ascending aorta was 4.2 cm. The arch was non-aneurysmal and there was no valvulopathy.
- Operative exposure was via median sternotomy with incisional extension to the right neck. Cerebral protection included moderate hypothermia and retrograde cerebral perfusion. The aortic arch was resected to Zone 1.
- The IA aneurysm demonstrated significant thrombus burden in the false lumen. The RCCA was resected to undissected tissue, and the RSCA to the ostium. A branched Dacron graft was utilized for an ascending and Zone 1 arch replacement with direct reimplantation of the RCCA and RSCA into graft side branches.
- The patient demonstrated no neurologic deficits post operatively and the remainder of the hospitalization proceeded in an uncomplicated fashion.
- Post-operative genetic testing revealed heterozygosity for COL3A1, consistent with Vascular Ehlers-Danlos syndrome.



Pre- and intra-operative imaging of the innominate aneurysm and repair. A) The presenting aneurysm scan with a 3.8 cm innominate artery aneurysm with a focal dissection flap extending into the right common carotid artery. The false lumen is partially thrombosed. Shown intra-operatively. B) The completed Zone 1 arch repair using a 28/8/8 mm graft, with direct reimplantation of the right subclavian and carotid arteries.

CONCLUSION

- The operative strategy of Zone 1 aortic arch replacement with direct RSCA and RCCA reimplantation allows for safe and reproducible removal of the high risk aneurysmal, dissected head vessel tissue and proximal aortic protection strategy in patients genetically predisposed to acute aortic syndromes.