REPAIR OF AORTIC ARCH PSEUDOANEURYSM FOLLOWING IMPLANTATION OF A NOVEL HYBRID BARE METAL STENT FOR ACUTE TYPE A AORTIC DISSECTION

OBJECTIVE
We describe the challenges in treating a patient with a late distal arch pseudoaneurysm within a novel hybrid arch bare metal stent for previous acute type A aortic dissection (ATAAD).

CASE VIDEO SUMMARY
A 48-year-old male presented with an ATAAD with severe malperfusion who underwent an emergency aortic root and hemiarch repair along with a novel zone 0 hybrid bare metal stent (BMS) insertion. At 5 years, computed tomography (CT) scan showed an expanding 3.4 cm pseudoaneurysm in the distal aortic arch. Several options were considered with concerns about cutting or removing the BMS. After performing a left carotid-subclavian transposition, we decided to perform a redo sternotomy with arch vessel debranching and zone 0 hybrid arch frozen elephant trunk (FET) reconstruction to completely exclude the pseudoaneurysm from within the BMS. After redo sternotomy, cardiopulmonary bypass was initiated via carotid and central aortic perfusion with cooling to 28°C. The carotid and innominate artery were anastomosed to a bifurcated graft. Circulatory arrest was initiated with bilateral ACP. The aortic arch was opened proximal to the BMS, which was rigidly fixed into the distal aorta with significant tissue ingrowth. A 150mm hybrid FET graft which was deployed over the wire into the descending aorta beyond the origin of the pseudoaneurysm. The head vessel graft was attached to the proximal FET graft, which was subsequently attached to the previous ascending aortic graft. The FET was ballooned multiple times to ensure full expansion, successfully exclude the pseudoaneurysm and prevent BMS recoil. The patient had an uncomplicated postoperative course. Follow up CT demonstrated an intact hybrid arch FET reconstruction with complete exclusion and thrombosis of the aortic arch pseudoaneurysm.

CONCLUSIONS
When patients require distal aortic reintervention in a segment covered by a novel BMS, there is great concern about the feasibility of its removal, bare stent ingrowth and concerns about unwinding of the BMS stent with cutting. This case demonstrates that a FET can be successfully implanted and fully expanded within a constrained novel BMS without recoil, enabling proximal and distal aortic seal.

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