

On-table conversion of ascending TEVAR for acute type A aortic dissection

Tommaso Cambiaghi, Marvin Atkins

Houston Methodist Hospital

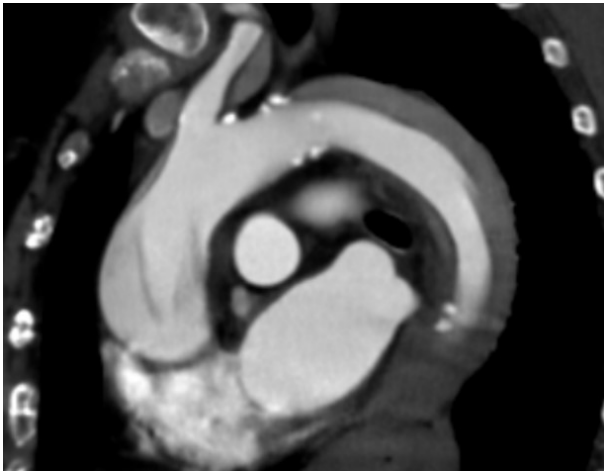
Introduction

Open repair is the gold standard for treatment of type A aortic dissections. Patients not deemed surgical candidates used to be managed medically with blood pressure and impulse control with a significant incidence of adverse events.

With the improvement in the technology and experience in endovascular treatment of the thoracic aorta, a few providers have attempted to expand the application of TEVAR to the ascending aorta, first with off-label use of straight grafts or cuffs designed for the descending thoracic aorta, and later with trials for devices designed specifically for the ascending aorta.

Objectives

The objective is to report a case of stent-grafting of the ascending aorta in the setting of acute type A dissection which resulted in aortic root disruption requiring conversion to open repair with endograft explantation.



Case Report

An 86yo female with PMH of HTN, HTL and DM was transferred from an OSH with diagnosis of acute type A aortic dissection. As she was deemed not a candidate for open surgery an endovascular option was explored.

Given the site of the entry tear in the ascending the aorta, and the distance between the highest coronary artery and the innominate artery, we deemed anatomically feasible to attempt endovascular exclusion with a 31mm by 10cm Gore cTAG graft.

The patient underwent successful deployment of the graft in zone 0 with angiographic exclusion of the aortic dissection (picture) but after procedure completion she started to develop hypotension of was found to have new large pericardial effusion at TEE evaluation, with tamponade physiology. The pericardial sac was drained through a subxiphoid incision, then extended to sternotomy, at which point bright red blood coming from the posterior aspect of the root was noticed.

The decision to convert to open ascending and hemiarch replacement was made. Given the presence of the endograft in the ascending aorta, central aortic cannulation was impossible, therefore femoral arterial and venous cannulation was performed and CPB initiated.

The heart was arrested, and the patient cooled to 18°C. The dissection appeared to have extended into the right and non-coronary sinuses with rupture at the sinutubular junction. The root was reconstructed with felt and glue interposition, the ascending endograft was removed and a hemiarch repair was completed.

The patient was successfully separated from cardiopulmonary bypass but left open with chest packing due to diffuse coagulopathy. Despite resolution of coagulopathy, chest closure and weaning from inotrope and vasopressor support the patient never recovered neurologically and was eventually transitioned to comfort care by her family members and passed shortly after weaning from the ventilator.



Conclusions

While endovascular stent-grafting of the ascending aorta could be used as a last option in patients considered unfit for open surgery, it comes with its set of risks and poses additional challenges in the rare case a patient would need emergent conversion to open surgery.