**Objective(s):**
Recent advances has allowed for simultaneous hybrid repair with open surgical arch debranching and thoracic endovascular stent placement. We present an asymptomatic patient with a degenerative aneurysm and concurrent coronary disease who successfully underwent a hybrid aortic arch and descending aorta repair and coronary revascularization.

**Methods:**
A 78-year-old male presented with a distal aortic arch aneurysm and two-vessel coronary disease. Preoperative computed tomography angiography demonstrated a fusiform aortic aneurysm involving the left carotid and subclavian arteries and proximal descending aorta. Catherization revealed severe left anterior descending and diagonal-1 branch coronary disease.

After cardiopulmonary bypass was initiated, the left anterior descending and diagonal arteries were bypassed with saphenous venous grafts. Two openings were created at the sinotubular junction proximally and coronary anastomoses were completed. Trifurcation graft (TG) with a separate branch for stent delivery was anastomosed to the proximal ascending aorta. The proximal clamps were then removed. The innominate artery was divided between clamps and then anastomosed to the main limb of the TG. Antegrade cerebral perfusion (ACP) was established via the anastomosis. Next, the left carotid artery was anastomosed to the second limb of the TG and ACP perfusion was initiated using both arteries. Secondary to extensive atherosclerotic disease, the left subclavian artery was exposed using a left infraclavicular incision. The left subclavian was divided and then ligated at its origin. The third limb of the TG was brought into the left chest and anastomosed to the subclavian artery. The patient was weaned off cardiopulmonary bypass.

Initial aortic luminal flap noted the true lumen to be concave. A 40 mm x 15 cm Gore Thoracic TAG endoluminal stent graft (W. L. Gore and Associates, Flagstaff, AZ) was deployed in the descending aorta proximal to the celiac artery under fluoroscopic guidance via a side branch of the TG. A second 45 mm x 20 cm Gore graft was deployed distal to the TG with significant overlap with the previous graft.

**Results:**
Post-procedure completion aortogram demonstrated no endoleak and IVUS noted the true lumen to be convex. One-month follow-up CT scan showed the endograft without endoleak and patent bypass grafts.

**Conclusions:**
A hybrid approach allows for the repair of the distal aortic arch and descending aorta as a 1-stage procedure.