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## One stage hybrid repair of Type-A Aortic Dissection with integrated covered stent graft of descending thoracic aorta-Our experience with modified frozen elephant trunk in a low resource setting of North-Eastern part of India

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**Statement of the Problem:** One stage repair of ascending aorta, arch and descending thoracic aorta though technically challenging gives an advantage of complete repair. In a low resource setting a hybrid operating room (OR) is not always available for simultaneous performance of intervention along with the operation. So we use the C-arm imaging during the operation along with the help of interventional radiologist to perform one stage complete repair of ascending aorta, arch debranching and covered stent graft to the descending thoracic aorta in few selected cases of Type-A aortic dissection. As composite graft of frozen elephant trunk was not available in this part of the region so we modified the operation by use of separate covered stent graft during the procedure.

**Patients:** Ten patients were operated with one stage modified frozen elephant trunk in the year 2015 -2016. All are male patients, age ranges from 57 yrs to 72yrs. All ten patients were referred to our institute from outside hospitals with a history of sudden onset chest pain duration ranging from 6days to 18days. No patients had any history of cerebro vascular accidents (CVA) or other peripheral vascular symptoms. Four patients had evidence of severe Aortic Regurgitation. After echocardiography, all the patients were evaluated with computed tomography (CT) angiography of entire ascending aorta and follow through up to femoral artery along with CT coronary angiography

**Methods:** After general anesthesia, a guide wire is being inserted through left femoral artery by the help of C-arm imaging so that it passes through true lumen and parked in the region of ascending aorta. This guide wire is being used to place the covered stent graft in to the descending thoracic aorta in the later stage of operation when the entire aortic arch is being opened under total circulatory arrest (TCA). Median sternotomy, Cardio pulmonary Bypass (CPB) established with Axillary artery & Right Atrial cannulation except in one case where Innominate artery cannulation was done. After cross clamp, custodial cardioplegia & Bentall procedure was performed in four cases & other two ascending aorta was replaced, after that patient cooled to 24 degree, antegrade cerebral perfusion and TCA instituted, arch excised, distal aorta prepared with teflon felt and covered stent graft placed in to descending aorta by anchoring it to the guide wire, operation completed by debranching all three neck vessels by placing a Plexus graft which is sutured distally to the proximal portion of covered stent graft and proximally to the ascending aortic graft

**Results:** No short-term mortality. Median hospital stays 15 days post operatively. No patient had any neurological deficit post operatively. One patient had hoarseness of voice. Maximum follow up to 9 months. No evidence of new onset renal or peripheral vascular diseases or other complication

**Conclusion:** One stage repair with ascending aorta, arch and integrated covered stent graft to descending aorta (modified frozen elephant trunk) is possible for Type A aortic dissection in low resource setting with the help of C-arm imaging in routine operating room (OR). The procedure is safe with improved outcome compared with conventional elephant trunk 9 month post-operatively. Patient selection and antegrade cerebral perfusion through both innominate artery and left common carotid artery helps in reducing the neurological events.

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