Case report: we report the challenging case of a total endovascular repair of persistent type Ia endoleak in a 85 years-old patient who had previously undergone emergent thoracic endovascular aortic repair (TEVAR) and subsequent placement of Amplatz Plug in the left subclavian artery for a huge symptomatic left hemiarch aneurysm. The patient was at high surgical risk for history of chronic obstructive pulmonary disease, hypertension and coronary artery disease with previous percutaneous revascularization. Surgical debranching of the supra-aortic trunks was considered to be demanding because of the presence of a tracheostomy due to the removal of a laryngeal cancer with subsequent neck irradiation. A total endovascular approach was then chosen, using the modular endograft Nexus™ (Endospan). The device is equipped with a fixed branch to maintain the perfusion of the brachio-cephalic trunk (BCT) and an optional fenestration for the left common carotid artery (LCCA). Under general anesthesia and through bilateral femoral surgical approach and surgical retrograde right humeral access, the branched aortic arch endograft was placed with proximal landing in the ascending aorta (zone 0). Through a surgical retrograde LCCA access, two Viabahn covered stent 8-100 mm were placed with the “chimney technique” throughout the graft fenestration to keep patency of the vessel. The final angiography showed the absence of any endoleaks with good patency of both the brachiocephalic trunk and left carotid artery. The computed tomography angiography scan at 2 months showed a good result.

Conclusions: Total aortic arch endovascular repair for aortic arch aneurysm is feasible with a modular branched and fenestrated endograft. In our experience this peculiar graft has good results in terms of patency of BTC branch and LCCA fenestration and showed freedom from endoleaks at short term follow-up. We consider this graft as a good choice for the treatment of aortic arch aneurysm in very high risk patient for surgical intervention.