Plugs- and coil embolization of endoleaks type Ia / Ib after endovascular repair of aortic arch aneurysms

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Purpose: We demonstrate our experience and outcome of plugs- and coil embolization of endoleaks type Ia / Ib after complex endovascular aortic repair of the aortic arch aneurysms.

Methods: Between January 2013 and April 2016, 20 patients (17 men, median age 74 years) were treated because of aortic arch aneurysms (median aneurysm size 6.4 cm) in our institution as following:

- Total debranching with TEVAR: 5 patients
- TEVAR with chimney-grafts: 7 patients
- Total endovascular aortic repair using fenestrated and branched endografts: 8 patients

4 patients had endoleaks type IA & IB postoperatively (Fig.1):

Amplatzer-plugs in combination with coil embolization were used to occlude the endoleaks via transbrachial or transfemoral access in interval. A custom-made endograft (38x 100 x 40 mm) was implanted as candy-plug to occlude the persisted perfusion of the false lumen distally in the patient of chronic postdissection aneurysm (Fig.2).

Fig. 1: preoperative CTA showing EL type IA & IB after Debranching & TEVAR of chronic postdissection arch aneurysm

Results:

The technical success was 100 %. No perioperative strokes or complications occurred.

The intraoperative final angiograms and postoperative CTAs revealed satisfactory exclusion of the arch aneurysms without endoleaks (Fig.3). During median follow up of 13 months (range: 6-25 months), there were no endoleaks and no re-interventions were required.

Fig. 2: intraoperative Fluoroscopy showing (A) the coil-Embolization using vascular-plugs & Coils (B) DSA of Candy-plug graft into the FL (D) occlusion of the Candy-plug using Amplatzer II.

Fig 3. Postoperative CTA showing satisfactory exclusion of the arch aneurysm after Coiling proximal and Candy-plug distal.

Conclusions: The plugs- and coil embolization appears to be feasible, safe and effective in the treatment of endoleaks type Ia / Ib after the different endovascular approaches of the aortic arch aneurysms. Larger cohorts and series with more extended follow ups are of course warranted to corroborate these results.

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