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**Objectives:** Aortic Customize is a new concept for endovascular aortic aneurysm repair in which a nonpolymerised elastomer is injected to fill the aneurysm sac around a balloon catheter. The aim of this in-vitro study was to investigate the extent of aneurysm wall stress reduction by the presence of an elastomer cuff.

**Methods:** A latex aneurysm (inner radius sac 18mm, inner radius neck 8mm), equipped with 12 tantalum markers, was attached to an in-vitro circulation model. Fluoroscopic roentgenographic stereo photogrammetric analysis (FRSA) was used to measure marker movement during 6 cardiac cycles. The radius of 3 circles drawn through the markers was measured before and after sac-filling. Wall movement was measured at different systemic pressures. Wall stress was calculated from the measured radius ($r = pr/2t$).

**Results:** The calculated wall-stress was 7.5-15.6 N/cm$^2$ before sac-filling and was diminished to 0.43-1.1 N/cm$^2$ after sac-filling. Before sac-filling there was a clear increase ($p < 0.001$) in radius of the proximal (range 7.9% - 33.5%), middle (range 3.8% - 25.2%) and distal (range 10.5% - 184.3%) rings with increasing systemic pressure. After sac-filling with the elastomer there remained a small, significant ($p < 0.001$), increase in the radius of the circles (ranges 6.8% - 8.8%; 0.7% - 1.1%; 5.3% - 6.7%). The sac-filling reduced the extent of radius increase. The treated aneurysm withstood pressures up to 220/140 mm Hg without noticeable wall movement.

**Conclusions:** Filling the aneurysm sac with a biocompatible elastomer leads to successful exclusion of the aneurysm sac from the circulation. Wall-motion and calculated wall stress are diminished noticeably by the injection of biocompatible elastomer.

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PS54.

**Type IV Thoracoabdominal Aortic Aneurysm Repair: A Large Single-Center Experience**

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**Objectives:** To examine the mortality and morbidity of Crawford type IV thoracoabdominal aortic aneurysm (TAAA) repair at a single university hospital over 10 years.

**Methods:** All patients undergoing open type IV TAAA repair between 1998 and 2008 were prospectively entered into a database ($n = 108$). Repairs were performed through a left retroperitoneal incision.

**Results:** The study cohort comprised of 198 patients (165 men, 33 women, mean age 74 years). Mean preoperative AAA diameter was 5.5 cm (range 4-11 cm). EL-2 was present in 27% at completion of EVAR and persisted in 9% at a mean follow-up of 6 months (range 4-8 months). 94% of EL-LA resolved on follow-up vs 55% of EL-IMA ($p = 0.01$, Fisher exact test). Mean change in sac diameter at 6 months was +0.04 cm in patients with EL-2 vs −0.48 cm in patients without EL-2 ($p = 0.002$, t test). Preoperatively, the IMA was occluded by coils or chronically occluded in 92 patients vs 105 patients who had a patent IMA. At 6 months, mean change in sac diameter was +0.06 cm in patients with a patent IMA vs −0.57 cm in patients with an occluded IMA ($p < 0.001$, t test).

**Conclusions:** Persistent EL-2 following EVAR occurred in 9% of patients, predominantly from the IMA. 55% of EL-IMA did not resolve and lead to increase in sac diameter. Occlusion of the IMA led to greater sac shrinkage following EVAR and should be considered when the IMA is widely patent.

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