Experience of single pre-close device for percutaneous abdominal aortic aneurysm repair

Etsuo Tsuchikane¹, Tetsuo Matsubara¹, Takahiko Suzuki¹

Background: Totally percutaneous endovascular abdominal aortic aneurysm repair by using multiple pre-close devices for large arteriotomy closure has been previously described. However they were needed more than 2 devices. Here we report the results of a percutaneous technique using single pre-close devise.

Methods: A total of 60 sites in 30 consecutive patients (29 male; mean age 74.1±7.1 years) with endovascular stent-graft treatment from May 2013 through March 2014 were required for large-bore sheath insertion. In 58 of 60 sites we performed percutaneous suture. Stent-graft devices were introduced through 20Fr (n=2), 18Fr (n=20), 16Fr (n=24), 14Fr (n=2), 12Fr (n=10) sheaths. Two sites we chose cut-down suture. Because one femoral site was implanted stent and one had severe calcification. After deployment single pre-close device (Perloc ProGlide), large-bore sheaths were inserted. After treatment hemostasis was achieved using pre-close sutures placed before procedure. If bleeding or oozing persisted manual compression was performed. All femoral site were followed physical examination, ankle brachial pressure index (ABI) and computed tomography angiogram (CTA).

Results: We used multiple perclo devices in two sites, because of failure in pre-close suture. Both major arterial complication requiring vascular surgical repair and minor arterial complication like subcutaneous hematoma detected CTA did not occurred. Mean manual compression time is 6.8 minutes. ABI was measured before procedure (1.09±0.15) and afterward (1.08±0.17) and did not change significantly (P=NS).

Conclusions: Percutaneous closure technique using single pre-close devices is useful for hemostasis in endovascular stent-graft treatment for abdominal aortic aneurysm.

A New Concept of Stent: The Multilayer Flow Modulator Stent for the Treatment of Thoraco Abdominal and Abdominal Aortic Aneurysms

Michel C. Henry¹, Amir Benjelloun², Isabelle Henry²

Background: Thoraco Abdominal Aortic Aneurysms (TAAA) and Abdominal Aortic Aneurysms (AAA) are traditionally treated surgically but more and more by interventional procedures (endografts, fenestrated, branched grafts, chimney techniques). We used a new concept of stent, the Multilayer Stent Flow Modulator (M.F.M) to treat these aneurysms (A) and try to avoid some major complications.

Methods: This selfexpandable M.F.M is a 3 D braided tube made of several interconnected layers without any covering. We will explain and demonstrate the key principles of the stent leading to thrombosis, shrinkage of the A, eliminating the risk of rupture. Moreover, this M.F.M preserves the collateral branches allowing the possibility to cover any artery without compromising the flow (renal, digestive arteries, hypogastric vessels...).

Results: Based on recent published series: - Our personal Moroccan series, 10 TAAA, 8 AAA in very high risk pts. o Technical success: 100% o At 30 days no neurological complication, branch patency 100% no death o During the follow up 3 deaths not device related. CT scan control at 3, 6, 12, 18 months with calculation of A. Diameters and Volumes. o Collateral branches patency: 100%. o Progressive thrombosis and shrinkage of the aneurysmal sac depending on the size of the collaterals. o Significant mean diameter reduction between baseline and 6 months: 17.25 mm reduction for the transversal diameter 13.83 mm for the antero posterior diameter in the TAAA group. o Overtime the ratio thrombus volume / Total Volume is increasing and the ratio Residual Flow Volume / Total Volume is decreasing. - French registry: 23 pts, 30 day mortality: 0%. At 1 year: branch patency 97%, neurological complication 0%. - Other series: 48 pts. The problems of the thrombosis, shrinkage and volume reduction of the aneurismal sac will be discussed. The complications rates with M.F.M appear lower in comparison with current endovascular techniques, and with surgery.

Conclusions: The M.F.M represents an alternative to current devices to treat TAAA and AAA. The first results are promising, it is a safe procedure with a low complication rate. No neurological complications are observed. A larger study is ongoing.