

BANDING IN AORTIC STENT-GRAFT FIXATION IN EVAR

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The authors describe the method of surgical aortic banding for better stent-graft fixation in cases of problematic aortic neck in the endovascular infrarenal aneurysms repair.

INTRODUCTION

Endovascular infrarenal aneurysm repair (EVAR) has its technical limitations caused by the present-day stent-graft systems¹. Stentgraft fixation, especially in the proximal aortic neck, is one of them. AAAs with problematic proximal neck- short (from 5 to 15 mm), conical or with a long enough but angulated one – were excluded from EVAR preserving classical stentgrafting indications criteria due to the problematic stentgraft fixation^{2–4}. The basic types of fixation such as stent-graft self-expansion, barbs, hooks or suprarenal bare wire fixation in the more stable part of aorta are not adequate in these cases of proximal neck anatomy^{5–9}. One possibility for providing successful stent-graft fixation is the use of associated surgery – external aortic banding¹⁰.

METHOD

We indicated proximal aortic banding in 6 patients during our EVAR period from the year 1996^{11, 12}. Aortic banding was primarily indicated for problematic stent-graft anchoring in an angulated proximal neck (n=2) and in a short conical one (n = 2). Secondary banding was used to resolve proximal perigraft leak (n = 2), which developed within 2 years of primary technically successful EVAR due to proximal neck dilation.

The banding procedures were done in regional (epidural) anesthesia. The infrarenal aorta was exposed through transperitoneal approach – a small mini-laparotomy to the left of the umbilicus. The strip of dacron prosthesis was tightened firmly around the aorta just below the renal arteries origins with two sutures. A balloon dilatation in stent-graft was used to ensure adequate expansion (Fig. 1, Fig. 2).

The procedure took about 30 minutes. Angiography and CTA were performed for check. Technical success was achieved in all patients. There were no relevant gen-

eral or local complications arising from the higher invasiveness of this procedure. All the patients are alive till this time and are observed in mean duration 3 years without any signs of perigraft endoleak or other stent-graft related complications.

DISCUSSION

Surgical proximal aortic banding may be created as prevention or solution perigraft leak, migration and aortic neck dilatation^{13, 14}. “Primary banding” refers to associated surgery from the first step of AAA evaluation and we decide in favor of this approach before stentgraft planning. Primary banding makes EVAR possible. “Secondary banding” is the term used for banding in complications solution. Laparoscopic banding creation is an alternative, but pneumoperitoneum induced by insufflation puts more stress on the patient than a small open access¹⁵. In cases of a short neck, a fenestrated graft should be an acceptable alternative at present¹⁶. The branched graft is going to be the method of choice in the nearest future¹⁷.

CONCLUSION

Aortic banding provides a stable fixation of stent-graft. In cases of problematic proximal aortic neck can make the EVAR possible and minimalise the risk of its failure. This associated surgical procedure has acceptable risk for the patients and it is easy, feasible and safe.

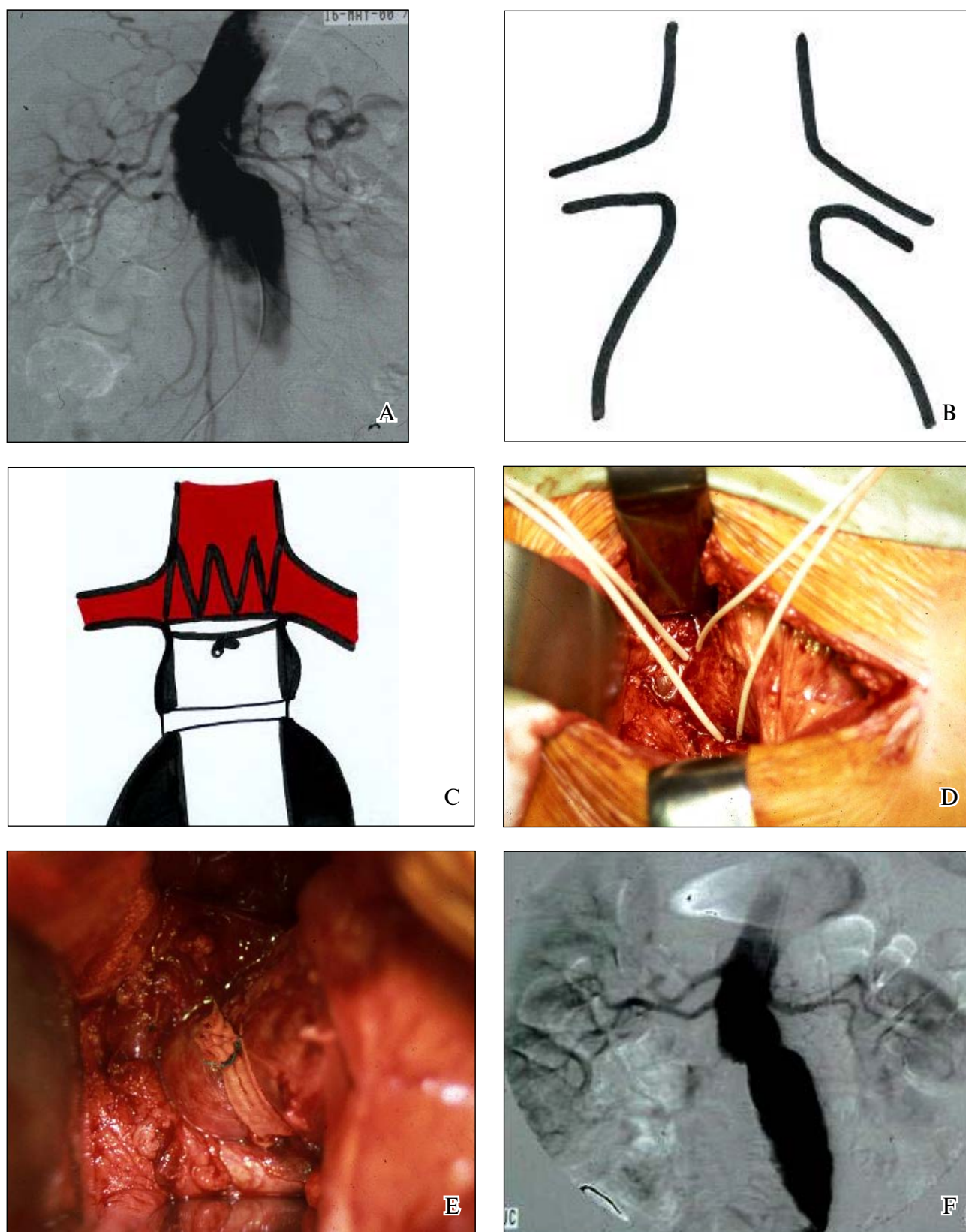


Fig. 1. A 75 year old man of high operating risk with complicated AAA morphology
 A: Preoperative angiogram of AAA with a short conical proximal neck
 B, C: Diagram of the short conical proximal aortic neck and neck banding.
 D, E: Operating access and peroperative view of the infrarenal aorta with proximal neck banding – a strip of dacron prosthesis
 F: Postoperative angiogram of successful EVAR by uniiliac type of stent-graft associated with proximal aortic neck banding

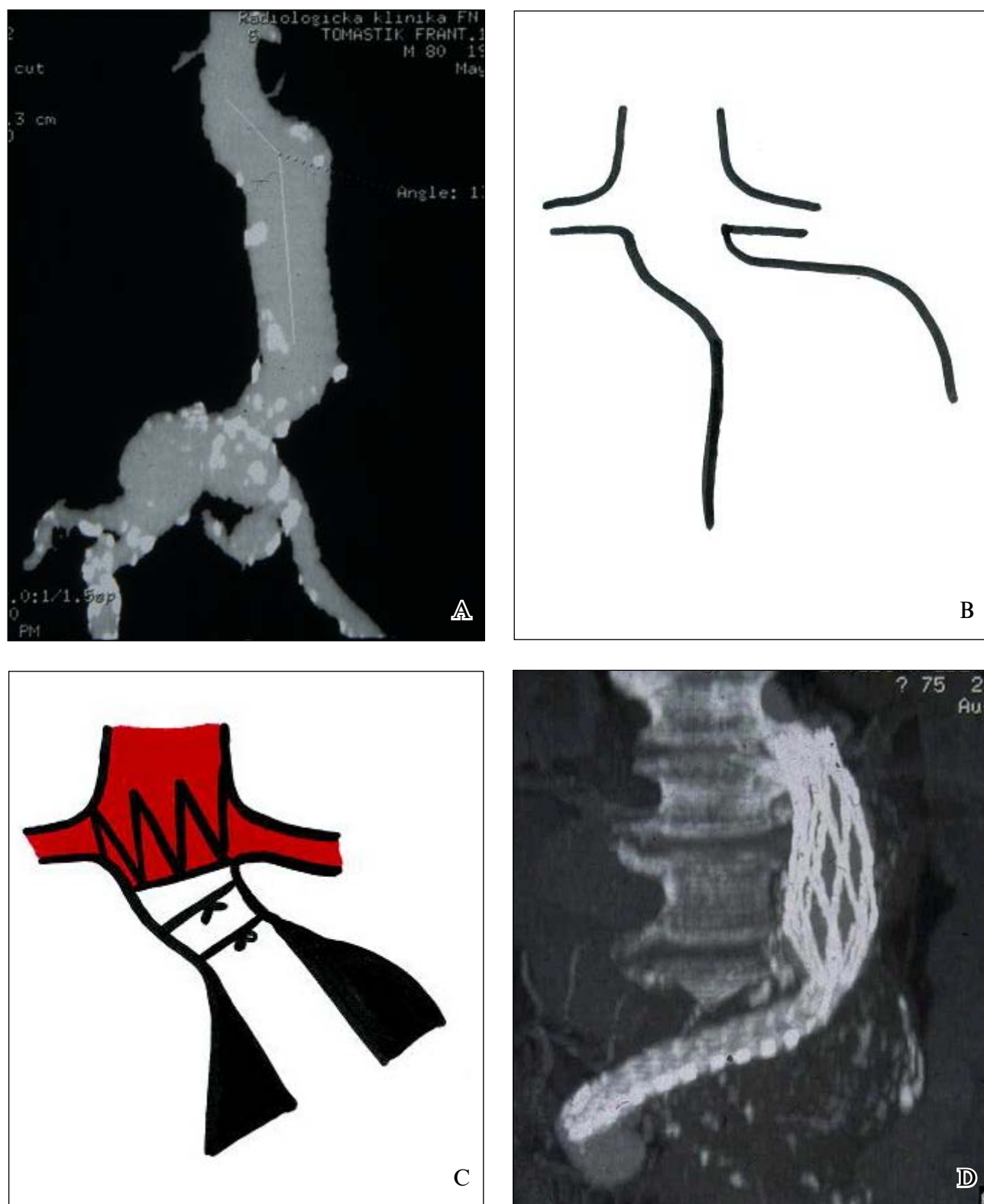


Fig. 2. A 68 year old man of high operating risk with complicated AAA morphology
 A: Preoperative CTA of AAA with an angulated proximal neck
 B, C: Diagram of the angulated neck and neck banding
 D: Postoperative CTA of succesful EVAR by uniiliac type of stent-graft associated with proximal neck banding.

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