

Treatment of type I endoleak after endovascular repair of infrarenal abdominal aortic aneurysm: Success of fibrin glue sac embolization.

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Abstract:

Purpose: To analyze a single-center experience of fibrin glue sac embolization to eliminate type I endoleaks after endovascular aneurysm repair (EVAR), assessing the feasibility and effectiveness of the technique in long-term follow-up. **Methods:** A retrospective study was conducted involving 783 EVAR patients treated between August 2002 and February 2009. Under a standardized protocol, 42 (5.4%) patients (37 men; mean age 73 \pm 8 years) underwent intraoperative transcatheter fibrin glue sac embolization to resolve type I endoleak persisting after initial intraoperative maneuvers to close the leak or in necks too short or angulated for cuff placement. Intracatheter pressure was measured before and after glue injection. Computed tomographic angiography was performed to assess the outcome after 3, 6, and 12 months and annually thereafter. **Results:** In this type I endoleak cohort, 16 (38.1%) patients had proximal necks <10 mm long, and 5 (11.9%) patients had proximal neck angulation >60 $^{\circ}$; 22 additional devices (8 stents, 14 cuffs) had been placed in the initial attempts to resolve the endoleaks. After fibrin glue injection, 41 (97.6%) of the 42 endoleaks were resolved using a mean 15 \pm 10 mL of glue. Intracatheter pressure decreased significantly in successfully treated cases. The patient who failed embolotherapy was converted to open surgery (2.4%); he died 2 months later from multiorgan failure. Two (4.8%) patients died in the perioperative period from myocardial infarction. One (2.4%) patient developed right lower extremity ischemia unrelated to the fibrin glue treatment. There were no allergic reactions. Over a median follow-up of 39.9 months (range 10-88), 3 (7.1%) patients died (1 aneurysm-related). Cumulative survival was 90.5% at 1

year, 87.0% at 3 years, and 82.6% at 5 years. The mean maximal aneurysm diameter fell from the baseline 59.5 \pm 14.7 mm to 49.0 \pm 11.6 mm ($p<0.001$). Of the 4 patients with increased aneurysm diameter during follow-up, 1 was converted, 2 are being observed due to advanced age, and 1 died of renal failure. No recurrent type I endoleak or glue-related complications were observed in follow-up. Conclusion: Fibrin glue sac embolization to eliminate type I endoleak after EVAR yielded excellent results in our experience, effectively and durably resolving the leaks. Balloon occlusion of the proximal aorta must be done during glue injection to block proximal flow and facilitate formation of a structured fibrin clot. © 2010 by the International Society of Endovascular Specialists.