Clinical Outcome and Morphological Determinants of Mural Thrombus in Abdominal Aortic Endografts

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OBJECTIVES: Determine the clinical impact and predictors of ingraft thrombus formation after EVAR.

METHODS: A prospective EVAR database with 473 patients treated from 2000-2012 was searched. All postoperative CTAs were scrutinized for ingraft thrombus using 3D dedicated software. Patients with main body thrombus thickness >2 mm in >25% of the graft circumference were selected for the study group and compared to controls. Primary endpoint was freedom from thromboembolic events. Estimates were obtained using Kaplan-Meier plots. Secondary endpoints included clinical, morphological and device-related characteristics and were tested using a multivariable model.

RESULTS: Sixty-eight patients (16.4%) were included in the study group. Median follow-up was 3.5 years (IQR: 2.0-5.5 years). Mural thrombus was identified on the 30-day CTA in 22 patients (32.4%) and up to 1 year in 25 (36.7%). In total, 17 patients (4.1%) suffered endograft or limb occlusions, 3 in the thrombus group (4.4%, P=0.89). Freedom from thromboembolic events at 5 years was 95% for the study group and 94% for controls (P=0.97-Figure). Smoking (HR 2.9, 95%CI 1.6-5.2), polyester-based endografts (HR 3.8, 1.8-8.0), AUI (HR 5.1, 2.0-13.1), and barrel configuration (HR 3.3, 1.7-6.4) were associated with thrombus accumulation.

CONCLUSIONS: Mural thrombus formation within the main-body of the endograft is related to smoking, AUI design, main-body barrel configuration and polyester graft fabric but has no impact on thromboembolic events over time.