

3. Late Outcomes of Endovascular Repair for Penetrating Ulcers of the Descending Thoracic Aorta: The Challenge of Associated Intramural Hematoma

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OBJECTIVES: The presence of penetrating aortic ulcers (PAU) of the descending aorta has been associated with a poor long term prognosis. Although early results have suggested acceptable outcomes for thoracic endovascular aortic repair (TEVAR) for PAU, few studies have described the late outcomes of this approach.

METHODS: From 1993-2009, 36 patients underwent TEVAR for PAU. Associated intramural hematoma (IMH) was present in 18. The mean age of the cohort was 71.4 years (47.2% male). Comorbidities included hypertension (29), COPD (15), coronary artery disease (21), and renal failure (mean preoperative creatinine 1.4 mg/dL). Urgent or emergent indications were identified in 23 (63.8%), including presentation with rupture (n=15, 41.7%).

RESULTS: TEVAR was successfully performed in all patients using custom fabricated (7), Gore TAG (22), or Medtronic Talent (7) devices. Arch aortic repair was performed in 12; total descending aortic repair in 14. Concomitant procedures included CABG and total arch debranching in 1 patient electively presenting with an asymptomatic PAU. The rates of early morbidity included stroke (n=3, 8.3%), temporary paraplegia (n=2, 5.5%), or need for dialysis (n=1, 2.8%). In-hospital or 30-day mortality was seen in 2 (5.5%). By Kaplan-Meier analysis, the median survival was 89.8 months. Independent predictors of late mortality included urgent or emergent presentation (p=0.006). When the analysis was stratified by type of pathology (PAU vs. PAU/IMH), there were no significant baseline differences in age, comorbidities, extent of repair or urgency of operation at presentation. Kaplan-Meier analysis suggested that presentation with PAU with IMH was associated with an increased risk for TEVAR treatment failure (i.e. need for open or endovascular aortic reintervention, aortic rupture or aortic related mortality, log rank p=0.042, Figure).

CONCLUSIONS: TEVAR can be safely accomplished for patients presenting with PAU. The presence of associated intramural hematoma may adversely affect the late outcomes of therapy, highlighting the need for careful planning, prudent balancing of the benefits of immediate vs. delayed treatment of the fragile aortic wall and the imperative nature of attentive followup in this subset of patients.

