patients needed additional treatment. 30-day mortality was 1.4% (5/366). Follow-up is reported till 84 months (n = 24 at 84 months). 34% (123/366) patients died during follow-up. In five patients mortality was AAA related (2 ruptured). Kaplan Meier estimates revealed primary clinical success rates of 98% at 1 year, 93% at 2 years, 88% at 3 years, 79% at 4, 64 % at 5 years, 51% at 6 years and 48% at 7 years, respectively. Secondary interventions had to be performed in 18% (66/366) of patients. Ten open conversions for failed endografts were performed. Life table yearly risk for AAA related reintervention was 6%, yearly risk for conversion 1.1%, and yearly risk for AAA-related mortality was 0.8%.

Conclusions: Initially technical success of EVAR using the Talent endograft is high, with low yearly risk for AAA-related mortality and conversion. However, a substantial amount of -mainly endovascular- reinterventions is necessary during long-term follow-up to achieve these results

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C5: Poster Presentation I -Aortic Disease (2)

PS22.

Hardman Index and Glasgow Aneurysm Score in Predicting Survival Following Open Repair of Ruptured Abdominal Aortic Aneurysms (AAA): Are They Practical?

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Objectives: Despite advances in perioperative care, mortality after open repair of ruptured AAA remains high. The need to avoid futile surgery in frail patients led to the development of prognostic scoring systems. Literature regarding their clinical usefulness has been conflicting. This study aimed to assess the utility of 2 scoring systems in predicting survival following open repair of ruptured AAA.

Methods: 95 patients who had undergone open repair of a ruptured AAA between 2002 to 2007 were identified from a prospectively collected audit database. Parameter data for the Hardman Index (HI) and Glasgow Aneurysm Score (GAS) was collected retrospectively. Operative mortality, times of presentation, decision for surgery and availability of scoring results at time of decision-making was also documented. Receiver operating curves were constructed for both scoring systems.

Results: The median age of patients was 74 with 77 men and 18 women. The operative mortality was 48% (46/95). GAS was complete in 86 patients but only 44 had complete data for HI. However, at time of decision for surgery only 25 patients had all investigative parameters available to enable HI scoring while 78 patients had complete GAS results available. The area under the curve was 0.724 (95% CI, 0.575-0.874) and 0.695 (95% CI, 0.583-0.807) for HI and GAS respectively. The scoring systems were not significantly different in predicting perioperative death (p>0.05). However, in 6 patients who had HI > 3, one patient survived surgery and of 37 patients with GAS > 95, 15 lived.

Conclusions: Although the results suggest that both HI and GAS are moderately successful in predicting perioperative death, the scoring sytems do not appear practical. A substantial proportion of the test results were not available to the clinician at the time of decision-making. This suggests that front-line clinicians are making subjective decisions that are later supported by prognostic scoring. More needs to be done to improve rapid access to investigation results.

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PS24.

Inhomogenous Wall Stress Distribution in the Normal Human Thoracic Aorta: A Potential Etiology of Type B Aortic Dissections

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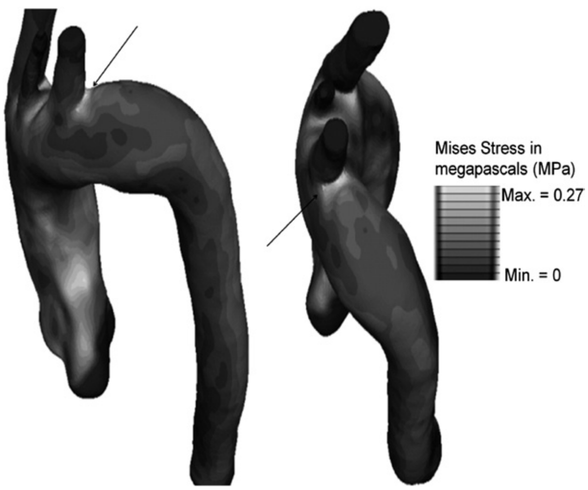
Objectives: To determine the role peak aortic wall stress plays in the pathophysiology of type B aortic dissections.

Methods: Twenty-eight subjects with normal thoracic aortas underwent ECG-gated CTA. The aortic arch and descending thoracic aorta were segmented, reconstructed, and triangulated to create a mesh (Amira). Using a pressure load of 120 mm Hg and a uniform aortic wall thickness of 0.22 cm, finite element analysis was performed (Abaqus) to predict regional thoracic aortic wall stress.

Results: There were local maxima of regional wall stress just distal to the ostia of each arch vessel (Figure 1); the peak stress at the left subclavian artery (LSA) was 0.20 ± 0.03 MPa. Peak wall stress in the proximal descending thoracic aorta (0.06 ± 0.01 MPa) was significantly lower than that of the arch vessels ($p < 0.001$). Patients with LSA arising from the top of the arch (n = 15, type I arch) did not have significantly different ($p = 0.46$) LSA peak wall stress than patients with LSA arising from below the horizontal line extending from the outer curvature of the arch (n = 13, type II or III arch).

Conclusions: Regardless of age or arch configuration, there is a peak in wall stress distal to the ostium of the LSA.

This stress distribution may contribute to the development of acute type B aortic dissections, which commonly occur at this location.



Two views of normal thoracic aortic wall stress. Stress is mapped to color with highest stress in white. Arrows indicate area of high stress distal to LSA ostium.

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PS26.

Fenestrated Stent Graft Improves Clinical Results of Thoracic Aortic Emergency

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Objectives: Thoracic endovascular aortic repair (TEVAR) has been employed as an effective initial management for thoracic aortic emergency. One of big concerns in emergency TEVAR is whether there is an appropriate proximal landing zone in an emergency situation without sufficient preoperative image data. We present our results of TEVAR for thoracic aortic emergency including usefulness of fenestrated stent-grafts to ameliorate a proximal neck problem.

Methods: Between 2001 and 2009, emergency TEVAR were performed for 86 patients with ruptured degenerative aortic aneurysm in 31, traumatic aortic injury in 23, complicated aortic dissection in 18 (13 ruptures and 5 malperfusions), ruptured anastomotic aneurysm in 9, ruptured mycotic aneurysm in 3 and impending ruptured inflammatory aneurysm in 2. When anatomically necessary, hand-made fenestrated stent-grafts were used for emergency TEVAR to preserve head vessels without head-vessel bypass-grafting. Clinical early and mid-term results were evaluated and compared between the group of fenestrated stent-grafts (the fenest group) and the group of nonfenestrated stent-grafts (the nonfenest group) placed more proximal from zone 3.

Results: Fenestrated stent-grafts were placed from zone 0, 1 or 2 in 27 patients. For remaining 59 patients, commercial or hand-made nonfenestrated stent-grafts were placed from zone 2 or 3 in 33 and from zone 4 in 26. Overall 30-day mortality rate and survival rate at 3 years after TEVAR were 8.1% (aorta-related, 4.7%) and 72.9% (aorta-related, 87.8%). Aorta-related 30-day mortality rates in the fenest group and the nonfenest group were 3.7% and 6.1% ($p = 0.677$) and aorta-related late-death free rates at 3 years after TEVAR were 95.8% and 76.1%, respectively ($p = 0.095$).

Conclusions: Emergency TEVAR was a powerful initial treatment for thoracic aortic emergency. Fenestrated stent-graft might be able to improve mid-term results of emergency TEVAR which have been reported to be unsatisfactory.

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PS28.

Clinical Utility and Safety of Noncontrast Computed Tomography for Follow-up After Endovascular Abdominal Aortic Aneurysm Repair

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Objectives: There is growing concern about radiation from Computed Tomography (CT). Noncontrast enhanced volumetric CT (NCT) has been shown to reduce radiation dose by 57-82%. In this study we evaluated the utility of NCT as the primary method of follow-up after endovascular abdominal aortic aneurysm repair (EVAR).

Methods: NCT protocol consisted of contrast-enhanced CT angiography (CTA) 1 month after repair, followed by NCT at 3 or 6, & 12 months. At each follow-up, immediate volume analysis was performed. If volume change was 2% or less, no further imaging was performed. If volume increased by >2% on nonenhanced images, contrast-enhanced CTA was performed immediately to identify potential Endoleaks. All images were reviewed by an experienced cardiovascular radiologist. Endpoints included identification of Endoleak, reintervention, and rupture.