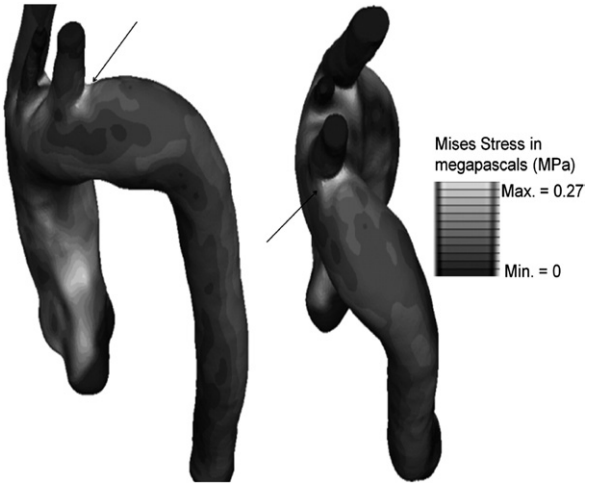
This stress distribution may contribute to the development of acute type B aortic dissections, which commonly occur at this location.



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.