

**Conclusions:** The mid-term results of hybrid aortic TEVAR in high risk patients suggest that it can be safely performed with an acceptable post-operative morbidity and mortality. Long term follow up and larger series are required to evaluate the durability of this modality.

**Author Disclosures:** M. Aftab: Nothing to disclose; R. Gupta: Nothing to disclose; A. Hartman: Nothing to disclose; V. Kamath: Nothing to disclose; K. Krishnasastri: Nothing to disclose; F. Manetta: Nothing to disclose; M. Rosca: Nothing to disclose; R. Schutzer: Nothing to disclose.

#### PS52.

##### Superior Short-Term Clinical Outcomes in Patients with Ruptured Abdominal Aortic Aneurysms Transferred for Endovascular Repair

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**Objectives:** Hospitals across the country differ in their ability to provide endovascular treatment for ruptured abdominal aortic aneurysms (rAAA). As a result, stable patients may require transfer for more specialized care. We analyzed short-term clinical outcomes in transferred patients undergoing open and endovascular procedures for rAAA.

**Methods:** Patients with rAAA transferred from another hospital in the HCUP-Nationwide Inpatient Sample, 2002-7 were identified. Patient demographic and clinical variables, and physician/hospital characteristics were analyzed. In-hospital complications and mortality following open and endovascular procedures were compared using  $\chi^2$ . Multivariate logistic regression was used to examine the effect of procedure type in transferred rAAA patients.

**Results:** 3587 patients presented with rAAAs, of which 395 were transferred from another hospital. No significant difference was found in Charlson comorbidity between the 2 groups. rAAA patients were more likely transferred to urban (95% vs 92%), teaching (79% vs 47%), and high volume hospitals (62% vs 37%), and receive endovascular treatment (20% vs 12%), all  $p \leq 0.01$ . All transferred patients showed lower mortality (33% vs 41%,  $p=0.001$ ), but no difference in complications (75% vs 76%) when compared with nontransferred patients. Transferred patients undergoing endovascular procedures compared to those undergoing open procedures had lower mortality (18% vs 37%) and complication rates (66% vs 79%), both  $p < 0.05$ . On multivariate analysis of all transferred patients, open procedure type was associated with higher mortality and higher complication rates, both  $p < 0.01$ .

**Conclusions:** To our knowledge, this is the largest study to date analyzing short-term clinical outcomes in transferred patients treated for rAAA. Patients stable enough for transfer undergoing endovascular repair have

superior short term clinical outcomes versus those undergoing open repair. This may have important implications for the health care utilization of patients with rAAA.

**Author Disclosures:** J. E. Indes: Nothing to disclose; A. Mandawat: Nothing to disclose; A. Mandawat: Nothing to disclose; B. E. Muhs: Nothing to disclose; J. A. Sosa: Nothing to disclose.

#### PS54.

##### Open Repair of Intact Thoracoabdominal Aortic Aneurysms in the ACS-NSQIP

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**Objectives:** Repair of thoracoabdominal aortic aneurysms (TAAA) is uncommon. Studies using national data report mortality rates of 20% while single institution studies report 5-8% mortality. Clinical trials are currently evaluating branched and fenestrated endografts. The purpose of this study is to establish a benchmark for future comparisons with endovascular trials using open repair of TAAA in the National Surgical Quality Improvement Program (NSQIP) database.

**Methods:** We identified all patients undergoing open repair of intact TAAA in NSQIP 2005-2008 using CPT and ICD-9 codes. We analyzed demographic and comorbidity characteristics as well as 30 day mortality and post-operative complications. Predictors of morbidity and mortality were also identified.

**Results:** 254 patients underwent open repair of intact TAAA. Mean age was 70.0 years, 61.0% were male, and 90.2% were white. Comorbidities included hypertension (85.4%), COPD (29.1%), stroke (10.2%), diabetes (9.1%), and peripheral vascular disease (8.3%). Mean preoperative creatinine level was  $1.29 + 0.77$  mg/dl. Thirty-day mortality was 10.6%. Postoperative complications occurred in 54.7% of patients. Pulmonary complications were the most common: failure to wean from ventilator (43.4%), pneumonia (28.4%), and reintubation (14.2%). Acute renal failure requiring dialysis was present in 11.8% of patients. On multivariate analysis age  $> 70$  years was predictive of mortality, OR 6.7 (2.3-20.3,  $p < 0.001$ ). Preoperative creatinine level ( $> 1.40$  mg/dl) was predictive of postoperative renal failure, OR 2.4 (1.1-5.3,  $p=0.04$ ), but not predictive of mortality, OR 0.85 (0.3-2.2,  $p=0.73$ ).

**Conclusions:** In this study of NSQIP hospitals that perform open TAAA repair, the 30 day mortality rate of 10.6% is approaching those seen in single institution studies. However, morbidity and mortality after open TAAA repair remain high suggesting the need for less invasive procedures.

**Author Disclosures:** R. P. Bensley: Nothing to disclose; E. L. Chaikof: Nothing to disclose; A. D. Hamdan: Nothing to disclose; R. Hurks: Nothing to disclose; F. B.

**Pomposelli:** Nothing to disclose; **M. L. Schermerhorn:** Gore, Consulting fees or other remuneration (payment) Medtronic, Consulting fees or other remuneration (payment) Endologix, Consulting fees or other remuneration (payment); **M. C. Wyers:** Nothing to disclose.

**PS56.**

**Clinical Outcomes and Aortic Architectural Changes following TEVAR for Chronic Type B Thoracic Aortic Dissection**

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**Objectives:** Review patient outcomes and assess aortic volumetric changes following TEVAR for patients with complicated chronic type B thoracic aortic dissection.

**Methods:** 60 consecutive patients were treated at a single institution from 2002 to 2009. Indications included: aneurysmal enlargement (n=51), failure of medical management (n=7), and perforation (n=1). 3-D CT reconstructions during patient follow-up were analyzed for changes in aortic volume and diameter.

**Results:** TEVAR was successfully performed in 98% of all patients. The 30-day mortality rate was 19%; six were procedure-related and four were cardiac events. Post-op complication rate was 5%; there was one stroke and one patient with spinal cord ischemia. Seven patients (12%) required secondary procedure; four for endoleak and three for persistent distal perfusion.

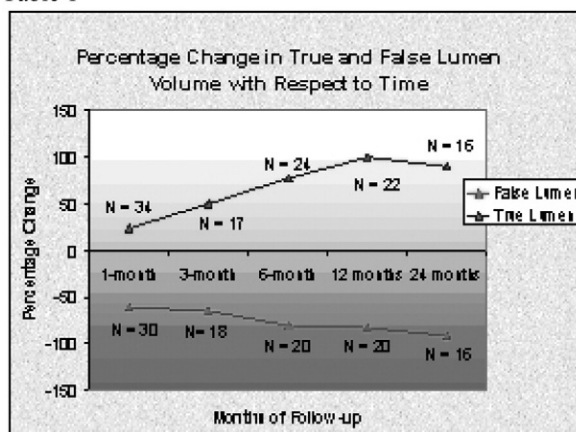
**Conclusions:** TEVAR is being considered as an appropriate treatment for complicated chronic type B dissection. Following TEVAR, aortic remodeling occurs with a predictable linear expansion of the true lumen and regression of the false lumen. Any deviation from this model suggests endoleak or persistent distal perfusion. Patient outcomes from increasing infrarenal aortic diameter and volume need further investigation.

**Table 1.** Aortic Dimensional Change From Pre-Op

Time from Intervention	1 Month	3 Months	6 Months	1 Year
Change in Maximal Aortic Diameter (All patients)	5%	5%	2%	2%
Change in Maximal Infrarenal Diameter (patients with dissection below renal arteries)	5%	10%	N/A	18%
Change in Maximal Infrarenal Diameter (patients without dissection below renal arteries)	0.7%	-5%	N/A	-4%
Infrarenal Total Volume Change (patients with dissection below renal arteries)	9%	13%	20%	22%

**Author Disclosures:** **I. D. Andacheh:** Nothing to disclose; **J. Chauvupun:** Nothing to disclose; **C. Donayre:** Nothing to disclose; **K. Kim:** Nothing to disclose; **R. White:** Nothing to disclose.

**Table 1**



**PS58.**

**The Pathogenesis of Primary Aortoenteric Fistula after EVAR**

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**Objectives:** Secondary aortoenteric fistula (AEF) is an uncommon, but well described complication of open abdominal aortic aneurysm (AAA) repair, occurring in up to 4% of patients undergoing this procedure. The incidence of this complication after endovascular aneurysm repair (EVAR) is less than 1%. Many etiologies of secondary AEF after EVAR have been proposed including caudal graft migration, structurally compromised grafts, mechanical erosion, and complicated endoleaks leading to aneurysm sac enlargement. Primary AEF after EVAR has not been widely reported. We propose that hematogenous secondary graft infection after EVAR is the mechanism for subsequent primary AEF.

**Methods:** This study retrospectively reviewed the charts of five patients presenting at our institution with infected EVAR stent grafts and AEF. Demographic, laboratory, imaging, and operative data were compiled for evaluation.

**Results:** Five patients with a mean age of 69 years (range 60-76) had computed tomographic evidence of aortoduodenal fistula occurring a mean of 8.8 months (range 4-15) after EVAR. All patients were found to have infectious problems at or before presentation with AEF including pneumonia, periodontal abscess, wound infection, ischemic colitis, diverticulitis, and inflammatory bowel disease. Four patients underwent endograft explant with neoortoiliac system (NAIS) reconstruction and duodenal repair or resection; one patient refused surgery. At operation, the aneurysm sac was markedly inflamed with communication to the overlying duodenum without mechanical erosion of the EVAR device. Cultures of two