

42S Abstracts

tention towards screening of these patient groups are undertaken. An enhanced understanding of multilevel aneurysm disease can probably improve the general care of this patient group.

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PS48.

Long Term Outcomes after Coverage of the Internal Iliac Artery without Coil Embolization during Abdominal Aortic Aneurysm Endovascular Repair

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Objectives: When abdominal aortic aneurysms (AAA) and common iliac artery (CIA) aneurysms undergo endovascular repair, endograft limb extension into the external iliac artery (EIA) is often necessary. Internal iliac artery (IIA) is usually embolized to prevent endoleak. However IIA embolization is associated with longer operative time. It has been our practice not to routinely coil embolize IIA. The purpose of this study is to review long term outcomes with this approach.

Methods: Between April 1997 and June 2010 117 patients (111 men; mean age 70.8 years, range 45-92) underwent endovascular AAA repair and had IIA coverage without coil embolization, unilateral in 112 and bilateral in 5 cases. Postoperative computed tomography (CT) scanning was performed at 1, 6, 12 months, and yearly thereafter.

Results: Preoperative AAA size was a mean 62 mm (range 35-120), and mean CIA diameter was 37 mm (range 20-80). Primary technical success was achieved in 108 patients (93.1%). Thirty day mortality was 0.8% (1/116 patients). A patient presented gluteal skin necrosis (0.8%) and 15 buttock claudication (12.9%). Patients were followed up for 34 ± 31 months (range 1-130), 23 of them for more than 60 months. During follow up 39 patients died (33.3%), in three, death was AAA-related (including 30-day mortality). Cumulative proportion of survival was 93%, 84%, 71%, 59%, 53% at 1, 2, 3, 4 and 5 years respectively. Secondary interventions were performed in 19 of 116 patients (16.3%), including three conversions for failed endografts. Kaplan-Meier estimates revealed freedom from reintervention of 91%, 90%, 83%, 81% and 75% at 1, 2, 3, 4 and 5 years respectively. Ten patients (8.5%) presented a type II endoleak during follow up.

Conclusions: Stent-graft coverage of the IIA without coil embolization is a safe and effective adjunct during the

treatment of aortoiliac aneurysms, with a low incidence of postoperative complications and reinterventions and acceptable mid and long term results.

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C3c: Poster Session - Aortic Disease (3); Renal/Visceral Disease; Vascular Trauma: Aortic, Arterial, Venous

PS50.

Hybrid Thoracic Endovascular Aortic Repair (TEVAR) for Complex Aortic Pathology - Early and Mid-term outcomes

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Objectives: This study is designed to review our early and mid-term experience with Hybrid TEVAR for complex aortic pathology.

Methods: We retrospectively reviewed the prospectively recorded data on our series of high risk patients who had hybrid thoracic aortic repair at our institution. 26 patients underwent a hybrid aortic repair (Median age 72; range:42-85 years, 65% men) between June 2004 and July 2010. Survival from all-cause death was determined from the Social Security Death Index.

Visceral Aortic Debranching Inflow and recipient Vessels

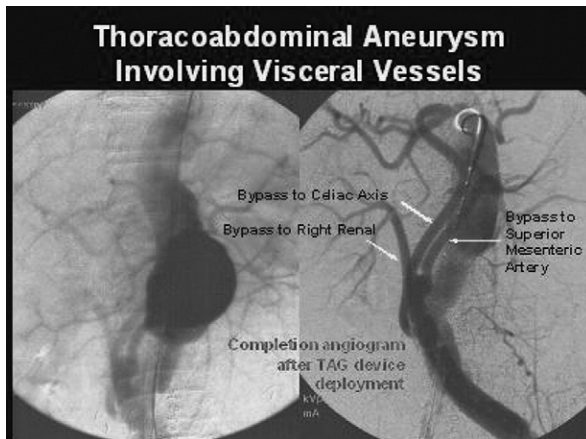
Inflow Vessel	Recipient Vessel	No of patients n= 8
Left Common Iliac Artery	Celiac axis - SMA Bilateral Renal arteries	2
Left Common Iliac Artery	Celiac axis, SMA Right Renal artery	1
Left Common Iliac Artery	Celiac axis SMA	1
Left Common Iliac Artery	Celiac axis	2
Distal Aorta	Celiac axis, SMA Bilateral Renal arteries	1
Distal Aorta	Celiac axis - SMA	1

Hybrid TEVAR with Aortic Visceral (Distal)debranching: Inflow and Recipient Vessels. SMA: Superior Mesenteric Artery

Results: Primary technical success was achieved in all the cases. Overall 31 bypasses were performed for aortic arch debranching (n=18) and 21 for visceral(n=8), followed by TEVAR. 20(77%) hybrid procedures were staged.

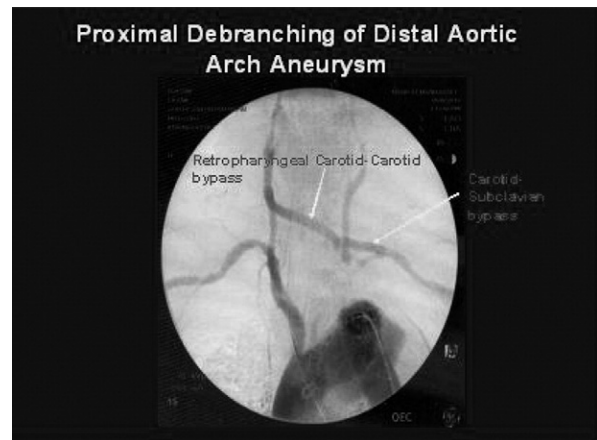
Aortic Arch Debranching Inflow and recipient Vessels		
Inflow Vessel	Recipient Vessel	No. of patients n = 18
Ascending Aorta	Innominate Artery	3
	Left Common Carotid Artery Left Subclavian Artery	
Ascending Aorta	Innominate Artery	2
	Left Common Carotid Artery	
Innominate Artery	Left Common Carotid Artery	2
	Left Subclavian Artery	
Right Common Carotid Artery	Left Common Carotid Artery	3
Elephant Trunk	/	1
Left Common Carotid Artery	Left Subclavian Artery	7

Hybrid TEVAR with Aortic Visceral (Distal)debranching: Inflow and Recipient Vessels. SMA: Superior Mesenteric Artery.

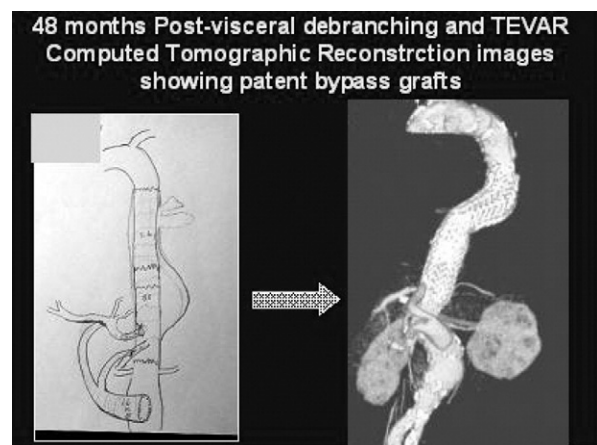


Angiogram showing thoracoabdominal Aortic Aneurysm involving visceral arteries (Left) Completion Angiogram after deployment of TAG endograft showing patent bypass grafts to Celiac Axis, Superior Mesenteric Artery and Right Renal Artery (Right) and exclusion of the Aneurysm.

6(23%) procedures were performed emergently. 20(77%) patients had Thoracic aortic aneurysm (mean diameter 6.7 cm), 2(8%) had penetrating aortic ulcer and 6 (23%) had an isolated or concomitant aortic dissection. Iliac retroperitoneal conduit was used in 8(30%) and spinal protection in 14(54%). There was no perioperative and in hospital mortality. Overall morbidity was 22%; respiratory failure in 2(8%), transient ischemic attack in 2(8%), renal failure requiring hemodialysis in 2(8%) patient. None of the patients experienced spinal cord ischemia or myocardial infarction. One year mortality was 15%(n=4). All cause mortality over a median follow up period of 28 months(range 3-77 months)was 27%. 28 of 29 grafts were patent in postoperative computed tomography angiography. 10% developed Type I endoleak with no aneurysm related death, stent migration or morbidity related to visceral revascularization. There was no difference between staged and non-staged hybrid procedures.



Completion angiography after stent grafting in a patient that underwent arch debranching shows the patency of retropharyngeal Right Common Carotid to Left Common Carotid bypass and Left Common Carotid to Left Subclavian Bypass Grafts and the exclusion on the aneurysm.



Shown is a 4 years post operative three-dimensional, surface-shaded rendering of a completed Visceral hybrid. Note the endovascular stents covering the distal descending thoracic and abdominal aorta. A reversed trifurcated graft originates from Distal abdominal aorta to the right renal artery, superior mesenteric artery and the hepatic artery.

Hybrid TEVAR Patient Characteristics

Patient Characteristics	n = 26
Symptomatic at Presentation	n = 14 (54%)
ASA 3	n = 10 (38%)
ASA 4	n = 15 (58%)
Patients with COPD	n = 10 (38%)
Patients with Coronary Artery Disease	n = 17 (65%)
Patients with Prior Aortic Surgery	n = 11 (42%)
Patients with 3 or more co-morbidities	n = 22 (85%)
Aortic Arch Debranching (Number of patients)	n = 18 (69%)
Visceral Debranching (Number of patients)	n = 8 (31%)
Mean SVS Score	8.2 ± 3.9

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.

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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 χ^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.

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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.

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