

was embolized with Interlock Fibered IDC (Boston Scientific) 3 mm coils. Postembolization common hepatic angiogram revealed successful exclusion of the sac, flush occlusion of the GDA, and patent hepatic arteries. Selective celiac and SMA angiogram revealed patent vessels with no retrograde flow into the VAPA. The patient had an unremarkable postoperative course without any further bleeding. He was discharged on postoperative day 5. A follow-up computed tomographic angiography confirmed continued exclusion of VAPA.

Conclusions: VAPA should be included in the differential diagnosis of patients presenting with GI bleeding. Coil embolization using microcatheter techniques is a suitable treatment option for this challenging clinical condition. Advanced embolization techniques should be included in the training and practice of modern vascular surgeons.

Selective Endovascular-First Approach for Critical Limb Ischemia Carries Minimal Cost of Worsening Long-Term Outcomes

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Objectives: Treatment failures are common in patients with critical limb ischemia (CLI) and are associated with increased risk of limb loss. Endovascular-first approach is associated with worse overall limb salvage rates presumably because subsequent open bypass options are compromised. To evaluate the effect of endo-first interventions, we examined the late outcomes of patients with failed endovascular attempts undergoing secondary interventions.

Methods: We identified a cohort of 302 patients with CLI, from March 2007 to December 2010. Endo-first was selected if (1) the patient had short (5-7 cm occlusions or stenoses in crural vessels); (2) the disease in superficial femoral artery disease was limited to TASC II A, B, or C; and (3) no impending limb loss. Endo-first was performed in 187. Failures were defined as recurrent clinical signs and symptoms of CLI.

Results: Secondary procedures (either endo or open) were less common after endo-first (endo 102 of 187, 55% vs open 71 of 105, 68%; $P = .029$). Secondary revascularization was carried out using endovascular (57 of 102), open (38 of 102) and hybrid interventions (seven of 102). The 5-year limb salvage rate for endo-first with a secondary intervention was 83% and amputation-free survival (AFS) was 45%, and was no different for those not requiring a secondary intervention. For failures requiring open revascularization, the limb salvage and AFS rates at 5 years were 87% and 59%, respectively. For those treated using endovascular revascularization, the limb salvage and AFS rates at 5 years were 82% and 35%, respectively.

Conclusions: Failed initial endovascular revascularizations for CLI requiring secondary interventions (either endovascular or open) have favorable limb salvage rates and AFS. In patients with CLI undergoing a selective endovascular-first approach for revascularization, failure does not confer poor prognosis in the long-term in properly selected patients. Furthermore, open reconstruction options may not be compromised after an endovascular intervention in appropriately selected patients.

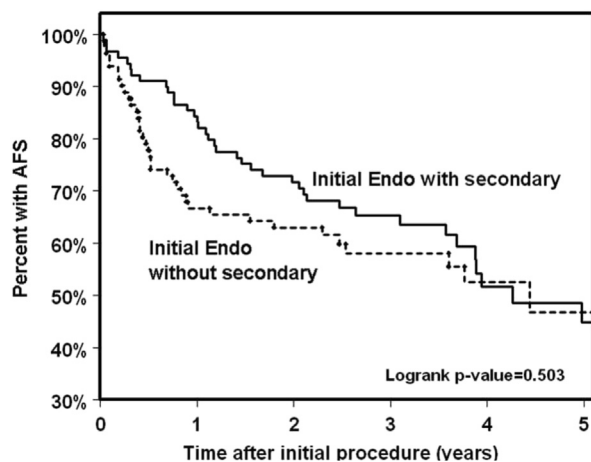


Fig.

A Multi-Institution Series of Hypogastric Preservation During Endovascular Repair of Aneurysms Involving the Common Iliac Artery

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Objectives: Iliac artery involvement can complicate endovascular aneurysm repair (EVAR). Hypogastric artery interruption is a common strategy used to overcome this anatomical challenge but is associated with ischemic complications in up to 50% of cases. Studies have suggested that hypogastric artery preservation can minimize these iatrogenic complications with no increase in morbidity. However, specific iliac branched grafts are currently unavailable in the United States. The purpose of this study was to review outcomes of hypogastric preservation during EVAR utilizing currently available techniques.

Methods: A retrospective review of consecutive cases from three institutions was performed. Hypogastric preservation was achieved using four different techniques, depending on institutional and physician preference. Physician-modified devices (PMD) were created by attaching a 7 mm Dacron side branch to a standard iliac limb, then reloading the device into a larger sheath for delivery. Trifurcated devices (TRI) utilized a second bifurcated aortic endoprosthesis to create the iliac branched configuration. Parallel endografts involved deployment of both a hypogastric and external iliac extension alongside each other in a common iliac limb. These were classified as the Sandwich Technique (ST) when two self-expanding stent grafts were used to create a "Double-D" configuration. They were classified as Eye of the Tiger (EOT) when a balloon-expandable stent graft was used for the hypogastric extension and molded into an "eye" shape for the parallel portion to facilitate apposition.

Results: Preservation was attempted for 35 hypogastric arteries in 32 patients, including 17 PMDs (48%), 5 TRIs (14%), 10 EOTs (29%), and 3 STs (9%). Primary success was achieved in 100% of cases. However, one ST had to be converted to an EOT due to a persistent intra-operative endoleak. There was no peri-operative mortality. Early morbidity included one CHF exacerbation and 4 wound complications. In addition, there was one early external iliac limb occlusion and 1 external iliac limb stenosis in the ST group due to compression by the second parallel graft. At mean follow-up of 10 months (range, 0-30 months), no ruptures, significant sac growth, or aneurysm-related deaths occurred. Overall, four endoleaks occurred (all type II), two of which were treated successfully by endovascular means and two were observed. One hypogastric branch occluded at 13 months in the PMD group.

Conclusions: Hypogastric preservation during EVAR for cases with iliac involvement is both safe and feasible with a broad variety of techniques that utilize currently available devices. At early to mid follow-up, gross patency rates exceed 90%. Sample sizes are too small to demonstrate superiority of any specific technique. When parallel grafts are employed, the EOT technique may offer some benefit over the ST. Hypogastric preservation can be effectively performed when clinically indicated.

Role of Cardiac Evaluation Prior to Thoracic Endovascular Aortic Repair

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Objectives: Patients with thoracic aortic pathology undergoing thoracic endovascular aortic repair (TEVAR) often have concomitant coronary arterial disease, which may cause perioperative myocardial infarction (MI), cardiac arrest, and/or death. Despite this risk, the need for and extent of preoperative cardiac work-up prior to TEVAR remains undefined. The present study seeks to assess the adequacy of a limited cardiac evaluation prior to TEVAR including assessment of cardiac symptomatology, resting electrocardiogram (ECG), and transthoracic echocardiography (TTE) as well as to estimate the incidence of perioperative cardiac events in patients undergoing TEVAR.

Methods: Retrospective analysis of a prospectively maintained IRB-approved database was performed for all patients undergoing TEVAR at a single referral institution between May 2002 and June 2013; n = 463 procedures involving TEVAR were identified. All procedures involving median sternotomy were excluded, and n = 380 procedures (n = 343 patients) were included in the final analysis. Degree of cardiac workup was classified based upon the most invasive procedure performed preoperatively. Classification was no workup, resting ECG only, resting TTE, exercise/pharmacologic stress testing, or coronary angiography. Standard