venous drainage during level III vena caval resection was used.

The effect of LRV in the setting of a solitary left kidney, however, is less well understood. Long-term renal function in the setting of aneurysm repair with dual kidneys; therefore, the decision was made to use endostaples for distal fixation and reduce the risk of migration. Endostaples can serve as a safe and viable alternative that is minimally invasive for handling short landing zones. Early results with endostaples are promising, but further studies are warranted to evaluate long-term safety and durability. The ANCHOR registry is designed to evaluate patients from multiple sites treated with the Aptus Heli-FX EndoAnchor System and is currently enrolling.

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Endostaples for Distal Fixation in a Thoracic Endovascular Aortic Aneurysm Repair (TEVAR)

Ratna C. Medicherla, Eivan Lipsitz. Montefiore Medical Center, Bronx, NY

Introduction: We report the case of a 77-year-old woman with an asymptomatic enlarging distal thoracic aortic aneurysm (TAA) treated with endovascular repair using endostaples.

Methods: The patient was a former smoker with a history of hypertension, chronic kidney disease, asthma, and hypothyroidism. Physical examination was significant for a pulsatile mass in the midabdomen. She was followed up with serial computed tomography angiography (CTA) for 5 years. The TAA measured 3.8 cm in 2009, enlarging to 5.5 cm in 2013. CTA revealed a short distal neck ~5 mm proximal to the celiac axis. Therefore, the decision was made to use endostaples for distal fixation.

Results: After informed consent, the patient was taken to the operating room. A 7F sheath was inserted via a right femoral exposure. The left common femoral and right common femoral accesses were obtained using a hydrophilic guidewire. A Cook Zenith TX2 28-mm × 80-mm endograft (Cook Medical, Bloomington, Ind) was deployed. Four Aptus Heli-FX Thoracic EndoAnchors (Aptus Endosystems Inc, Sunnyvale, Calif) were placed at 2, 4, 8, and 10 o'clock. A completion angiogram showed no endoleak and good filling of the celiac artery. The patient tolerated the procedure well, without any complications. She was discharged the next day, and remained well at the 2-month follow-up. A CTA at the 2-month follow-up confirmed good placement of the graft, with no endoleak, and the aneurysm was completely excluded.

Conclusions: There are multiple options for obtaining distal fixation during thoracic endovascular aortic repair. These include coverage of the celiac axis, barbs/hooks on the graft, distal graft visceral uncovered bare-metal stents, fenestrated/scalloped stent grafts, branched endografts, parallel stenting (chimney, snorkel, or periscope), and endoanchors, endostaples, and endoscrews. This case is an example of a distal TAA with difficult anatomy due to a short distal neck treated with endovascular repair using endostaples to ensure distal fixation and reduce the risk of migration. Endostaples can serve as a safe and viable alternative that is minimally invasive for handling short landing zones. Early results with endostaples are promising, but further studies are warranted to evaluate long-term safety and durability. The ANCHOR registry is designed to evaluate patients from multiple sites treated with the Aptus Heli-FX EndoAnchor System and is currently enrolling.

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Is Left Renal Vein Ligation Benign? A Novel Method for Maintaining Left Renal Venous Outflow During Extensive Inferior Vena Cava Resection

Charles S. Kiell, Andrew R. Barksdale. St Francis Hospital, Indianapolis, Ind

Introduction: Ligation of the left renal vein (LRV) has been felt to be a relatively benign maneuver, with renal venous outflow maintained through existing venous branches. LRV has shown to be of negligible in effect after aneurysm repair may be more an effect of right kidney compensation rather than a reflection on the benignity of LRV. When planning pararenal vena caval resection and reconstruction, reconstruction of the left renal vein is advisable, and intraoperative renal function can be optimized using the renal vein drainage technique described above.

Conclusions: The effect of LRV with a solitary left kidney is unpredictable; the negligible effects of LRV after aneurysm repair may be more an effect of right kidney compensation rather than a reflection on the benignity of LRV.

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Fig 2. Completion digital subtraction angiography showing successful embolization of bilateral renal arteriovenous malformations (AVMs).


1724

Critical Limb Ischemia (CLI) Do Not Accurately Stratify Patients at High Risk for Limb Loss

Raghuvier Vallabhaneni, Corey A. Kalbaugh, Ana Kouri, Mark A. Farber, William A. Marston. University of North Carolina-Chapel Hill, Chapel Hill, NC

Introduction: Critical limb ischemia (CLI) has been defined as patients with rest pain or tissue loss who have an ankle pressure (AP) <70 mm Hg or toe pressure (TP) <50 mm Hg. Data suggesting these patients are at high risk for limb loss without successful revascularization are limited. This study was designed to identify limb loss and mortality rates in patients who did not respond to revascularization or who were not revascularized and to determine whether CLI hemodynamic criteria accurately identify patients at high risk for limb loss.

Methods: Between 2008 and 2010, all patients undergoing lower extremity arterial duplex testing at our hospital were identified. Those with an AP <70 mm Hg or TP <50 mm Hg were retrospectively reviewed to determine whether they had symptoms of rest pain or tissue loss qualifying them for analysis in the database. Patients who underwent revascularization and