Abstracts of the 2021 VEITHsymposium Associate Faculty Global Podium Presentations Program

ABDOMINAL AORTIC ANEURYSMS

The True Incidence of Ruptured Abdominal Aortic Aneurysm: 20-Year Multicenter Review

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Objective: Studies in western countries have shown a decline in the incidence of ruptured abdominal aortic aneurysms (rAAAs). However, according to Health Insurance Review and Assessment Service (HIRA) using the rAAA code I713, the overall incidence of rAAAs has been increasing in Korea. These studies could have included a mix of different diagnoses owing to the characteristics of the data. The purpose of this study was to highlight the true incidence of rAAAs and the outcomes.

Methods: A 20-year multicenter retrospective review of rAAAs was undertaken from January 2000 to December 2020. Data were extracted for patients with the diagnostic code I713 for rAAAs at each hospital. A true rAAA was defined as an AAA with either anterior intraperitoneal rupture, posterior retroperitoneal rupture, or an aortic fistula to the surrounding organs, including the inferior vena cava, duodenum, and renal vessels according to the computed tomography findings and/or surgical records.

Results: A total of 268 diagnostic codes for rAAAs were identified in the three centers. However, the electronic medical records showed a true rAAA in only 110 cases (41.0%). On review, the I713 code had been used for impending rupture, a chronic contained rupture, a penetrating atherosclerotic ulcer, aortic dissection, and rupture after endovascular AAA repair. Of the 110 patients with a true rAAA, 11 (10%) had died in the emergency department before triage, 12 (10.9%) had been transferred to other centers, and 87 (79.1%) had undergone open repair (n = 73; 66.4%) or endovascular AAA repair (n = 14; 12.7%). The mortality reports for the treated patients in each hospital varied significantly. The in-hospital mortality for center A was 34.5%, for center B was 11.1%, and for center C was 45% and was affected by ratio of transfer and untreated rAAAs.

Conclusions: The true incidence of rAAAs was 41% from the HIRA data using the I713 code, and comparing only the mortality rate among hospitals and regions could lead to misinterpretation. The diagnostic code for rAAA (I713) from the HIRA was misplaced for many cases to include nonruptures, such as impending ruptures, penetrating atherosclerotic ulcers, aortic dissection, and other thoracic or isolated iliac aneurysm ruptures. The mortality rates reported by each hospital could not reflect the outcomes of true treated rAAAs because the untreated patients who had been either transferred to other centers or had died in the emergency department were often not included. To improve the outcomes for rAAAs, a prospective nationwide database collection and review with clear definitions and transparent reports on the outcomes are needed.

Author Disclosures: S. Ahn: Nothing to disclose; **E. A. Jo:** Nothing to disclose; **H. Mo:** Nothing to disclose; **I. M. Jung:** Nothing to disclose; **H. K. Kim:** Nothing to disclose; **A. Han:** Nothing to disclose; **S. Min:** Nothing to disclose; **S. K. Min:** Nothing to disclose; **J. Ha:** Nothing to disclose.

EVAR With Sequential Iliac Side Branch Device to Preserve Hypogastric and Ectopic Renal Artery in Aortoiliac Aneurysm—A Case Report

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Objective: Endovascular abdominal aortic aneurysm (AAA) repair (EVAR) is a well-established treatment of AAAs. When the iliac artery is involved, preservation of the hypogastric arteries has shown high technical success with low morbidity. This has become the preferred treatment when the common iliac artery is aneurysmal. An ectopic kidney is a birth defect. If the kidney remains in the pelvis, it is termed a pelvic kidney. The ectopic renal artery will originate from the common iliac artery. If the iliac artery is involved in the aneurysm, the renal artery must be revascularized to save renal function.

Methods: A 55-year-old female patient was admitted with a symptomatic infrarenal AAA and an aneurysm of the right common iliac artery to the iliac bifurcation. She had a single pelvic kidney on the right side with the renal artery coming from the aneurysm. EVAR was performed with two sequential iliac side branch (ISB) devices, the distal device with the side branch for the hypogastric artery and the proximal device for the renal artery.

Results: Percutaneous endovascular therapy was performed without complications. In addition to the EVAR main body, two ISB devices (E-iliac; Jotec Cryolife) were placed in line. The distal side branch was connected to the hypogastric artery and the more proximal side branch to the renal artery. No endoleak was noted, and the branches remained patent. Postoperatively, an occlusion of the right external iliac artery occurred as a result of local dissection after placement of a vascular closure device. This occlusion was treated endovascularly with suction thrombectomy and stenting of the external iliac artery.

Conclusions: Standard stent grafts are designed for treatment of aneurysms in patients with normal anatomy. If the aneurysm has extended to the branch vessels or has atypical branches, we prefer custom-made devices. There is no time to wait for the production of these devices for symptomatic patients; thus, chimneys and standard materials are the only current options. ISB devices are very useful tools in this scenario because they allow for treatment of the branches and prevention of gutter endoleaks.

Author Disclosure: R. Dammrau: Nothing to disclose.

Endovascular Treatment of Infrarenal Aortic Aneurysm With Difficult Neck Anatomy

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Objective: At present, endovascular treatment of infrarenal aortic aneurysms is the standard of care. However, worse aortic aneurysm anatomy is one of the main risk factors limiting the use of endovascular treatment of abdominal aortic aneurysms and leads to endoleak type I, endograft dislocation, and an increased risk of reintervention. The aim of our study was to demonstrate our single-center experience with the Gore conformable Excluder (GCE) endograft implantation in patients with difficult abdominal aortic aneurysm neck anatomy.

Methods: We performed a prospective, nonrandomized clinical study of 19 patients. The patients had been treated between April 2019 and June 2021. The primary effectiveness end points were technical success, freedom from endoleak and migration, and thromboembolic events. Also, we analyzed the rate of systemic complications and death, rate of reinterventions, and rupture.

Results: Of the 19 patients, 15 were men and 4 were women. Their median age was 76.9 ± 6.7 years. The mean diameter of the aneurysm was 6.3 ± 1.3 cm. GCE graft implantation was performed when the aortic neck was angulated 80° to 110° and its length was 16 to 10 mm. The mean operation time was 83.4 ± 45.2 minutes. In all cases, the endograft was successfully implanted. In three cases, one of renal arteries was stented using the chimney technique, and in one case, a renal artery stenosis was stented. Of the 19 patients, 1 had died within the first 30 days after treatment of the ruptured aneurysm. The 30-day survival rate was 94%. One peripheral thromboembolic event was noted. No other cardiovascular events had occurred in the first 30 days after endograft implantation. The mean follow-up period was 388.5 ± 235.0 days. Four type II endoleaks were diagnosed with computed tomography postoperatively. During long-term follow-up, no any aortic rupture, endograft migration, or death was noted. The long-term survival was 100%.

Conclusions: The GCE represents progress in the evolution of this graft. Implantation of a GCE endograft in difficult abdominal aortic aneurysm anatomy has demonstrated good short- and mid-term results.

Author Disclosures: E. Kalmykov: Nothing to disclose; **S. Vogel:** W. L. Gore & Associates GmbH: Employment; **R. Dammrau:** Nothing to disclose.

Anatomic Feasibility of Iliac Side Branch Grafts in a Real-World Setting: A Cross-Sectional Study

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