EVAR for Juxtarenal and Pararenal Aneurysms: What Works Best for a Durable Repair

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Disclosures

• Speaker / consultant
  W.L. Gore
  Endologix
  Medtronic

Increase in use of FEVAR / BEVAR

The Challenge for EVAR:
Aortic Disease is PROGRESSIVE
Precursors of AAA Disease Progression

- Short Neck
- Angulated Neck
- Thrombus in Neck
- Large Diameter Aorta
- Inverted Funnel Neck

Infrarenal Aortic Neck Dilates after Surgery

Endovascular Abdominal Aortic Aneurysm Repair in 144 Patients: Correlation of Aneurysm Size, Proximal Aortic Neck Length, and Procedure-related Complications

CONCLUSIONS: Endovascular repair of large AAAs can be challenging; however, the size of the AAA does not influence the rate of complications. A short proximal aortic neck is the only significant risk factor for more serious complications.
The correlation of aortic neck length to early and late outcomes in endovascular aneurysm repair patients

Conclusions: EVAR can be used for patients with a short aortic neck; however, it was associated with a significantly higher rate of early and late type I endoleaks, resulting in an increased use of proximal aortic cuffs for sealing the endoleaks.


Can we predict aortic dilation after EVAR?

Predictive factors and clinical consequences of proximal aortic neck dilatation in 230 patients undergoing abdominal aorta aneurysm repair with self-expandable stent-grafts

Piergiorgio Cao, MD,∗ Fabio Verzini, MD,∗ Giambattista Parlani, MD,∗ Paola De Rango, MD,∗ Basso Parente, MD,∗ Giuseppe Giordano, MD,∗ Stefano Mosca, MD,∗ and Agostino Maselli, MD,∗

Large AAA, Large Neck, Circumferential Neck Thrombus

Predispose to Neck Dilation post EVAR


Late Open Surgical Conversion After Endovascular Abdominal Aortic Aneurysm Repair: A Review of 15 Years of Experience

Vinay Kansal,1 Sudhir Nagpal,2 Prasad Jetty2. 1Faculty of Medicine, University of Ottawa, Ottawa, Ontario, Canada; 2Division of Vascular Surgery, University of Ottawa, Ottawa, Ontario, Canada

The rate of operator adherence to IFU at time of initial EVAR in this cohort of open conversions is markedly low in comparison to the overall EVAR cohort.

The decreasing interval to open conversion is concerning and may be a reflection of increasing liberalization of EVAR to populations outside of IFU.

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Clinical outcomes for hostile versus favorable aortic neck anatomy in endovascular aortic aneurysm repair using modular devices

Ali F. Aburahma, MD, John E. Campbell, MD, Alberic Y. Moussa, MD, Stephen M. Hess, MD, Patrick A. Stone, MD, Akhlesh Jain, MD, Aaradhana Narundenge, MD, L. Scott Dean, PhD, MBA, Tamizi Kettler, RN, and Joseph Halib, MD,∗

Patients with HNA can be treated with EVAR, but with higher rates of early (intraoperative) type I endoleak and intervention. The midterm outcomes are similar to FNA.

J Vasc Surg 2011;54:13-21
Adherence to EVAR Device Instructions for Use (IFU) Guidelines Has No Impact on Long-Term Outcomes

Joy P. Walker, MD,1 Lue-Yen Tucker,2 Philip Goodney,3 Hong Hua,4 Steven Okuhn,4 Ann Rhoades,5 Bradley Hill,6 Robert W. Chang7.

1Vascular and Endovascular Surgery, University of California San Francisco, San Francisco, Calif; 2Kaiser Permanente Division of Research, Oakland, Calif; 3Dartmouth-Hitchcock Medical Center, Lebanon, NH; 4The Permanente Medical Group, San Francisco, Calif; 5Kaiser Permanente, Oakland, Calif; 6The Permanente Medical Group, Santa Clara, Calif; 7The Permanente Medical Group, South San Francisco, Calif

- 1736 patients; 92% f/u; f/u median 2.7 years
- 489 patients included (had baseline data)
- 42% outside IFU; 62% short neck
- No difference in mortality, reintervention or type I/III endoleak

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For short, angled, thrombus laden, irregular necks...

• Move to a HEALTHIER landing zone

and

• Begin with the end in mind

Tara Mastracci, MD, Cleveland Clinic

The Caper

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Total Endovascular Repair for Juxta and Supra-renal Aortic Aneurysms

Snorkel/Chimney Technique

Fenestrated – Physician Modified endograft

Custom Fenestrated / Branched Devices
• Designed as an “off the shelf” endovascular graft for treatment of juxtarenal and pararenal aortic aneurysms

• “Movable” fenestrations (15 mm in all directions) with integrated trans fenestration sheaths for delivery of renal covered stents

83yo male 7.6 cm para-visceral aortic aneurysm

Juxta-renal Aneurysm

Intra-op Completion Angio

6 month F/U CT
Midterm results from a physician-sponsored investigational device exemption clinical trial evaluating physician-modified endovascular grafts for the treatment of juxtarenal aortic aneurysms
Benjamin W. Starnes, MD, Rachel E. Henehan, MD, and Billi Tatum, RN, Seattle, Wash

- 64 patients enrolled; 59 received PMEG
- Mortality 5.1%
- Follow up 1-4 years (avg not reported)
- No type IA endoleaks
- Primary efficacy in 94%
- > 2cm proximal neck was required
- Proximal seal zone length
  Mean 4.8 cm
  Range 1.9 – 7.2 cm

ZFEN Fenestrated
The Enemies of FEVAR

- Tortuosity: Access and or neck
- Occlusive disease
- Ischemia distal to access
- Aortic arch type; caution type III

Access for FEVAR / BEVAR
Risk Stratified Analysis of Open Versus Fenestrated Repair of Complex Abdominal Aortic Aneurysms
Robert T. Lancaster, Jahan Mohebali, Eric Twerdahl, Emel Ergul, Christopher J. Kwolek, Mark F. Conrad, Richard P. Cambria, Virendra I. Patel. Massachusetts General Hospital, Boston, Mass

Favorable outcomes for FEVAR observed in high-risk patients likely reflect differences in clinical presentation; however, this analysis of early experience with FEVAR suggests comparable outcomes for open and FEVAR repair in low-risk and intermediate-risk patients

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Conclusions
- EVAR within IFU is best
- FEVAR is an excellent alternative in hostile neck, short neck and juxtarenal AAA in high risk patients
- BEVAR/PMEG best for perirenal aneurysms
- Consider non anatomic alternatives in selected cases based on unfavorable anatomy