

With Ruptured Complex AAAs & TAAs Parallel Grafts Are The Best Treatment: They Are Simple, More Effective, And Less Costly Than Other Treatments



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Veith 2024

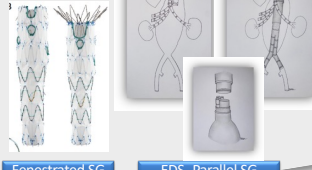
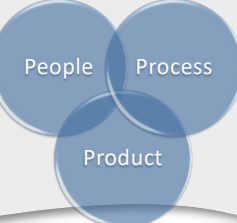
Disclosures

- None

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Managing Ruptured Complex AAAs & TAAs

BE REALISTIC


Fenestrated SG EDS-Parallel SG

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Managing Ruptured Complex AAAs & TAAs

BE REALISTIC

Fen/Br	Technique	Parallel
Complex	Complex	Simple
Complex	Device Selection	Simple
Complex	Image Interpretation	Simple
Complex	Learning Curve	Simple
Complex	Operator Skillset	Simple



Fen/Br SG Parallel SG

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National Use of Chimney and Fenestrated EVAR for the Endovascular Repair of Complex Abdominal Aortic Aneurysms VQI Registry: 2012 - 2020

487 complex EVAR, 88% FEVAR, 12% ChEVAR

- Surgeon Volume: FEVAR 5/year, ChEVAR 1/year
- Emergent: FEVAR 6%, ChEVAR 23% (4x)

FEVAR Surgeons:

- More Experienced
- Performed Fewer Emergent Procedures

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- Surgeon Volume: FEVAR 5/year, ChEVAR 1/year
- Emergent: FEVAR 6%, ChEVAR 23% (4x)
- 30 day mortality: FEVAR 2.9%, ChEVAR 3.3%
- 1-year Survival: FEVAR 91%, ChEVAR 93%
- Postop Complications: No Difference

FEVAR Surgeons:

- More Experienced
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Mid-Term Outcomes of Parallel/Chimney Endovascular Aortic Aneurysm Repair: A Systematic Review and Meta-analysis
Prapassaro T. et al. Ann Vasc Surg. February 2022;(79):359-371

- **13 Studies, 1019 patients**
- Outcome measures @ 3-years
- Survival at 30 days: 93%
- Survival @ 3 years: 81%
- Freedom from reintervention: 86%
- Target vessel patency: 95%

Conclusion:
 Study indicates good mid-term durability and patient survival using PARALLEL stentgrafts

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All Large Registry & Meta-Analysis Data Shows Parallel Stentgraft are as Safe & Effective as F/B/EVAR

Few observations regarding F/B/EVAR:

- The vast majority of cases are elective and performed by 10 high volume centers, by trained operators, with customized devices.

Few observations regarding Ch/EVAR:

- Nearly 25% of cases are emergent or ruptured, majority cases performed by low volume operators, without a standardized approach, using non-customized devices

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With Ruptured Complex AAAs and TAAs Parallel Grafts Are Simpler, More Effective, and Less Costly

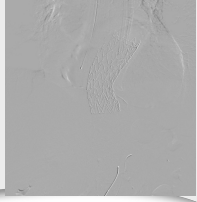
Lets be REALISTIC about Ruptured Complex Aneurysms

- Best Outcomes Achieved with standardized & simplified approach that improves time to intervention

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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms

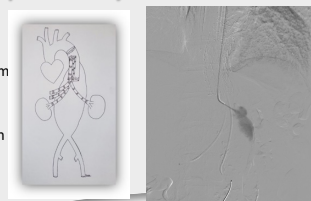
- Off-the-shelf parallel stentgrafts are readily available
- Minimal time needed for imaging interpretation & device sizing.
- Operators simply need to identify a tubular landing zone anywhere in the thoracic aorta



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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms

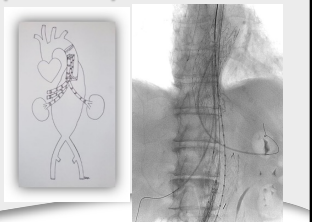
- Device navigation and deployment is relatively simple
- Cannulate the visceral arteries from brachial or femoral approach
- Advance tubular off-the-shelf stentgrafts in parallel configuration



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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms

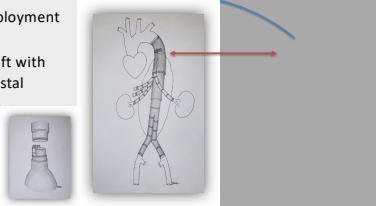
- Device navigation and deployment is relatively simple
- Advance additional stentgrafts as needed to reach adequate distal landing zone in the infrarenal aorta or the iliac arteries.



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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms

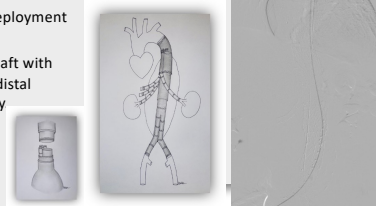
- Device navigation and deployment is relatively simple
- Orient the aortic Stentgraft with adequate proximal and distal landing zones and deploy.



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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms

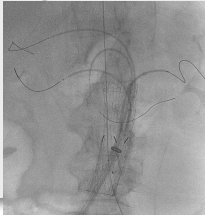
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Parallel SG Are SIMPLER in Treating Ruptured Complex Aneurysms


- Device navigation and deployment is relatively simple
- Parallel visceral stentgrafts can be oriented antegrade (chimneys) or retrograde (periscopes)



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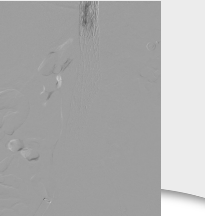
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All sealed endoleaks are not the same: Strategy based on an ex-vivo analysis.
 Mehta M, Ohki T, Veith F, Lipsitz E, Eur J Vasc Endovasc Surg.2001Jun;21(6):541-4

Pressure reduction across thrombosed endoleaks is directly proportional to the length and inversely proportional to the diameter of the endoleak channel....

This data would suggest that thrombosis of longer channel and smaller diameter endoleaks would result in greater pressure reduction.

10 cm) and diameters (0.6 cm, 1.0 cm, 1.4 cm) were constructed using

Optimum Strategy:
 Long Chimneys = Long & Narrow Gutters
 High Likelihood of Gutter Endoleak Thrombosis

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Feasibility and Safety of Endovascular Docking Station With Chimney Stent Grafts for Staged Crawford Types I to IV Thoracoabdominal Aortic Aneurysm Repair. Mehta M, et. al. J Vasc Surg. June 2019;(69)6:E106

- 2015 – 2022
- 112 Aortic procedures, mean aortic aneurysm diameter 6.4cm
- Technical Success, all 112 procedures, 56 TEVAR / 56 EVAR
- 209 visceral chimneys
 - > 53 bilateral renal arteries, 3 single renal arteries
 - > 56 superior mesenteric arteries
 - > 44 celiac arteries
- Mean 3.7 chimneys/ patient

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- All antegrade placed chimneys maintained their orientation prior to staged EVAR or bridging stentgraft
- Mean chimney length/ gutter length: 15 cm/ 8 cm
- Transient spinal ischemic: 1 (2%), full recovery with drain replacement
- Death: 1(2%), rTAA, Stage I & II combined, SMA stent could not be reinforced – occluded postoperative day 3.

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- Mean follow-up of 28 months
- All gutter endoleaks observed within 6 months of procedure were treated conservatively
- 8 (16%) persistent gutter endoleaks underwent embolization
- 2 renal chimneys occluded, 1 (2%) patient required dialysis
- 1 celiac chimney occluded without mesenteric ischemia
- No stentgraft explants.

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Parallel SG Are Effective in Treating Complex & Ruptured Aneurysms

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- Endovascular docking station enables creation of proximal and distal landing zones within the aorta.
- The long chimneys or periscopes in parallel Stentgraft configuration creates a smooth transition into the visceral arteries reducing kinks, and allows for the creation of long gutters and lowers endoleaks.

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COST?

The Institutional Cost of Ruptured Aneurysms: Implications for Tertiary Care Medical Centers Warner C. etal. SCVS 2018

- 53 ruptured AAA: 41 EVAR, 12 OSR
- Hospital profit margin with EVAR 3.6%
- Hospital profit margin with OSR 11.1%

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COST?

Ruptured EVAR vs OSR: What Is the Cost per Day of Patient Survival
Mehta M. et al. J Vasc Surg, September 2015;(62)3:809

- EVAR 30 day mortality lower than OSR (22% vs 36%)
- EVAR 5-year cumulative survival better than OSR (37% vs 26%)
- @ 30 day **EVAR cost/ patient survival/ day \$2052**
- @ 30 day OSR cost/ patient survival/ day \$2415

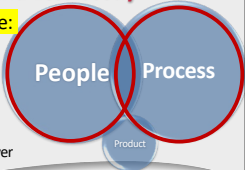
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IN THE REAL WORLD

With Ruptured Complex AAAs and TAAs Parallel Grafts Are Simpler, More Effective, and Less Costly

Today off-the-shelf parallel stentgrafts are:

- Readily available
- Device sizing, navigation & deployment relatively simple
- Best suited for standardization & reducing time to intervention
- Use longer chimneys to ensure better seal and lower the incidence of gutter endoleaks



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