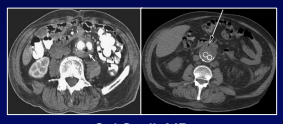
Aorto-enteric Fistulas Associated with Infected EVARs or Open Prosthetic Grafts: What Are the Differences Between Them and What Are the Implications for Treatment?



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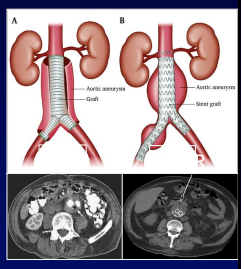
Wednesday, November 20th, 2024 3:30-3:35PM
Session 45: More Hot Aortic Topics

Disclosures

- None

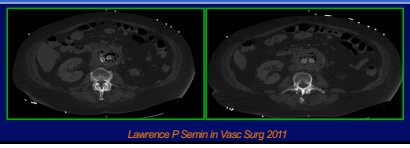
Open Repair & EVAR

- Both endovascular (EVAR) and open aortic repair (OAR) are susceptible to graft infection.
  - *EVAR increasingly supplants OAR*
- Indications for index repair & technical elements of graft removal differ for EVAR & OAR grafts.



Incidence of Aortic Graft Infection

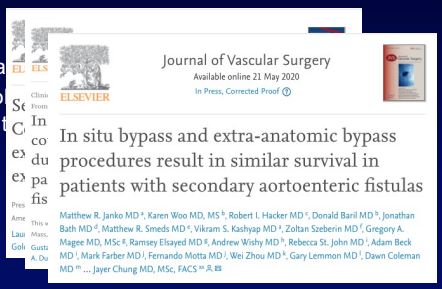
- Aortic graft infection (primary vs. secondary) is rare
  - ~1.6-3% (highest with aorto-femoral bypass)
  - *true incidence unknown/underestimated*
- < 1% of aortic operations results in AEF
- 80-90% of AGI are secondary
- If AGI present, aorto-enteric fistula or erosion (AEF/AEE) present in ~25-35% of cases



Lawrence P Semin in Vasc Surg 2011

Controversies in Management

- Severa
  unreso
  conduit



Journal of Vascular Surgery
Available online 21 May 2020
In Press, Corrected Proof

ELSEVIER

In situ bypass and extra-anatomic bypass procedures result in similar survival in patients with secondary aortoenteric fistulas

Matthew R. Janko MD [a], Karen Woo MD, MS [b], Robert I. Hacker MD [c], Donald Baril MD [b], Jonathan Bath MD [d], Matthew R. Smeds MD [e], Vikram S. Kashyap MD [a], Zoltan Szeberin MD [f], Gregory A. Magee MD, MSc [g], Ramsey Elsayed MD [g], Andrew Wishy MD [h], Rebecca St. John MD [i], Adam Beck MD [i], Mark Farber MD [j], Fernando Motta MD [j], Wei Zhou MD [k], Gary Lemmon MD [l], Dawn Coleman MD [m], ... Jayer Chung MD, MSc, FACS [m]

Unanswered Questions

- Does infected EVAR differ from an infected in-situ prosthetic graft from a prior open aortic operation?
- Among the subset of AGI with AEF, are there differences in EVAR and Open prosthetic implants?

Inclusion & Exclusion

All primary + secondary aortic infection admissions
2004-2023
N = 272

Infected TEVAR
N = 28

No operation
N = 15 (6%)

All primary and secondary aortic infections
N = 229

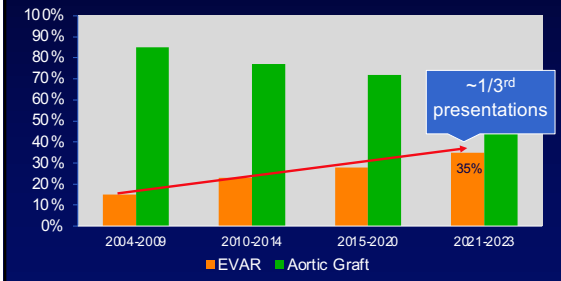
Primary Infrarenal/Juxtarenal
N = 15 [No AEF]

Suprarenal/TAAA infection
N = 56

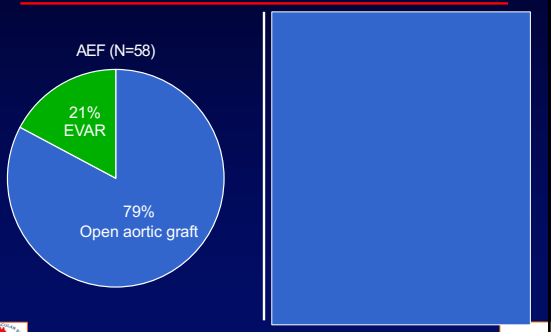
Infra/Juxtarenal secondary aortic infections
N = 158 → 58 (37%) AEF/AEE

EVAR Increasing Cause of AGI

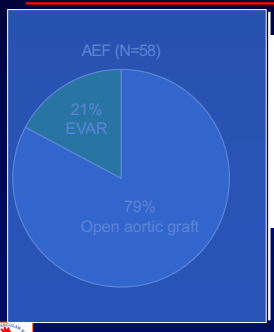
- N = 158 Aortic Graft Infections

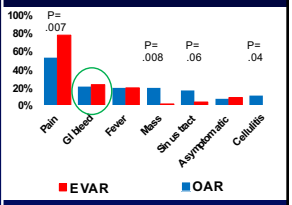


AEF Subtypes



AEF Presentation Differences





EVAR
- Pain

OAR Infection
- Cellulitis
- Sinus tract
- Palpable mass

Mean Time to Presentation: 3.2 years (similar)

Demographics & Comorbidities

Feature, No. (%)	Overall N = 58	OAR N = 48	EVAR N = 10	P-value
Age, years (range)	65±13	66 (49-89)	68 (48-86)	.1
Male sex	45 (78%)	38 (79%)	7 (70%)	.2
BMI	25±6	26±6	25±5	.6
Tobacco exposure	42 (73%)	36 (76%)	6 (60%)	.03
Peripheral artery disease	25 (43%)	21 (44%)	4 (40%)	<.001
End-stage kidney disease	7 (12%)	5 (10%)	2 (20%)	.01

*No difference in HTN, HLD, CAD or DM

Operative Details

Feature, No. (%)	Overall N = 58	OAR N = 48	EVAR N = 10	P-value
ASA class	3.9±0.5	3.9±0.5	4.0±0.4	.6
Multi-stage repair	7 (13%)	2 (7%)	5 (19%)	.4
OR time, Hr:Min	5:41±2:10	5:39±1:47	6:03±2:30	.1
EBL, liters	3.1±2.9	3.2±3.6	3.5±1.7	.06
PRBCs, units	5.2±3.8	4.0±3.2	6.4±4.1	.02

- Gram negative organism cultured
  OAR, 22% vs. EVAR, 53% → p = .001

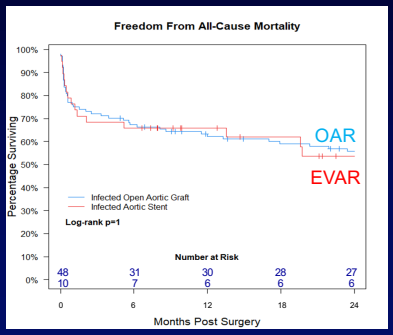
- Small bowel resection (instead of primary repair)
  OAR, 33% vs. EVAR, 58% → p = .03

Comparable Overall Outcomes

- Length of stay
  - 20 [14-33] days
- Complications
  - Any type 70%
- Mortality
  - 30-day 35%
- Disposition
  - Home: 29%
  - Rehab: 51%
  - LTAC: 20%
- Most common
  - Renal injury: 21%
  - Pulmonary: 25%
  - GI: 30%
- Periop. mortality
  - 90-day: 39%
  - 180-day: 42%

OAR 17% EVAR 34%

Overall Survival



~60% @ 5yrs

Adjusted Mortality Comparisons

Logistic regression OR (95%CI) 30-day death
Cox-regression HR for all-cause mortality

GI complication	OR = 1.5, 95%CI 1.0-2, P=.08 HR = 1.2, 95%CI .4-1.6, P=.5
Omental flap	OR = 0.63, 95%CI .2-.8, P=.04 HR = 0.8, 95%CI .4-1.6, P=.6
EVAR	OR = 0.5, 95%CI .09-2.5, P=.4 HR = 0.6, 95%CI .2-1.8, P=.4
GI bleed preop	OR = 2.0, 95%CI .6-6.2, P=.02 HR = 2.0, 95%CI .9-3.9, P=.06

Limitations

- Single center, retrospective review
- Selection bias and modest sample size
- Patient and anatomic heterogeneity
- No standardized surgical approach

Conclusions

- EVAR increasingly associated with AGI presentation.
- Different clinical features for OAR and EVAR AEF.
  - *Variation in symptoms & bacteriology*
- Operative characteristics comparable but EVAR may present unique technical challenges.
  - *Bare stent, configuration, phlegmon, enteric defect*
- GI tract repair associated with differences in postop complications and bacteriology are apparent.
- Overall outcomes are comparable when managed at a high-volume center with experience in treating these complex problems.

Thank You