

  
 Connecting The Vascular Community

**Update On Surgical Treatment For Infected Thoracic Aortic Grafts And Endografts, With Or Without Aorto-Esophageal Or Aorto-Bronchial Fistulas: Optimal Techniques And Results From A Committed Center**  
**Germano Melissano**  
 "Vita-Salute" San Raffaele University -Milano - Italy

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**Disclosures:**  
 None relevant to this presentation



**Thoracic aortic infection**

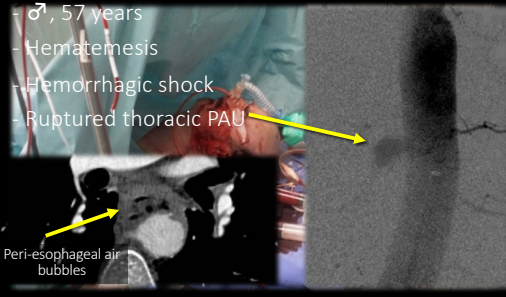


**Clinical presentation**

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**Aortoesophageal fistula**

♂, 57 years  
 - Hematemesis  
 - Hemorrhagic shock  
 - Ruptured thoracic PAU





Peri-esophageal air bubbles

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**Postoperative CT**

TEVAR  
 in emergency

  
 life-saving



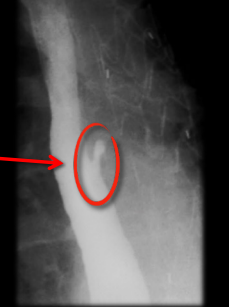
Air collection

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**Case report**

Esophagogram shows esophageal leak

(3 days after emergent TEVAR)

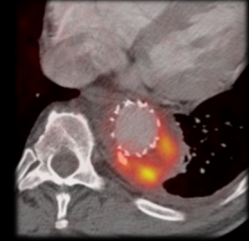


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And now ?

With TEVAR alone...

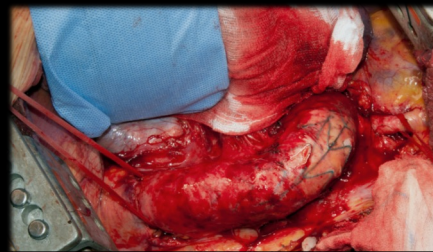
ONGOING INFECTION  
↓  
GRAFT CONTAMINATION  
↓  
SEPSIS / RUPTURE



Other options after initial TEVAR

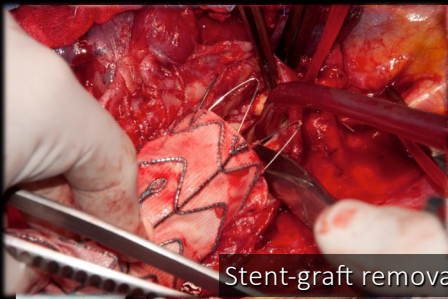
1) Aortic in situ prosthetic surgical replacement  
+ esophageal rep. / resection

1) Aortic in situ surgical replacement



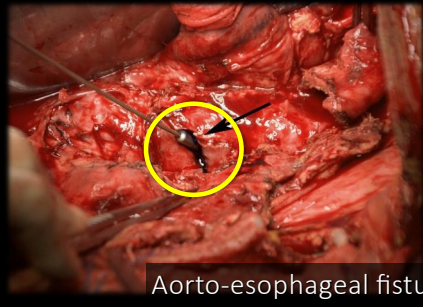
Previous TEVAR for AEF

1) Aortic in situ surgical replacement



Stent-graft removal

1) Aortic in situ surgical replacement



Aorto-esophageal fistula

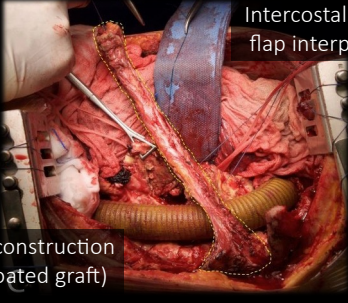
### 1) Esophageal associated repair



Direct repair

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### 1) Aortic in situ surgical replacement

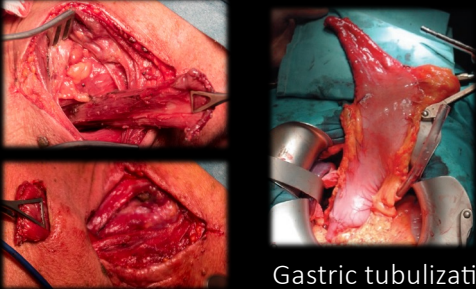


Intercostal muscle flap interposition

Aortic reconstruction (Silver-coated graft)

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### 1) Esophageal resection



Gastric tubulization


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### Other options after initial TEVAR

### 2) Aortic in situ replacement with HOMOGRRAFT

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### 2) Replacement with HOMOGRRAFT



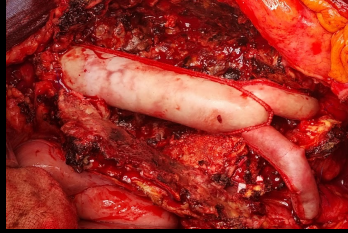
ANNALS OF SURGERY  
A Monthly Review of Surgical Science Since 1885

Aortoesophageal Fistula  
Value of In Situ Aortic Allograft Replacement  
Edward E. Klein, MD, Leonard F. Finkel, MD, and Francesco Coscia, MD

Kieffer L et al., Ann Surg 2013

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### 3) Replacement with Bovine Pericardium graft



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Other options after initial TEVAR


3) Stent-graft left in situ  
 + esophageal repair  
 + intercostal muscle flap  
 interposition

Let's come back to our case report

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5 days after TEVAR...

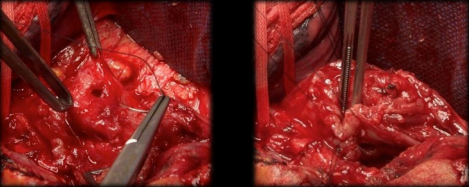
Right thoracotomy



Intercostal muscle flap preparation

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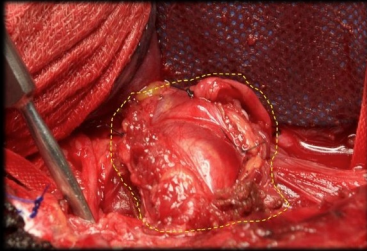
Esophageal repair



Esophageal fistula      Double-layer suture

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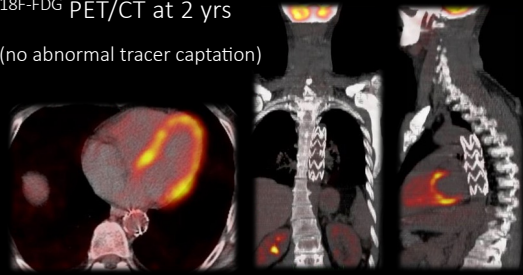
Intercostal muscle interposition



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Follow-up

18F-FDG PET/CT at 2 yrs  
 (no abnormal tracer captation)



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TEVAR + esoph. repair + muscle flap

OSR CURRENT EXPERIENCE

9 cases  
 (mean follow-up = 44 months)

NO RUPTURE / CONVERSION  
 1 PROLONGED SEPSIS (antibiotics)  
 1 DEATH (at 1 year, unknown cause)

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## Systematic Review



### A systematic review of infected descending thoracic aortic grafts and endografts

Andrea Kahlberg, MD,<sup>1</sup> Alessandro Grandi, MS,<sup>2</sup> Diletta Loschi, MD,<sup>1</sup> Frank Vermassen, MD, PhD,<sup>3</sup> Nathalie Moreels, MD,<sup>4</sup> Nabli Chakfé, MD, PhD,<sup>5</sup> Germano Melissano, MD,<sup>6</sup> and Roberto Chiesa, MD,<sup>7</sup> Milan, Italy; Ghent, Belgium; and Strasbourg, France

Check for updates

## Mortality

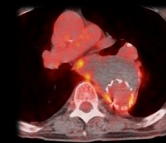
	30-day	1-year	5-years
Conservative	47%	79%	100%
Endovascular alone	33%	78%	100%
Hybrid (endo + fistula repair)	34%	49%	70%
Open (first strategy)	26%	43%	57%
Endo bridge to open	10%	27%	40%

Kahlberg A [...], Melissano G. *J Vasc Surg*. 2019

## CONCLUSIONS

## Conservative Treatment

- The outcomes of conservative treatment is ominous: 100% mortality rate at 5 years
- Intervention may be justified in most patients



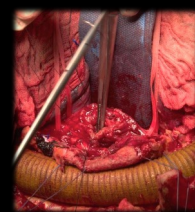
## Emergency TEVAR

- Excellent "BRIDGE" procedure in case of bleeding fistula
- Concerns if not followed by definitive surgery



## Open surgery

- High mortality rates
- Infected graft removal
- Improved survival if performed electively (after stabilization with TEVAR)



Please join us in Milano in December

DECEMBER 11<sup>th</sup> - 13<sup>th</sup>, 2024: SAVE THE DATE



IR.C.C.S. Ospedale  
San Raffaele

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MILANO - ITALY  
DECEMBER 11<sup>th</sup> - 13<sup>th</sup>, 2024

Chairman:  
Roberto Chiesa, Domenico Melisano

Dipartimento San Raffaele, Milano  
Università Vita-Salute San Raffaele, Milano

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