



University Heart Center
Hamburg

GERMAN
AORTIC CENTER



My most “promising” perspective for surgeon-
modified EVAR technique

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PERSPECTIVES 2017

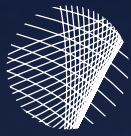
December Friday 15 - BORDEAUX



Organization: E. Ducasse, M. Sibé

www.congresperspectives.com

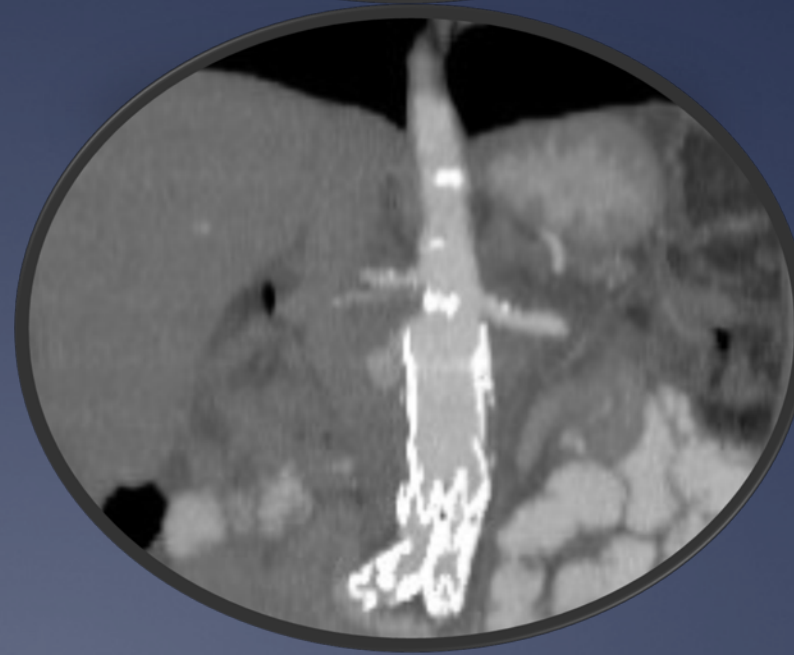


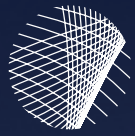


Case pararenal-AAA

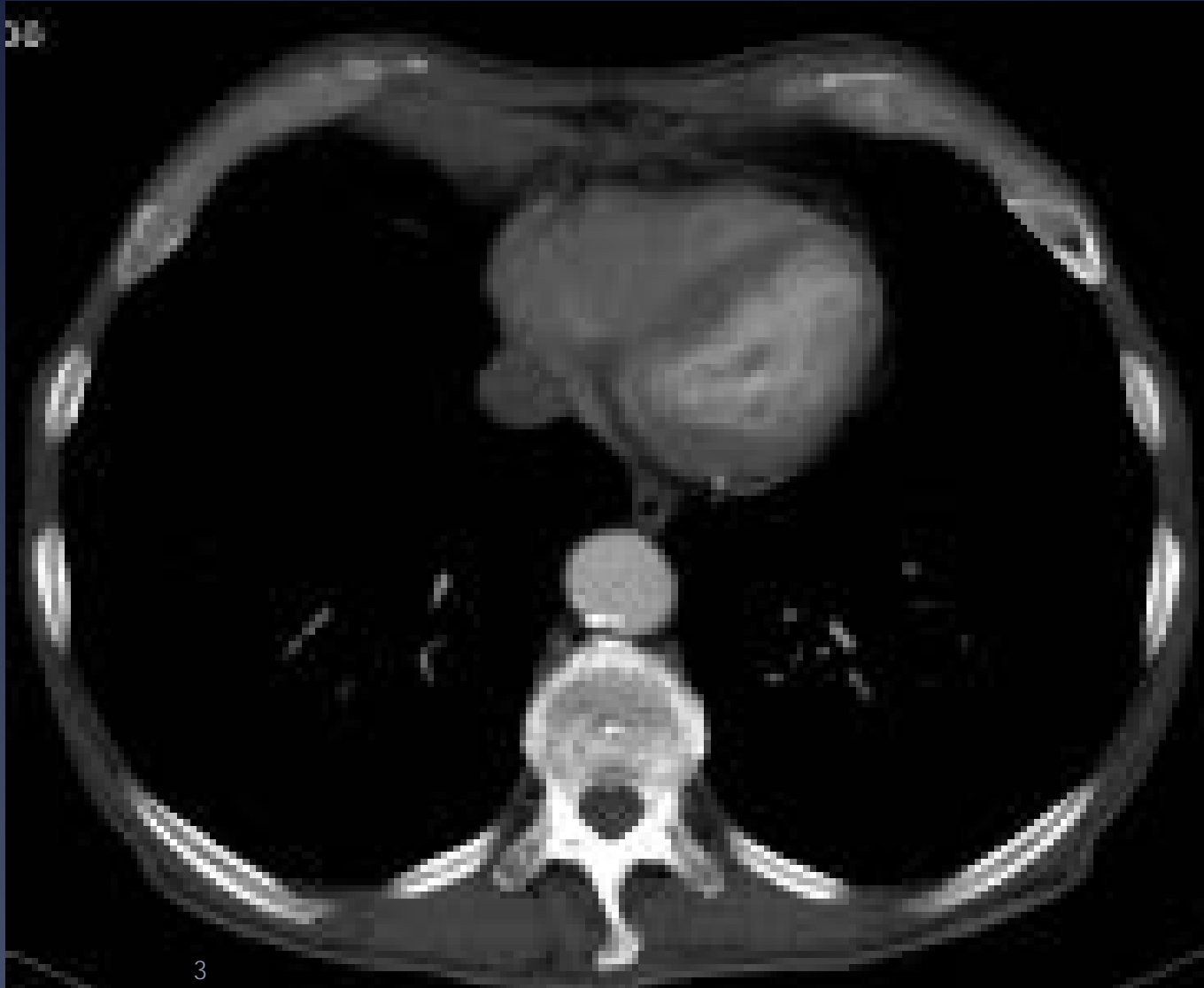


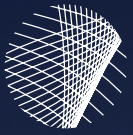
- 74-year-old patient
- Severe Coronary artery disease
- COPD Gold III
- Abdominal pain
- Prior Distal pancreatectomy and Billroth II resection
- Prior EVAR for Rupture
- Contained rupture of the suprarenal aorta with involvement of the visceral vessels





Presentation in ER





Options?

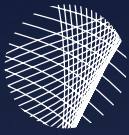


* Open?

* T-Branch

* sm-FBSG?

* Chimney?



Surgeon modified (sm)-EVAR



From the Society for Clinical Vascular Surgery

Surgeon-modified fenestrated-branched stent grafts to emergently treat ruptured and symptomatic complex aortic aneurysms in high-risk patients

Joseph J. Ricotta, II, MD, MS, and Nikolaos Tsilimparis, MD, Atlanta, Ga

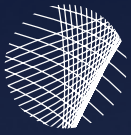
Introduction: Fenestrated-branched stent grafts have been developed as a minimally invasive, endovascular alternative for the treatment of complex aortic aneurysms in high-risk patients. However, the manufacture of these devices can take as long as 6 to 12 weeks, and therefore, they cannot be used to treat aortic emergencies. We reviewed our experience with surgeon-modified, fenestrated-branched stent grafts (sm-FBSGs) in high-risk patients who presented as emergencies with ruptured or symptomatic complex aortic aneurysms.

Methods: All patients treated with sm-FBSGs at our institution were retrospectively reviewed. Patients presenting with acute symptoms or an emergency indication for repair were analyzed.

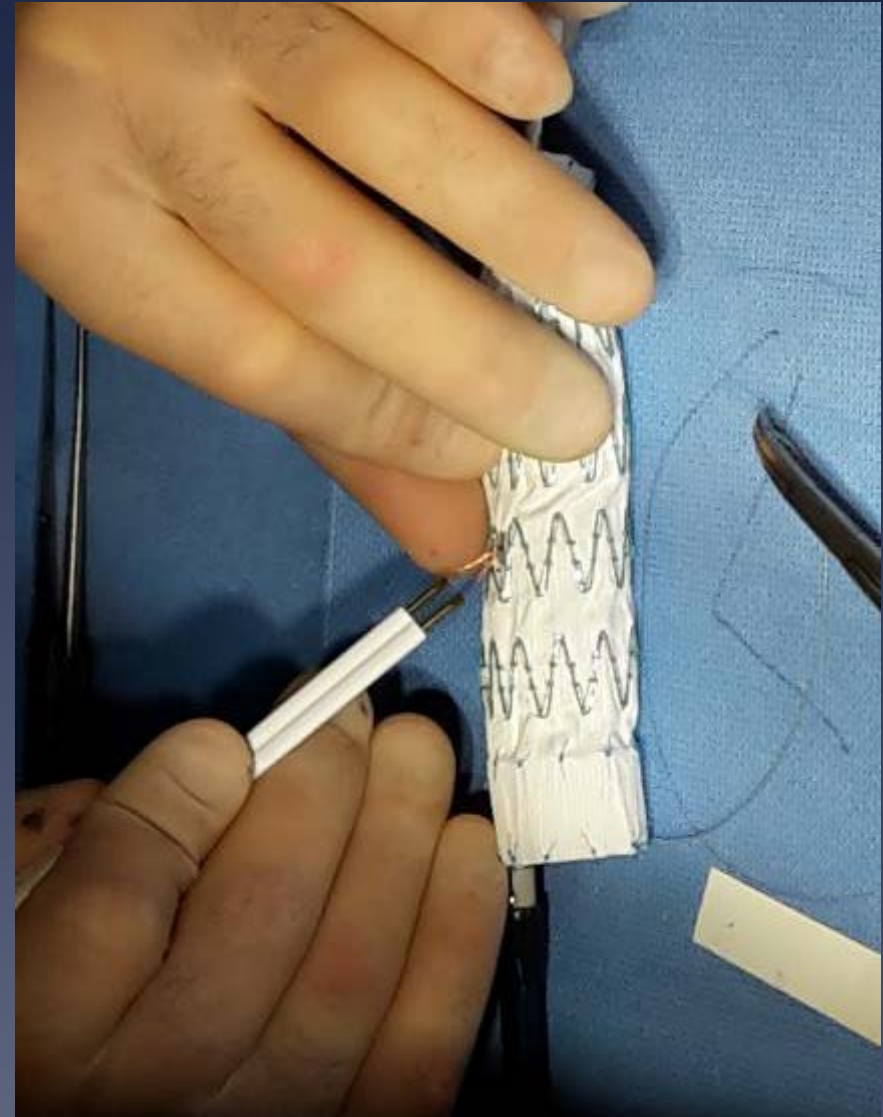
Results: Twelve high-risk patients (nine men), of which seven were at American Society of Anesthesiologists class 4 and five were at class 3, presented with seven symptomatic and five ruptured aortic aneurysms. Mean age was 71 years (range, 52-86 years), and mean maximal diameter was 8.1 cm (range 5-12 cm). Six patients (50%) had prior aortic surgery or a hostile abdomen. Relevant comorbidities included coronary disease in all 12 patients, and seven (58%) had an ejection fraction $\leq 35\%$. Nine patients were pararenal, and eight were thoracoabdominal. Mean operative time was 2.4 hours (range, 2-4) were treated.

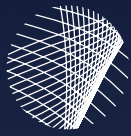
- 12 patients
- 100% technical success
- 92% 30-day survival



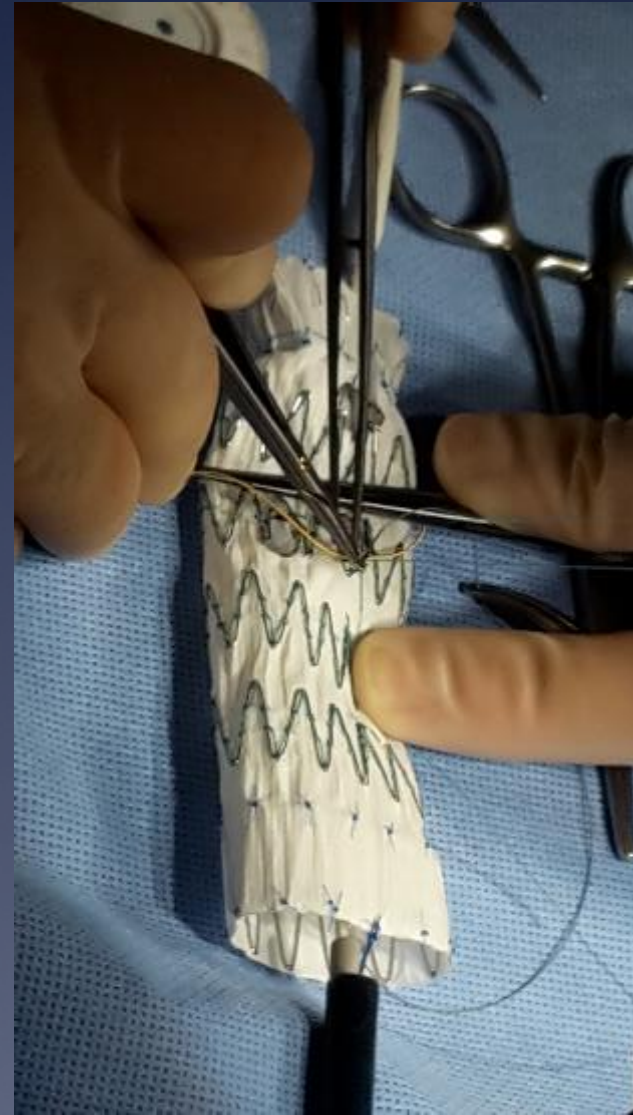


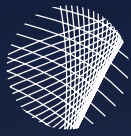
OR 1: 4.1.2016



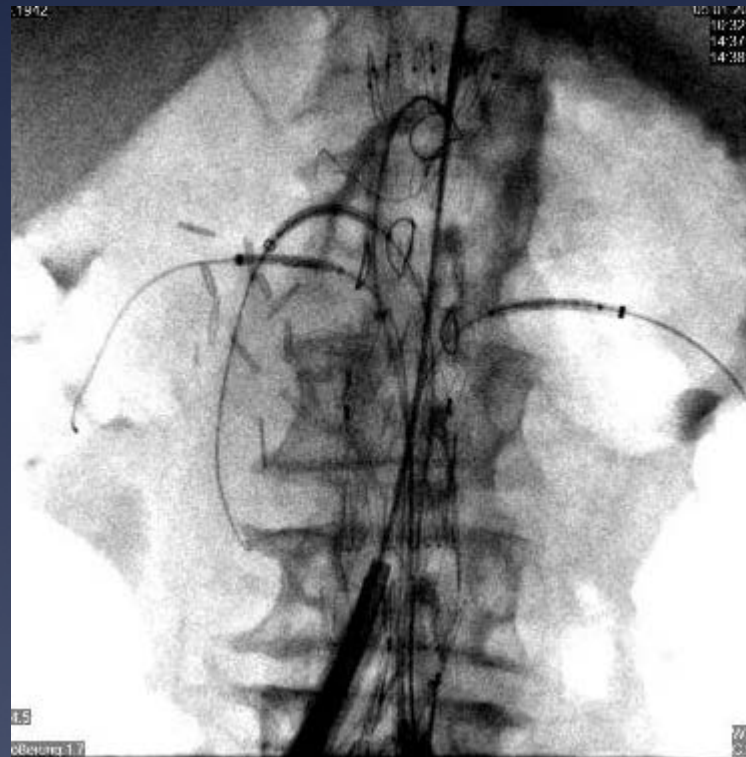


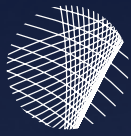
Surgeon-modified 4-vessel fenestrated EVAR



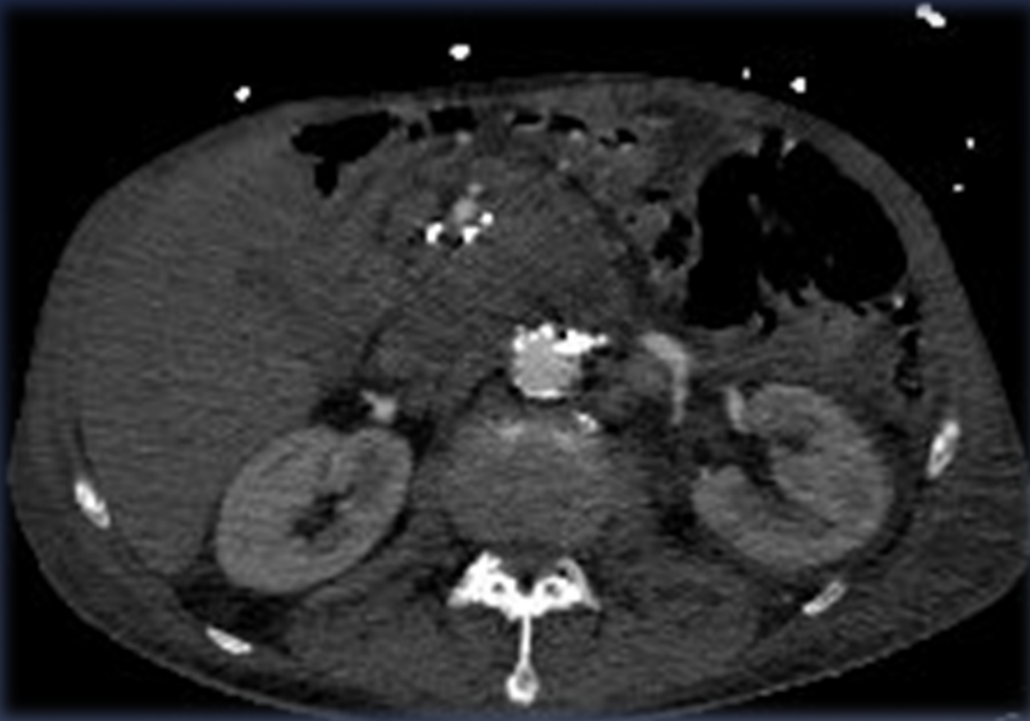


FEVAR in EVAR



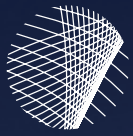


Post-Op CTA 8/1/2016



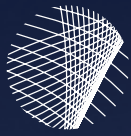
Kein Endoleak



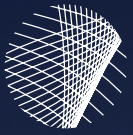


SUCCESS! = Discharge at home





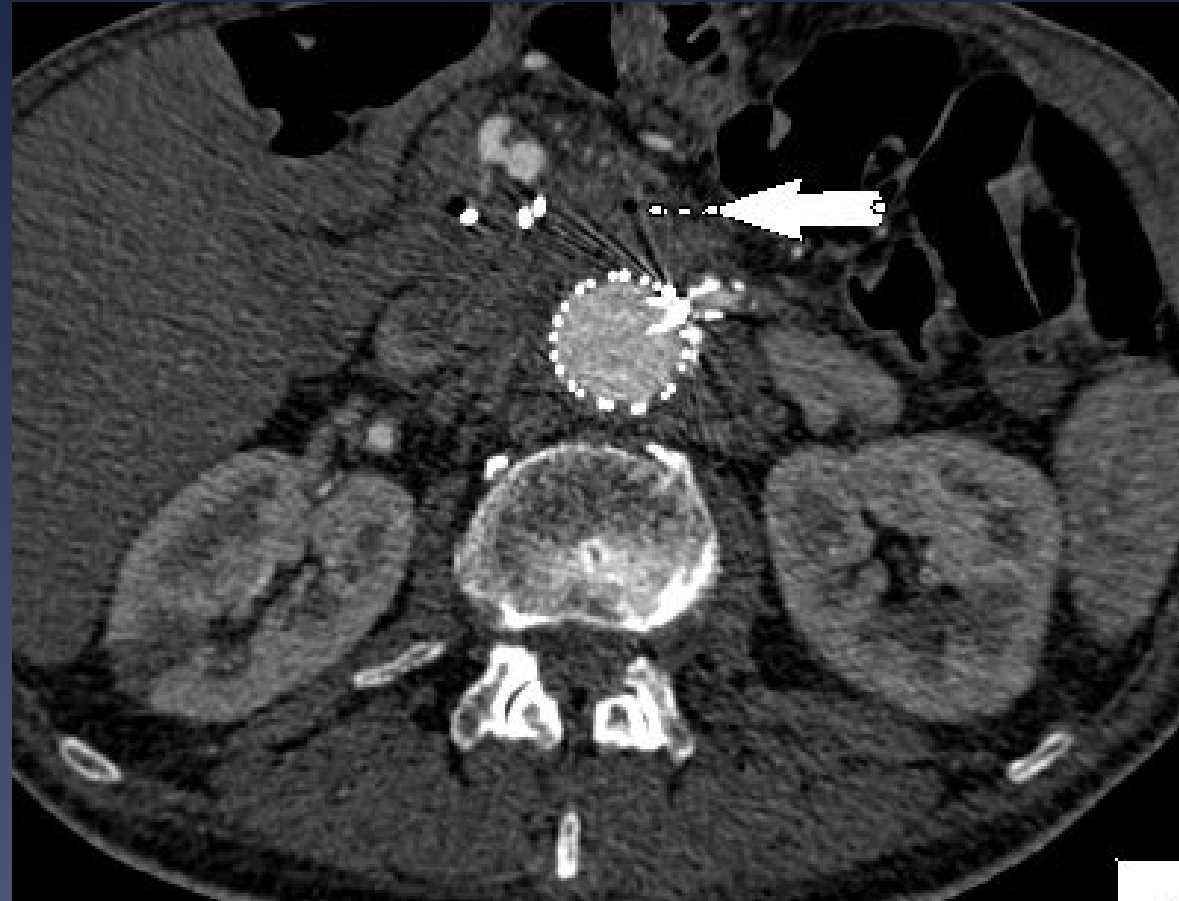
But... 4 months later....

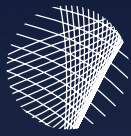


Re-admission

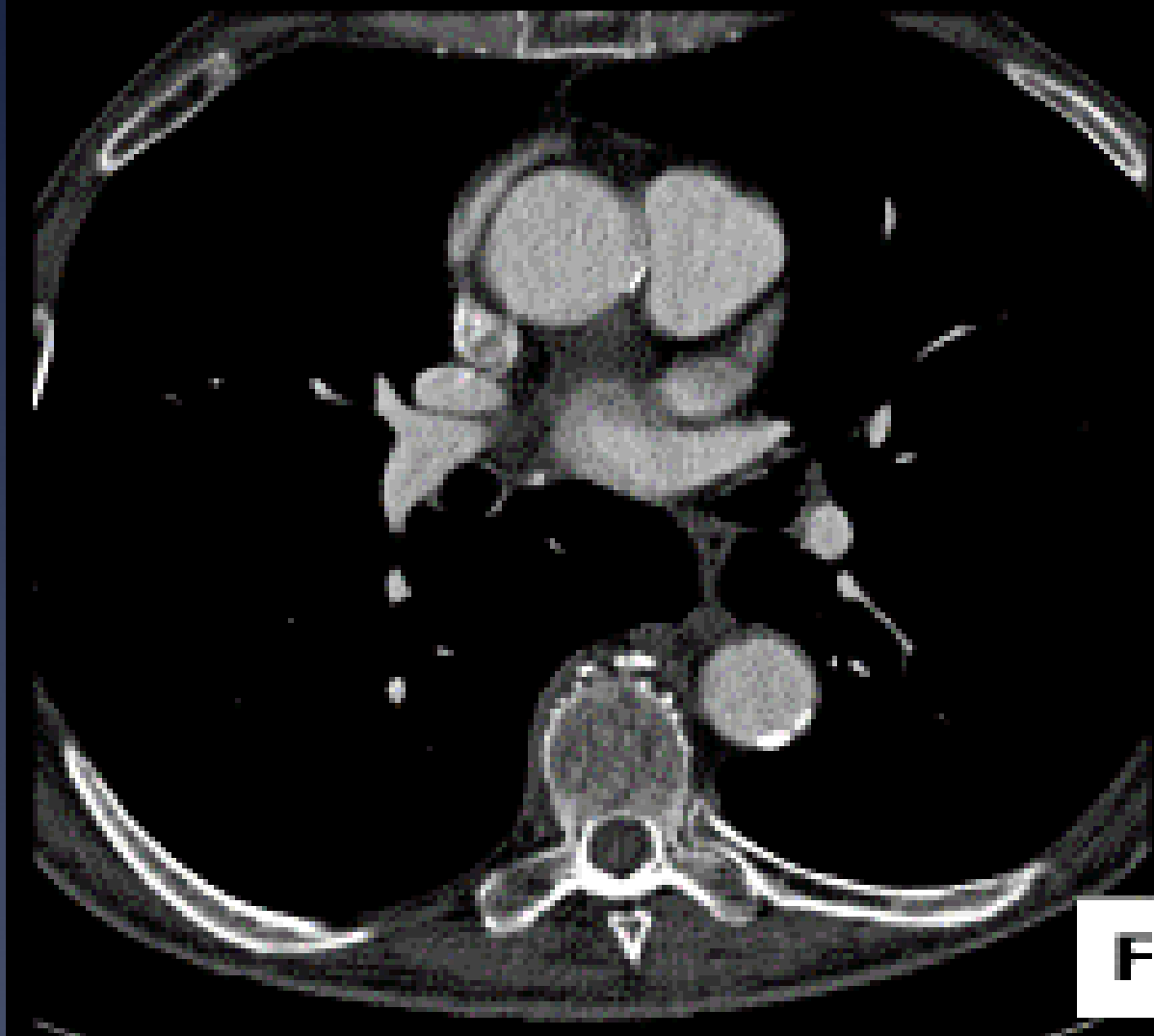


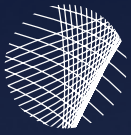
- ❖ Weight loss
- ❖ Poor appetite
- ❖ Discrete leucocytosis



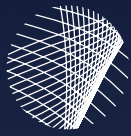


CT scan 31.3.17

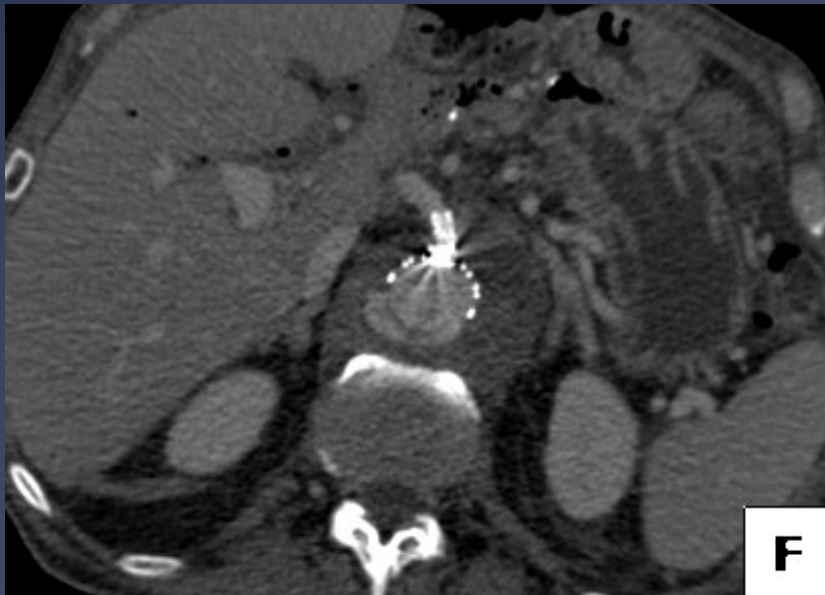


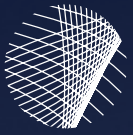


Gastrosocopy: lesion in duodenum with local hematoma that cannot be cleansed.



2 days later





Options?

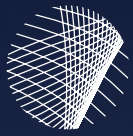


* Open?

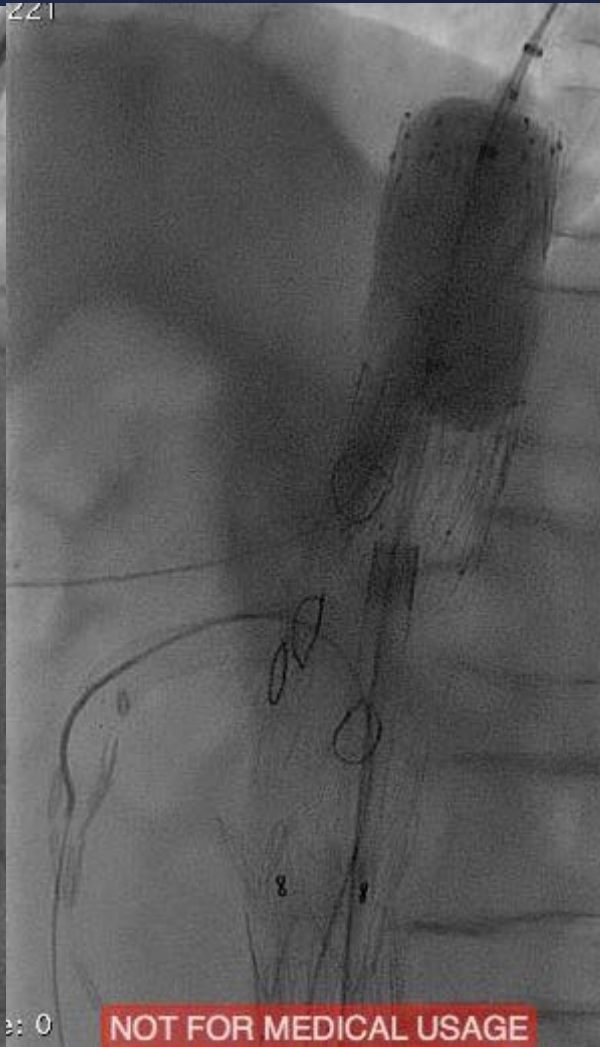
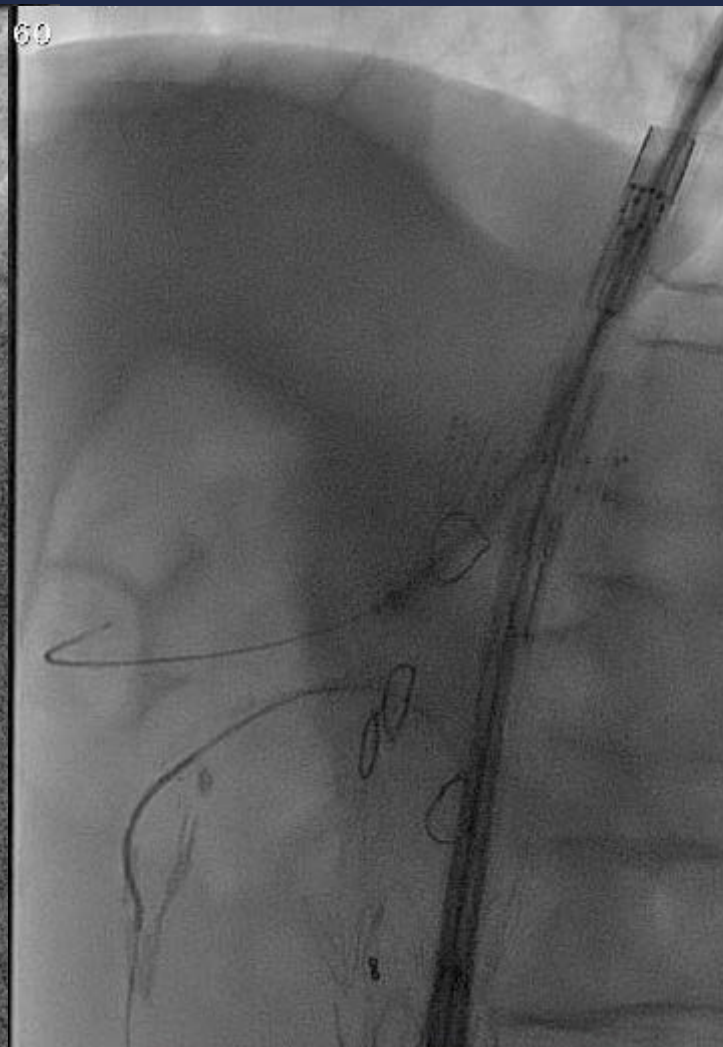
* T-Branch

* sm-FBSG?

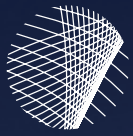
❖ Chimney?



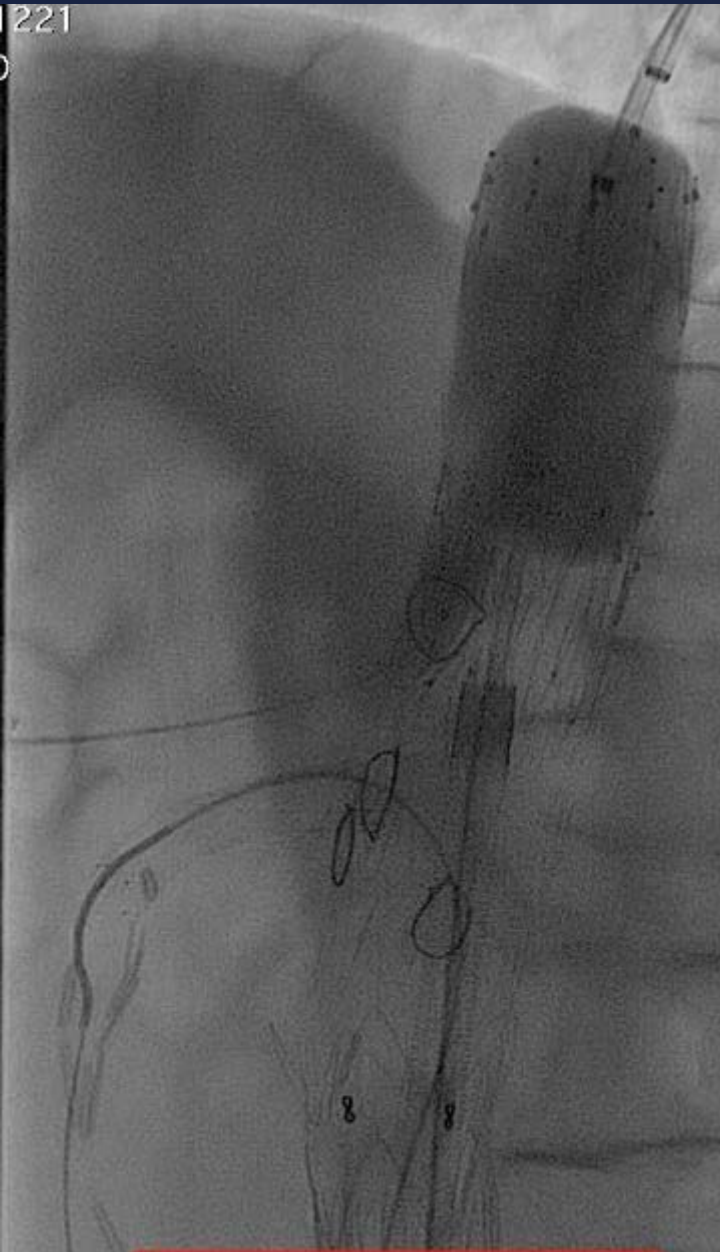
Sandwich graft for celiac trunk



NOT FOR MEDICAL USAGE



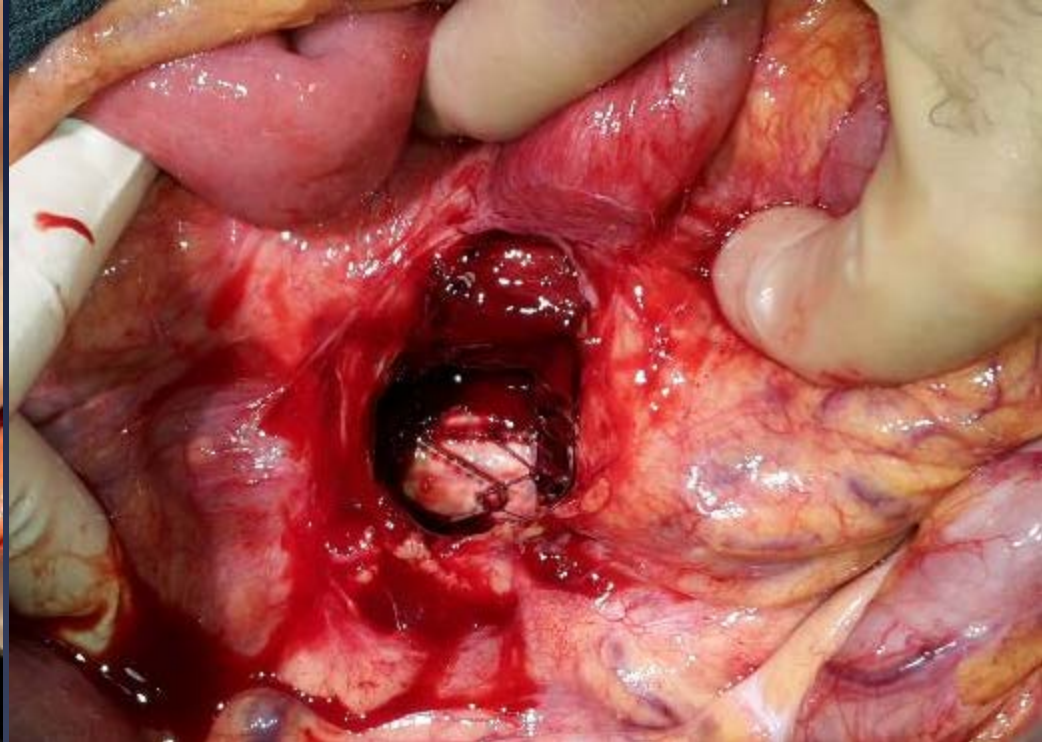
Sandwich graft for celiac trunk

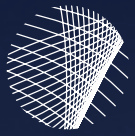


View size: 1220 x 1220
WL: 128 WW: 256

Angiographie
Abdomen
13





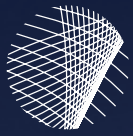


Finally no endoleak / no infect



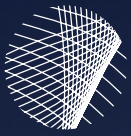
- ❖ Lavage programme
- ❖ 6 weeks i.v. antibiotics





SUCCESS! = Discharge at home

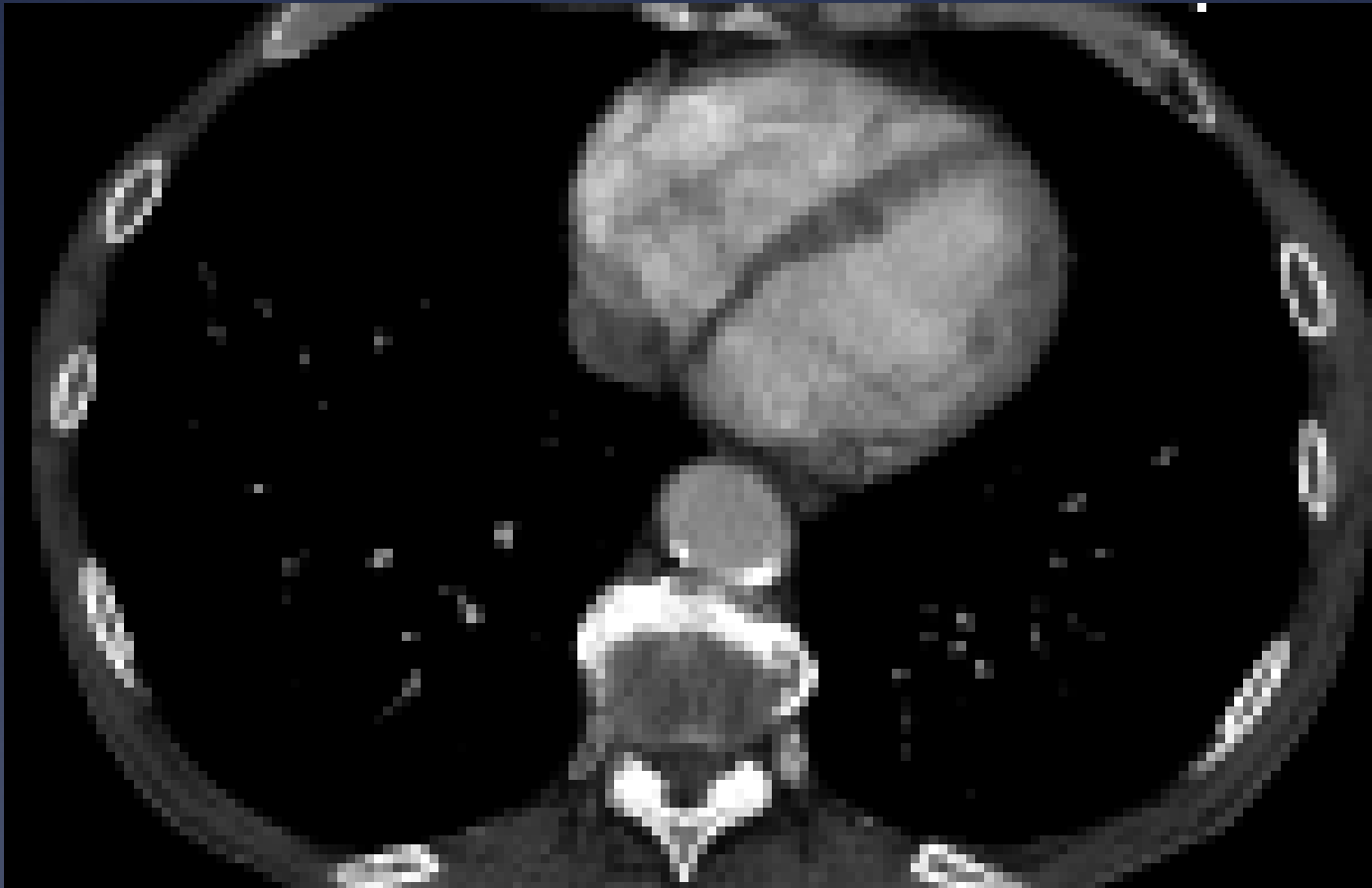


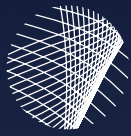


Re-Admission 2 months later

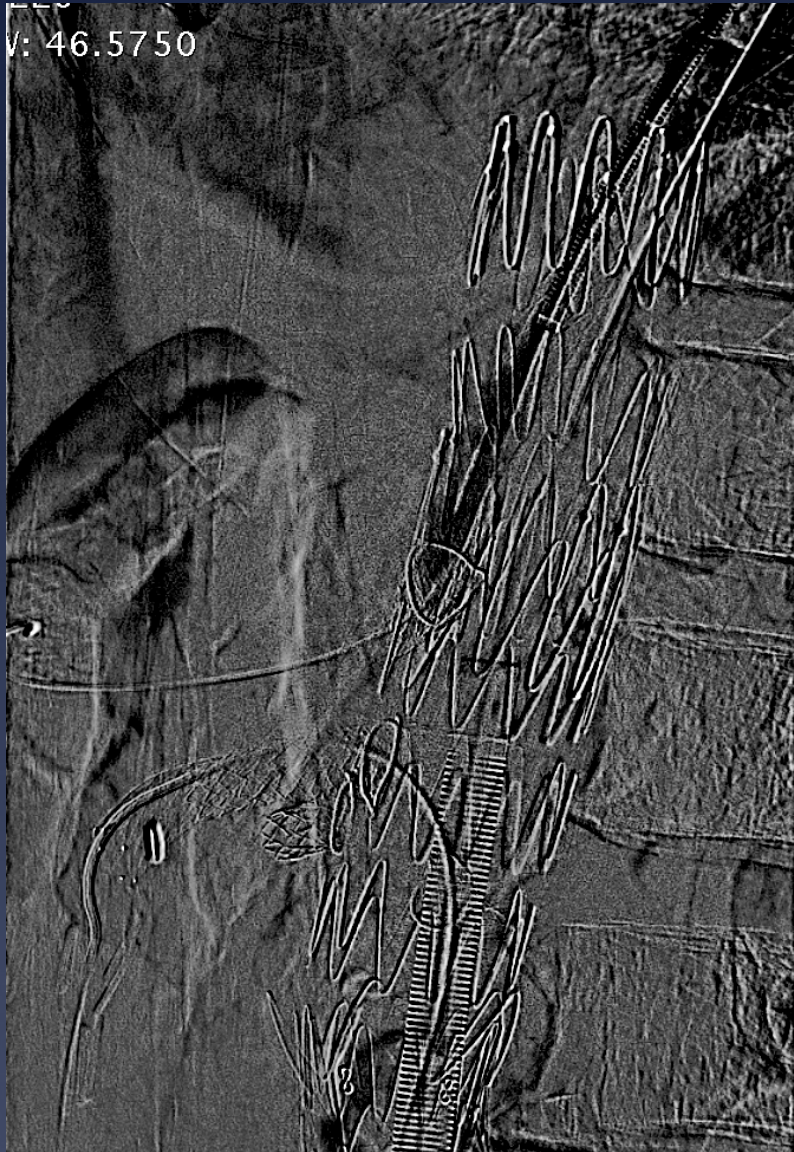


- ❖ Again endoleak (Material fatigue? Arrosion? Gutter Leak?)
- ❖ Aneurysm sack infection





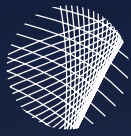
Re-Chimney and Gutter-Coiling for celiac Trunk



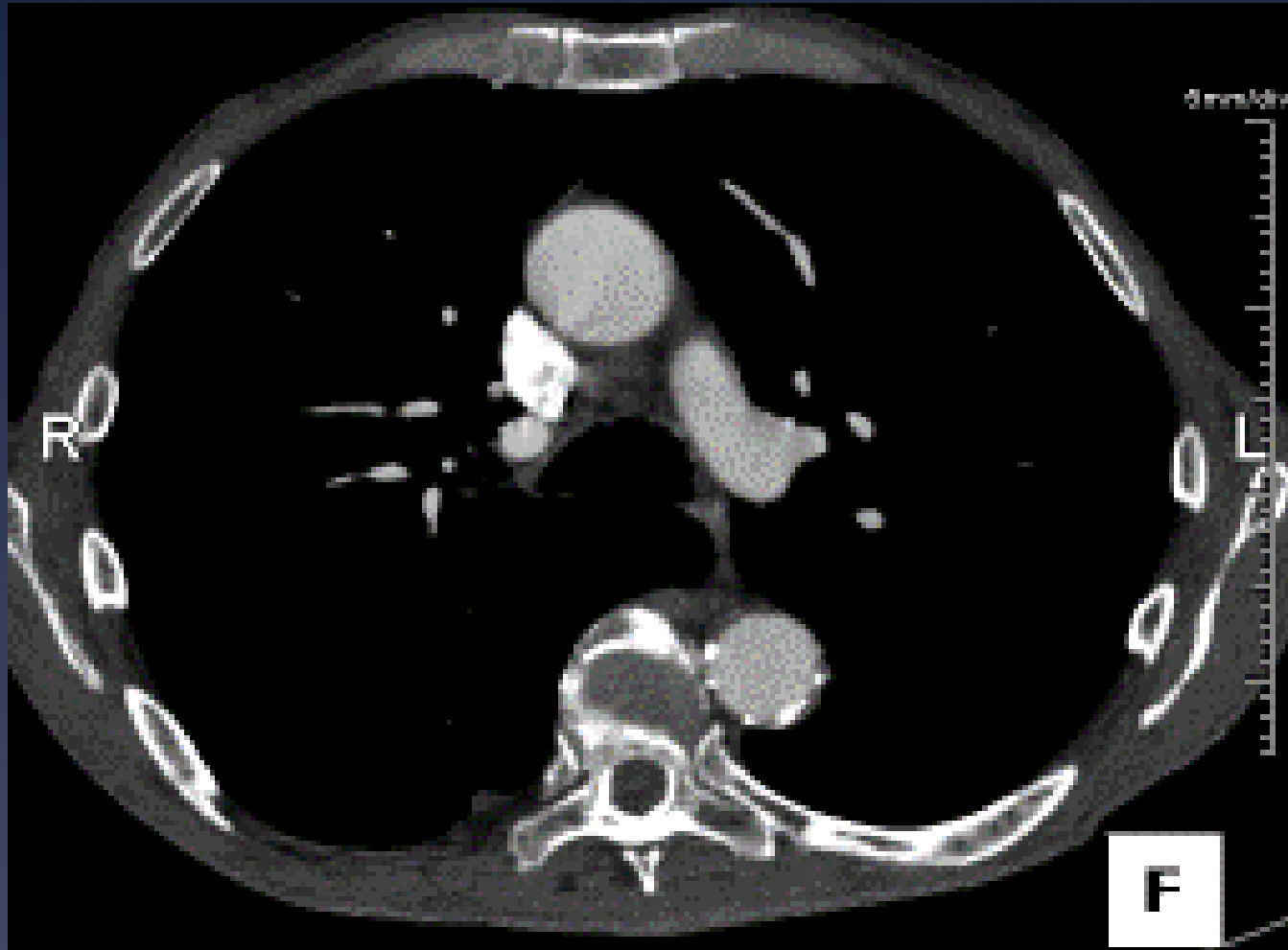
W size: 944 x 1220
E: 1900 WW: 2700

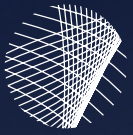
Angiogram
Körperstamm





No Endoleak... But infect...

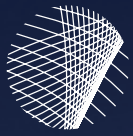




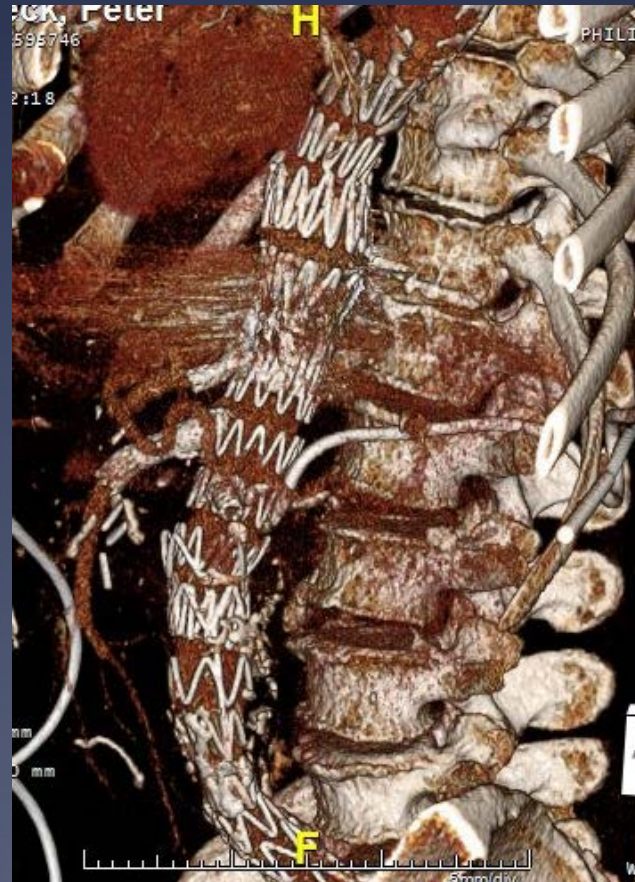
Options?

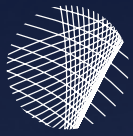


Abdomen no longer accessible



CT-guided Drainage of the aneurysm sack

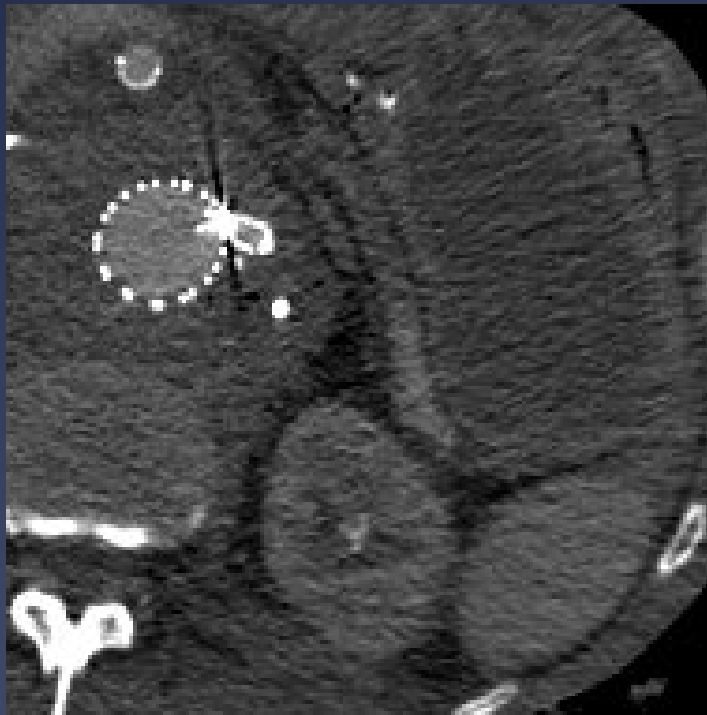


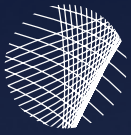


Radiologist quote



- * Radiologist quote:
- * “ We might have pushed the left renal stent a bit...”



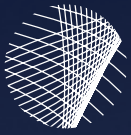


Duck Rule...

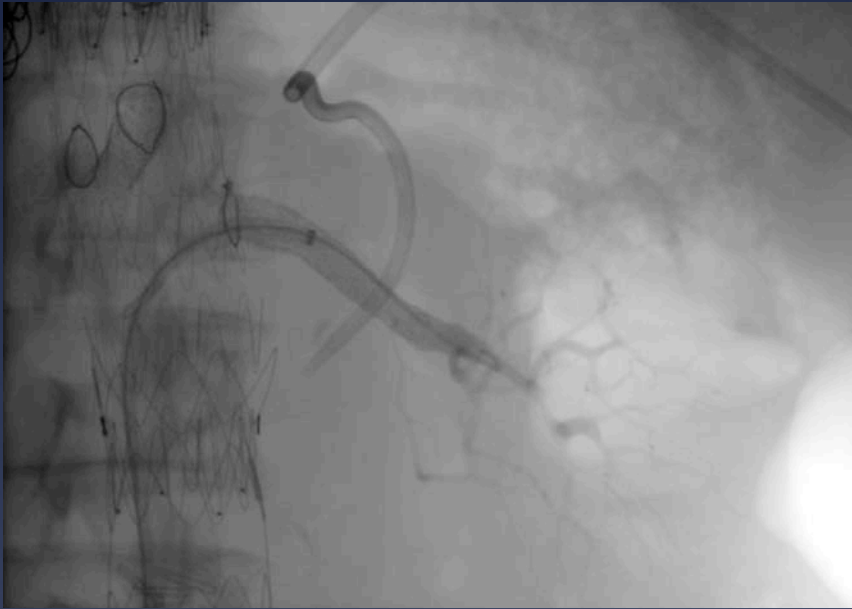


- ❖ Abdominal pain
- ❖ Hb-Drop...
- ❖ Pulsatile aneurysm
- ❖ Extreme pressure feeling at upper abdomen

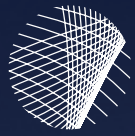




Relining of left Renal artery

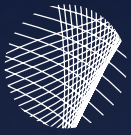


Mini laparotomy and hematoma decompression lateral of the bowel packet



SUCCESS ????????

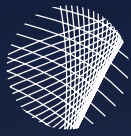




1 week later



- ❖ Acute bleeding and reanimation in ICU
- ❖ Exitus letalis 7 months after the primary procedure



Hamburg sm-FBSG Experience



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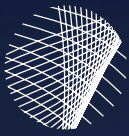
Clinical Investigation

Outcome of Surgeon-Modified Fenestrated/Branched Stent-Grafts for Symptomatic Complex Aortic Pathologies or Contained Rupture

Nikolaos Tsilimparis, MD, PhD, FEBVS^{1*}, Franziska Heidemann, MD^{1*}, Fiona Rohlfes, MD¹, Holger Diener, MD¹, Sabine Wipper, MD, PhD¹, E. Sebastian Debus, MD, PhD, FEBVS¹, and Tilo Kölbel, MD, PhD¹

Abstract

Purpose: To analyze the outcome of surgeon-modified fenestrated and branched stent-grafts (sm-FBSG) in high-risk patients with symptomatic complex aortic pathology or contained rupture. **Methods:** A single-center retrospective analysis was conducted of 21 consecutive patients (mean age 70 years, range 58–87; 16 men) treated with a sm-FBSG from April 2014 to September 2016. The indications included 11 thoracoabdominal and 10 pararenal aortic pathologies, which presented as symptomatic in 8 and as contained rupture in 13 patients. The mean aneurysm diameter was 7.4±2.3 cm. **Results:** Technical success was 100%. From 1 to 4 (mean 3) renovisceral branch vessels were targeted with fenestrations. The mean length of in-hospital stay was 19 days (range 1–78). There was 1 death within 30 days and 2 further in-hospital deaths. Two patients suffered permanent spinal cord injury, 2 developed respiratory failure, and 2 had renal failure requiring temporary or permanent dialysis. No myocardial infarction, stroke, or bowel ischemia occurred. Six early endoleaks (3 type II and 3 minor type III) were detected. Mean follow-up was 11.2 months (range 2–33) in 17 patients. One late aneurysm-related death occurred. All 13 follow-up imaging studies showed patent target renovisceral vessels, with 1 type I and 2 type II endoleaks. **Conclusion:** Sm-FBSG can be utilized for urgent treatment of complex abdominal and thoracoabdominal aortic pathologies in high-risk patients with anatomy unsuitable for commercially available stent-grafts.

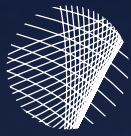


Hamburg sm-FBSG Perspective



- 36 patients (mean 70y, 76% male)
 - Contained ruptures: n=19
 - Symptomatic: n=17
- 32 with 3-5 fenestrations
- 135 target vessels, mean 3 per case
- Modified stentgrafts:
 - TX2 thoracic endograft n=28
 - TFFB bifurcated n=5
 - Other n=3
- Time for modification 30-180min
- 2 early deaths due to fulminant reperfusion-syndrome and sepsis (5% 30d mortality)
- 2 late in hospital deaths >30d postOp
 - (1 Aorto-duodenal fistula –Pancreatitis – Sepsis)
 - 1 late sepsis due to infected aneurysm
- 1 late aortic related mortality...

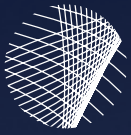




Take home message



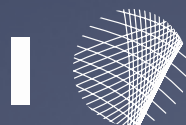
- ❖ Paravisceral aortic aneurysms have a high risk of being infected aneurysms
- ❖ Critical evaluation of preoperative CT-scan to identify infection signs
- ❖ Consider open repair
- ❖ Prognosis for ruptured, infected, paravisceral aneurysms is poor



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Thank you for your attention



University Heart Center
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