

Rescue procedures in acute visceral ischemia

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Disclosure

Speaker name: Yvonne Bausback

I have no potential conflicts of interest to report.



Incidence, Etiology and Mortality of Acute Mesenteric Ischemia (AMI)

In 1 % causative for an acute abdomen, up to 10% in elderly

Arterial emboli	50 %
Arterial thrombosis	25 %
Non-occlusive mesenteric ischemia (NOMI)	15-20 %
Mesenteric vein thrombosis	5 %

Mortality acute SMA-occlusion

60-80 (100) %

Mansour MA. Arch Surg 1999

Standard therapy of an acute occlusion of the Superior mesenteric artery (SMA)

Goldstandard:

Laparotomy with

- Exploration / resection of the bowel
- Thrombectomy / patch-plasty of the SMA

Revascularization for acute mesenteric ischemia

(Ryer et al., *J Vasc Surg* 2012. Mayo Clinic Rochester)

Method of revascularization

Surgical	88 %
Endovascular	12 %



Endovascular techniques for recanalization Of acute SMA-occlusions

- Catheter-aspiration
 - 8Fr brachial access
 - Often multiple attempts necessary / cumbersome
- Ballon-angioplasty / stent-implantation
 - partially ineffective, fragmentation / embolisation
- Thrombolysis
 - Local long-term thrombolysis
 - Pulse-spray thrombolysis



Endovascular management of Acute embolic SMA occlusion:

A 12 – year single centre experience (2003-2014)

37 patients: transcatheter embolus aspiration (n=37)
+ local thrombolysis (n=2)/ stent implantation (n=2)

**Primary endovascular revascularisation + on demand
surgery**

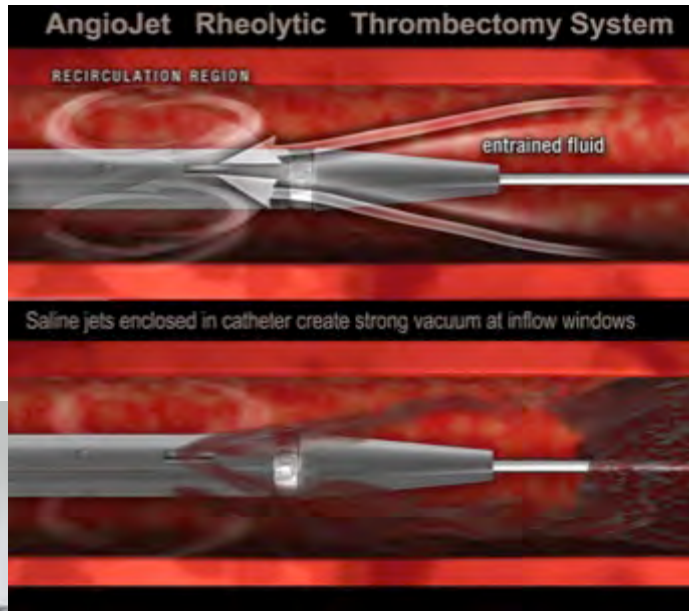
**For patients with acute SMA occlusion
Without signs of sepsis or severe peritonitis**

In – hospital mortality

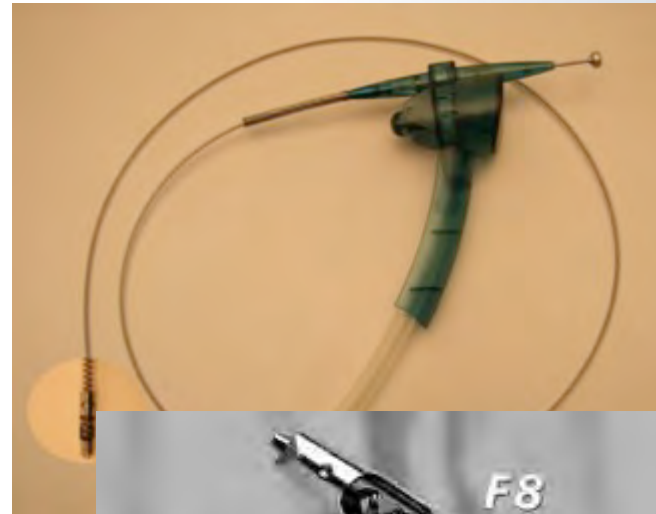
27.0 %



Thrombectomy-catheter for thrombotic venous / arterial occlusions



AngioJet
(Medrad)



Rotarex (Straub Medical)



Thrombectomy-Catheter for acute SMA-Occlusions

Single-case-report

- AngioJet-thrombectomy successful in case of acute SMA-occlusion due to paradoxical embolism

Sternbergh WC, et al., *J Endovasc Ther* 2000

Single-case-report

- AngioJet-thrombectomy not sufficient
- Additional ultrasound-accelerated thrombolysis

Ballehaninna UK, et al., *Vascular* 2012



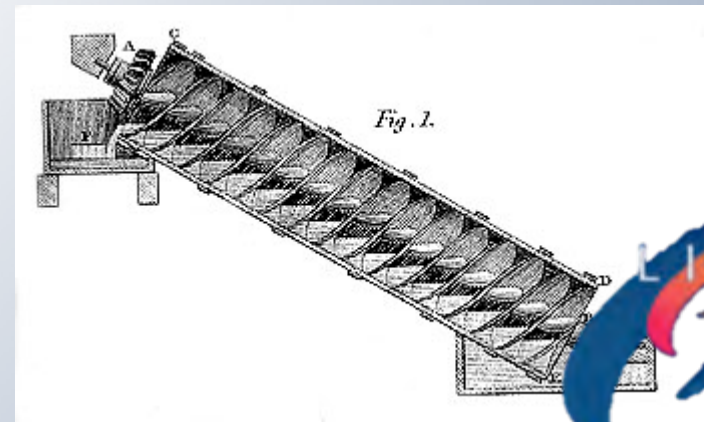
Rotarex™ for acute visceral occlusions

Vascular access:

- Left brachial artery
- 6F/ 90 cm (Cook)
- 0.018" wire
- Microcatheter , e.g. Quickcross (Spectranetics)



Rotarex thrombectomy 6F

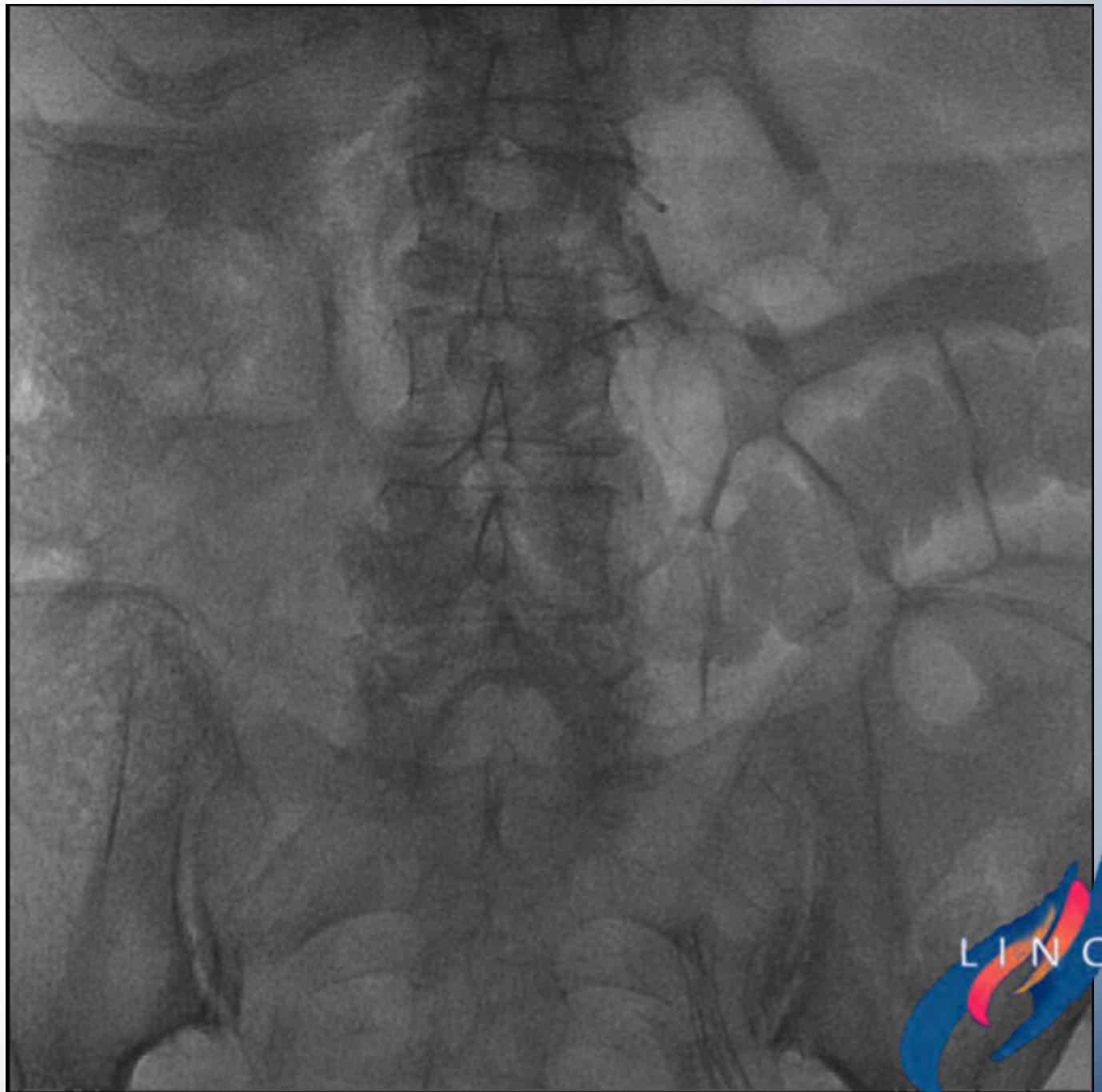


72 year old femal pts.

LV-failure, EF 25%

Intermittend Afib

Acute SMA-occlusion



Passage with a
0.018" GW and
Support-catheter

Slow pull-back to
estimate the
length of the
occlusion



6F Rotarex





Rotarex™ For the Treatment of Acute SMA-Occlusions

- 2011 – 2015:
- 16 patients with acute mesenteric ischemia and thrombotic proximal SMA-occlusions

Etiology of SMA-occlusions:

- Atrial fibrillation 9
- Acute myocardial infarction / LV-failure 5
- Multiple thrombus formations aorta 1
- Atherosklerotic occlusion 1



Clinical presentation

- Sepsis at time of admission (2/16) 12.5 %
- Mean bowel ischemia time (6 – 48 h) 15 h
- Lactate ↑ (15/16) 93.75 %
- CT: focal sign of malperfusion (9/16) 56.25 %
- Abdominal examination ++
pain, hemorrhagic diarrhea, nausea 100%

**Late AMI in
15/16 patients**



Results: Rotarex™-Thrombectomy of Acute SMA-Occlusions

- Procedure time (17 – 48) mean 24 min
- Technical success 100 %
 - + Stent implantation (3/16) 18.75 %
 - + mechanical thrombectomy (7/16) 43.75 %
- 30 day mortality (6/16) 37.5 %
- 3 deaths after within 1 year
(short-bowel-syndrome, cardiac, unknown)
- Ischemia-related mortality 43.5 %

Complications

- Mayor complication 12.5 %
 - Perforation (2/16)
resolved by stentgraft implantation
- Minor complication 4/16 25 %
 - Peripheral embolisation/residual thrombus
not relevant by collateral blood supply



Postinterventional course

→ CT scan (6/16)	37.5 %
→ Laparotomy	37.5 %
50% of patients without bowl resection	37.5 %
focal/ limited bowl resection (3/16)	18.75%
extended bowl resection (2/16)	12.5 %
not operable (2/16)	12.5 %
1 refused to operation	



Summary: Clinical Pathway including Advanced Endovascular Techniques

AMI
→
CT- Scan
Lactate
Abdominal examination



Endovascular
revascularization



IMMEDIATE SUGERY:
Severe Peritonis +++
SEPSIS

Laparoscopy
Laparotomy

ICU Monitoring
CT scan

