



Anastomoseninsuffizienz und endoskopisches Management- *Prise en charge endoscopique des lâchages anastomotiques*



SCHWEIZERISCHE ARBEITSGRUPPE FÜR KOLOPROKTOLOGIE
GRUPE SUISSE D'ETUDES COLOPROCTOLOGIQUES
GRUPPO SVIZZERO DI STUDIO PER LA COLOPROCTOLOGIA
SWISS STUDY GROUP FOR COLOPROCTOLOGY

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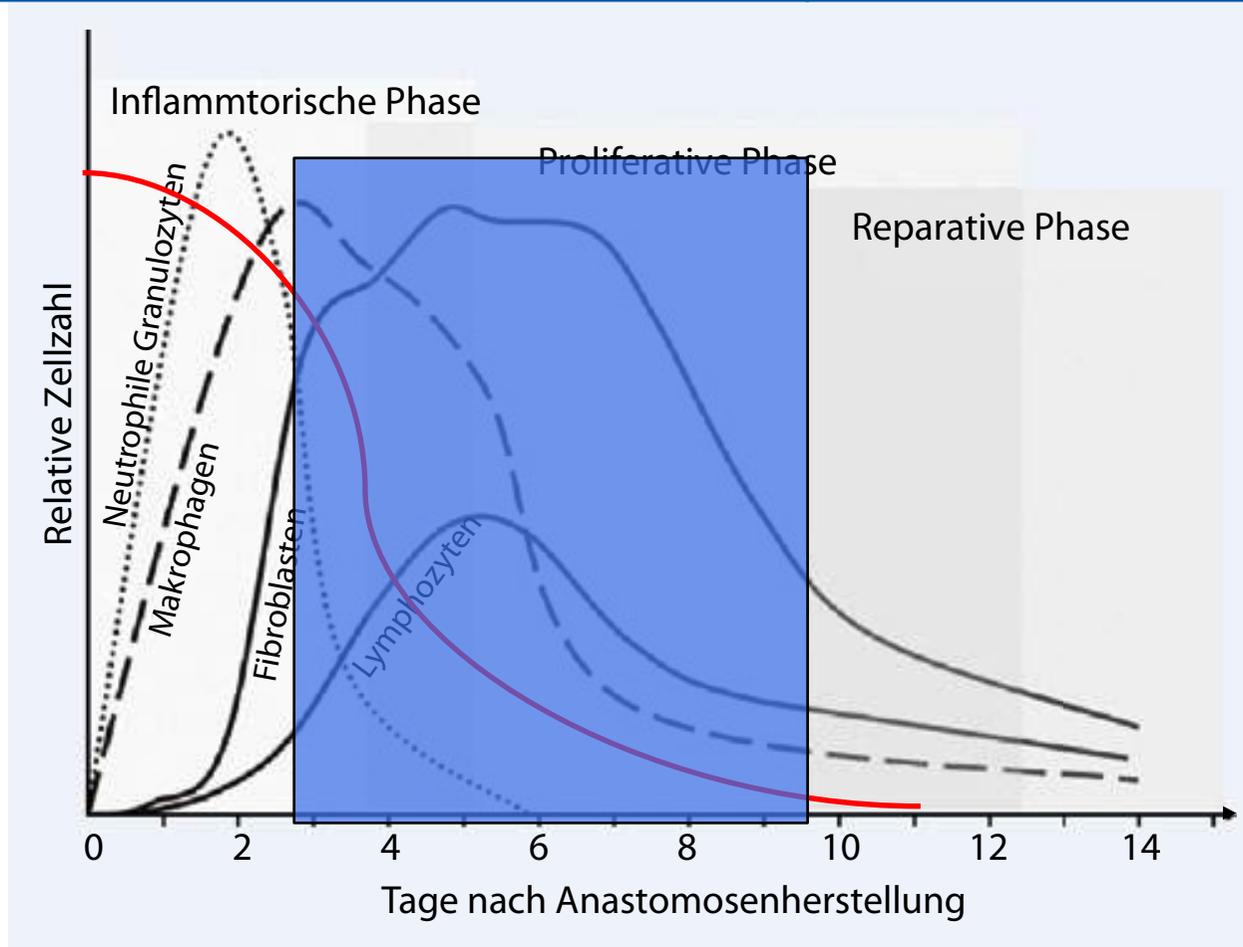
Georg Kähler
Zentrale Interdisziplinäre Endoskopie



Agenda

1. Häufigkeit, Diagnostik, Indikation
2. Endoskopische Therapie
 1. Grundprinzipien der Vac-Therapie
 2. Vac-Therapie am Colorektum
 3. Aktuelle Weiterentwicklungen
 4. Offene Fragen der Vac-Therapie
3. Praxis-Algorithmus





Mechanical strength of the anastomotic site

Time course of cellular infiltration in the anastomotic region

Abb. 2 ◀ Zeitlicher Ablauf der zellulären Infiltration im Anastomosenbereich

Marjanovic, G Hopt, U: Chirurg 2011 · 82:41–47

Postoperative Endoskopie bei V.a. Anastomoseninsuffizienz

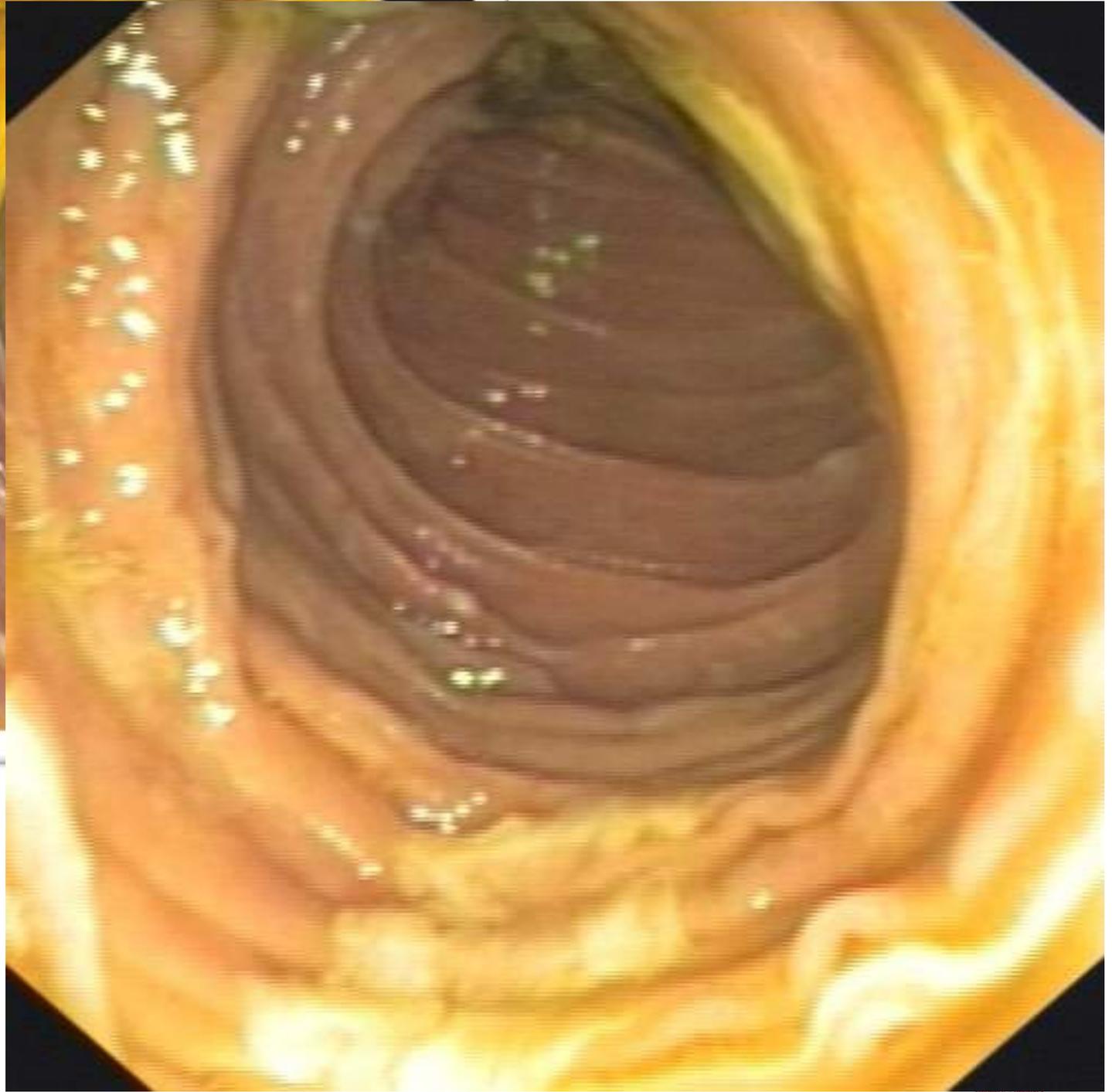
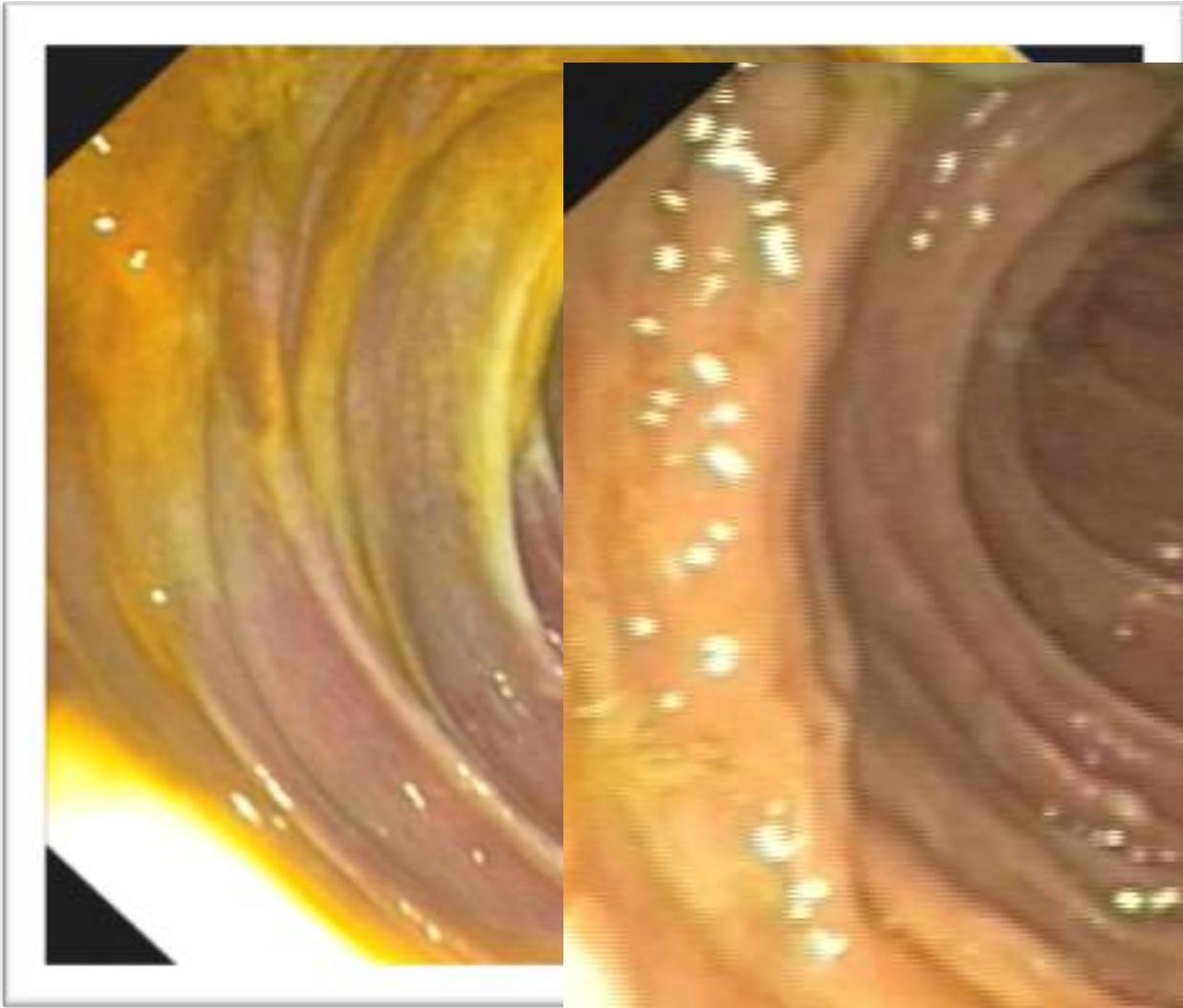
Vorteile

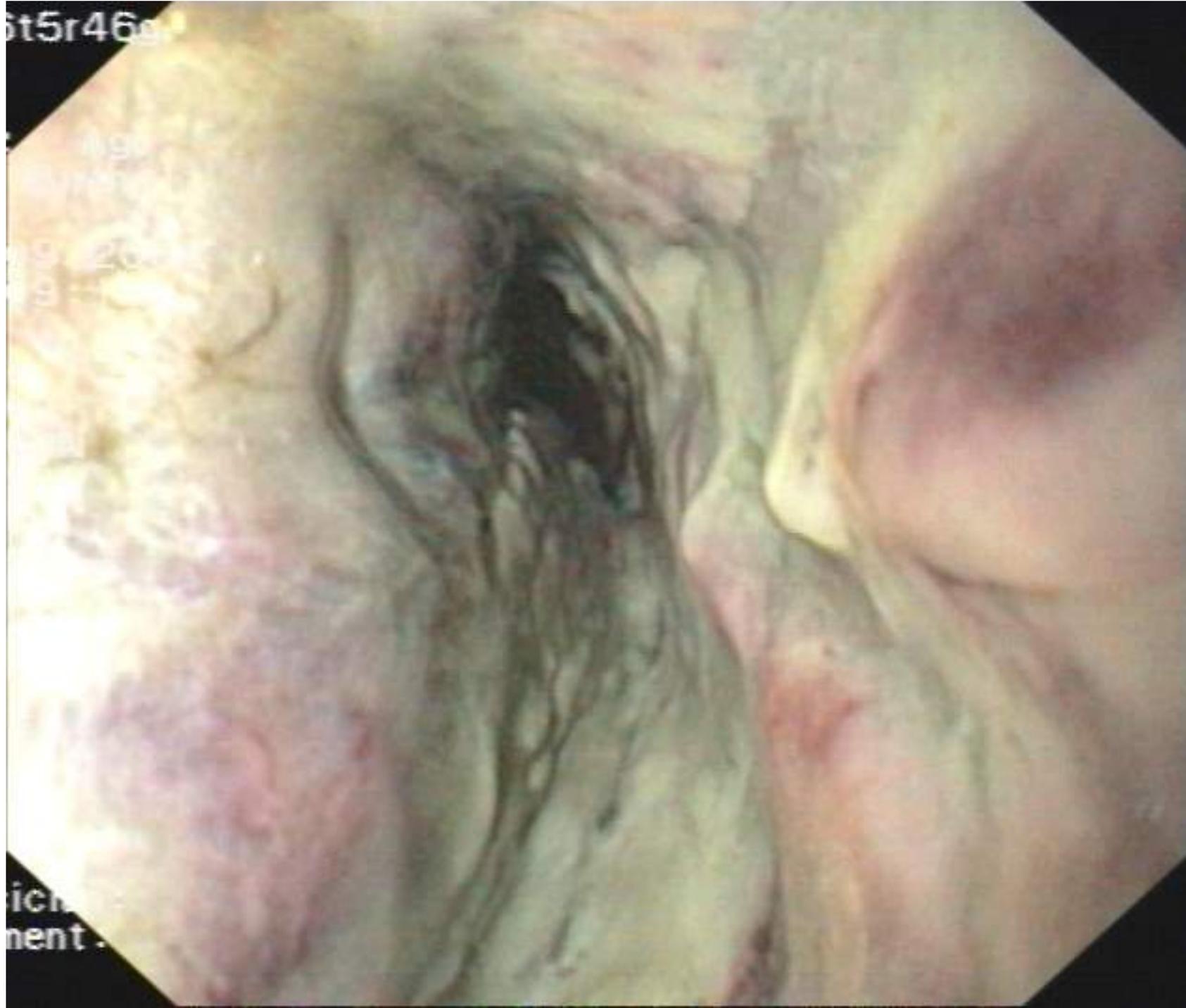
- Bedside
- Beurteilung der Durchblutung
- Größe, Lage, Charakter der Insuffizienz beurteilbar
- Unmittelbare Therapie möglich (Spülung, Debridement, Clipping, Stenting, Vacuum)

Nachteile

- Analgosedierung erforderlich
- Keine sichere Information über Nachbarstrukturen
- Erfahrungsabhängigkeit, schwierige Reproduzierbarkeit
- Insufflation







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Surg Endosc (2014) 28:2078–2085
DOI 10.1007/s00464-014-3435-8



Radiologic versus endoscopic evaluation of the conduit after esophageal resection: a prospective, blinded, intraindividually controlled diagnostic study

**Anja Schaible · Peter Sauer · Werner Hartwig ·
Thilo Hackert · Ulf Hinz · Boris Radeleff ·
Markus W. Büchler · Jens Werner**



Table 2 Technical feasibility and efficiency of contrast studies and endoscopy

	Contrast study	Endoscopy	<i>p</i>
Technical feasibility	35	55	<0.001
Correct detection of leakage	1	7	0.01
False-positive detection of leakage	2	0	NS

NS not significant

Conclusions Endoscopic evaluation of the esophageal substitute in the early postoperative course is possible in all patients without complications. Endoscopy is superior to the contrast study in detecting pathological findings after esophageal reconstruction. Radiologic contrast swallow in the early postoperative days is often not possible, has no further relevance, and should be replaced by endoscopic evaluation.



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1. **Grundprinzipien der Vac-Therapie**

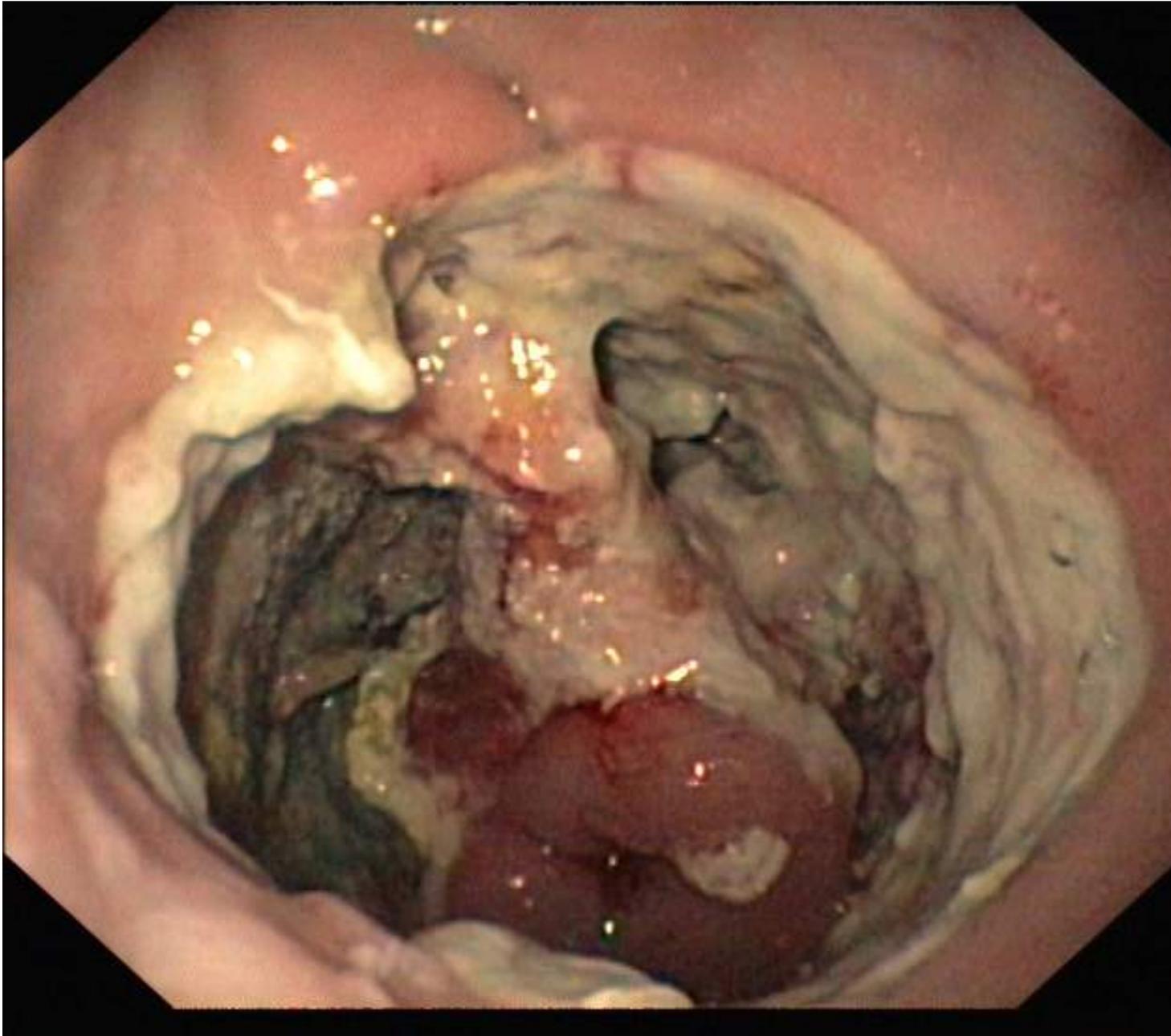
2. Vac-Therapie am Colorektum

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Prinziples of “septic Surgery“

Martin Kirschner 1926

- Ubi pus → ibi evacua
- Debridement (removal of necrosis)
- sufficient drainage of leakage
- Remocal/closure of source of infection
- Treatment of early and late complications



Historie

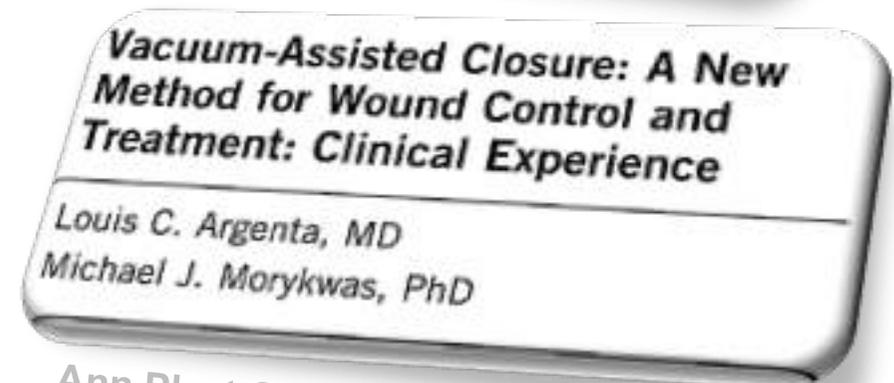
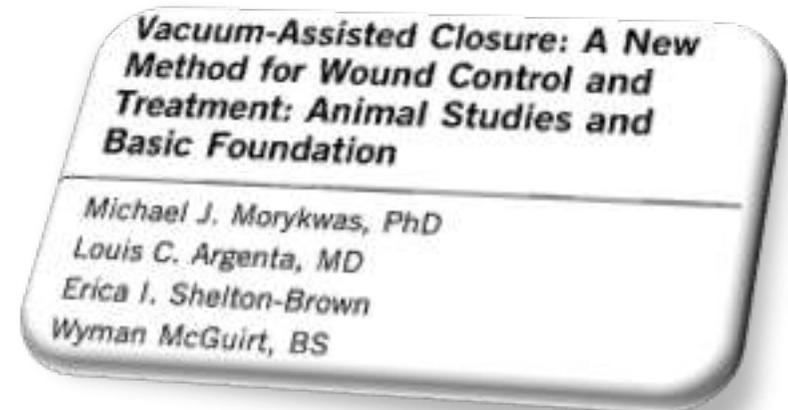
Russland 1966

Deutschland 1993

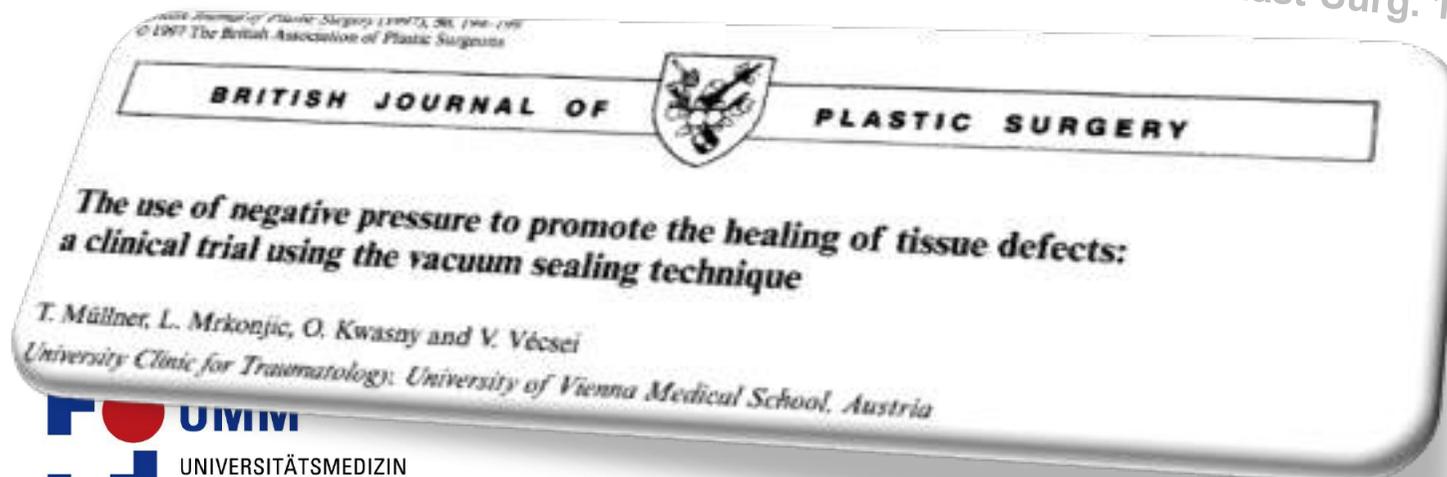
- W Fleischmann et al.

1997 FDA Zulassung

SPT, NPWT, V.A.C.®



Ann Plast Surg. 1997 Jun;38(6):553-62
Ann Plast Surg. 1997 Jun;38(6):563-76



Prinzip

definierter Sog

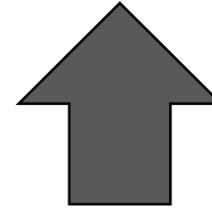
- 50 – 125 mmHg

Versiegelung

- Folie, cutane Deckung

Kontaktmedium (Schwamm)

- Polyurethan vs. Polyethylen



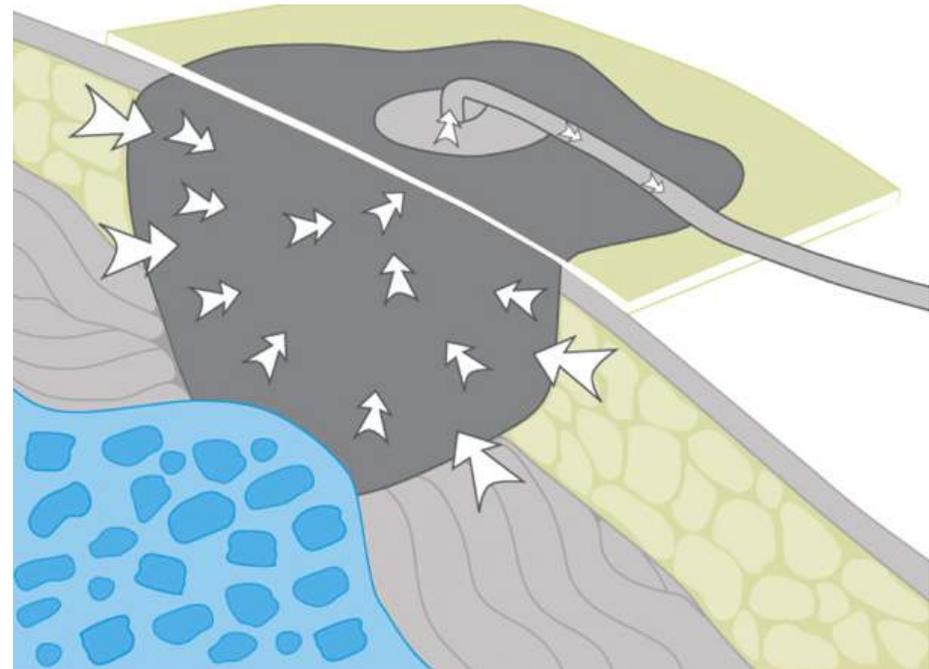
Effekte

Verminderung des Ödems

P. Vikatmaa et al.
Eur J Vasc Endovasc Surg (2008)

Sekretabtransport (Mediatoren)

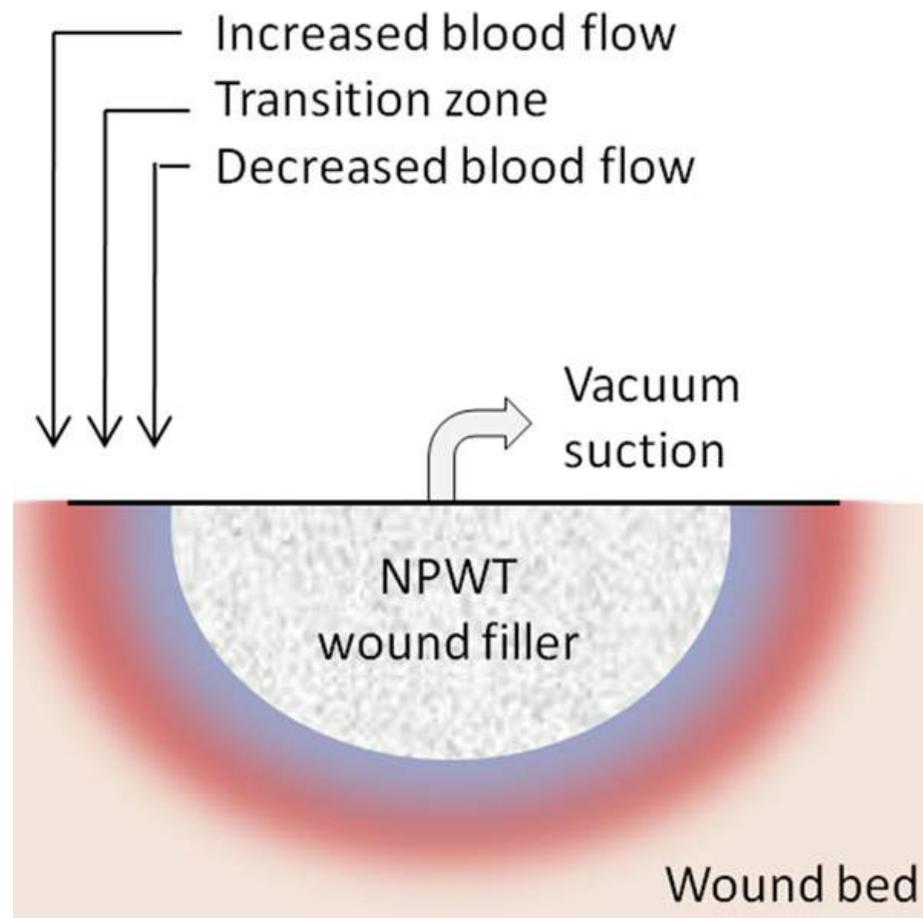
Eisenhardt et al.
J Plast Reconstr Aesthet Surg. 2011



Effekte

Verbesserung / Veränderung der Mikrozirkulation

Borgquist et al.
Wound Rep Reg (2011)

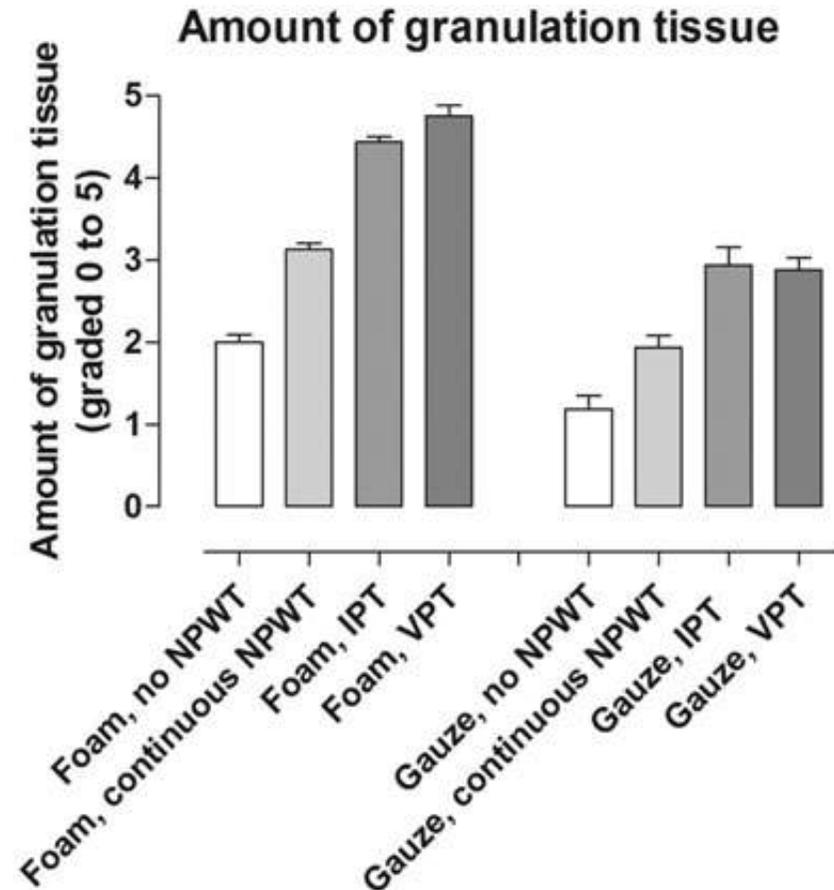


Effekte

Förderung der Granulation

Malmsjö et al.
Eplasty. 2012

Verkleinerung der Wundfläche (Retraktion)



Agenda

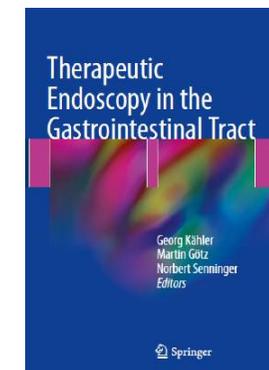
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Table 6.2 Endoscopic vacuum therapy (EVT) for leaks of different etiology

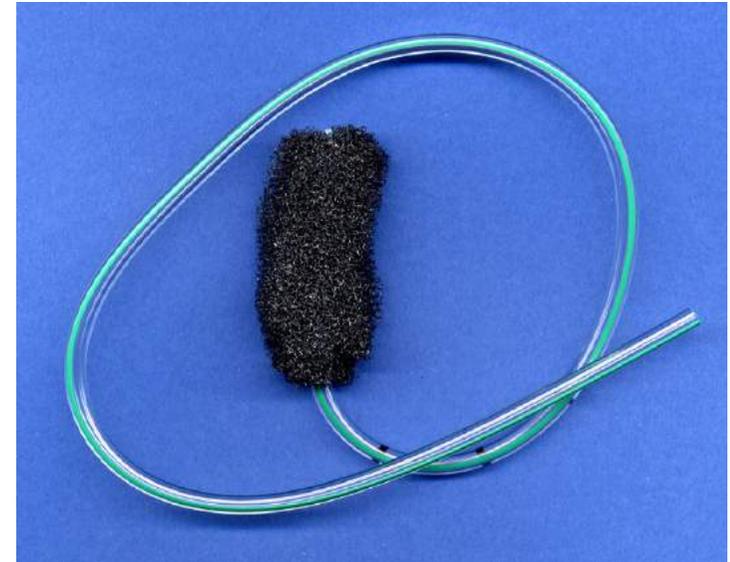
Literature	Patients (n)	Indication for EVT	Success rate (closure of leak by EVT)
Weldonhagen et al.	6	6x a. l.	6/6 (100%)
Walstabe et al.	1	1x a. l.	1/1 (100%)
Brangewitz et al.	32	30x a. l. 1x perf. 1x b. s.	27/32 (84%)
Schniewind et al.	17	17x a. l.	15/17 (88%)
Bludau et al.	14	8x a. l. 6x perf.	12/14 (87%)
Smallwood et al.	6	1x a. l. 5x perf.	6/6 (100%)
Schorsch et al.	35	21x a. l. 7x perf. 1x b. s. 6x o. o.	32/35 (91%)
Kuehn et al.	21	11x a. l. 8x perf. 2x b. s.	19/21 (91%)
Seyfried et al.	1	1x b. surg.	1/1 (100%)
Total	133	95x a. l. 27x perf. 4x b. s. 1x b. surg. 6x o. o.	110/133 80.5%

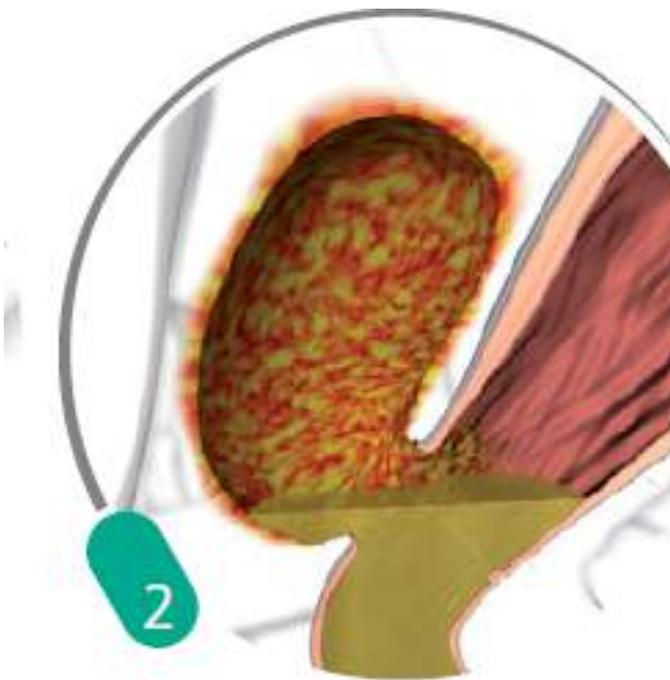
Synopsis of studies to date which have reported EVT, with number of treated patients and success rates of closure of the defect in total and percentage (a. l. anastomotic leakage, perf. perforation, b. s. Boerhaave syndrome, b. surg. bariatric surgery, and o. o. other origin)



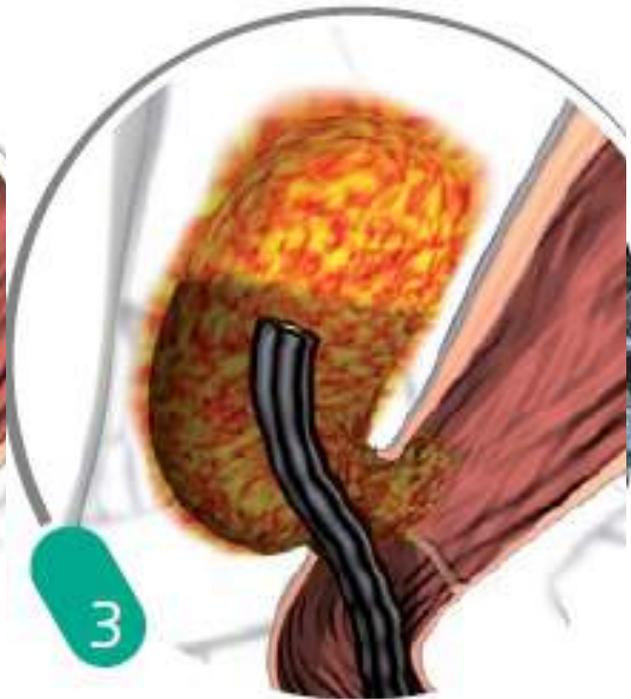
Endoluminal Vacuumtherapy: Sponge system

- Drainage tube or gastric tube
- Connected with sponge
- size 1x1cm til 3x7cm
- Transnasal route
- Connection to vacuum pump

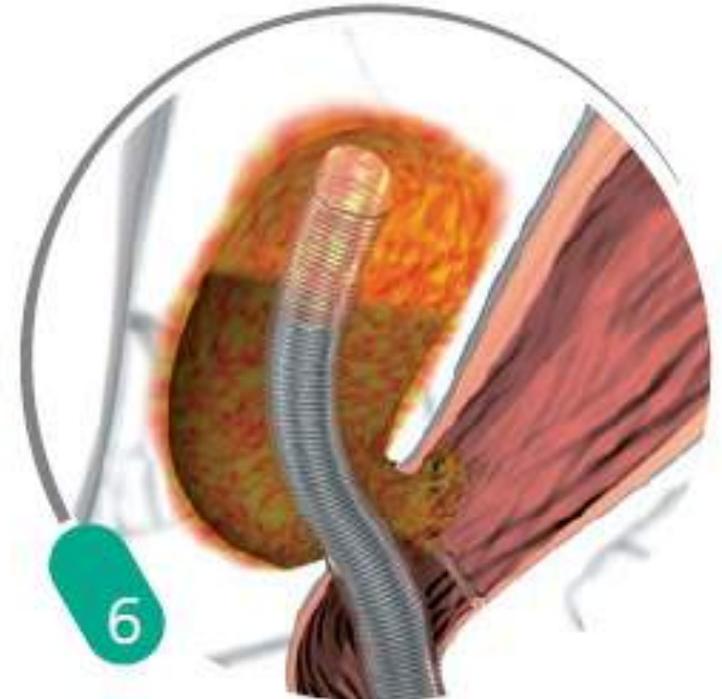




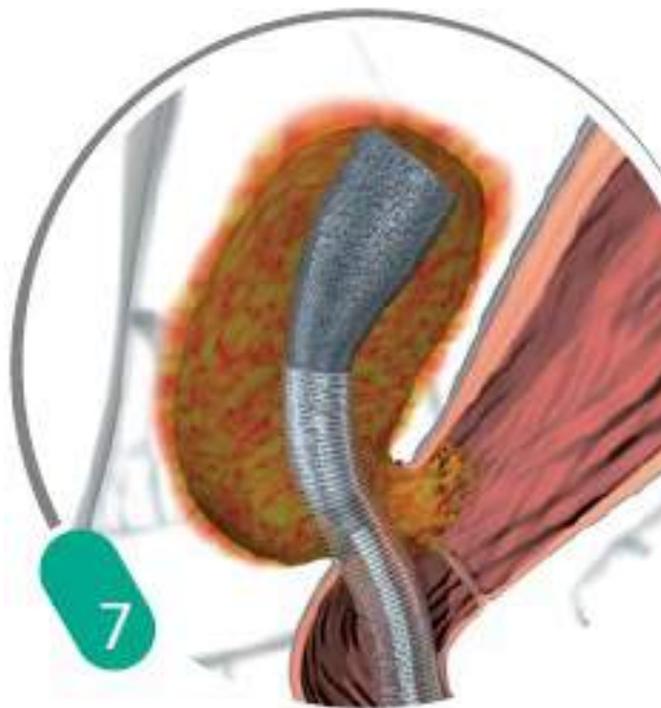
Anastomotic leakage with local peritonitis in the minor pelvis



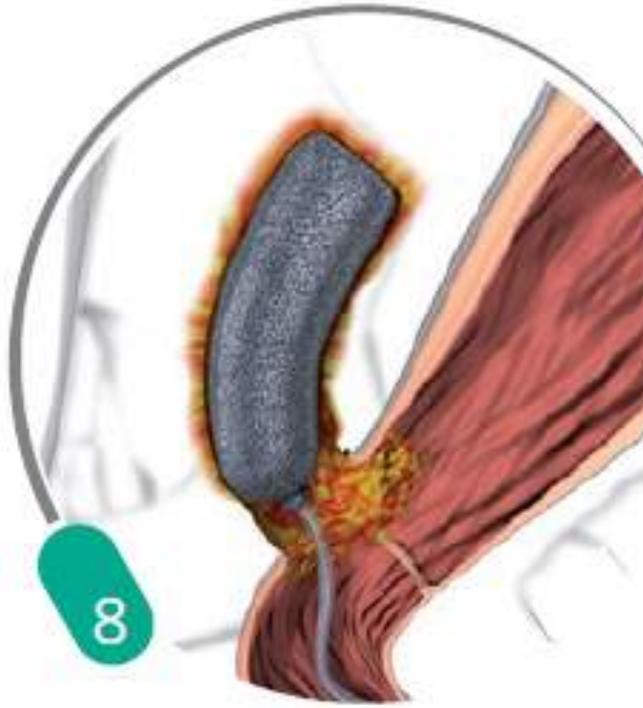
Diagnostic examination with a flexi endoscope



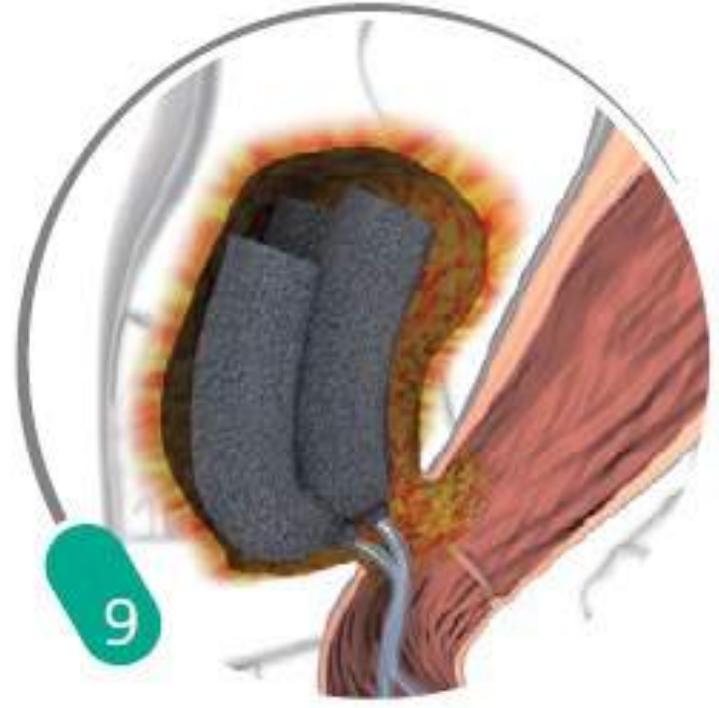
Endoscope is inserted into the wound cavity



The Endo-SPONGE is placed into position using the endoscope, overtul and pusher



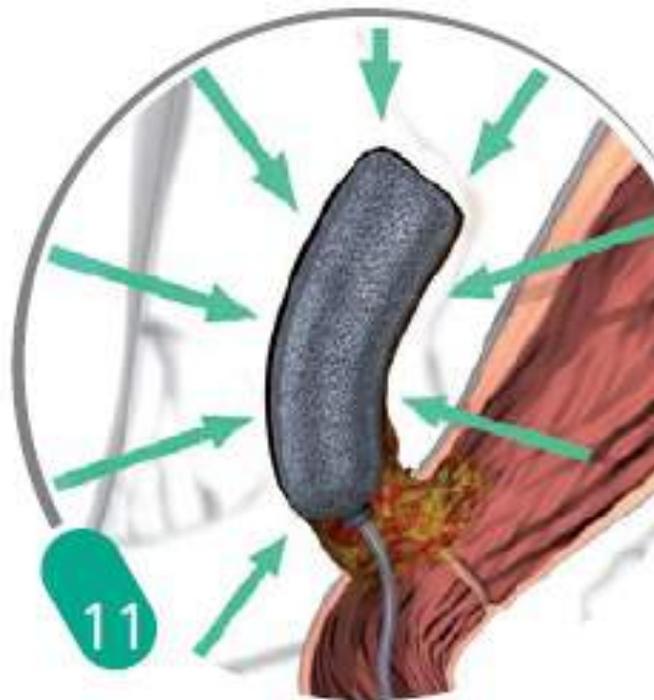
The Endo-SPONGE is released



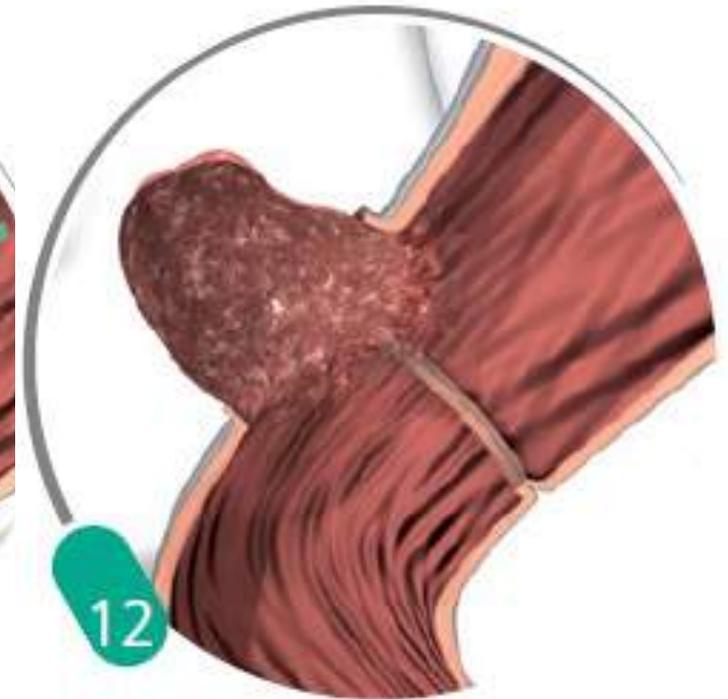
Several Endo-SPONGES can be used, depending on the size of the wound cavity



Connection to Redyrob® TRANS PLUS
(adjustable wound drainage system)

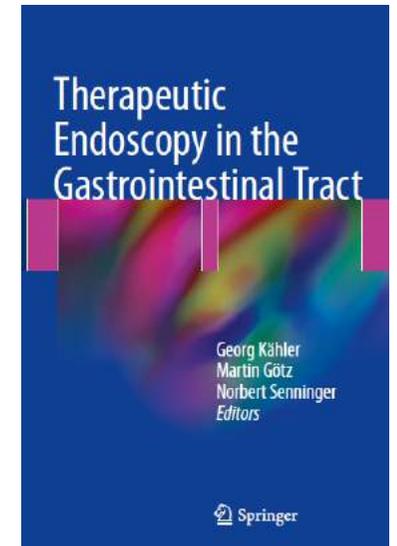


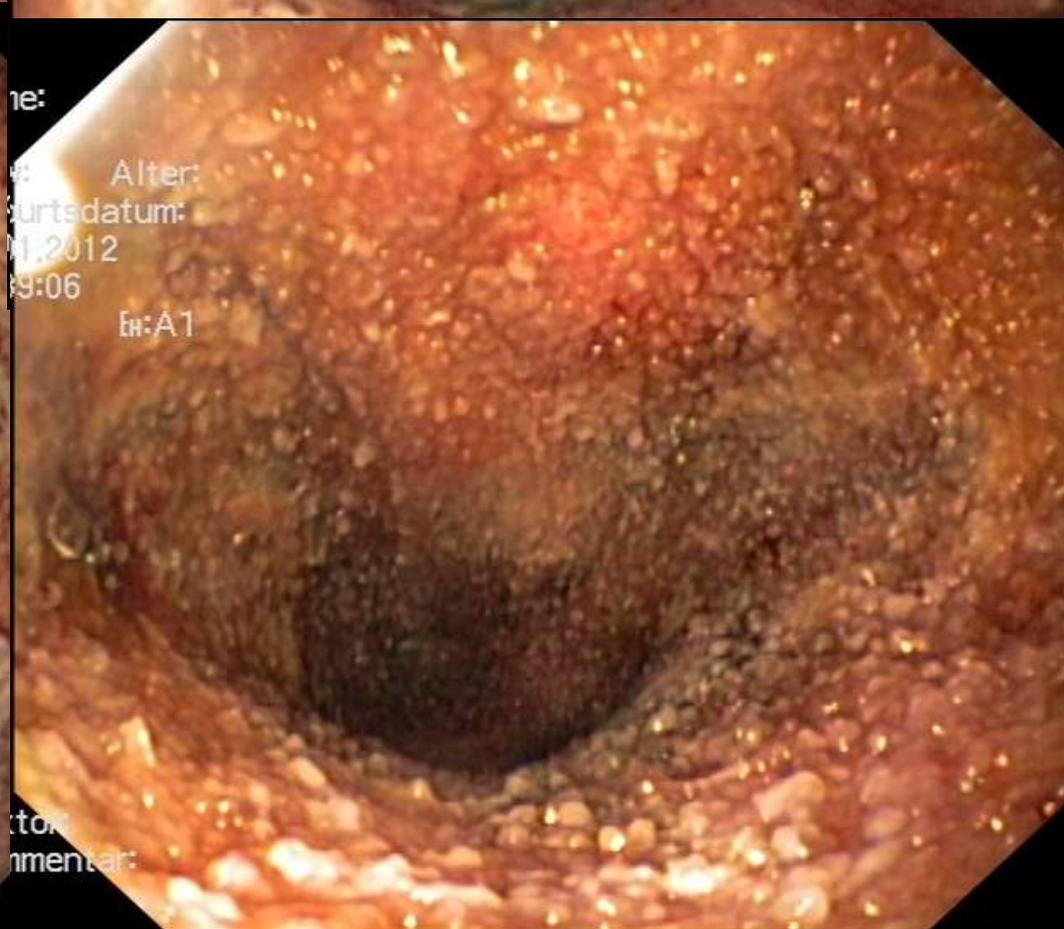
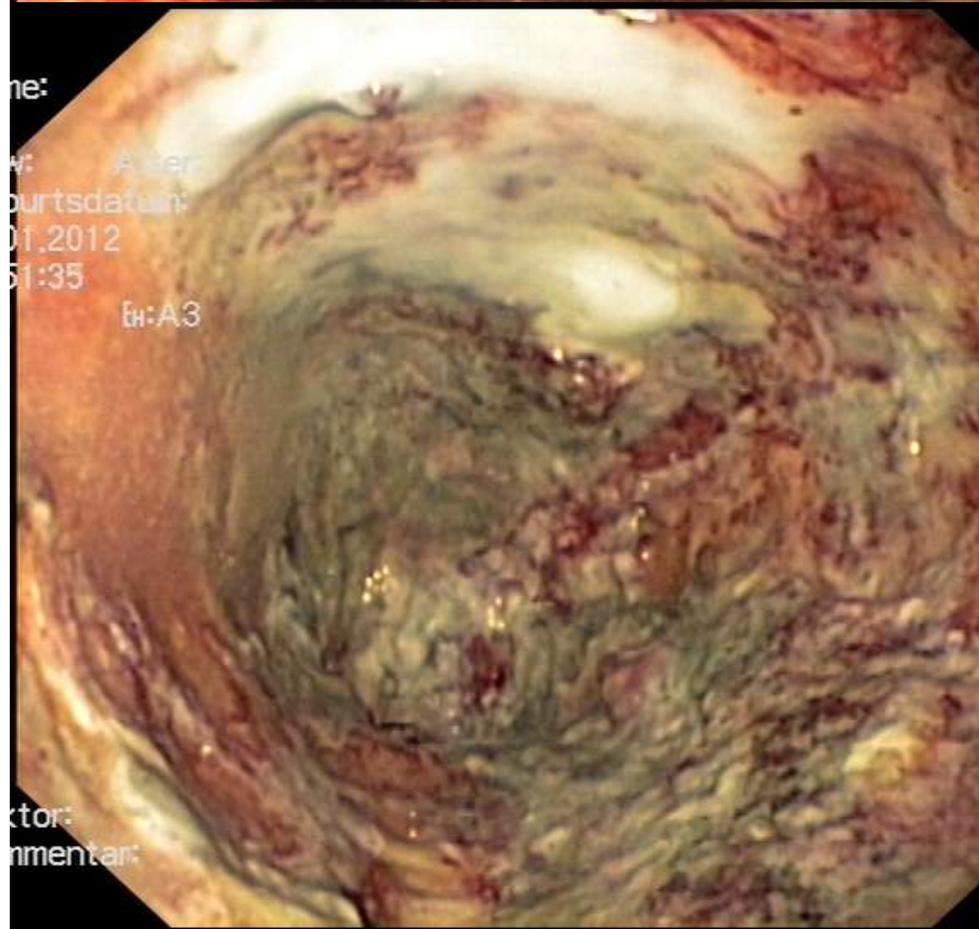
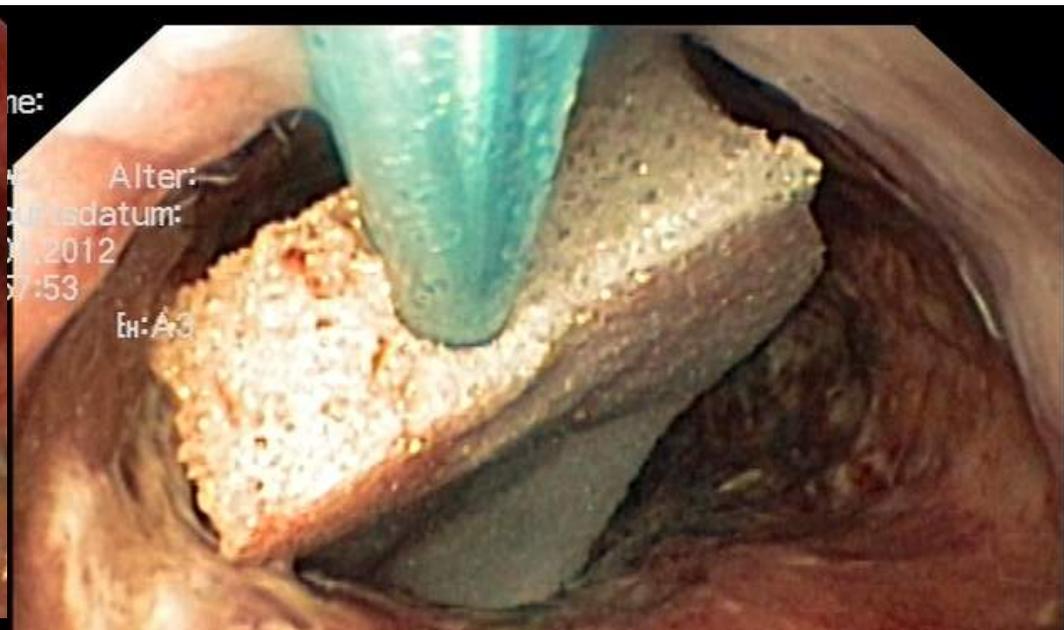
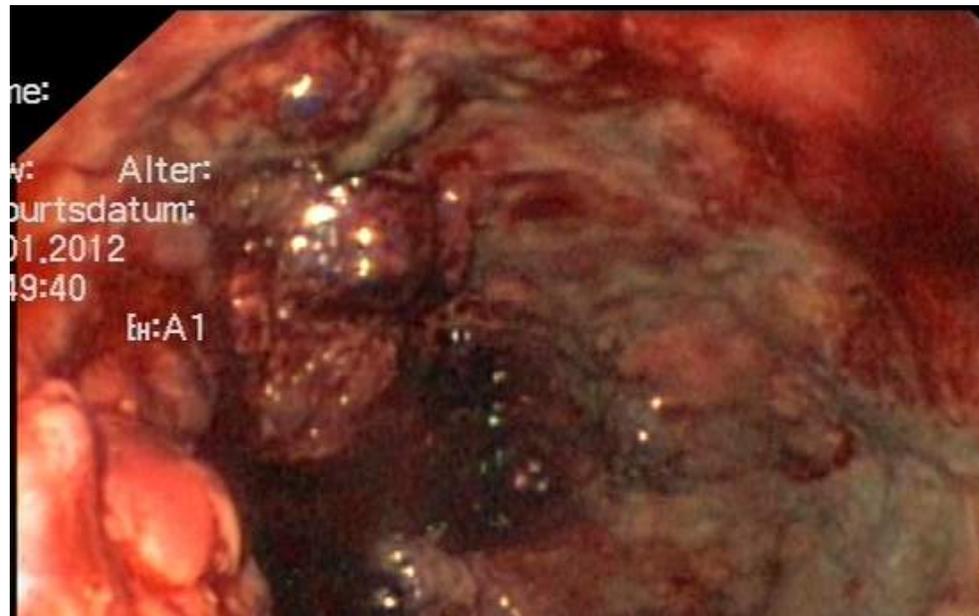
Mode of action:
the open pores of the sponge allow the
suction to be transferred evenly over
all tissue in contact with the sponge
surface

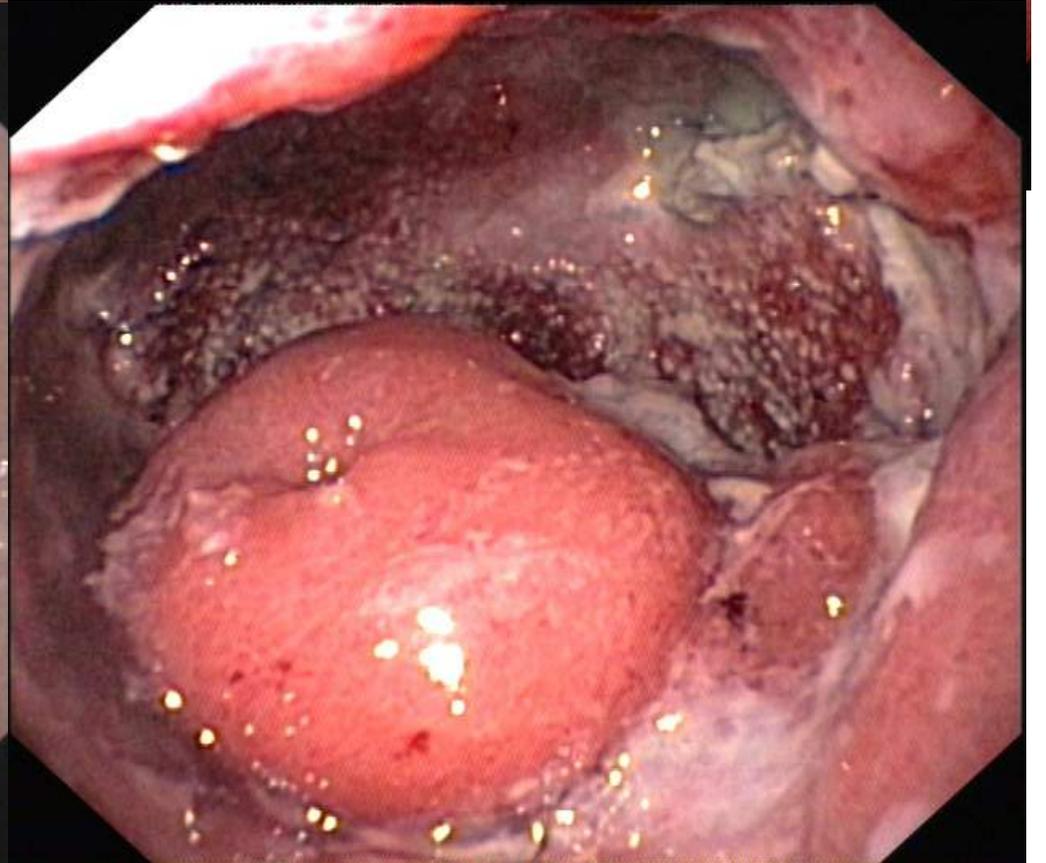
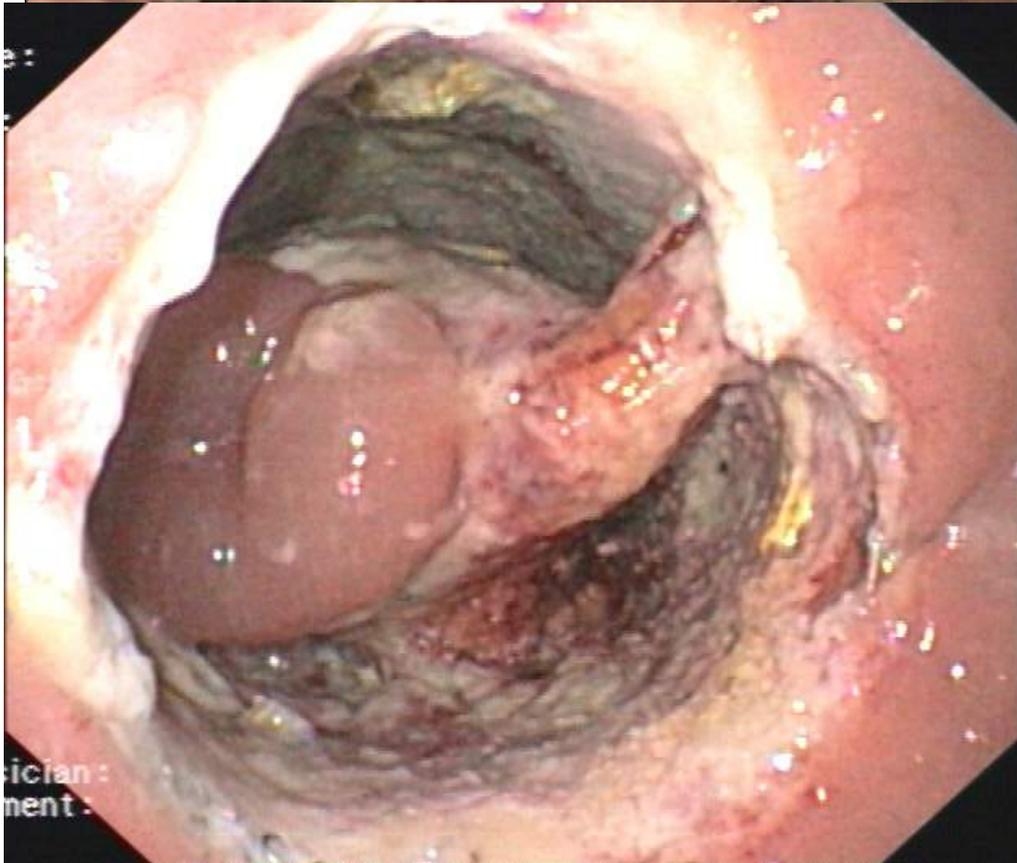
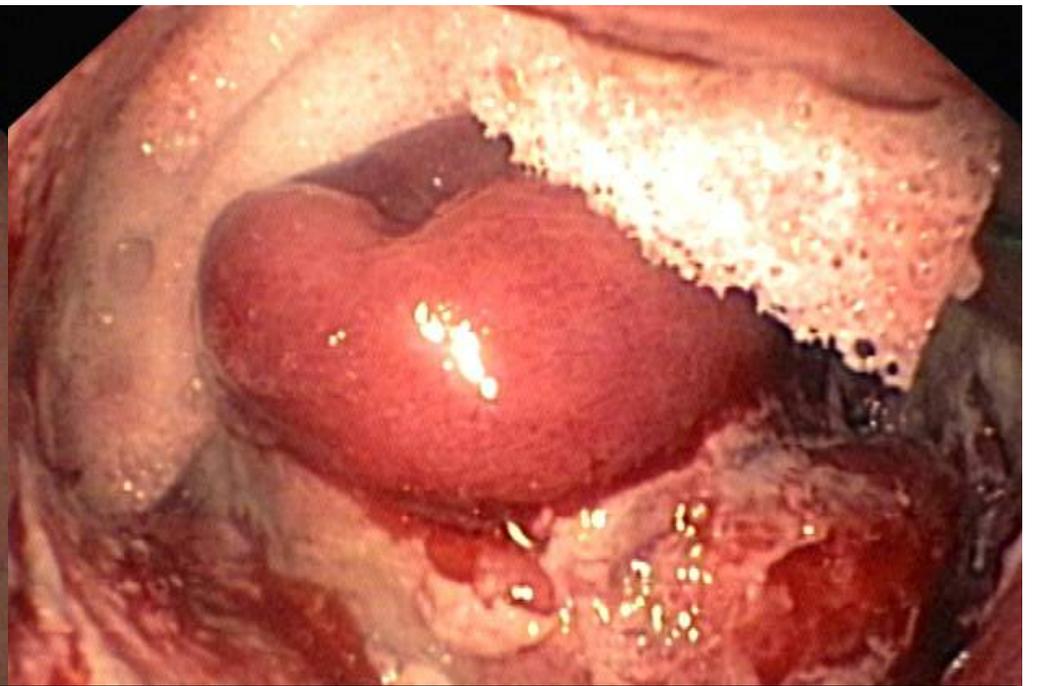
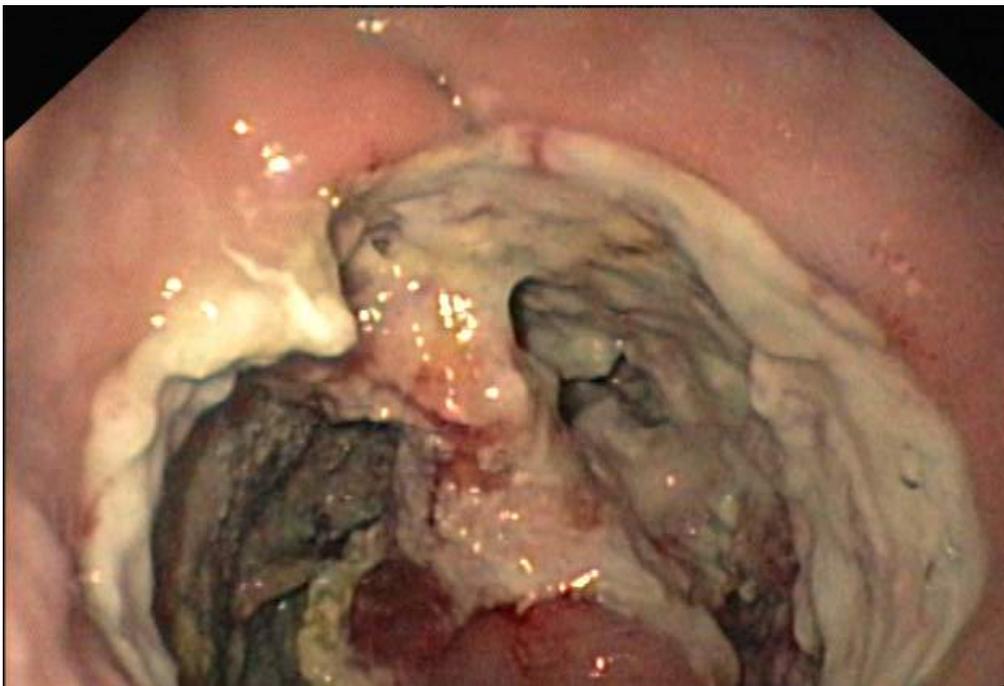


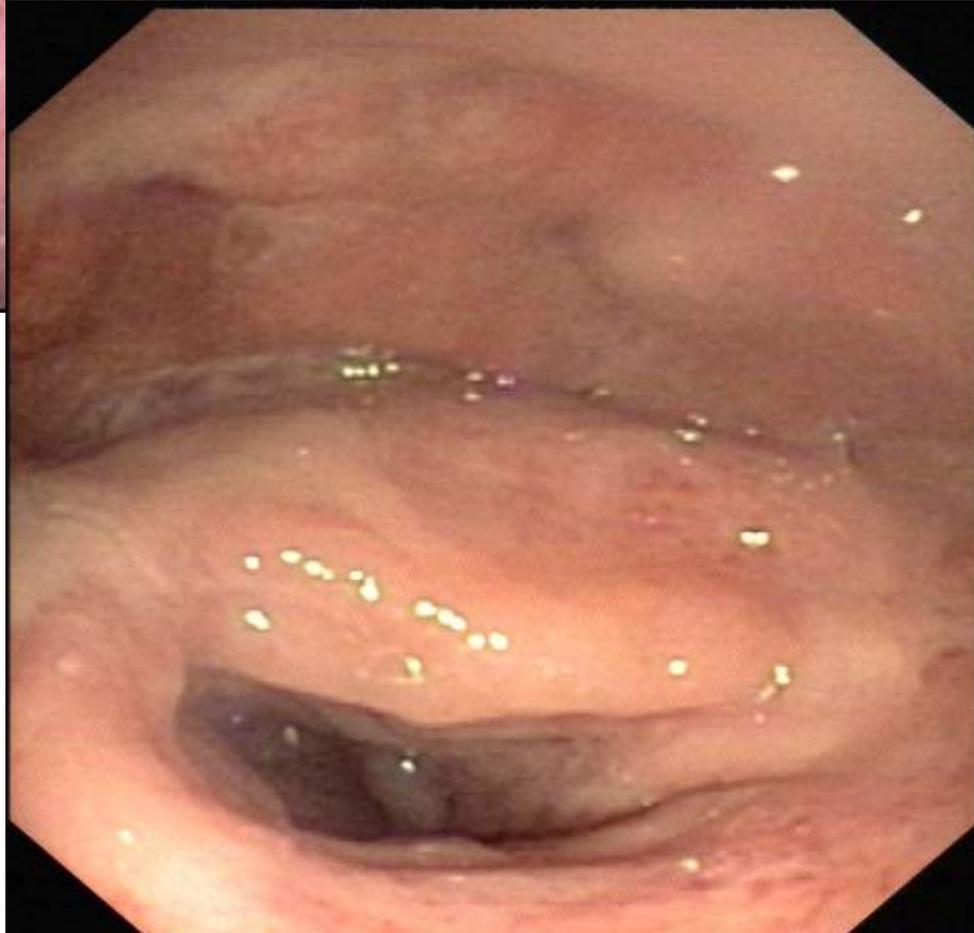
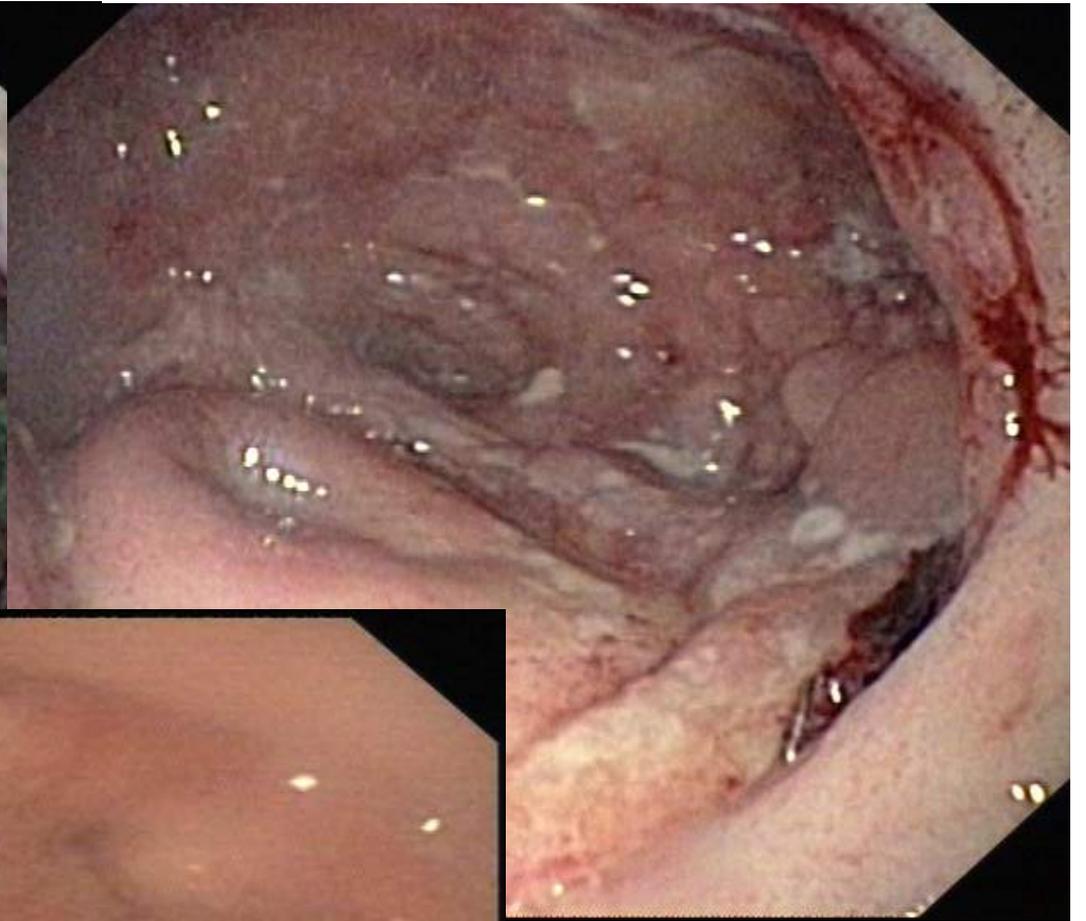
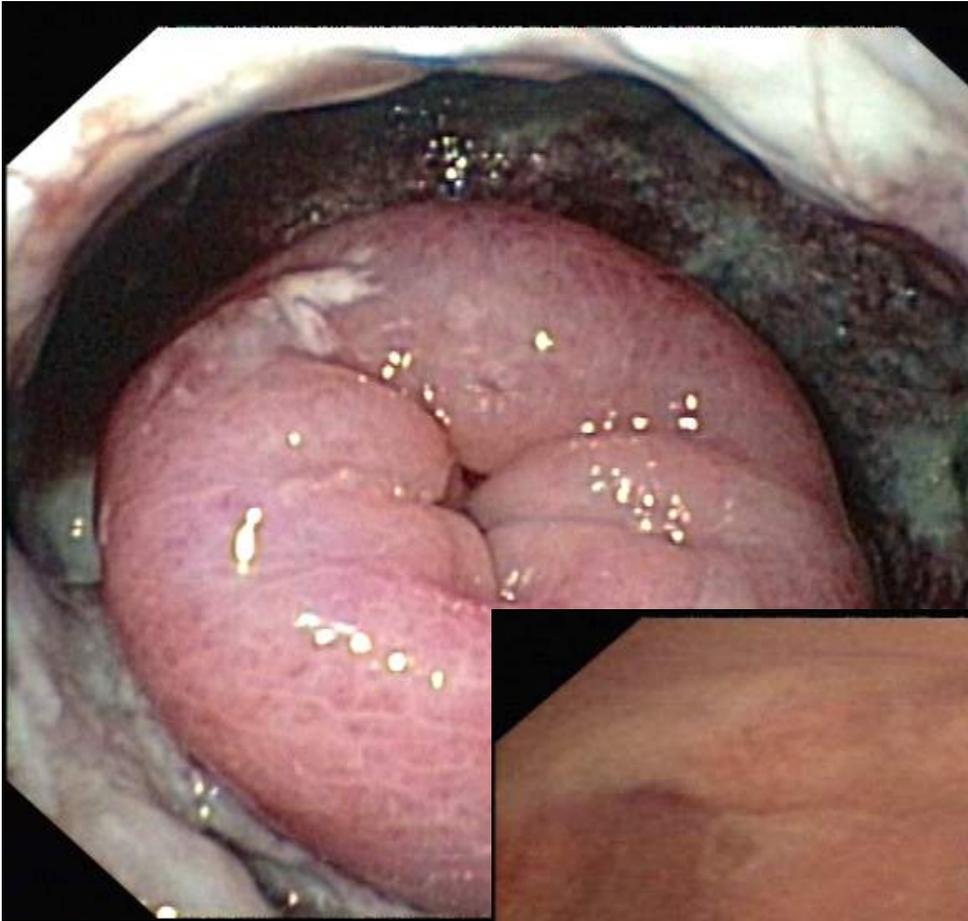
Healing of the wound cavity







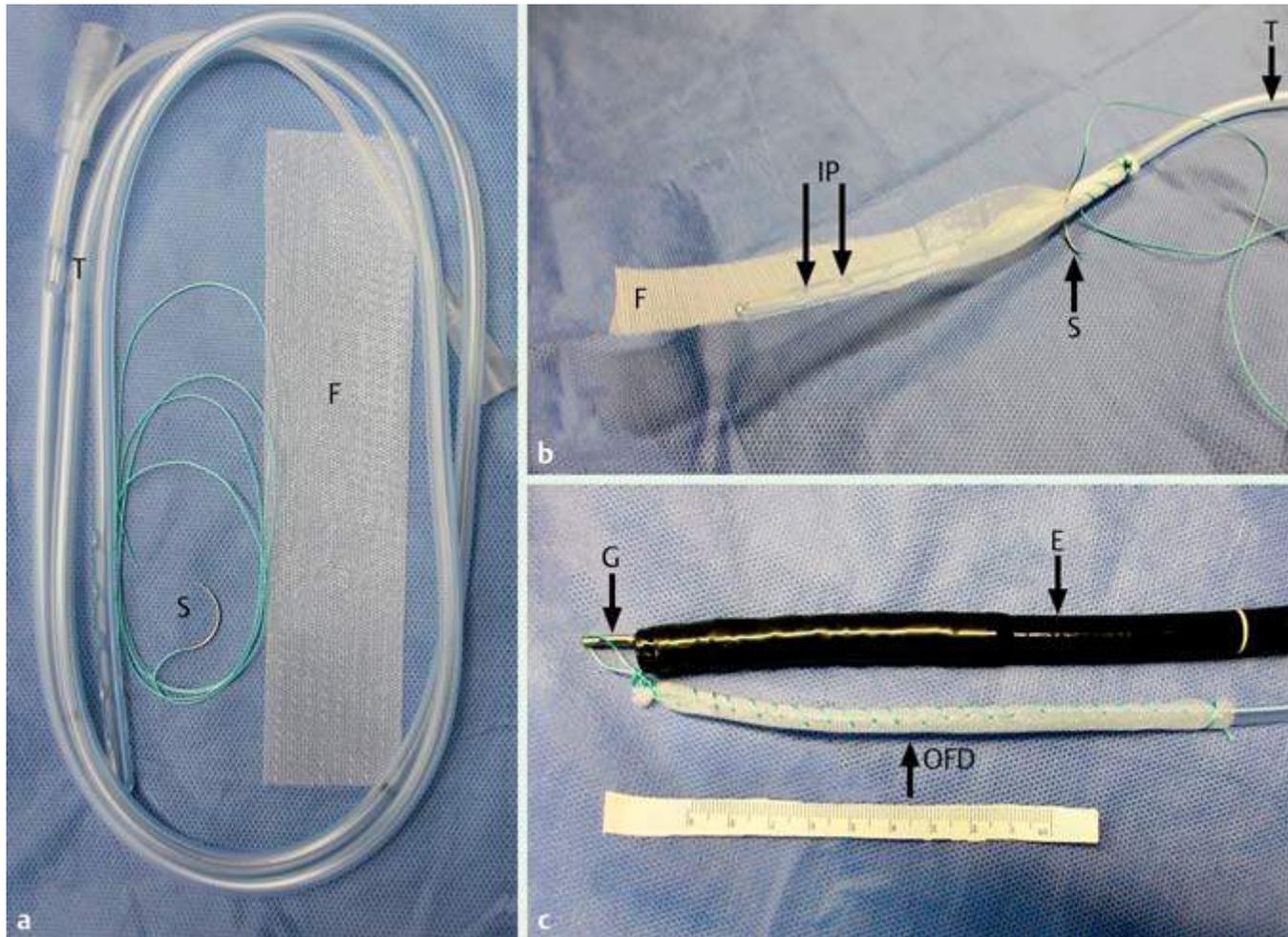




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Loske Gunnar et al. Endoscopic vacuum therapy for duodenal perforation during ERCP... Endoscopy 2015; 47: E577–E578

Successful endoscopic vacuum therapy with new open-pore film drainage in a case of iatrogenic duodenal perforation during ERCP

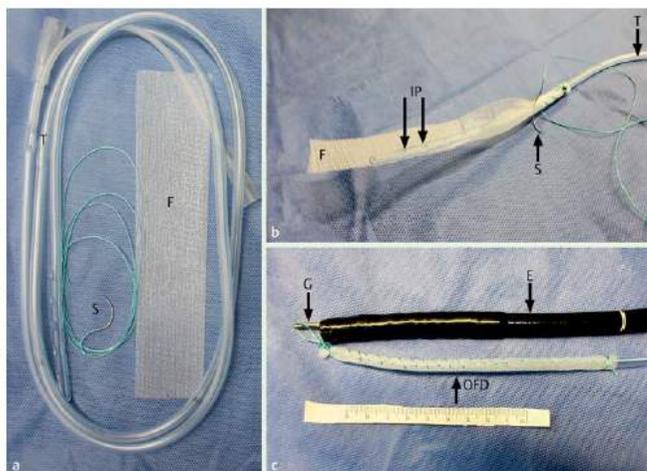


Fig. 1 New, open-pore film drainage (OFD) device. **a** Material used to construct the OFD device: tube (T), open pore film (F), and suture (S). **b** The tube (T) was wrapped in open-pore film (F), which was fixed in place with the suture (S); the tip of the tube has lateral perforations (IP). **c** The OFD, endoscope (E), and grasper (G).



Fig. 2 The open-pore film drainage (OFD) tube is inserted nasally.

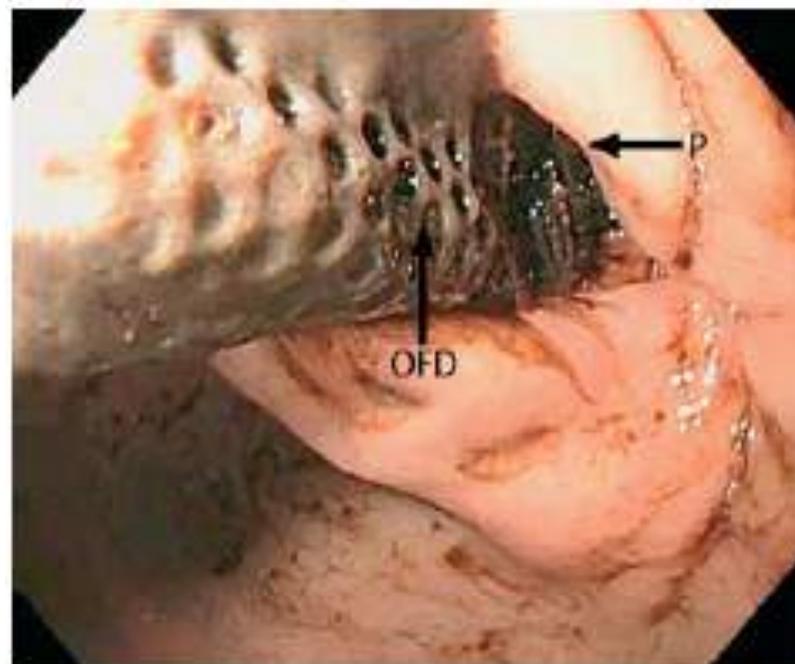


Fig. 5 After 3 days of therapy, the open-pore film drainage (OFD) device is removed by pulling. The OFD is colored brown because of the biliary secretions. The pores of the film are still open. P, pylorus.

Loske Gunnar et al. Endoscopic vacuum therapy for duodenal perforation during ERCP... Endoscopy 2015; 47: E577–E578

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Endo-Vac-Therapie am GI-Trakt

Offene Fragen :

- optimales Material: Porengröße ?
- Sogstärke
- Applikationstechnik des Schwammes, Overtube ?
- Wechselfrequenz ?

sicher: wertvolle Bereicherung in kritischen Situationen



Praktische Empfehlungen I

1. Indikation zur endoskopischen Untersuchung bei V.a. AI
 - großzügig
 - frühzeitig
 - erfahrener Untersucher, Fotodokumentation
 - Mitbeurteilung von Durchblutung, Sekretqualität, Luftübertritt in Drainagen oder Nachbarorgane

2. Endoskopische Therapie wenn keine generalisierte Peritonitis vorliegt
 - Spülung, Debridement
 - Vac-Einlage ggf auch endoluminal
 - Overtube oft nicht erforderlich



Praktische Empfehlungen II

3. Vac in Größe und Form der Wundhöhle anpassen

- nicht Höhle austamponieren
- keine nichtdrainierten Räume zurücklassen.
- Cave ! Flaschenhalskonfiguration
- ggf. Abgangsstenose ballondilatieren

4. Therapie bis überall Granulationsgewebe

5. Ambulante wöchentliche Durchführung mit Redonflasche möglich, wenn sicher keine Gefäße in der Nähe des Schwammes.

