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Cursorisch onderwijs in maag-darm-leverziekten

Complicaties van ERCP

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Amsterdam
Live Endoscopy

Potential conflicts of interest

Consultancy

- Cook
- Ethicon Endosurgery
- Olympus

Research support

- Boston Scientific

Complications of ERCP

- Definition
- Complications
    1. Pancreatitis
    2. Bleeding
    3. Infectious complications
    4. Perforations
    5. Miscellaneous
- Summary & conclusions

Complications

Definition

- All negative outcomes for the patient that:
  - Prevent completion of the planned procedure (i.e. sedation)
  - Cause any deviation from the standard post-procedural course
- A complication in the preparation phase should also be recorded

1. Pancreatitis

- Abdominal pain +/- Raised amylase/lipase +/- Imaging (2 out of 3)
- Incidence 8%
- Patient factors & procedure factors

Patient-related risk factors	
Prior post-ERCP pancreatitis	8.7 (3.2-23.86)
Female sex	3.5 (1.1-10.6)
Previous recurrent pancreatitis	2.46 (1.93-3.12)
Suspected sphincter of Oddi dysfunction	1.91 (1.37-2.65)
Younger patient age (<40 years old)[14] 30 vs 70 years old[7]	1.8 (1.27-2.59) 2.14 (1.413.25)
Absence of chronic pancreatitis	1.87 (1.003.48)
Normal serum bilirubin	1.89 (1.222.93)

Procedure-related risk factors	
Difficult cannulation (>10 minutes)	1.76 (1.13-2.74)
Repetitive pancreatic guidewire cannulation	2.77 (1.79-4.30)
Pancreatic injection	2.2 (1.60-3.01)
Pancreatic sphincterotomy	3.07 (1.64-5.75)
Endoscopic papillary large-balloon dilation of an intact sphincter	4.51 (1.51-13.46)

Pancreatitis: Risk reduction

- Not doing the procedure (yourself?)
- EUS or MRCP before all ERCP's for suspected stone disease

- Guidewire cannulation
- Pancreatic duct stents

- NSAIDs – Diclofenac or Indomethacin suppository (NNT 11-17)
- IV hydration – Ringer's lactate or saline
  - Large Dutch multicentre study does not show protection (unpublished data)

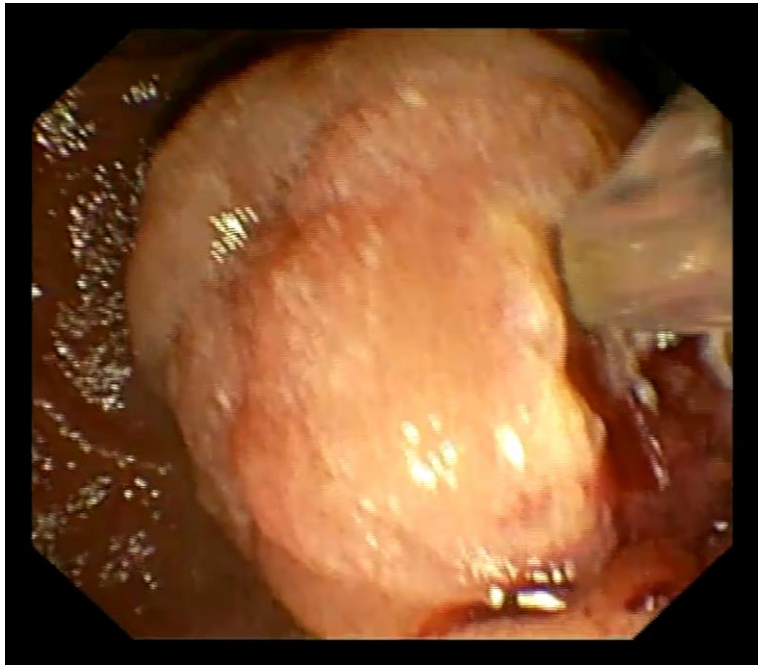
2. Bleeding

- Mostly related to sphincterotomy
- Incidence 1-2 %
- Risk factors
  - Coagulopathy / Anticoagulants < 3days of procedure (before AND after)
  - Endoscopist volume ≤ 1/week
  - Bleeding observed during procedure

Bleeding: Risk reduction & therapy

- Avoiding unnecessary sphincterotomy (i.e. pre-lapchol, metal stent, …)
- Endoscopic papillary (large) balloon dilation vs. large sphincterotomy

- Non-invasive therapy (fluid resuccitation etc)
- Epinephrin injection
- Thermal therapy & clips
- Fully covered metal stents (tamponade)
- Interventional radiology



3. Infectious complications

- Cholangitis in 0.5-3% of patients
- Riskfactors: Incomplete drainage or stone removal, stent migration
- Therapy: antibiotics, confirm adequate drainage

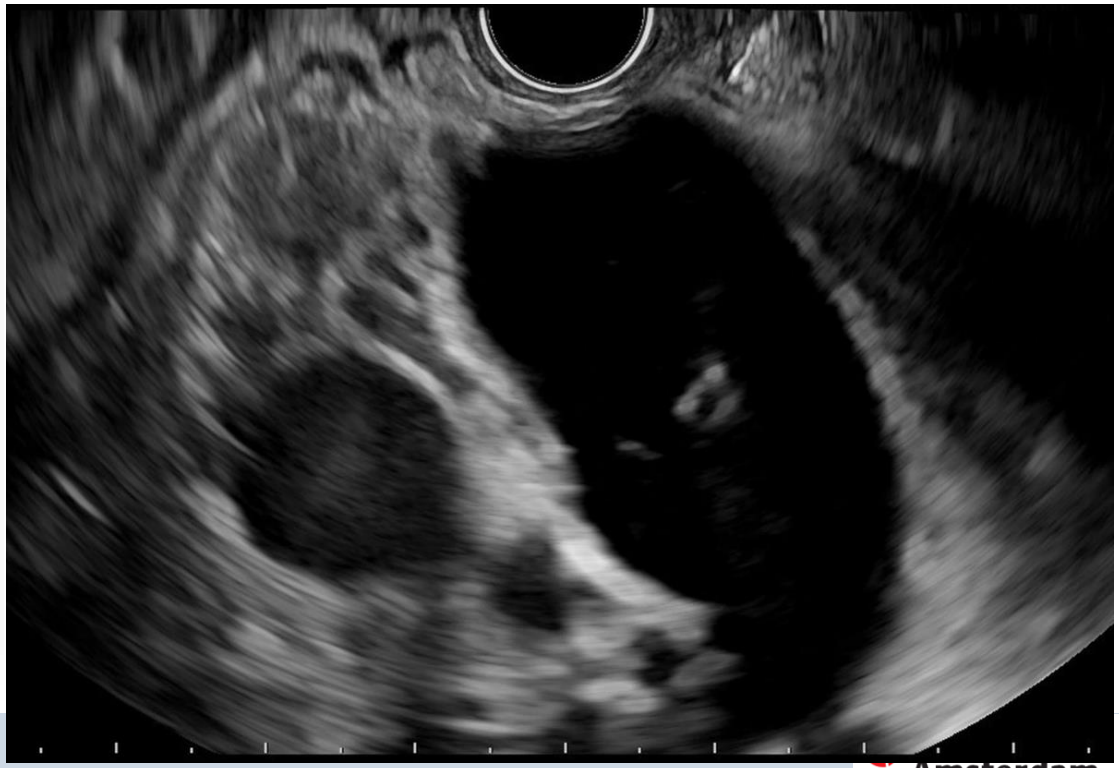
- Cholecystitis in 0,5% of patients
- Riskfactors – SEMS covering cystic duct opening *(no diff. Covered vs. Uncovered)*
- Therapy: antibiotics / GB drainage* / cholecystectomy / stent removal?

* Endoscopic gallbladder drainage

- EUS-guided GB drainage vs. percutaneous cholecystostomy in very high risk surgical patients with cholecystitis – RCT with 80 pts

	EUS-GBD n=39	PT-GBD n=40	P value
1-year adverse events (%)	10 (25.6)	31 (77.5)	<0.001
Grading 1/2/3/4/5	1/1/6/0/2	13/6/8/0/4	
Recurrent acute cholecystitis (%)	1 (2.6)	8 (20)	0.029
Reinterventions after 30 days (%)	1 (2.6)	12 (30)	0.001
Reinsertion of PT-GBD	0	12	
Clearing blocked stent	1	0	
Unplanned admissions (%)	6 (15.4)	20 (50)	0.002
30-day adverse events (%)	5 (12.8)	19 (47.5)	0.001

Teoh AYB, *et al*. *Gut* 2020;



Infectious complications

- Endoscope related infections

High prevalence rate of digestive tract bacteria in duodenoscopes: a nationwide study

Rauwers AW, *et al*. *Gut* 2018;

- In 39% of all Dutch ERCP centres ≥ 1 contaminated patient-ready duodenoscope was identified.
- 15% per cent of the duodenoscopes harboured MGO (failing of disinfection)
- Reprocessing is often inadequate, we should adhere strictly to protocols

Infectious complications

- Endoscope related infections – Should this be the next step?

- Huge costs (€3000 per procedure), big push from biomedical industry
- Towards a risk-free life?

4. Perforations

- Incidence of perforations is relatively rare (0,08 - 0,6%)
- Early detection critical for prognosis
- Retroperitoneal (bile) leaks difficult to r

- Diagnosis used to be with addominal X-r
- Nowadays CT-scan with oral contrast is g

Perforations

Different types require different therapy

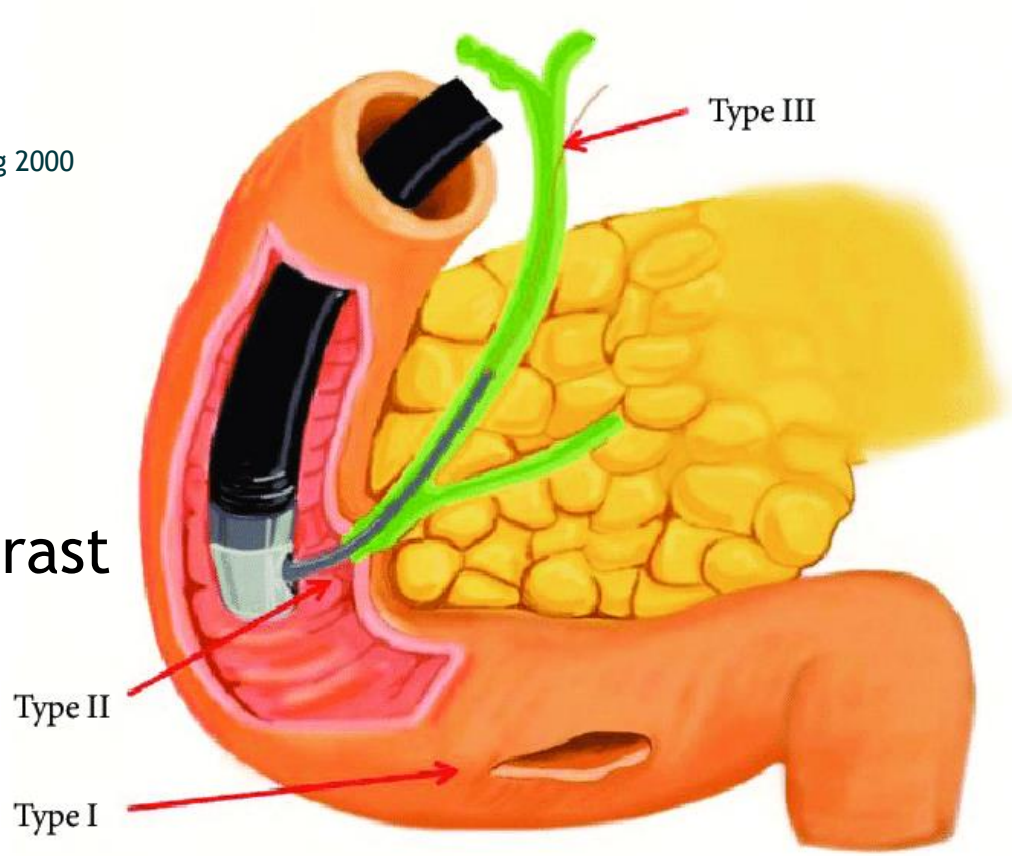
Stapfer et al – Ann Surg 2000

Type 1 – Luminal (endoscope) perforations

Type 2 – Sphincterotomy perforations

Type 3 – Extramural passage of guidewires/contrast

Type 4 – Retroperitoneal air



Type IV, retroperitoneal microperforation

Perforations

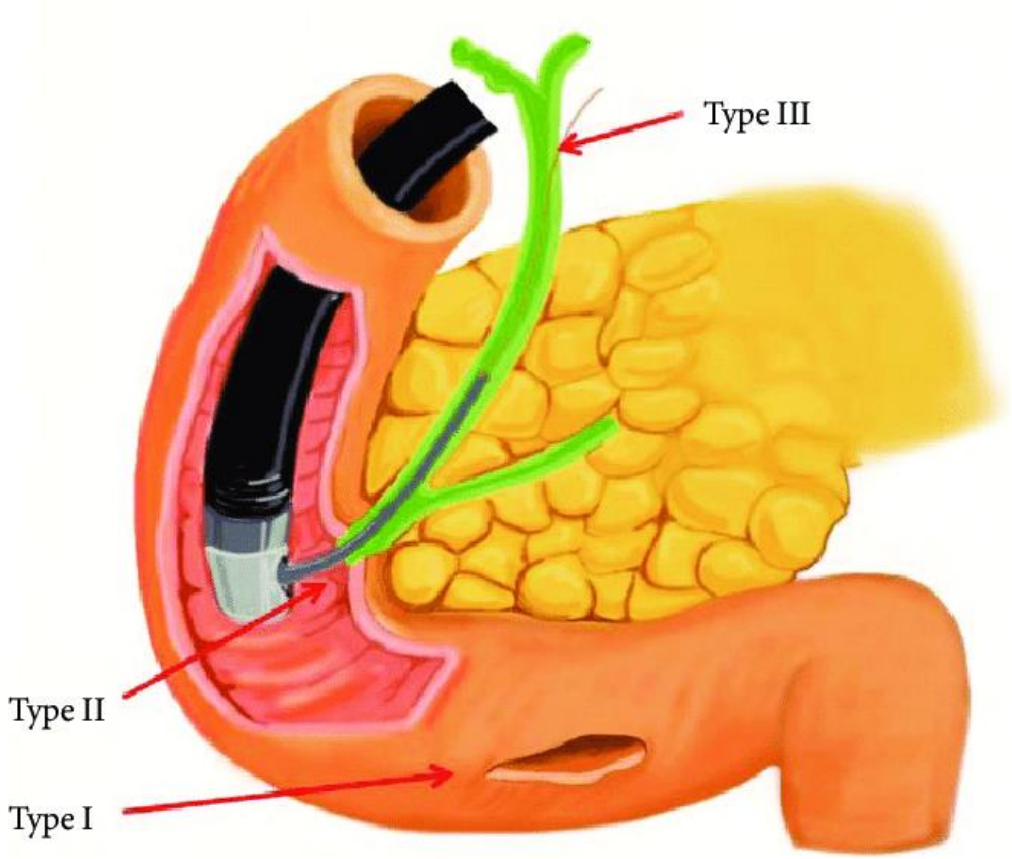
Therapy: surgery, endoscopy or conservative

Type 1 – Surgery

Type 2 – Endoscopic stenting, NPO (+CT ?)

Type 3 – Antibiotics

Type 4 – ??? NPO + AB ???



Type IV, retroperitoneal microperforation

5. Miscellaneous: Pancreatic Fluid Collections (PFC)

- Endoscopic PFC drainage has proven advantages over radiology and surgery
- Transgastric/transduodenal drainage is current procedure of choice
- Plastic and metal stents (AXIOS, SPAXUS etc)
- Endoscopic Transmural Necrosectomy often necessary

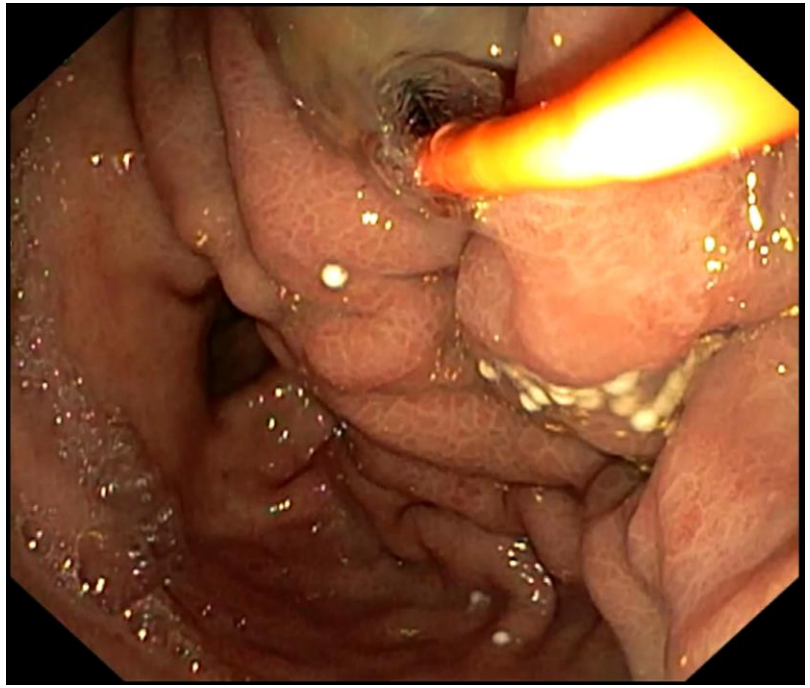
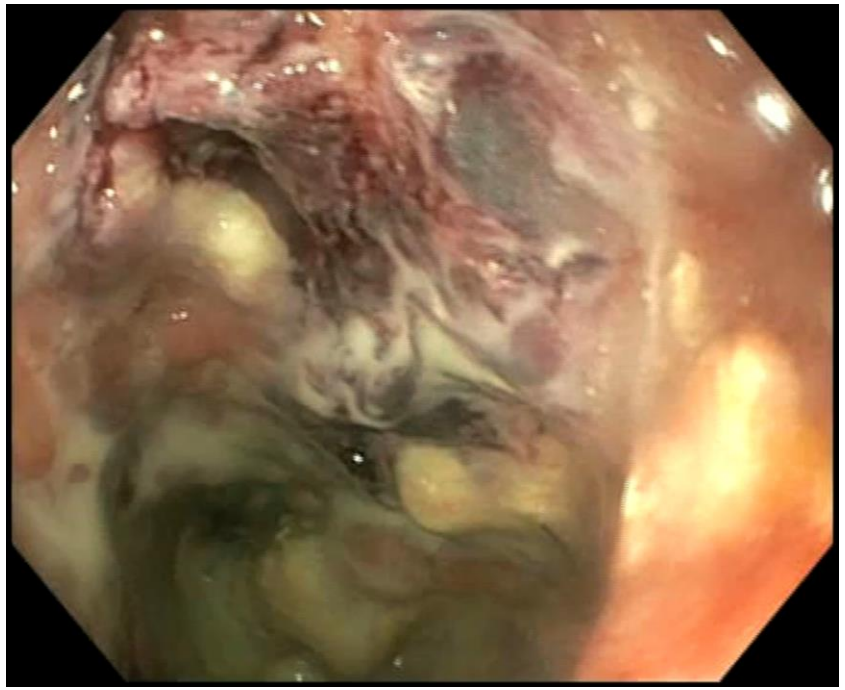
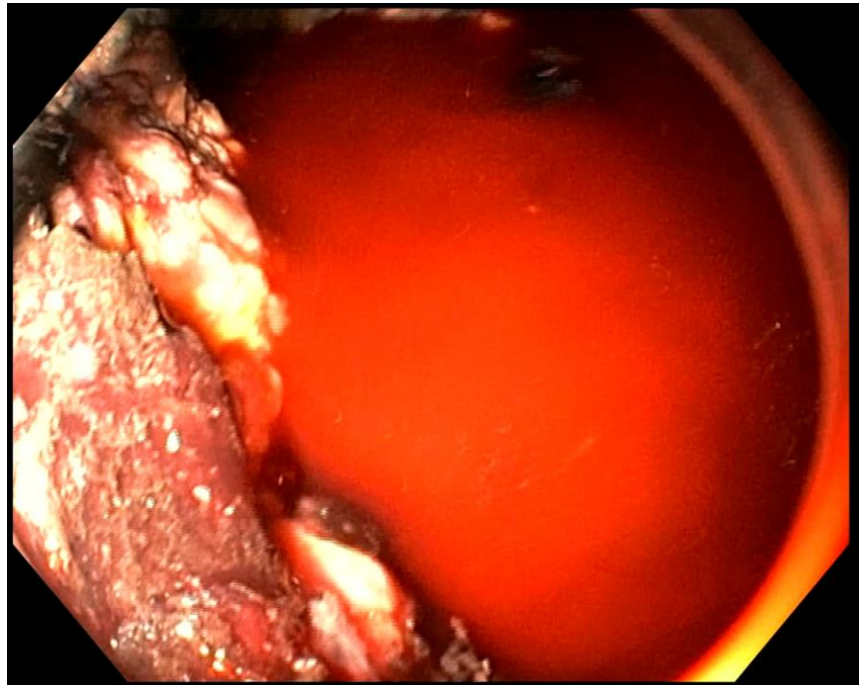
- Frequent complications : Infection, bleeding, perforation

Pancreatic Fluid Collections (PFC)

- Re-infection after drainage in ~ 20-50%
- Presentation often with mild fever and some abdominal discomfort
- CT-scan typically shows unchanged (!!!) collection

→ Re-intervention

PFC - Infection & Bleeding

Summary & conclusions

- Every patient undergoing ERCP is at high-risk for complications
- Strict indication setting is key in preventing complications
  - EUS/MRCP should be generously used before ERCP
- Pancreatitis is most feared complication (incidence 8%, mortality 1%)
- Advanced transmural procedures require 24/7 availability or surgeon and interventional radiologist
- Scope cleaning and desinfection is important to prevent transmission
- Centralization of ERCP's in NL is happening too slow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