



Ente Ospedaliero Cantonale

The campaign on laboratory: focus on Gallstone Disease and ERCP



eoc

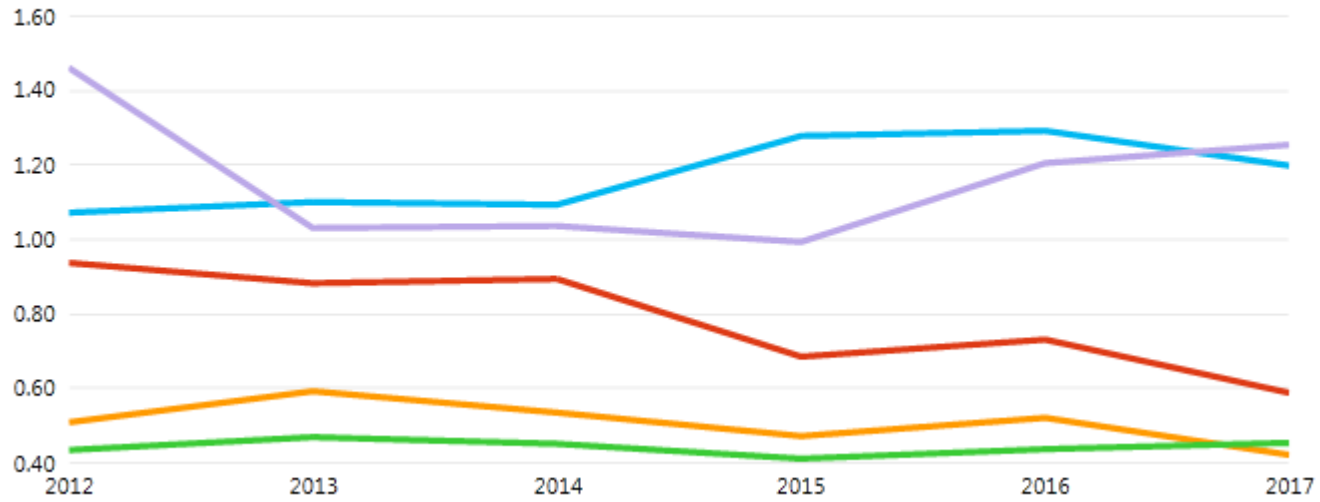
Mauro Giuliani, MD, Specialist in Visceral Surgery, Vice Head Physician, Surgical Ward, Ospedale Regionale di Locarno

Alberto Fasoli, MD, Specialist in Gastroenterology, Chief Medical Service, Gastroenterology, Ospedale Regionale di Locarno e Bellinzona

Anna Zasa, MAS medical statistics and genomics, Quality and Patient Safety Service, Ospedale Regionale di Locarno

PIÙ (med) (Auro)

Media esami per caso per Anno e Sede



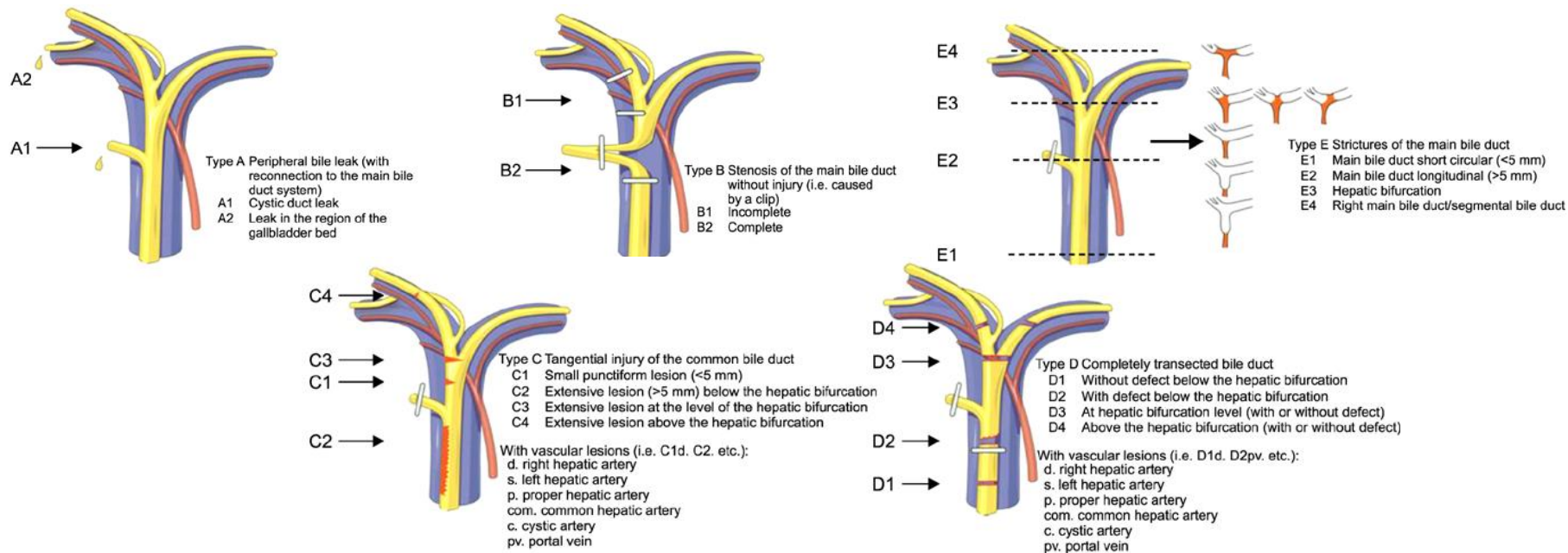
2017

Gallstone disease

- Gallstone disease affects **more than 20 million American adults** at a cost of **6.2 billion dollars per year**.
- A subset of these patients will also have **choledocholithiasis**, including **5-10% of those undergoing laparoscopic cholecystectomy** for symptomatic cholelithiasis and **18-33%** of patients with **acute biliary pancreatitis**.
- **Missed common bile duct stones** pose the patients at higher risk for **recurrent symptoms, pancreatitis and cholangitis**.
- **Morbidity and costs of indiscriminate diagnostic and/or invasive biliary evaluation** should be **minimized**.

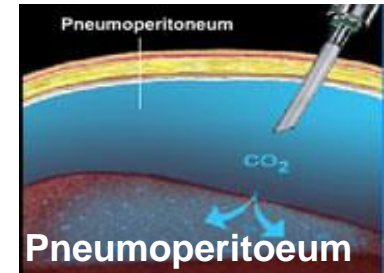
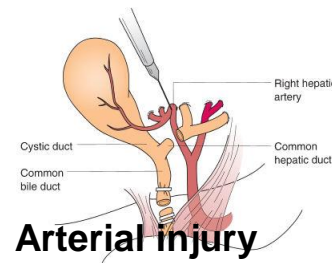
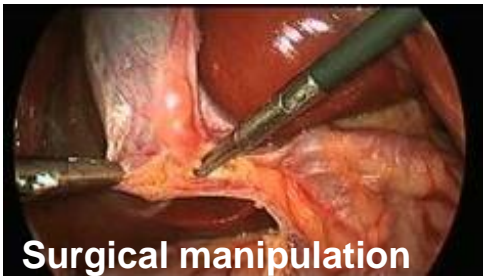
Laparoscopic Cholecystectomy

- **Incidence of iatrogenic bile duct injuries** is still higher in laparoscopic cholecystectomy (0.2-0.5%) than in open cholecystectomy (0.1-0.2%)
- Injuries after laparoscopic cholecystectomies are **more complex** and associated with **higher morbidity and mortality** than in open surgery
- **Early diagnosis** and management of iatrogenic bile duct injuries are linked to **better short- and long-term outcome**

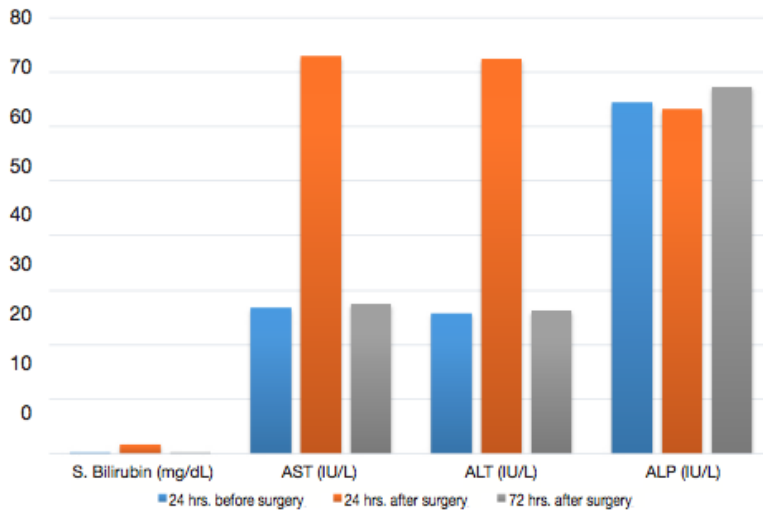


Iatrogenic Bile Duct Injuries, Identification, Classification and Management, Stewart L, MD. Surg C N Am 94 (2014) 297-310

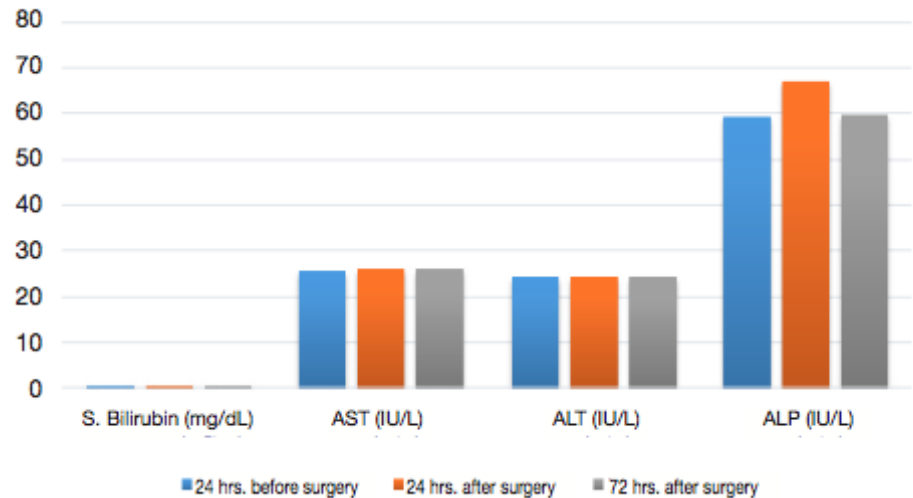
Effect of laparoscopy on liver tests



Laparoscopic Cholecystectomy



Open Cholecystectomy



Evaluation and comparison of postoperative levels of serum bilirubin, serum transaminases and alkaline phosphatase in laparoscopic cholecystectomy versus open cholecystectomy, Rikki Singal et al. J Gastrointestinal Oncol 2015;6(5):479-486

A proposed strategy to assign risk of choledocholithiasis in patients with symptomatic cholelithiasis on clinical predictors



Predictors of choledocholithiasis^{13,14,29,31,32}

Very strong

- CBD stone on transabdominal US
- Clinical ascending cholangitis
- Bilirubin > 4 mg/dL **> 68umol/l**

Strong

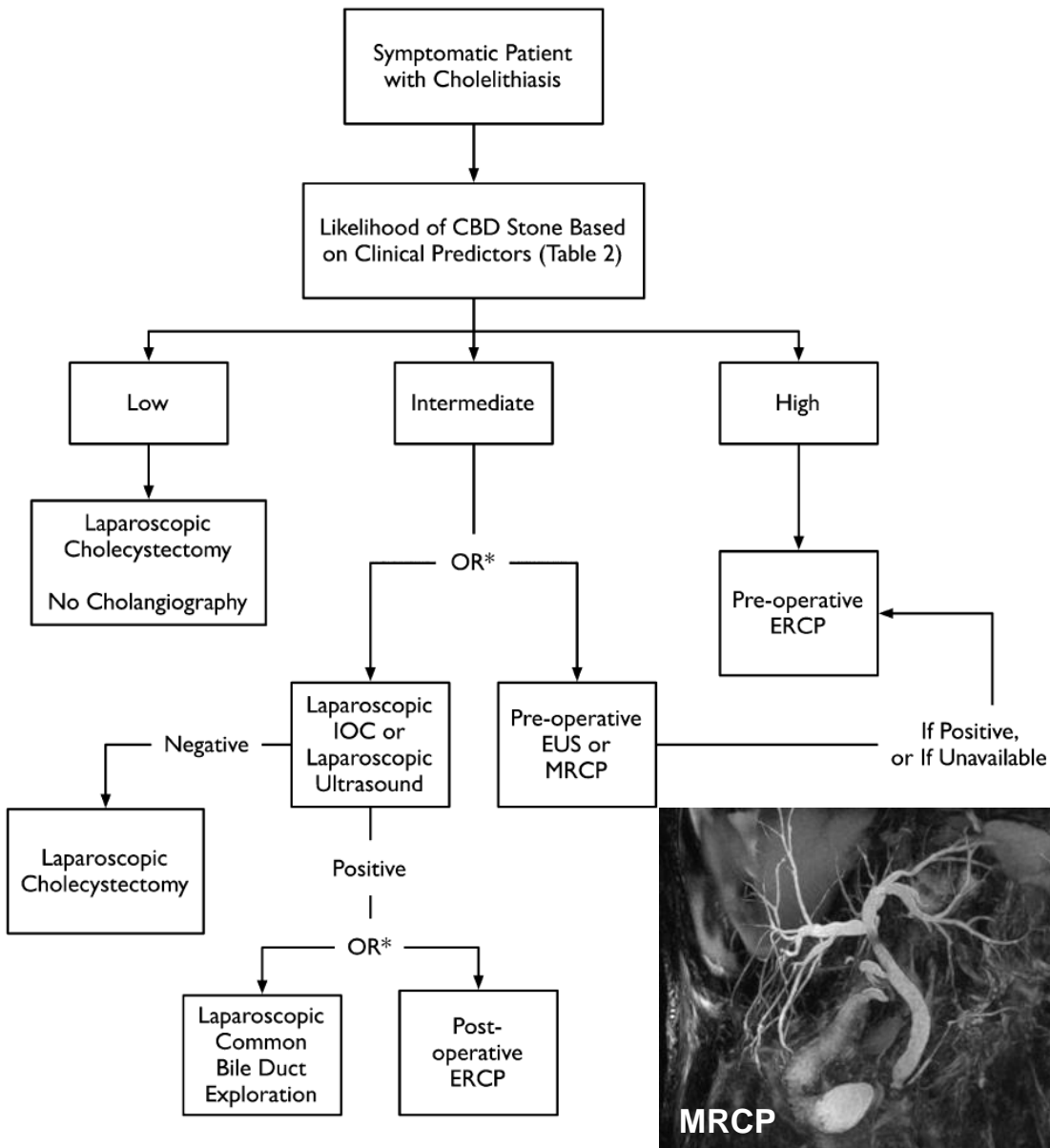
- Dilated CBD on US (> 6 mm with gallbladder in situ)
- Bilirubin level 1.8-4 mg/dL **=31-68umol/l**

Moderate

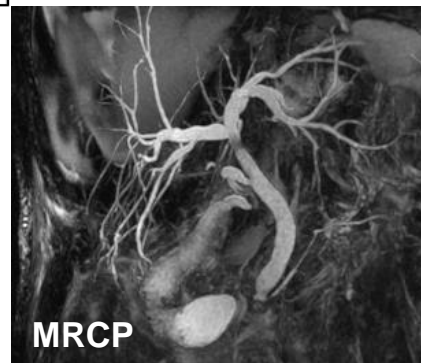
- Abnormal liver biochemical test other than bilirubin
- Age older than 55 y
- Clinical gallstone pancreatitis

Assigning a likelihood of choledocholithiasis based on clinical predictors^{12-14,28,29,31,32}

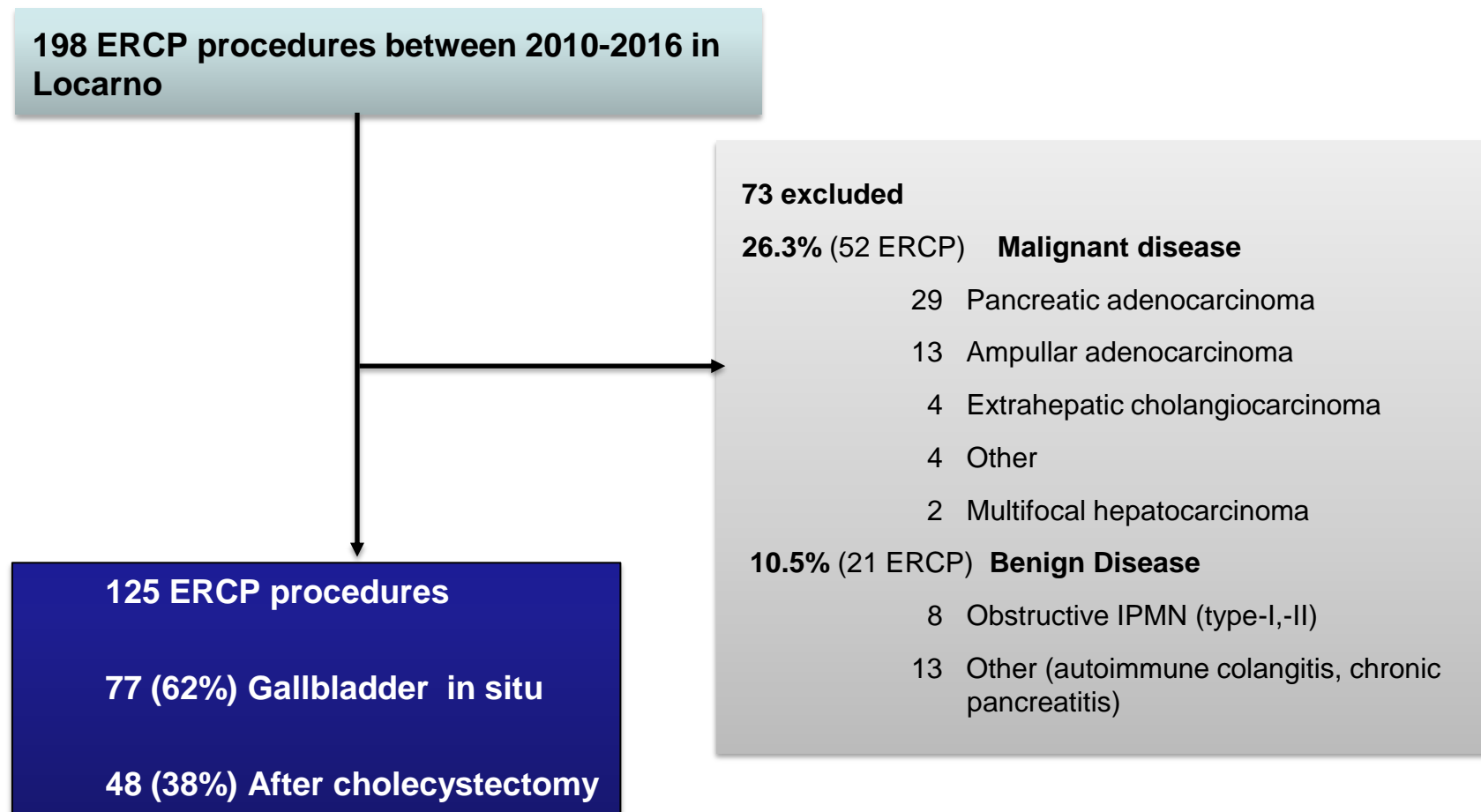
Presence of any very strong predictor	High	> 50%
Presence of both strong predictors	High	
No predictors present	Low	< 10%
All other patients	Intermediate	

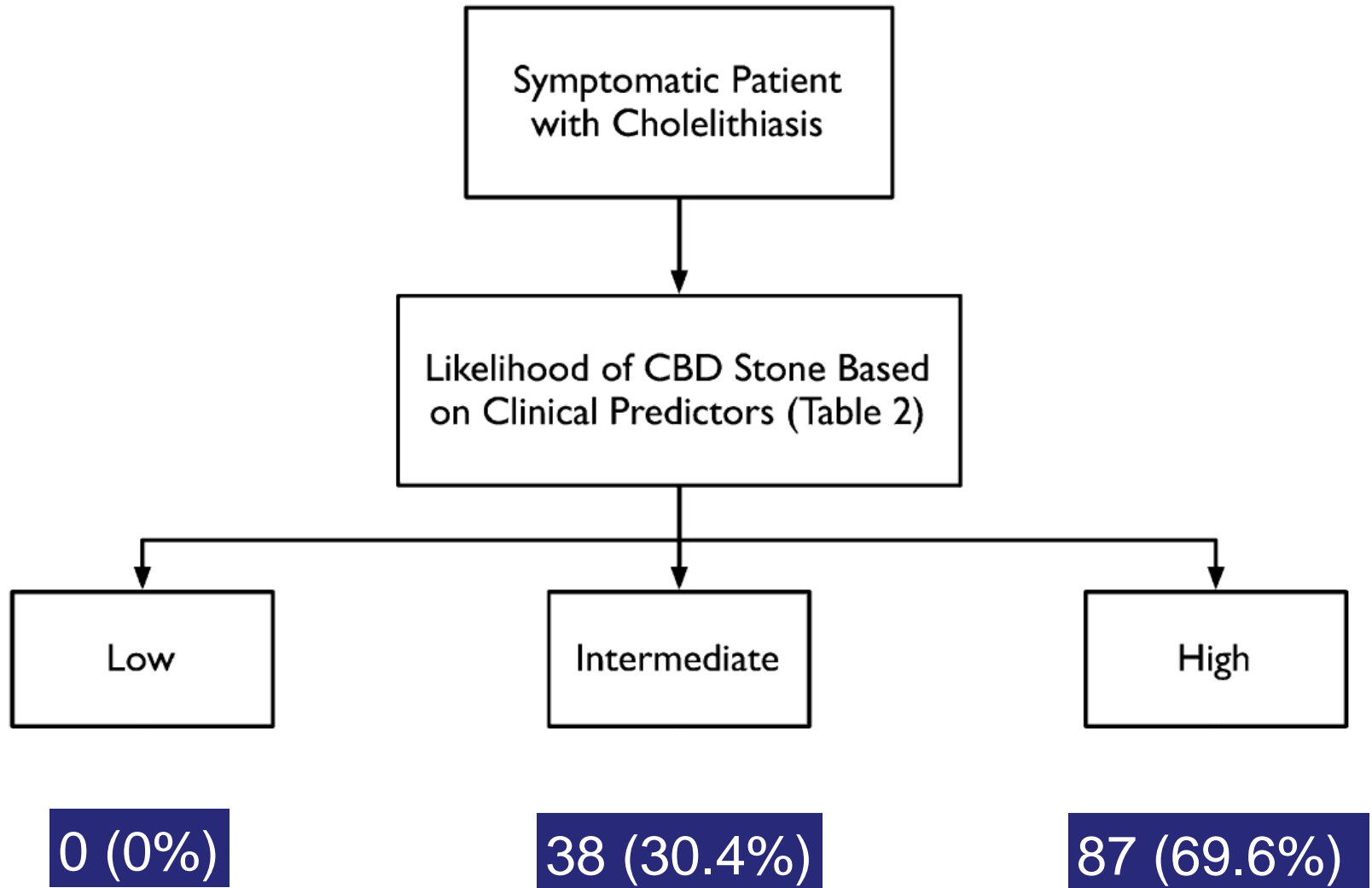


Therapeutic Splitting

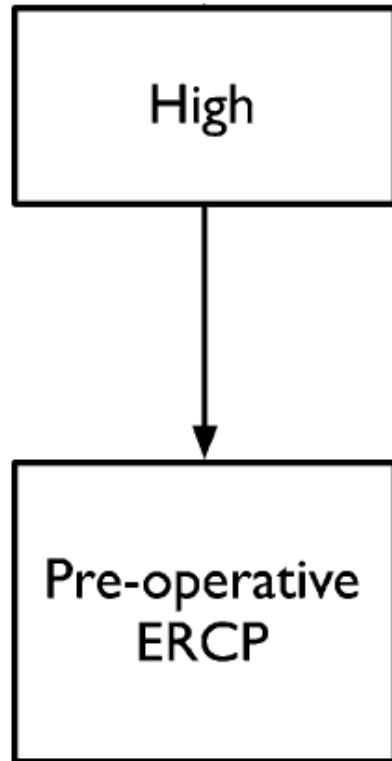


Retrospective analysis of ERCP 2010-2016





Therapeutic splitting



Diagnostic procedures before ERCP

High	Ultrasound
87	80 (92%)
Pos.	28
Neg.	52
Sensitivity	20.4%
Specificity	94.4%



77 (88.5%) ERCP: clearance of the CBD from gallestones was documented

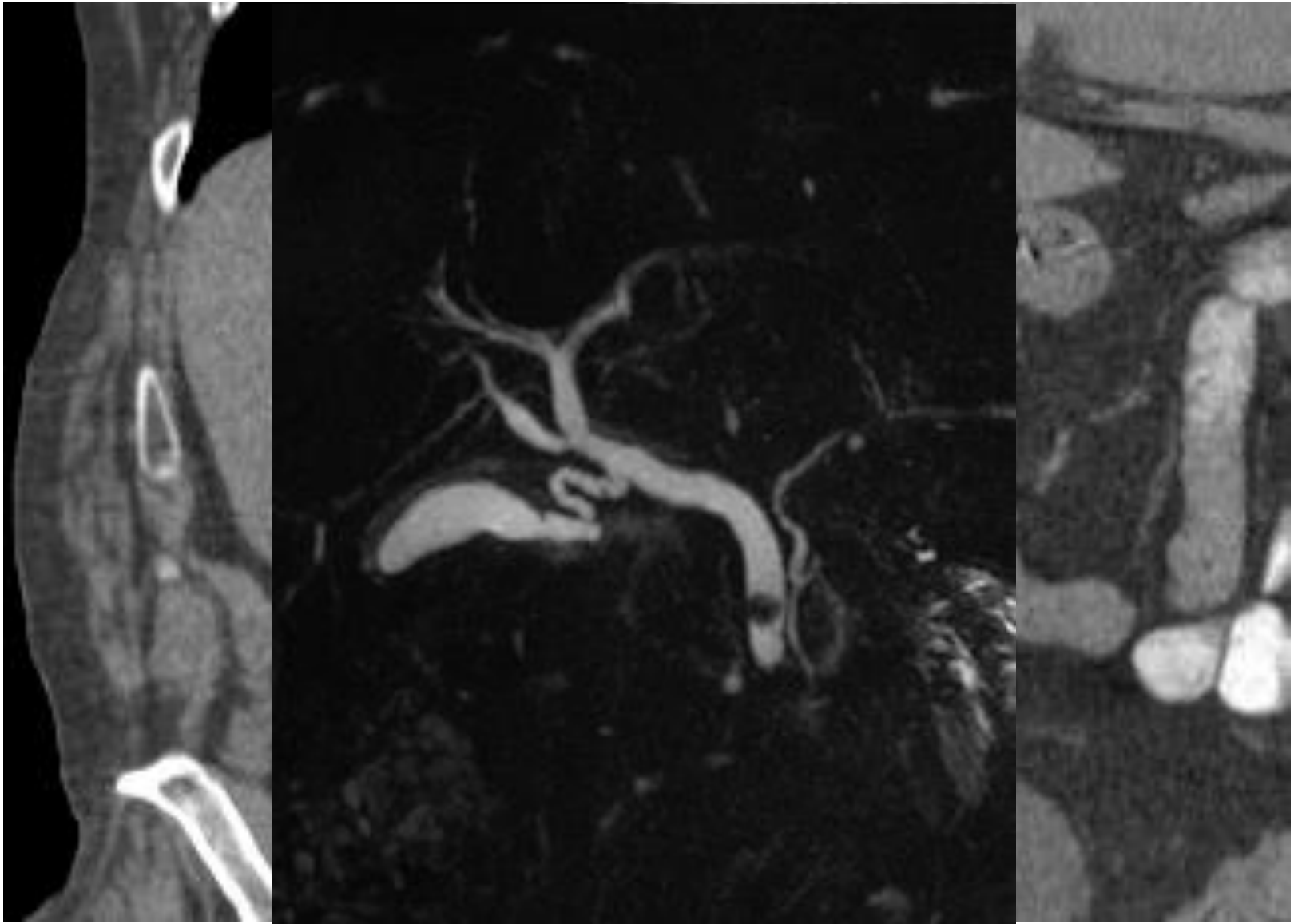
10 (11.5%) ERCP: no visible passage of gallestones during the procedure

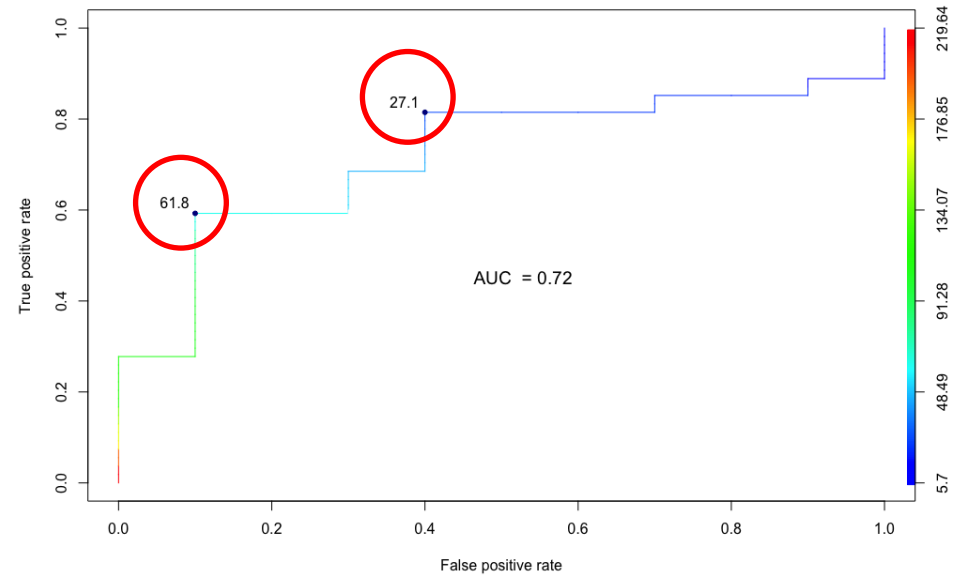
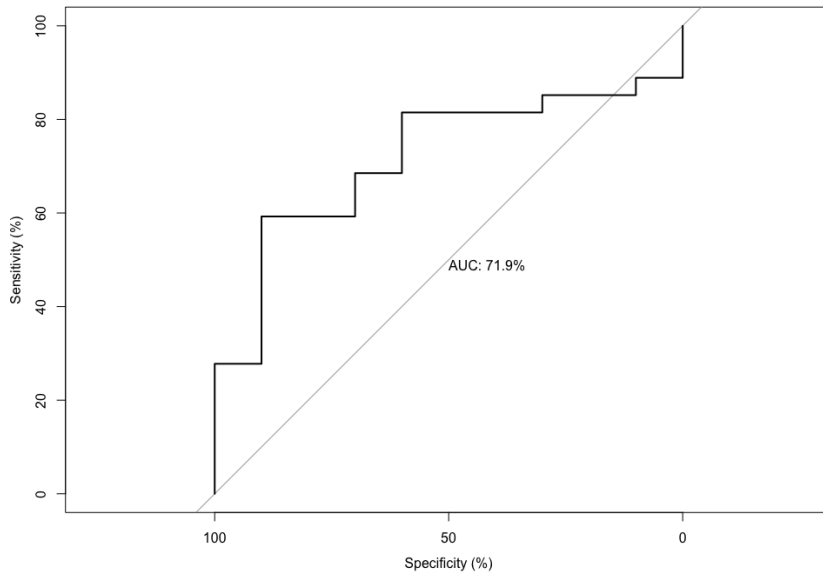
7 colangitis, 1 spontaneous gallstone passage, 2 sclerosis of the Papilla of Vater



LOGIQ
E9

1 +





Best Cut-off for Bilirubin (gallbladder in situ)

Clinical risk score cut-off (ASGE)

61.8umol/l

Sensitivity = 59%, Specificity = 90%

68umol/l

27.1umol/l

Sensitivity = 60%, Specificity = 81.5%

31umol/l

ASGE-Risk-Score	High	Intermediate	p-value
Bilirubin (umol/l)	85.00897	23.91818	3.934e-14
CBD-Diameter (mm)	12.06667	9.45	0.007674
y-Glutamyl-trasferase	372.73	258.81	0.10
Alkaline Phosphatase	230.31	137.61	0.00029
AST	204.64	83.32	0.00241
ALT	256.45	120.017	0.00123

Conclusions

- The ASGE-Score is based on clinical predictors and ultrasound and is a simple and less expensive score to evaluate the risk of choledocholithiasis. Our data validate the ASGE-Risk-Score in our population.
- In cases classified at high risk for choledocolithiasis, ERCP followed by laparoscopic cholecystectomy (therapeutic splitting) or “rendez-vous” intervention should be performed directly without any other diagnostic imaging.
- The ASGE-Score should be part of our clinical decision making tools in cases of suspected choledocholithiasis.
- Outcomes, quality and costs should be monitored in the run-in phase.

