ERCP complications and challenges in their diagnosis and management.

Sandie R Thomson
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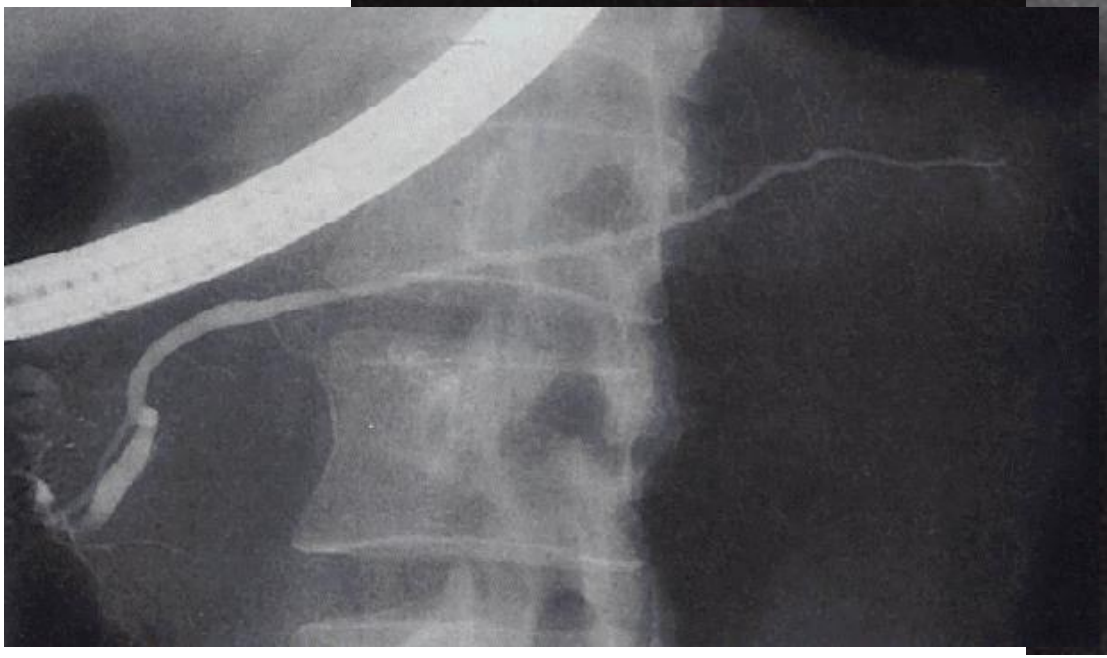
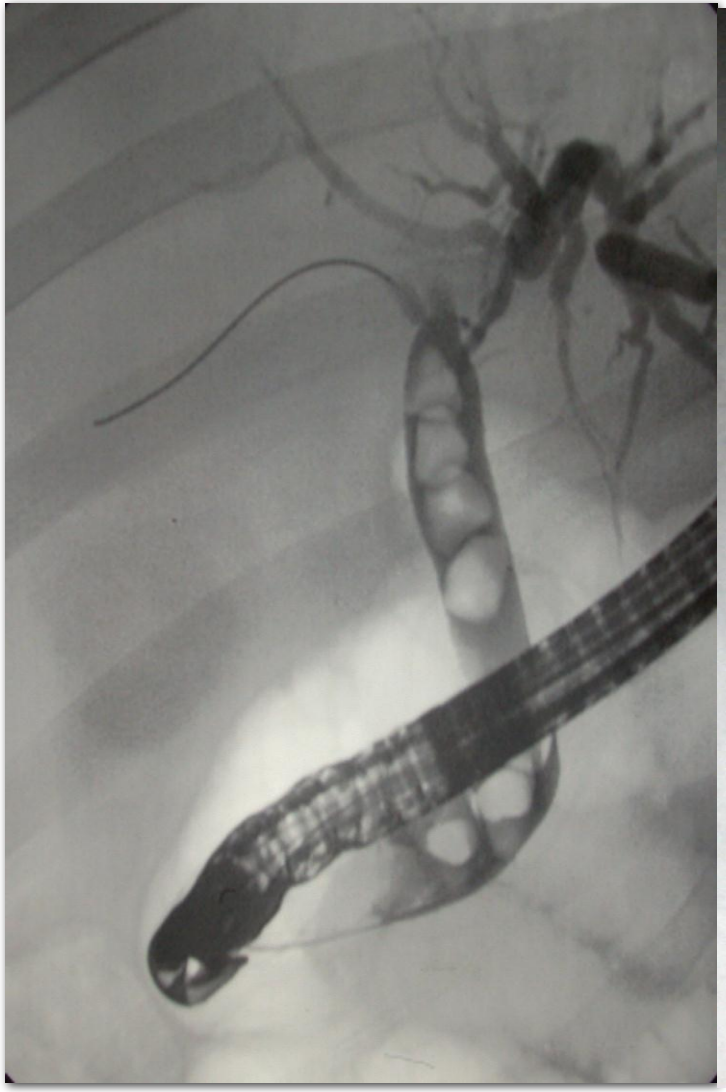
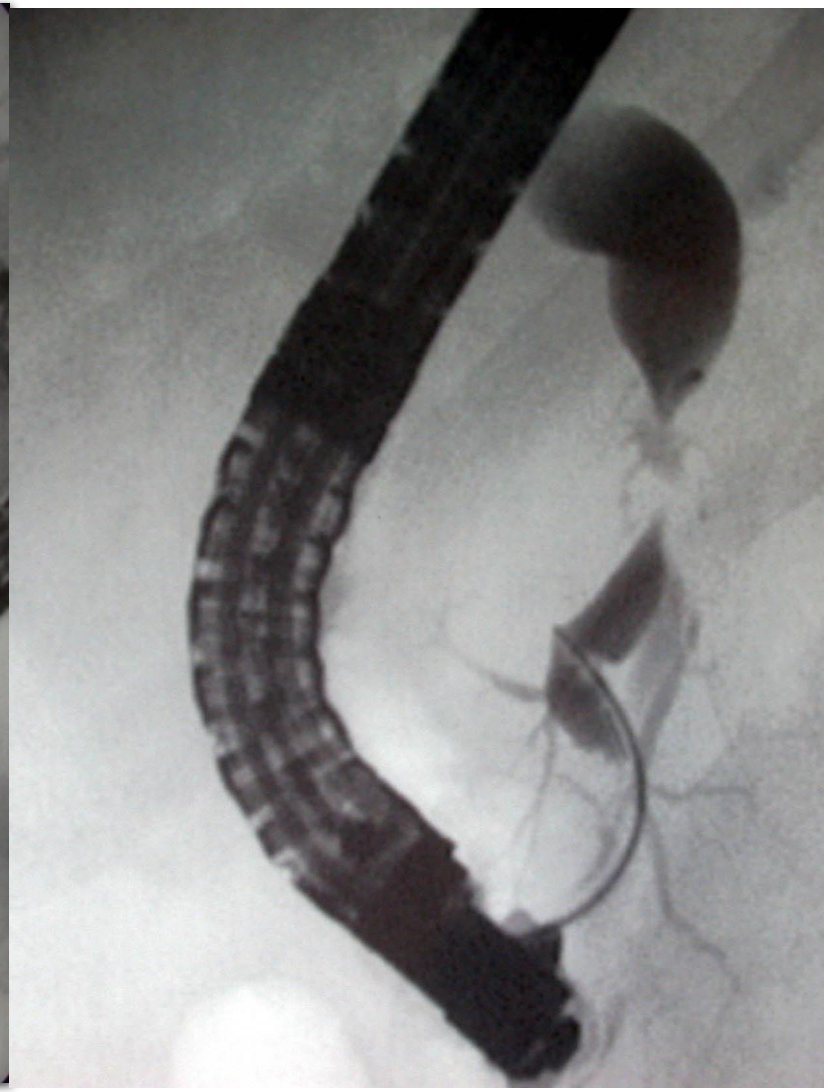
University of Cape Town

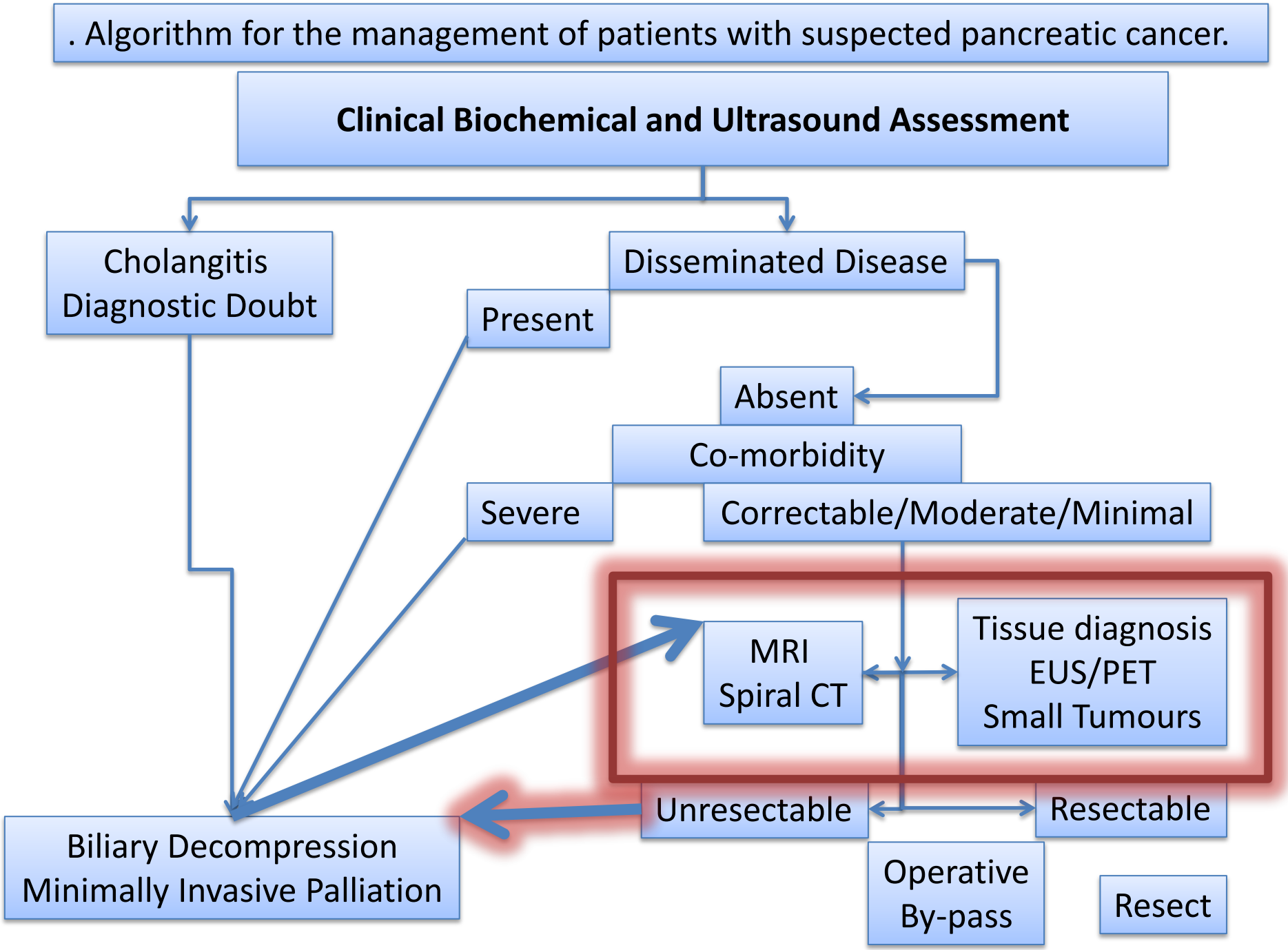
ERCP

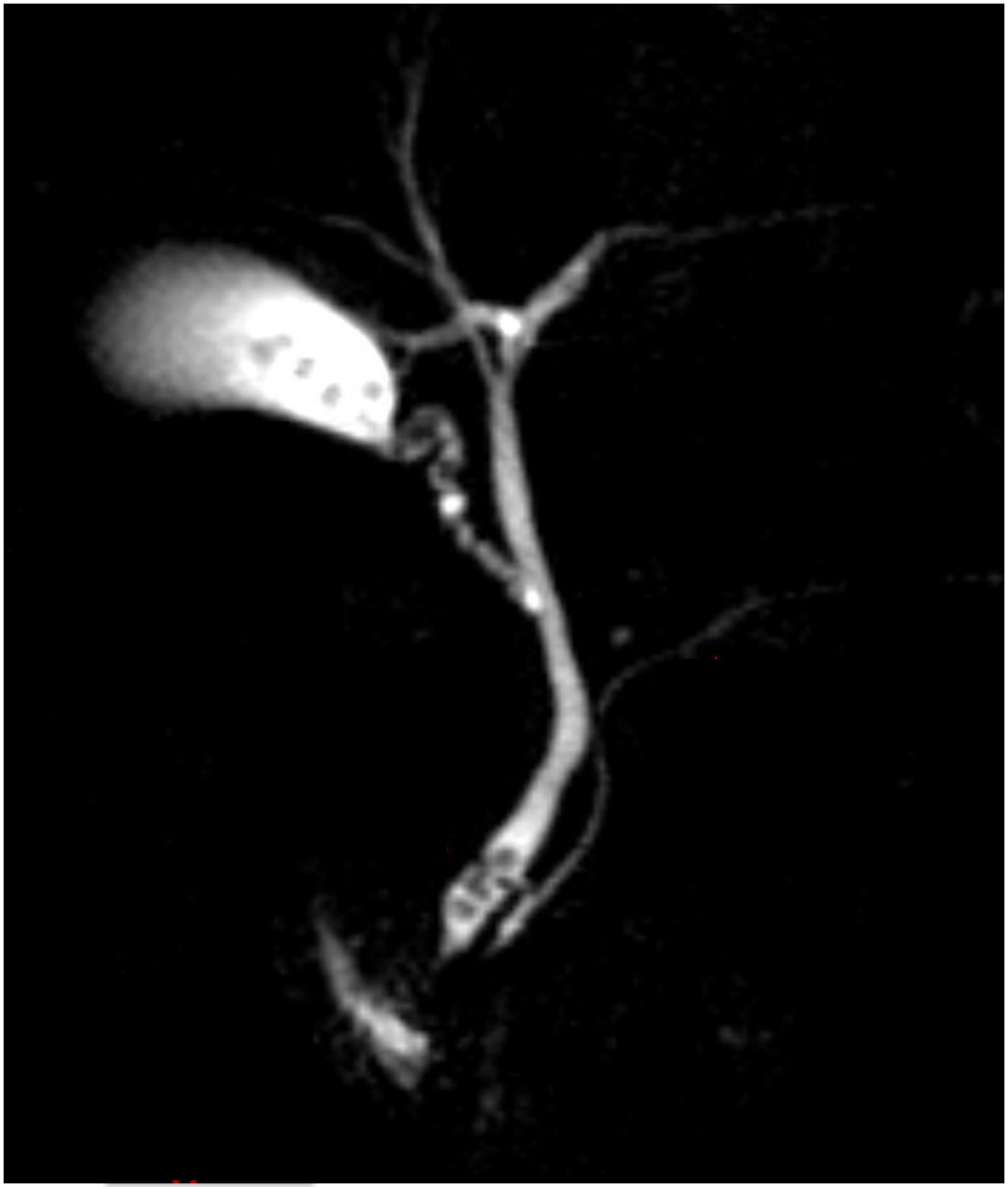


Do I have a good Indication ?

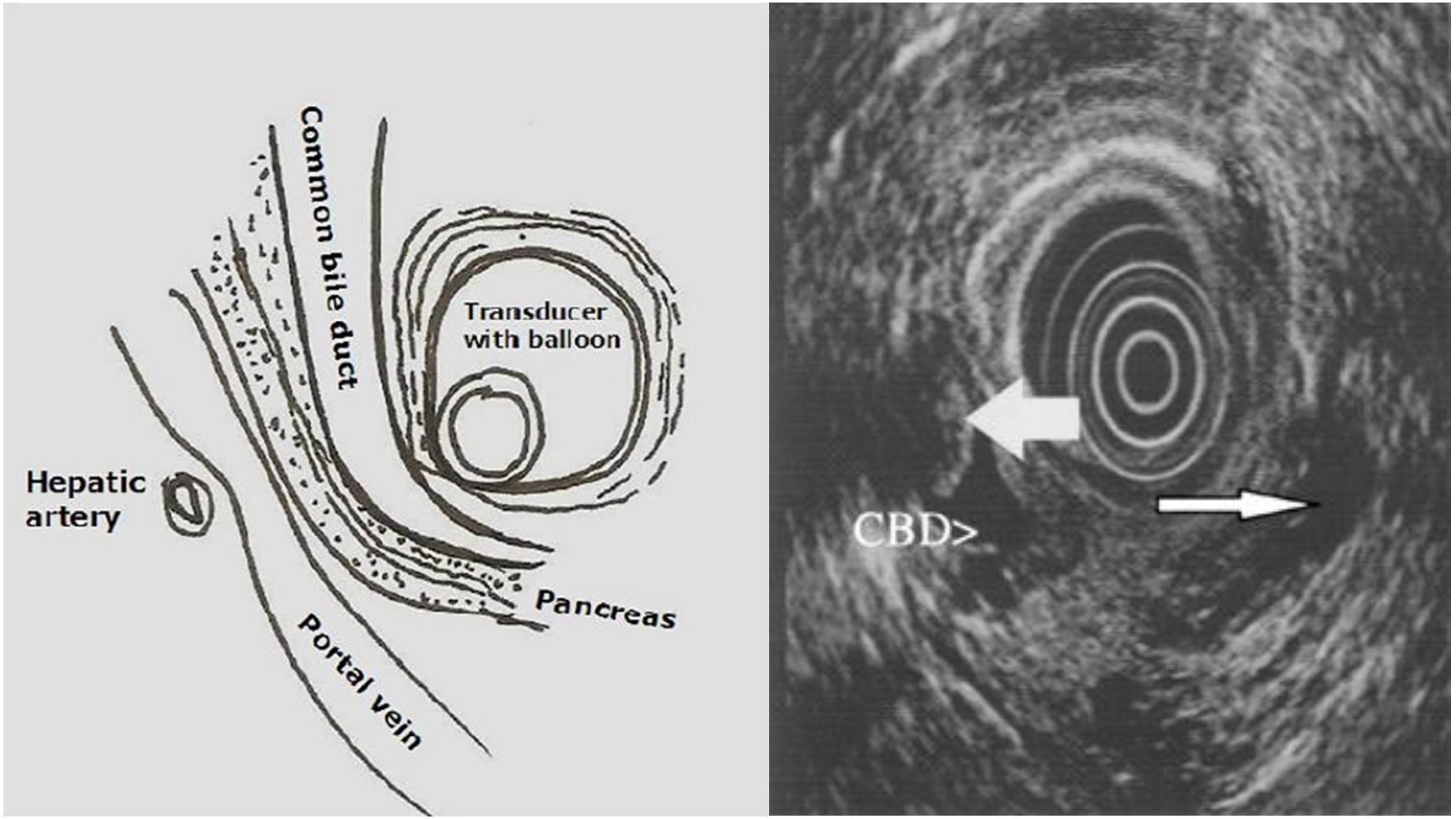





. Algorithm for the management of patients with suspected pancreatic cancer.
Clinical Biochemical and Ultrasound Assessment
Cholangitis
Diagnostic Doubt
Disseminated Disease
Present
Absent
Co-morbidity
Severe
Correctable/Moderate/Minimal
MRI
Spiral CT
Tissue diagnosis
EUS/PET
Small Tumours
Unresectable
Resectable
Biliary Decompression
Minimally Invasive Palliation
Operative
By-pass
Resect



MRCP



EUS vs MRCP for detection of choledocholithiasis
Dharmendra Verma, Gastrointestinal endoscopy 2006

Complications

- Pancreatitis
- Perforation
- Bleeding
- Failure to decompress
- Misplacement and migration

Post ERCP Pancreatitis

Diagnosis

490 ERCP

- Hyperamylasemia in 38%
- pancreatitis in 47(3.6%)

Definition

- New onset of pancreatic-type abdominal pain
- X3 increase in serum amylase or lipase
- occurring within 24 hours

Ito et al

ERCP pancreatitis

Severity

- Mild
  - 1-3 days additional hospitalization.
- Moderate
  - if 4-10 days additional hospitalization
- Severe
  - more than 10 days in hospital or complications

ERCP pancreatitis

Frequency

- Unselected series all commers
  - Varies from 1.8% to 7.2%
- High risk patients
  - 30-40%

ERCP pancreatitis

Risk Factors

Technical

- Balloon dilation of biliary sphincter
- Pancreatic duct injection
- Precut sphincterotomy
- Pancreatic sphincterotomy

Patient Factors

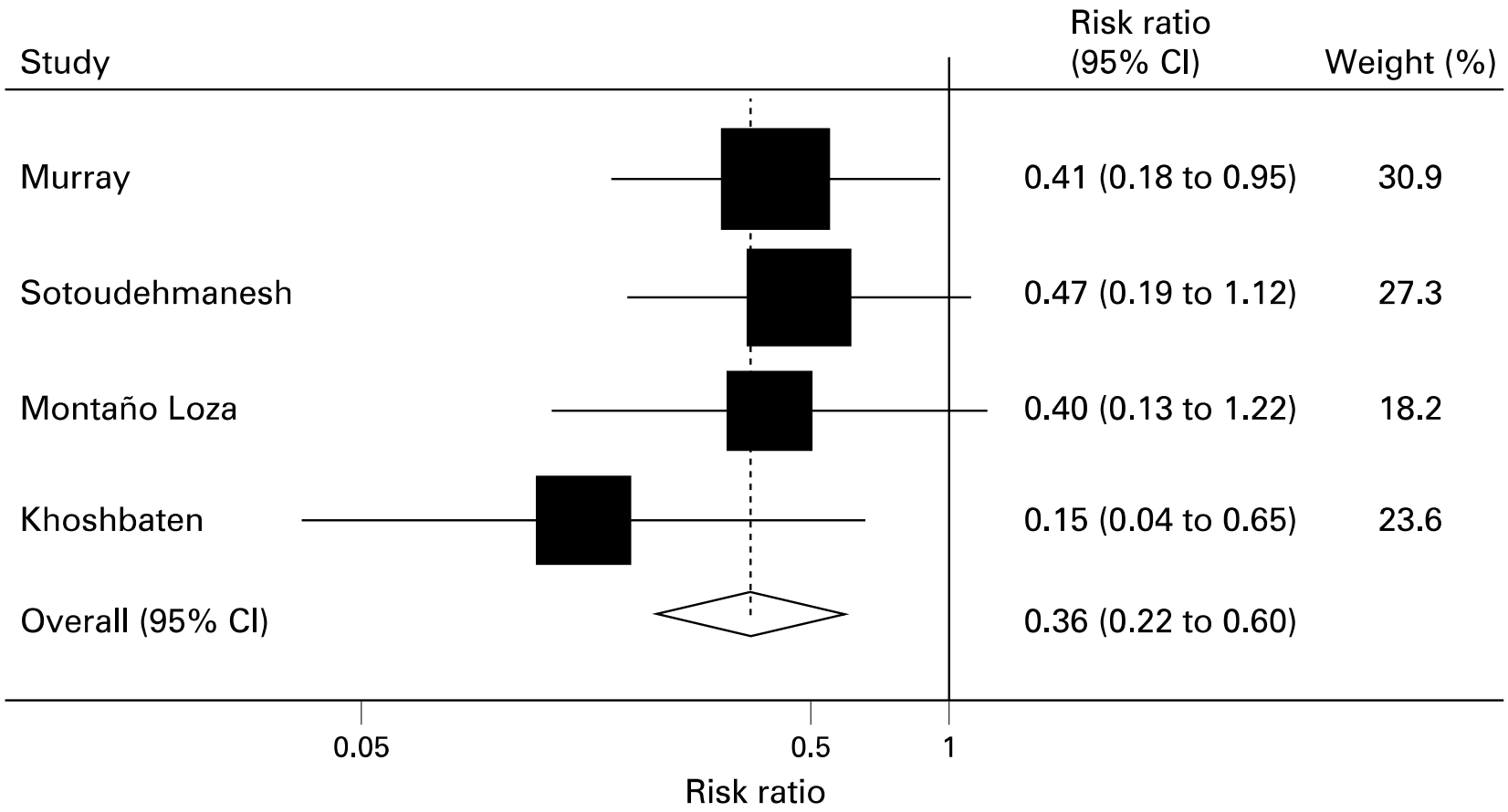
Unfavourable

- History of post-ERCP pancreatitis
- Young age
- Normal bilirubin
- Suspected sphincter of Oddi dysfunction

Favourable

- Smoking
- Cirrhosis

NSAIDS Meta analysis



Indomethacin versus Placebo

- 602 patients
- The majority of patients (82% SOD).
- Post-ERCP pancreatitis
  - 27 of 295 patients (9.2%) indomethacin group
  - 52 of 307 patients (16.9%) in the placebo group.
- Moderate-to-severe pancreatitis
  - 13 patients (4.4%) in the indomethacin group
  - 27 patients (8.8%) in the placebo group

A Randomized Trial of Rectal Indomethacin to Prevent Post- ERCP Pancreatitis
NEJM 2012 Elmunzer

A Randomized Trial of Rectal Indomethacin to Prevent Post- ERCP Pancreatitis

- Prophylactic indomethacin
  - decreased the severity frequency of pancreatitis
  - associated with a shorter hospital stay.

"Number of high-risk ERCP patients who would need to be treated to prevent one episode of pancreatitis was 13."

N Engl J Med. 2012 Elmunzer J

Pancreatic Stents

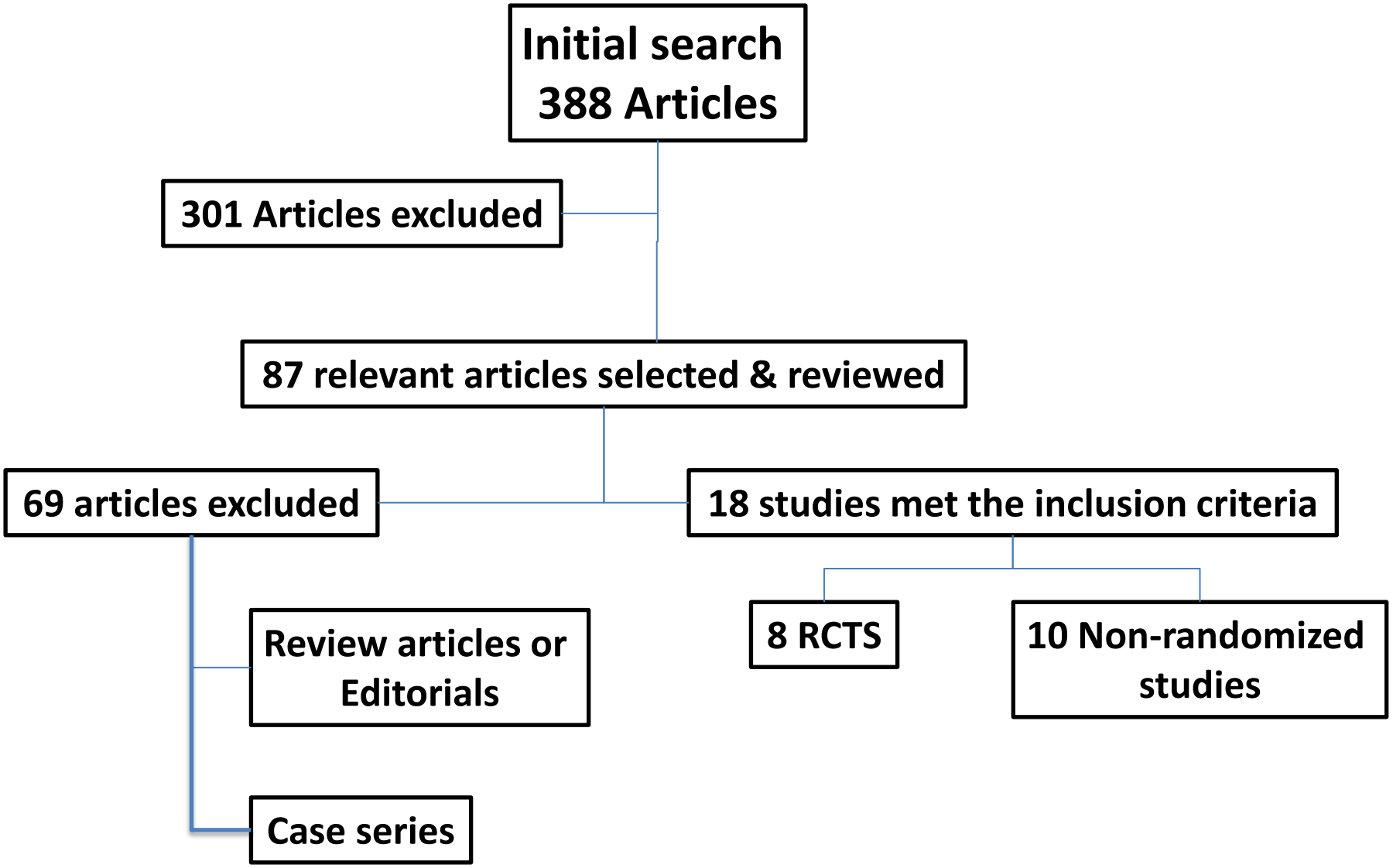


TABLE 1. Summary of randomized, controlled trials included in the meta-analysis

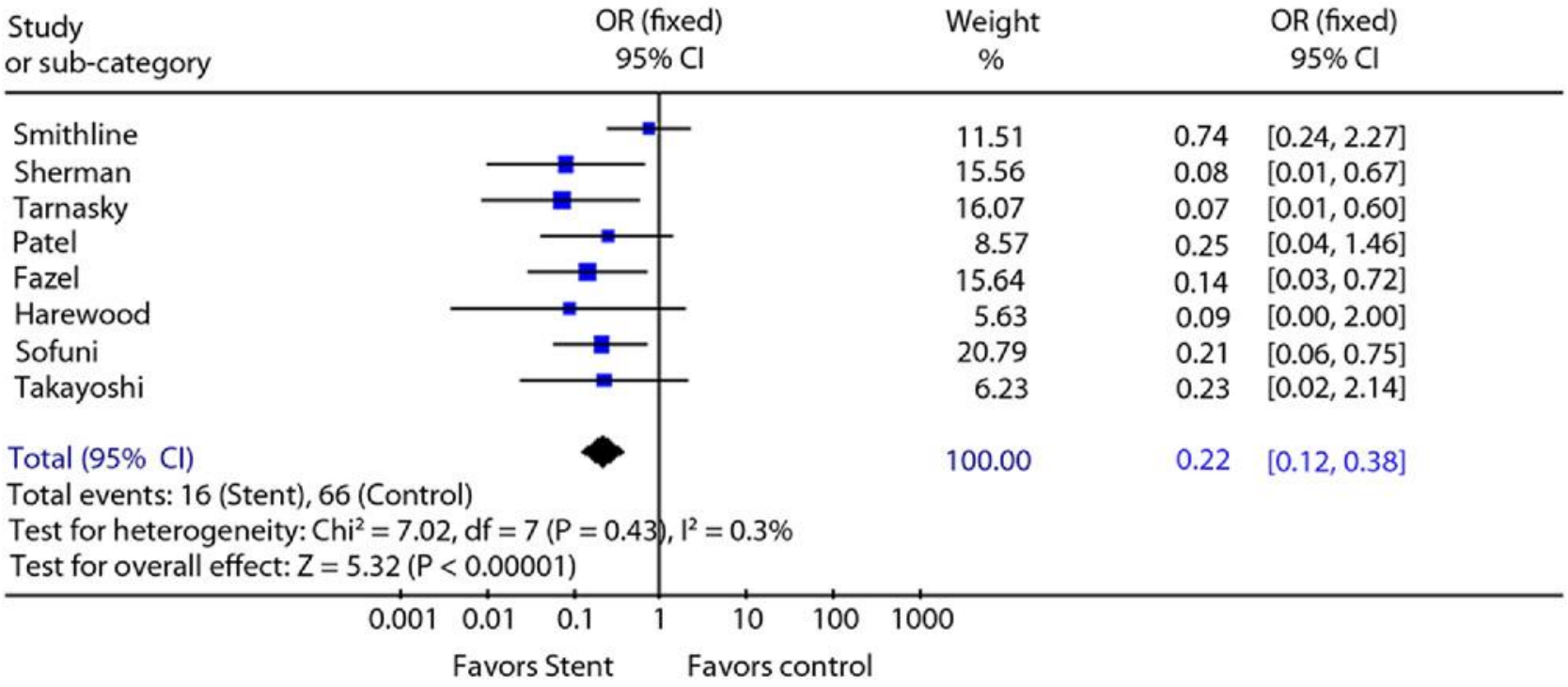
Study	Jadad score	Age, y (mean)		Indication/procedures	% Females	Type of stent	No. of patients	Pancreatitis, %	
		C	S					No stents	Stents
Smithline et al,[12] 1993	3	47	46	Precut biliary ES, SOD, small duct size	79.6	Flanged, polyethylene 5F/7F and 2-2.5 cm long	98	18	14
Sherman et al,[6] 1996	—	NR	NR	Precut biliary ES	NR	5F-7F and 2-2.5 cm long	104	21	2
Tarnasky et al,[7] 1998	2	45.7	46.4	Biliary ES for SOD	73.8	5F or 7F, 2/2.5 cm long	82	26	7
Patel,[13] 1999	—	44	47	Pancreatic ES for SOD	61.1	5F stent	36	33	11
Fazel et al,[9] 2003	3	45	43.6	Difficult cannulation, biliary ES, SOD	84.2	Flanged, 5F, 2 cm long	67	28	5
Harewood et al,[19] 2005	3	44*	53.5*	Endoscopic ampullectomy	63.2	Flanged, polyethylene, 5F, 3-5 cm long	19	33	0
Tsuchiya et al,[11] 2007	3	69	65	All consecutive ERCP irrespective of risk factors	36	Unflanged, polyethylene 5F, 3 or 4 cm	64	12.5	3.1
Sofuni et al,[15] 2007	3	66	67	All consecutive ERCP irrespective of risk factors	36	Flanged, polyethylene stent 5F, 3 cm long	211	13.6	3.2

ES, Endoscopic sphincterotomy; *SOD,* sphincter of Oddi dysfunction; *NR,* not reported.
*Age reported as median.

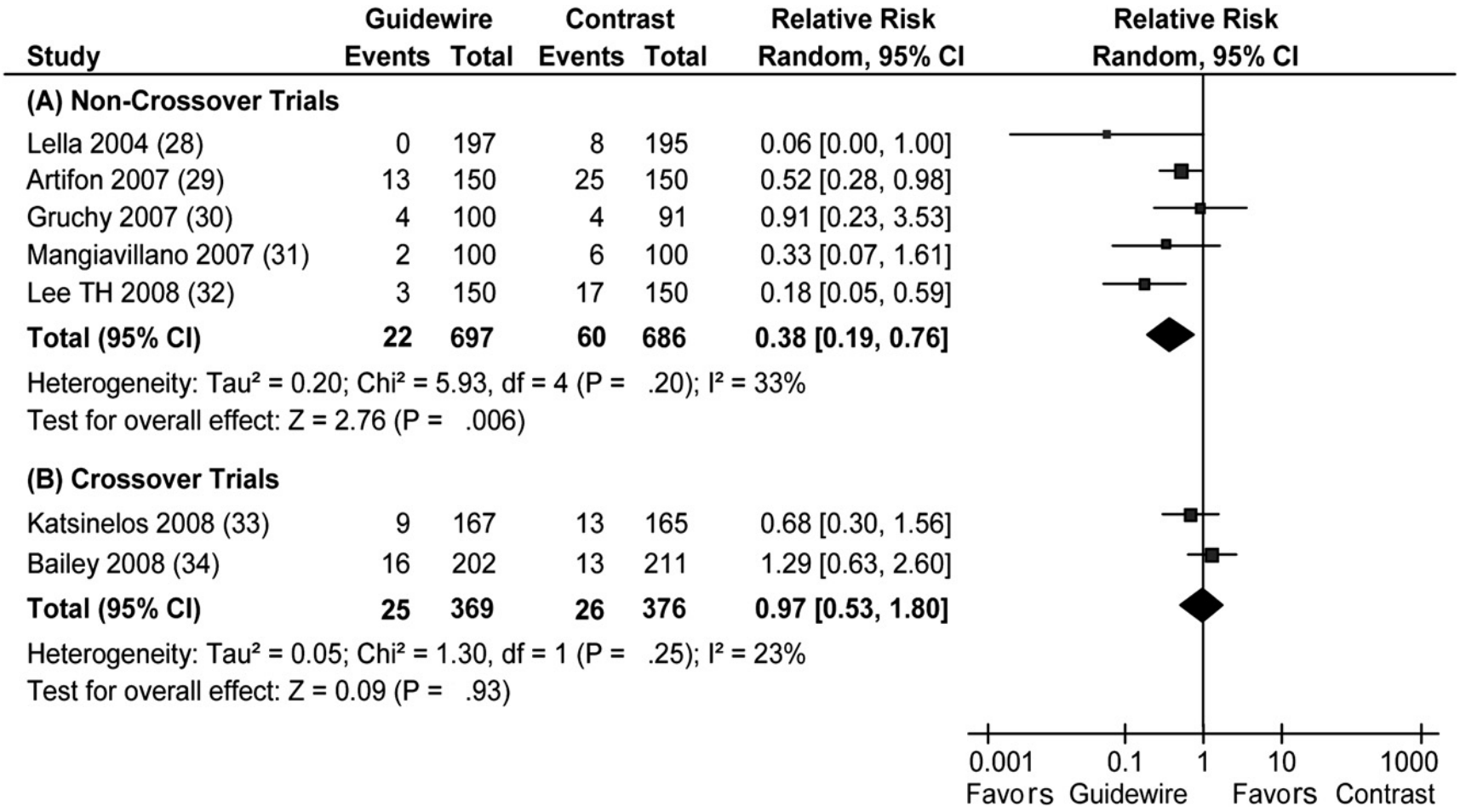
TABLE 2. Summary of nonrandomized studies

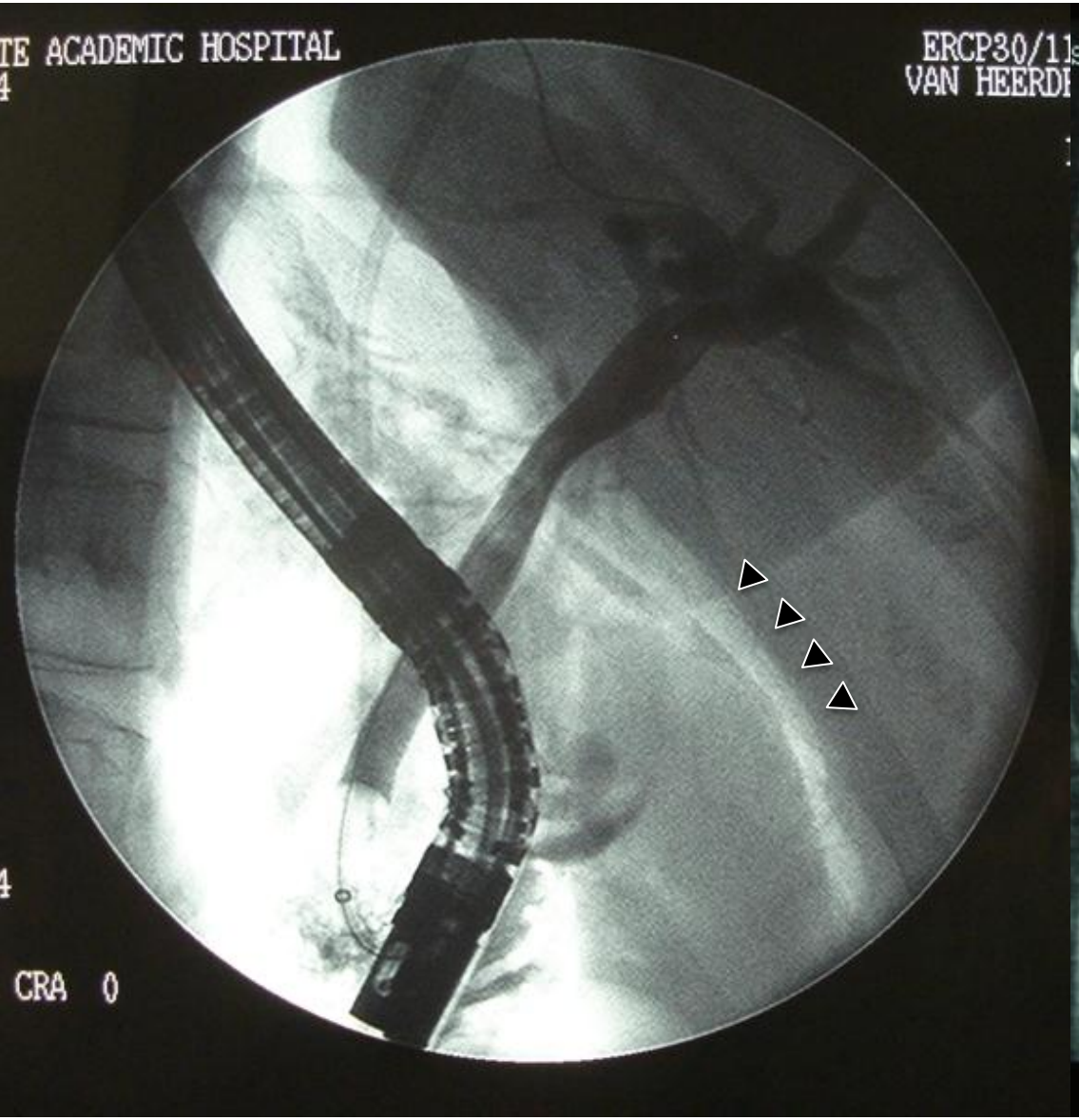
Study	Country	Age, y	% Female	Procedures	No.	Pancreatitis		*P* value
						No stents	Stents	
Elton et al,[26] 1998	U.S.	60.2 (mean)	57.5	Pancreatic ES	194	12.5	0.7	<.003
Vandervoort et al,[27] 1999	U.S.	63 (28-93)	46.6	Pancreatic and biliary brush cytology	42	28.1	0	.08
Aizawa and Ueno,[8] 2001	Japan	68.4	43.1	Biliary balloon dilation for stones	40	6	0	.11
Fogel et al,[28] 2002	U.S.	NR	NR	SOD	436	28.6	13.5	<.05
Norton et al,[29] 2002	U.S.	60	46	Endoscopic ampullectomy	28	11.1	20	.05
Freeman et al,[30] 2004	U.S.	73% <55 y	77.4	Consecutive high-risk patients	225	66.7	14.4	.06
Catalano et al,[31] 2004	U.S.	Range 24-93	51.5	Endoscopic ampullectomy	103	16.7	3.3	.10
Cotton et al,[17] 2005	U.S.	NR	NR	All patients undergoing manometry	2861	8.1	5.3	.002
Hookey et al,[32] 2006	Canada	NR	NR	Pancreatic ES	572	19.3	8.8	.001
Saad et al,[16] 2008	U.S.	40.2	74.9	Suspected SOD and normal manometry	403	9	2.4	.006

ES, Endoscopic sphincterotomy; *SOD,* sphincter of Oddi dysfunction; *NR,* not reported.


Study
or sub-category
OR (fixed)
95% CI
Weight
%
OR (fixed)
95% CI
Smithline 11.51 0.74 [0.24, 2.27]
Sherman 15.56 0.08 [0.01, 0.67]
Tarnasky 16.07 0.07 [0.01, 0.60]
Patel 8.57 0.25 [0.04, 1.46]
Fazel 15.64 0.14 [0.03, 0.72]
Harewood 5.63 0.09 [0.00, 2.00]
Sofuni 20.79 0.21 [0.06, 0.75]
Takayoshi 6.23 0.23 [0.02, 2.14]
Total (95% CI) 100.00 0.22 [0.12, 0.38]
Total events: 16 (Stent), 66 (Control)
Test for heterogeneity: Chi² = 7.02, df = 7 (P = 0.43), I² = 0.3%
Test for overall effect: Z = 5.32 (P < 0.00001)
0.001 0.01 0.1 1 10 100 1000
Favors Stent
Favors control

Guidewire versus conventional contrast cannulation of the common bile duct for the prevention of post-ERCP pancreatitis: a systematic review and meta-analysis Gastrointestinal Endoscopy 2009. Justin Cheung,

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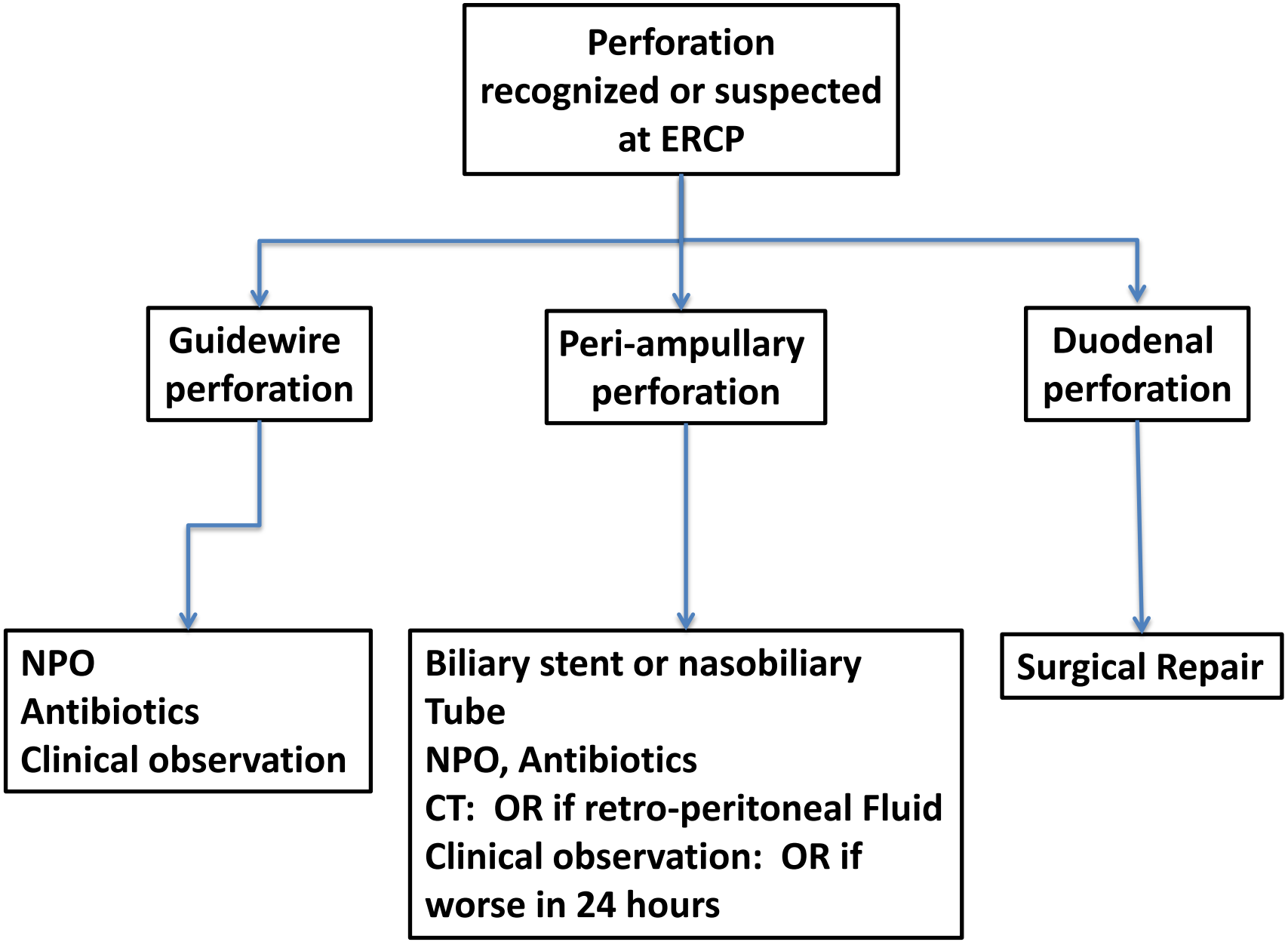
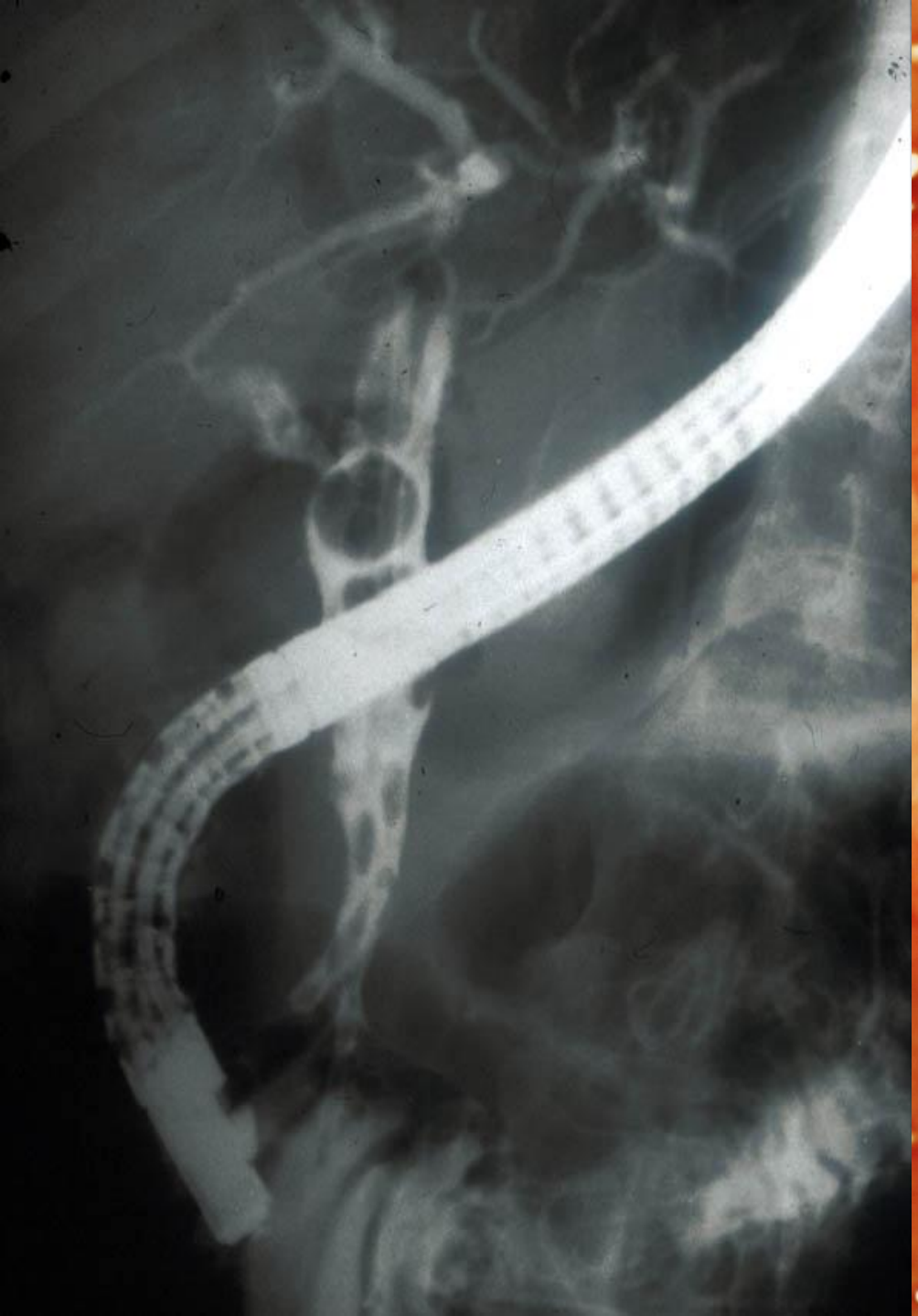
Philips Bri
16 Jun 2011
CALC IN CYSTIC DUCT


Perforation recognized or suspected at ERCP
Guidewire perforation
Peri-ampullary perforation
Duodenal perforation
NPO
Antibiotics
Clinical observation
Biliary stent or nasobiliary Tube
NPO, Antibiotics
CT: OR if retro-peritoneal Fluid
Clinical observation: OR if worse in 24 hours
Surgical Repair

Bleeding

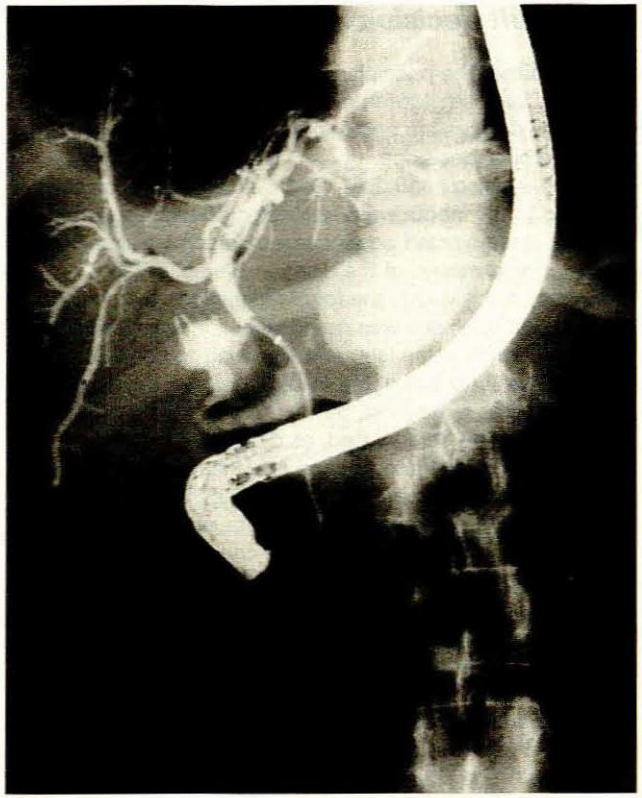
- Hemorrhage Rate
  - from a large meta-analysis was reported as 1.3%
  - with 70% of the bleeding episodes classified as mild.
- Increase risk
  - antiplatlet agents and anticoagulents old and new
- Aspirin should be continued.
- Warfarin
  - Prolonged INR should have blood product correction for acute procedures.




invasive approach can indeed be very morbid.

A 32-year-old woman with symptoms of biliary colic and ultrasonically confirmed cholelithiasis underwent laparoscopic cholecystectomy. No technical problems were encountered, and the procedure was completed in 70 minutes. She made an uneventful recovery and was discharged 24 hours later.

She presented 3 weeks later with clinical jaundice, a low-grade fever and abdominal distension. The white cell count



Rajput and Thomson
SAMJ 1997

Migration

Conclusion

- Therapeutic Tool
- Good reasons to do it
- Explain the risks to the patient
- NSAID Prophylaxsis ? All
- Stents ?
- Look out for the others