

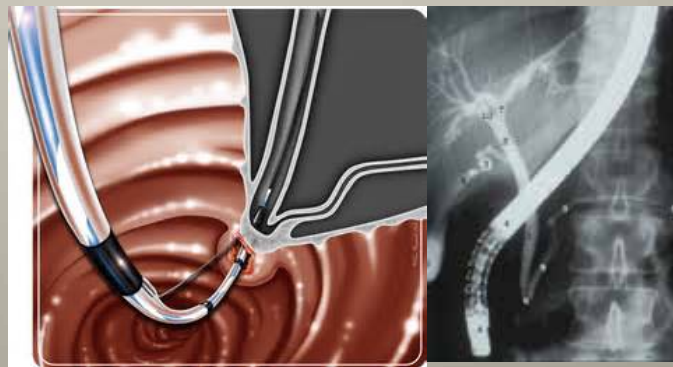
Dijous 15 OCTUBRE 2015

§ TAULA RODONA: *face to face*

ü COLEDOCOLITIASIS: ERCP VS coledoscòpia

Joan B. Gornals Soler

Endoscòpia Digestiva  
Aparell Digestiu



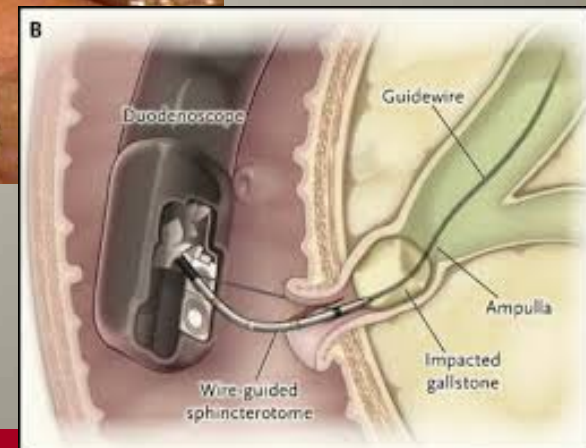
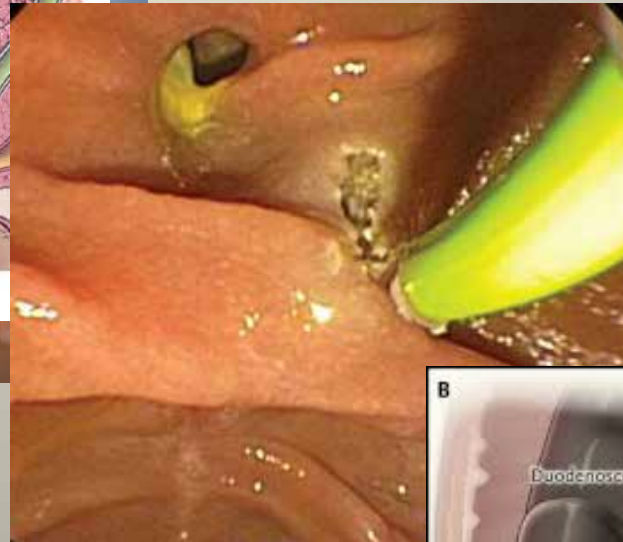
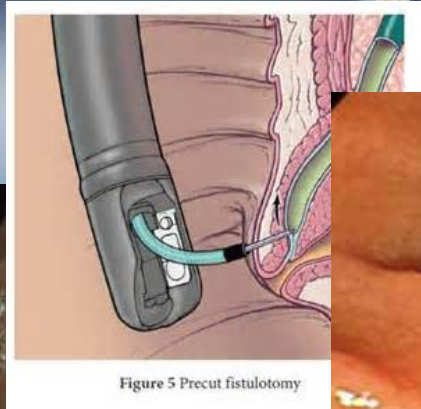
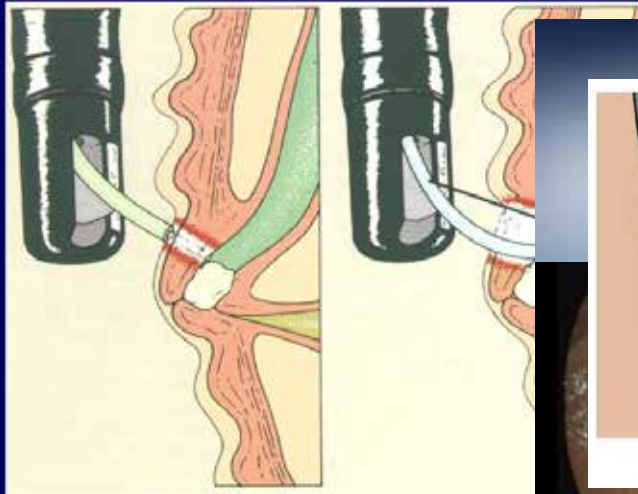
# CPRE estándar



# CPRE pretall



## Precut papillotomy



# CPRE -canulació pancreàtica

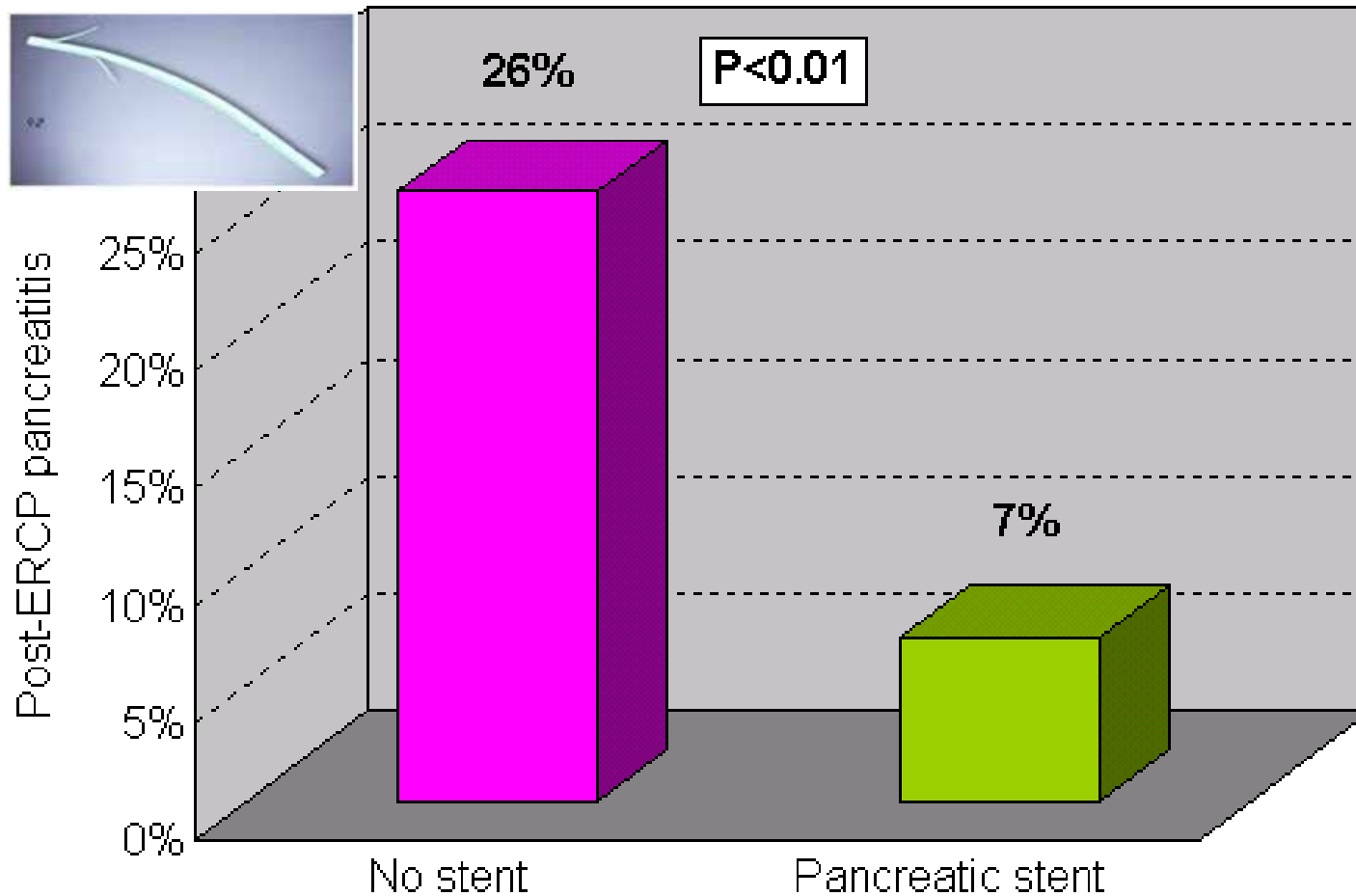


Figure 7. Transpapillary pancreatic cannulation

# CPRE- litiasis difícils



9.12.165.

## n bile duct s

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stones; Electrohy  
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# Litiasis difícils – POTENCIAL CPRE

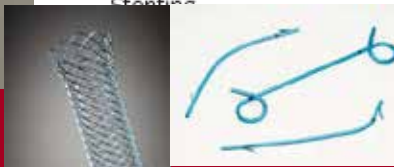
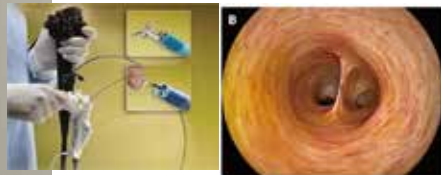
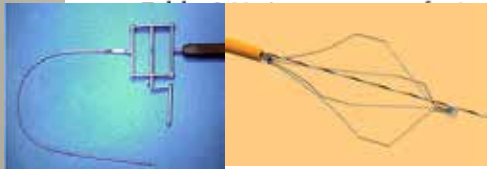


Digestive Endoscopy 2013; 25: 376–385

Difficult bile duct stones 381

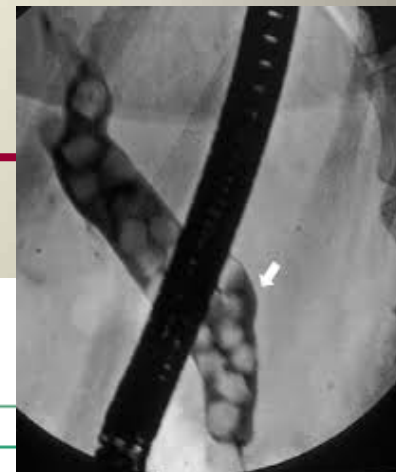
Comparing 'difficult bile duct stones' and their pros and cons

Indications	Pros	Cons
Large stones	Readily available, cost-effective, simple procedure	Limitation in stone size (<30 mm)
Large stones, impacted stones	No limitation in stone size High success rate for fragmentation	Expensive equipment (laser >> EHL) Fragile equipment (conventional) POCS > SpyGlass Technically difficult (direct cholangioscopy > conventional) POCS > SpyGlass
Intrahepatic stones, altered anatomy	Accessible above biliary stricture Possible in cases with inaccessible papilla	Invasive and time-consuming Intrahepatic bile ducts must be dilated
Large stones, impacted stones	No limitation in stone size	Relatively limited efficacy
Large stones, multiple stones	Very simple and easy procedure	Unclear long-term adverse events
Altered anatomy	Non-invasive procedure	Technically difficult and time-consuming
Altered anatomy	Possible in cases with inaccessible papilla	Intrahepatic bile ducts must be dilated New technique (lack of evidence proving its efficacy and safety)
Very poor general condition	Easy and safe	Repeated procedures are required

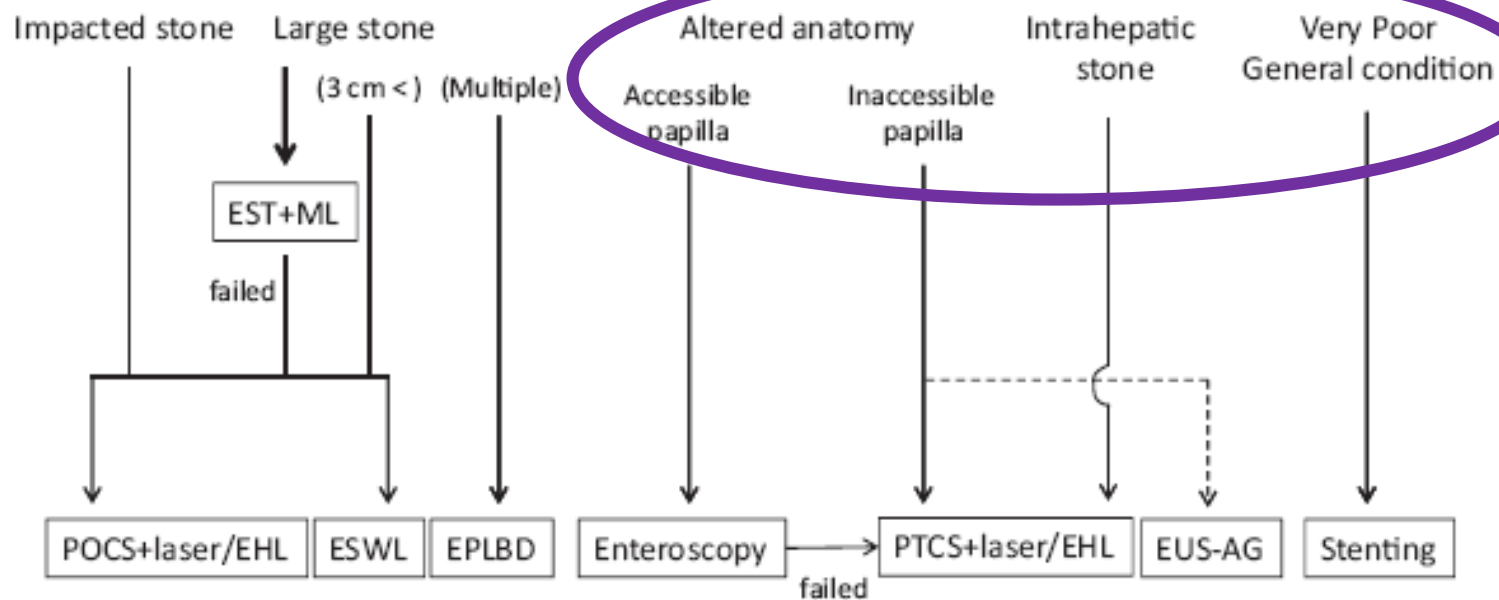


ESWL, extracorporeal shock wave lithotripsy; POCS, peroral transhepatic cholangioscopy; SpyGlass, SpyGlass® Direct Visualization System (Boston Scientific Corp.,

# Situacions difícils -POTENCIAL



*Digestive Endoscopy* 2013; 25: 376

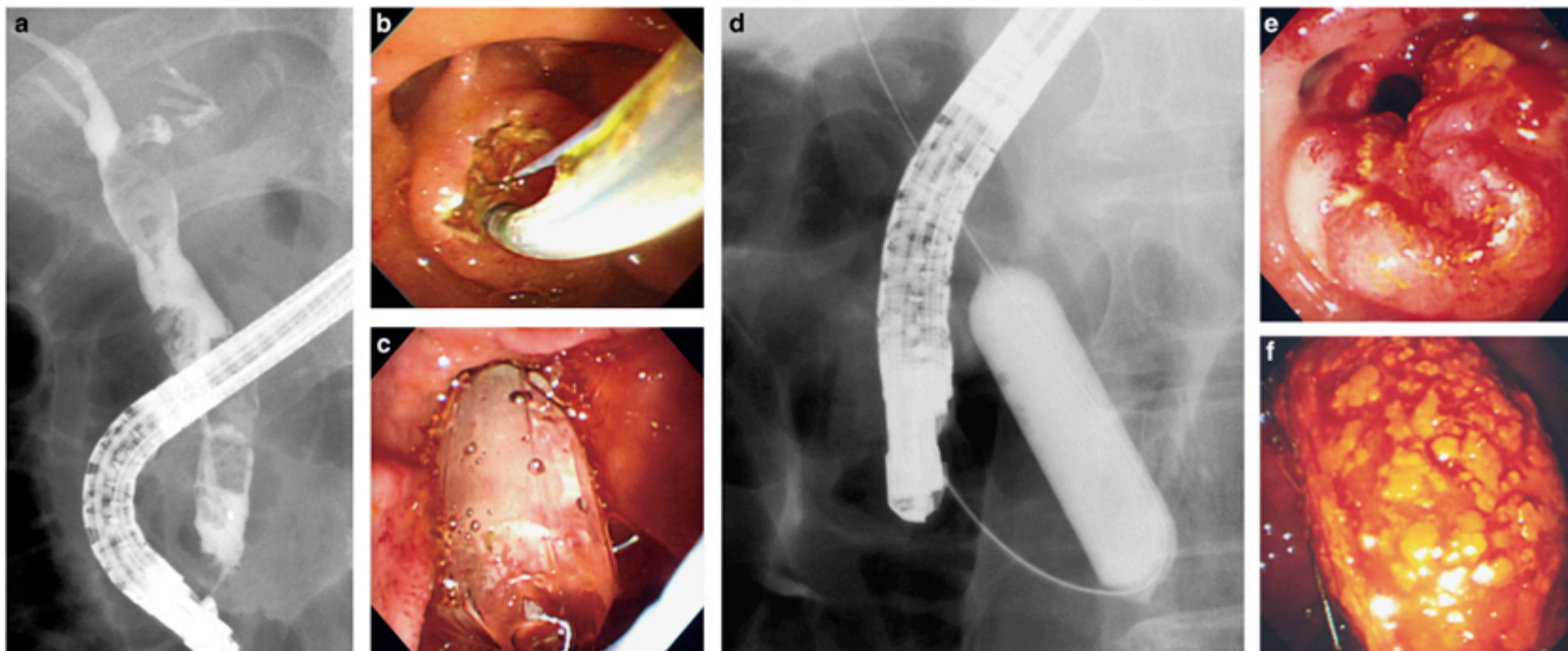


# litiasis difícils – DILATACIO BALO



378 I. Yasuda and T. Itoi

*Digestive Endoscopy* 2013; 25: 376–385



Stelbrink et al. (2011)

Rebello et al. (2012)<sup>47</sup>

45 Large stones

30 Large and/or multiple stones

90

94

20

20

4

3

ML, mechanical lithotripter.



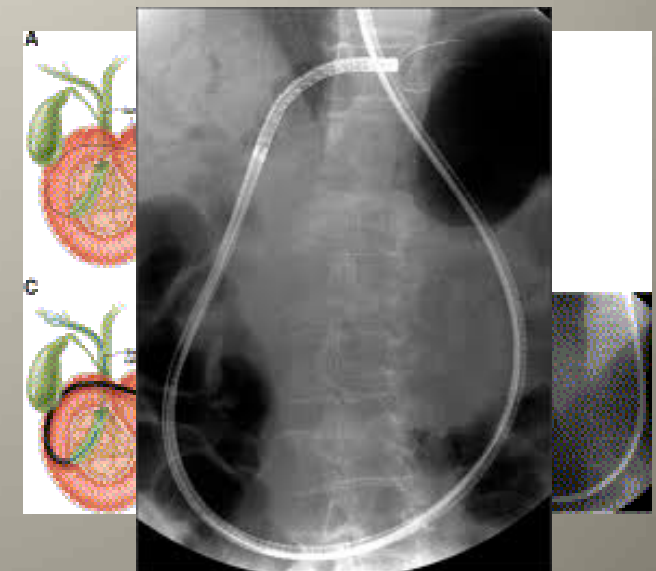
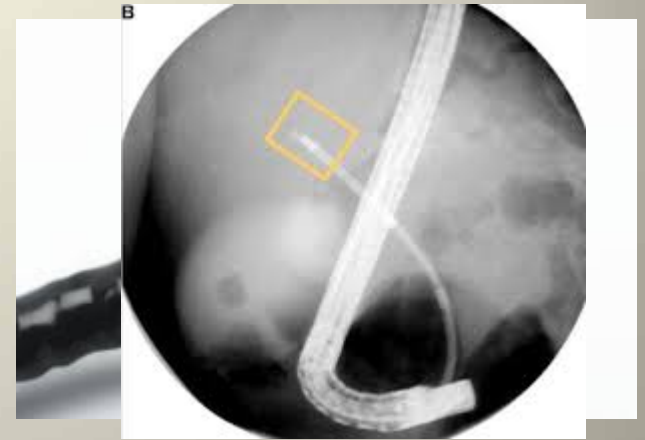
# litiasis difícils - COLANGIOSCOPI



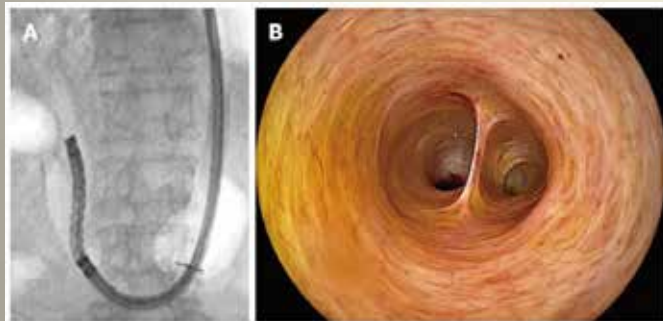
## Comparison of Cholangioscopy Options

	Fiber Optic Baby Scope	Electronic Video Baby Scope	Spyglass Probe System	Ultralim "Per oral" Electronic Gastroscope
Number of operators	2	2	1	1
Tip Deflection	2-way (U-D)	2-way(U-D)	4-way (U-D, L-R)	4 way (U-D, L-R)
Separate Irrigation Channel	No	No	Yes	No
Exchangeable optics	No	No	Yes	No
Image Quality	Moderate	Good-excellent	Moderate	Excellent
Fragility	Yes	Yes	Somewhat	No

Monga et al, J Interv Gastro 1:2, 2011, p. 70-77



# CPRE: colangioscopi oral



**Table 1.** Diagnostic Indications for Direct Peroral Cholangioscopy

---

- Evaluation of indeterminate biliary strictures
- Differentiation of indeterminate filling defects
- Evaluation of equivocal cholangiogram findings
- Diagnosis and determination of the extent of bile duct cancer, intraductal papillary mucinous neoplasia, or biliary papillomatosis
- Hemobilia of unknown etiology
- Detection of remnant stones after lithotripsy

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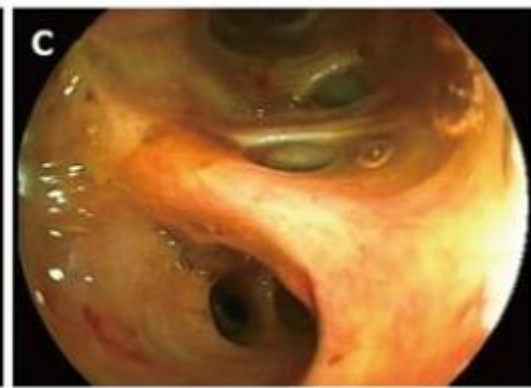
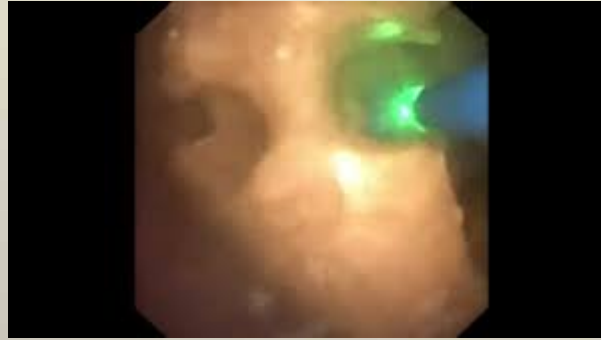
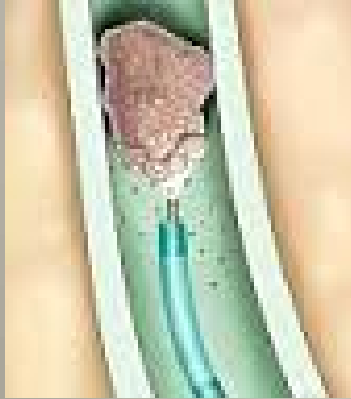
**Table 2.** Possible Therapeutic Interventions with Direct Peroral Cholangioscopy

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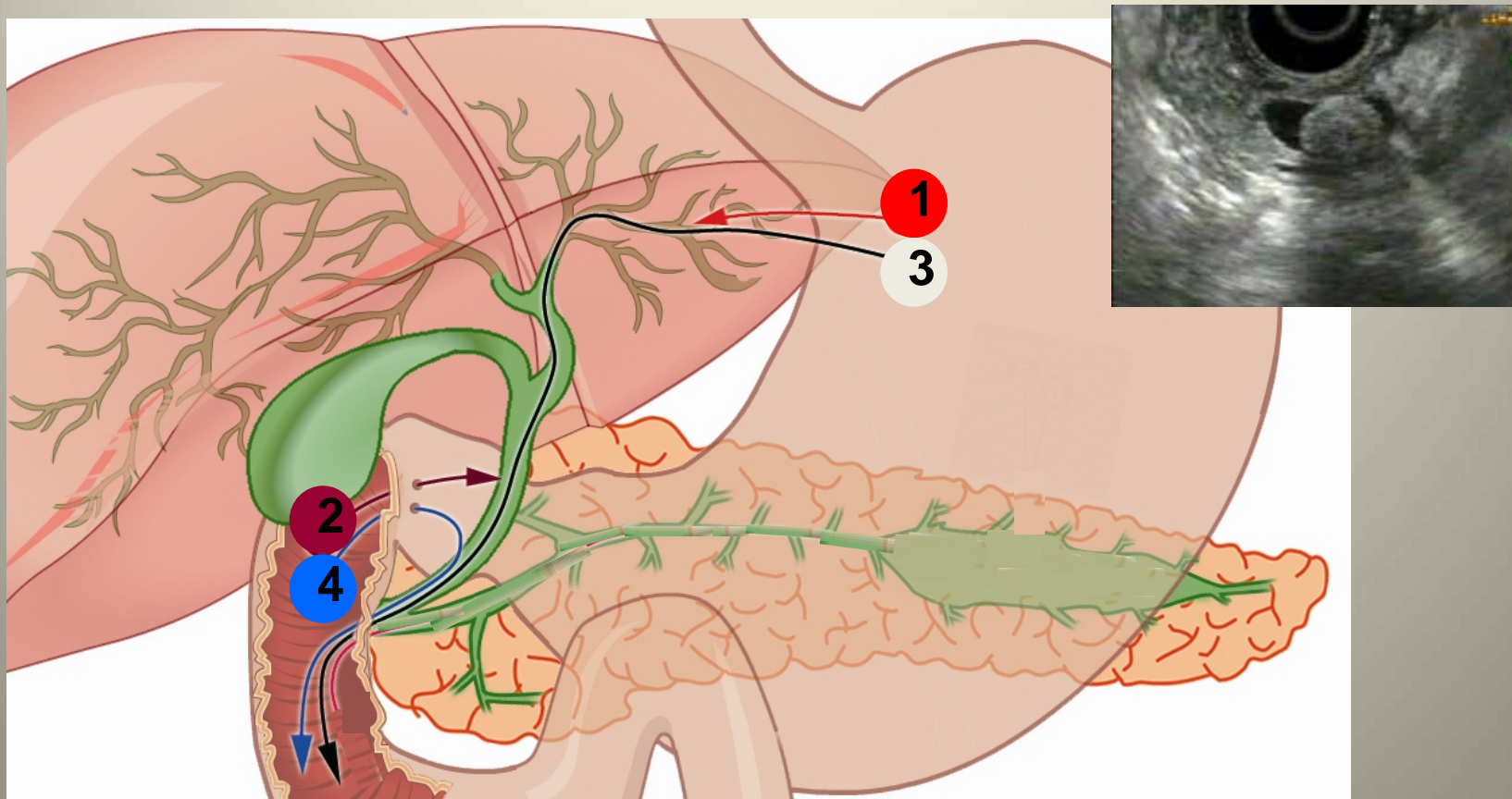
- Endoscopic lithotripsy
- Endoscopic extraction
- Endoscopic biliary drainage
- Endoscopic resection
- Endoscopic tumor ablation therapy

---

# CPRE: colangioscopi oral

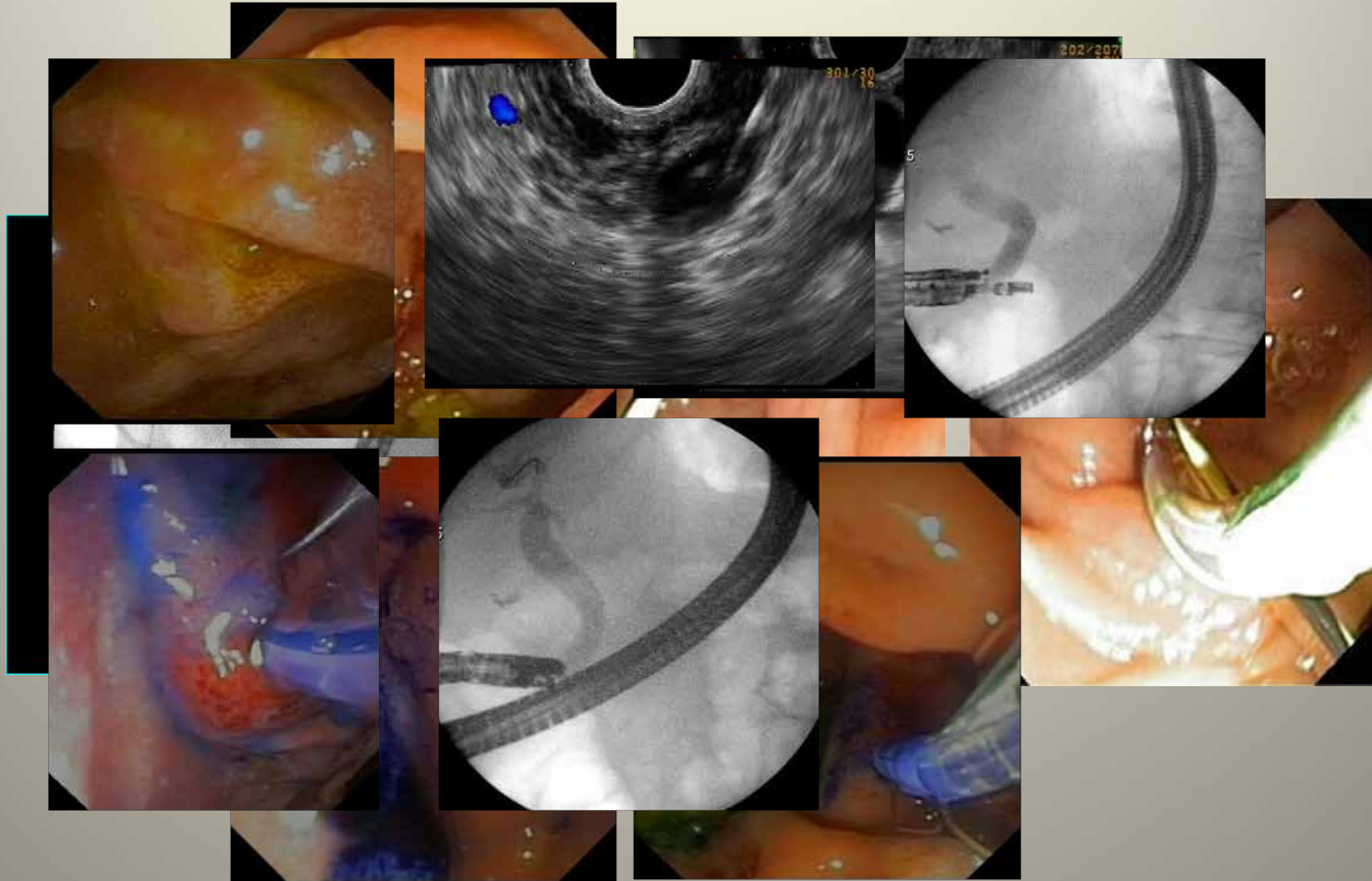


# CPRE FALLIDA: accés biliar per ECOENDOSCOPIA



Perez-Miranda WJGE 2011

# CPRE FALLIDA: guiat per USE





**EXIT CANNULACIÓ BILIAR - >95%**

**COMPLICACIONS:**

**3-15% PANCREATITIS**

**1-5% HEMORRÀGIA**



# CPRE vs LAPAROSCÒPIA CBD



Surg Endosc. 2015 Jun 20. [Epub ahead of print]

## Surgeons, ERCP, and laparoscopic common bile duct exploration: do we need a standard approach for common bile duct stones?

Baucom RB<sup>1</sup>, Feurer ID, Shelton JS, Kummerow K, Holzman MD, Poulouse BK.

⊕ Author information **Nashville, USA**

### Raons no fer LCBDE

#### *(laparoscopic common bile duct exploration):*

- Tenir un endoscopista-CPRE de confiança
- No tenir l'equipament adequat
- No sentir-se còmodes amb la tècnica

ERCP proceduralist. Those who perform selective IOC were 75 % less likely to prefer LCBDE (OR 0.22, 95 % CI 0.10-0.51,  $p < 0.001$ ). Those with a reliable ERCP proceduralist available were 90 % less likely to prefer LCBDE (OR 0.10, 95 % CI 0.04-0.26,  $p < 0.001$ ).

**CONCLUSIONS:** The majority of respondents preferred ERCP for the management of CDL. Having a reliable ERCP proceduralist available, use of selective IOC, and metropolitan status were independently associated with preoperative ERCP. Postoperative ERCP was preferred for managing intraoperatively discovered CDL. Many surgeons are uncomfortable performing LCBDE, and increased training may be needed.

# CPRE intra-operatòria



*J Minim Access Surg.* 2014 Jul;10(3):139-43. doi: 10.4103/0972-9941.134877.

**Randomised study on single stage laparo-endoscopic rendezvous (intra-operative ERCP) procedure versus two stage approach (Pre-operative ERCP followed by laparoscopic cholecystectomy) for the management of cholelithiasis with choledocholithiasis.**

Sahoo MR<sup>1</sup>, Kumar AT<sup>1</sup>, Patnaik A<sup>1</sup>.

**A-CPRE pre-Cole (80% canul.; 12%PA; 10d)**

**B-CPRE intra IQ (93% canul.; 0%PA; 6,8d)**

**B > A**

(80.5%) and in arm-B in 39 cases (93%). In arm-A group, post-ERCP hyperamylasia was presented in nine patients (22%) and severe pancreatitis in five patients (12%) versus none of the patients (0%) in arm-B group respectively. Mean post-operative hospital stay in arm-A and arm-B groups are 10.9 and 6.8 days, respectively.

**CONCLUSION:** One stage laparo-endoscopic rendezvous approach increases selective cannulation of CBD, reduces post-ERCP pancreatitis, reduces days of hospital stay, increases patient's compliance and prevents unnecessary intervention to CBD.



# CPRE intra-operatòria (1 dia)



J Trauma Acute Care Surg. 2015 Mar;78(3):503-7; discussion 507-9. doi: 10.1097/TA.0000000000000552.

## Same-day combined endoscopic retrograde cholangiopancreatography and cholecystectomy: Achievable and mir

Wild JL<sup>1</sup>, Younus MJ, Torre

abahanq MM.

+ Author information

## Dificultats 'vida real':

∅ LOGISTICA

∅ AGENDA

∅ CENTRES TERCIARIS

primary outcome measur

**RESULTS:** The study pop  
the same-day group. Med  
comorbidity compared wi

separate-day group was 5 days compared with 3 days in the same-day group ( $p < 0.0001$ ). There was no difference in conversion rates to open cholecystectomy between the two groups (14% in the separate-day vs. 12% in the same-day group). Total median hospital cost for the separate-day group was \$102,537 compared with \$90,269 in the same-day group ( $p < 0.0001$ ).

**CONCLUSION:** Same-day ERCP and cholecystectomy is feasible and minimizes costs. Same-day procedures decreased hospital LOS by 2 days and had approximately \$12,000 in cost savings. Future goals include a multidisciplinary protocol to study outcomes in larger numbers.

**LEVEL OF EVIDENCE:** Therapeutic study, level IV. Economic study, level III.

and 65 patients in  
ian of one minor  
LOS for the

# CPRE vs CIRURGIA: revisió Cochrane



[Cochrane Database Syst Rev. 2013 Dec 12;12:CD003327. doi: 10.1002/14651858.CD003327.pub4.](#)

## **Surgical versus endoscopic treatment of bile duct stones.**

[Dasari BV<sup>1</sup>](#), [Tan CJ](#), [Gurusamy KS](#), [Martin DJ](#), [Kirk G](#), [McKie L](#), [Diamond T](#), [Taylor MA](#).

⊕ **Author information**

## NO DIFERÈNCIES SIGNIFICATIVES:

- MORTALITAT
- MORBILITAT
- TASA FRACÀS NETEJA VIA BILIAR

extracted data. We calculated the odds ratio (OR) or mean difference (MD) with 95% confidence interval (CI) using both fixed-effect and random-effects models meta-analyses, performed with Review Manager 5.

**MAIN RESULTS:** Sixteen randomised clinical trials with a total of 1758 randomised participants fulfilled the inclusion criteria of this review. Eight trials with 737 participants compared open surgical clearance with ERCP; five trials with 621 participants compared laparoscopic clearance with pre-operative ERCP; and two trials with 166 participants compared laparoscopic clearance with postoperative ERCP. One trial with 234 participants compared LCBDE with intra-operative ERCP. There were no trials of open or LCBDE versus ERCP in people without an intact gallbladder. All trials had a high risk of bias. There was no significant difference in the mortality between open surgery versus ERCP clearance (eight trials; 733 participants; 5/371 (1%) versus 10/358 (3%) OR 0.51; 95% CI 0.18 to 1.44). Neither was there a significant difference in the morbidity between open surgery versus ERCP clearance (eight trials; 733 participants; 76/371 (20%) versus 67/358 (19%) OR 1.12; 95% CI



ü **CASOS DE LITIASIS DIFICILS**  
(nombre, grans, impactades)

ü **CASOS DE FALLIDA DURANT PROCEDIMENT:**

§ **CONVERSIO A LAPAROTOMIA OBERTA?**

§ **COL-LOCAR DRENATGE TRANS-CISTIC I VALORAR  
CPRE POST-IQ?**

ü **ESTALVIS: DURACIO PROCEDIMENT (ocupació d'un matí)**

§ **CPRE(20-60min): 4-6 CPRE/matí**



ü **CPRE PRE-COLECISTECTOMIA:** PREFERIT SI ENDOSCOPISTA CONFIANÇA

ü **CPRE + LAPAROSCOPIA VB (rendezvous) EN MATEIXA SESSIO:** ESTALVIA COSTOS. DIFICIL ORGANITZACIO

ü **CPRE POST-COLECISTECTOMIA:** SI POCA EXPERIENCIA  
o FALLIDA DE LAPAROSCOPIA VIA BILIAR

ü **CPRE –LITIASIS DIFICILS:** PAPILOPLASTIA, COLANGIOSCOPIA, LITOTRIPSIA MECANICA, STENTS

ü **CPRE FALLIDA:** GUIAT PER ECOENDOSCOPIA



Generalitat de Catalunya  
**Departament de Salut**

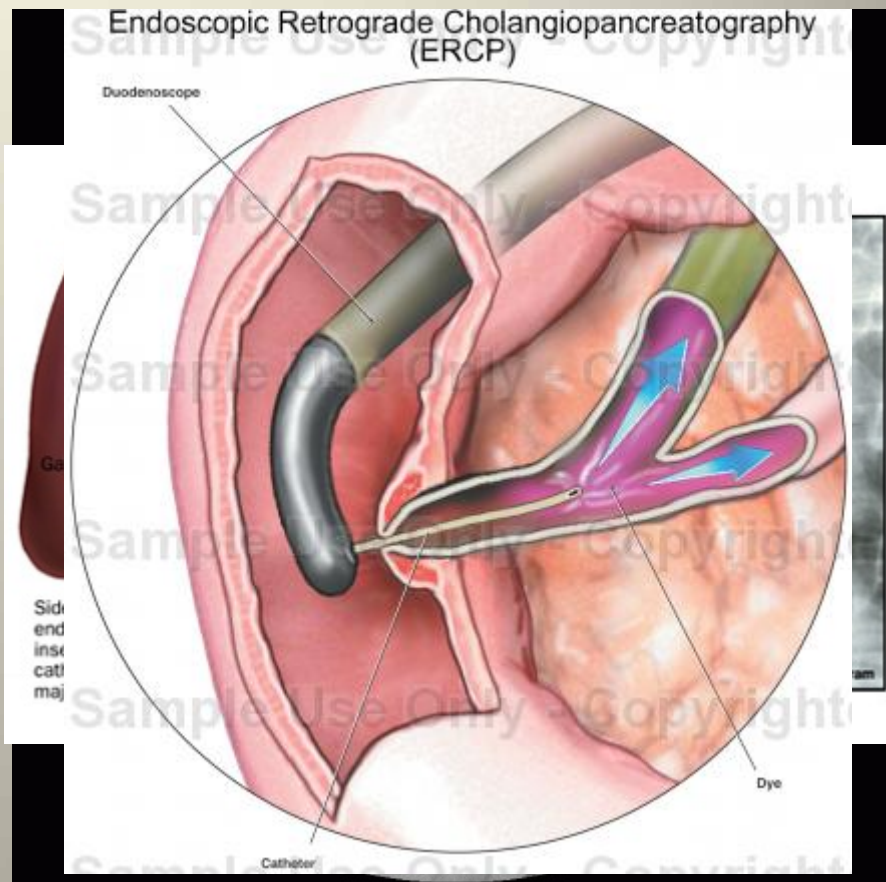
 **Bellvitge**  
Hospital

 Institut Català  
de la Salut

# USE vs CPRE



**USE Diagnóstica**



**CPRE Diagnóstica 2015??**

Cochrane Database Syst Rev. 2015 Feb 26;2:CD010339. doi: 10.1002/14651858.CD010339.pub2.

## Endoscopic retrograde cholangiopancreatography versus intraoperative cholangiography for diagnosis of common bile duct stones.

Gurusamy KS<sup>1</sup>, Gilijsca V, Takwoinqi Y, Hicqie D, Poropat G, Štimac D, Davidson BR.

### ⊕ Author information

#### Abstract

**BACKGROUND:** Endoscopic retrograde cholangiopancreatography (ERCP) and intraoperative cholangiography (IOC) are tests used in the diagnosis of common bile duct stones in people suspected of having common bile duct stones. There has been no systematic review of the diagnostic accuracy of ERCP and IOC.

**OBJECTIVES:** To determine and compare the accuracy of ERCP and IOC for the diagnosis of common bile duct stones.

**SEARCH METHODS:** We searched MEDLINE, EMBASE, Science Citation Index Expanded, BIOSIS, and Clinicaltrials.gov to September 2012. To identify additional studies, we searched the references of included studies and systematic reviews identified from various databases (Database of Abstracts of Reviews of Effects (DARE)), Health Technology Assessment (HTA), Medion, and ARIF (Aggressive Research Intelligence Facility)). We did not restrict studies based on language or publication status, or whether data were collected prospectively or retrospectively.

**SELECTION CRITERIA:** We included studies that provided the number of true positives, false positives, false negatives, and true negatives for ERCP or IOC. We only accepted studies that confirmed the presence of common bile duct stones by extraction of the stones (irrespective of whether this was done by surgical or endoscopic methods) for a positive test, and absence of common bile duct stones by surgical or endoscopic negative exploration of the common bile duct, or symptom-free follow-up for at least six months for a negative test as the reference standard in people suspected of having common bile duct stones. We included participants with or without prior diagnosis of cholelithiasis; with or without symptoms and complications of common bile duct stones; with or without prior treatment for common bile duct stones; and before or after cholecystectomy. At least two authors screened abstracts and selected studies for inclusion independently.

**DATA COLLECTION AND ANALYSIS:** Two authors independently collected data from each study. We used the bivariate model to summarise the sensitivity and specificity of the tests.

**MAIN RESULTS:** We identified five studies including 318 participants (180 participants with and 138 participants without common bile duct stones) that reported the diagnostic accuracy of ERCP and five studies including 654 participants (125 participants with and 529 participants without common bile duct stones) that reported the diagnostic accuracy of IOC. Most studies included people with symptoms (participants with jaundice or pancreatitis) suspected of having common bile duct

**MAIN RESULTS:** We identified five studies including 318 participants (180 participants with and 138 participants without common bile duct stones) that reported the diagnostic accuracy of ERCP and five studies including 654 participants (125 participants with and 529 participants without common bile duct stones) that reported the diagnostic accuracy of IOC. Most studies included people with symptoms (participants with jaundice or pancreatitis) suspected of having common bile duct stones based on blood tests, ultrasound, or both, prior to the performance of ERCP or IOC. Most studies included participants who had not previously undergone removal of the gallbladder (cholecystectomy). None of the included studies was of high methodological quality as evaluated by the QUADAS-2 tool (quality assessment tool for diagnostic accuracy studies). The sensitivities of ERCP ranged between 0.67 and 0.94 and the specificities ranged between 0.92 and 1.00. For ERCP, the summary sensitivity was 0.83 (95% confidence interval (CI) 0.72 to 0.90) and specificity was 0.99 (95% CI 0.94 to 1.00). The sensitivities of IOC ranged between 0.75 and 1.00 and the specificities ranged between 0.96 and 1.00. For IOC, the summary sensitivity was 0.99 (95% CI 0.83 to 1.00) and specificity was 0.99 (95% CI 0.95 to 1.00). For ERCP, at the median pre-test probability of common bile duct stones of 0.35 estimated from the included studies (i.e., 35% of people suspected of having common bile duct stones were confirmed to have gallstones by the reference standard), the post-test probabilities associated with positive test results was 0.97 (95% CI 0.88 to 0.99) and negative test results was 0.09 (95% CI 0.05 to 0.14). For IOC, at the median pre-test probability of common bile duct stones of 0.35, the post-test probabilities associated with positive test results was 0.98 (95% CI 0.85 to 1.00) and negative test results was 0.01 (95% CI 0.00 to 0.10). There was weak evidence of a difference in sensitivity ( $P$  value = 0.05) with IOC showing higher sensitivity than ERCP. There was no evidence of a difference in specificity ( $P$  value = 0.7) with both tests having similar specificity.

**AUTHORS' CONCLUSIONS:** Although the sensitivity of IOC appeared to be better than that of ERCP, this finding may be unreliable because none of the studies compared both tests in the same study populations and most of the studies were methodologically flawed. It appears that both tests were fairly accurate in guiding further invasive treatment as most people diagnosed with common bile duct stones by these tests had common bile duct stones. Some people may have common bile duct stones in spite of having a negative ERCP or IOC result. Such people may have to be re-tested if the clinical suspicion of common bile duct stones is very high because of their symptoms or persistently abnormal liver function tests. However, the results should be interpreted with caution given the limited quantity and quality of the evidence.



J Am Coll Surg. 2015 Apr;220(4):522-8. doi: 10.1016/j.jamcollsurg.2014.12.043. Epub 2015 Jan 9.

## Has intraoperative cholangiography during laparoscopic cholecystectomy become obsolete in the era of preoperative endoscopic retrograde and magnetic resonance cholangiopancreatography?

Sirinek KR<sup>1</sup>, Schwesinger WH<sup>2</sup>.

### ⊕ Author information

#### Abstract

**BACKGROUND:** Preoperative ERCP, magnetic resonance cholangiopancreatography (MRCP), and intraoperative cholangiography (IOC) are standard procedures in evaluating patients with suspected choledocholithiasis. This study evaluates the changing practice patterns over time of these 3 procedures in a large cohort of patients undergoing laparoscopic cholecystectomy (LC) at a single tertiary care center.

**STUDY DESIGN:** Data from all patients undergoing an LC with or without preoperative ERCP, MRCP, or an IOC from January 1, 2004 to December 31, 2013 were retrospectively reviewed from billing data obtained by CPT code and analyzed by chi-square testing.

**RESULTS:** During 10 years, 7,427 patients underwent successful LC. The number of patients undergoing successful IOC (11.9% to 7.6%) or preoperative ERCP (7.2% to 1.5%) decreased significantly during that time interval ( $p < 0.01$ ). In the last 6 years, 4,506 patients underwent successful LC. The number of patients from this group undergoing a preoperative MRCP (0.9% to 8.6%) or MRCP and ERCP (0.4% to 3.6%) increased significantly ( $p < 0.001$ ).

**CONCLUSIONS:** Despite a shift from IOC and preoperative ERCP to preoperative MRCP alone or with ERCP, a significant percentage (7.6%) of patients still underwent IOC in 2013. Use of IOC during LC has decreased but is not considered obsolete; rather, it remains a valuable tool for the evaluation of bile duct anatomy, bile duct injury, or suspected choledocholithiasis. Intraoperative cholangiography during uncomplicated LC should be emphasized in teaching programs to insure general surgery resident competency with the procedure.

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# USE vs CPRE

[World J Surg.](#) 2014 Sep;38(9):2403-11. doi: 10.1007/s00268-014-2537-8.

## **Transcystic or transductal stone extraction during single-stage treatment of choledochocystolithiasis: a systematic review.**

[Reinders JS](#)<sup>1</sup>, [Gouma DJ](#), [Ubbink DT](#), [van Ramshorst B](#), [Boerma D](#).

### **⊕ Author information**

#### **Abstract**

**BACKGROUND:** Choledochocystolithiasis can be managed by endoscopic retrograde cholangiopancreatography (ERCP) or laparoscopically by transcystic (TC) or transductal (TD) stone extraction.

**OBJECTIVE:** The aim of this study was to systematically review safety and effectiveness of combined endoscopic/laparoscopic management versus total laparoscopic management for choledochocystolithiasis with specific emphasis on TC versus TD stone extraction.

**METHODS:** MEDLINE/PubMed, EMBASE, the Cochrane Library, and clinicaltrials.gov were searched systematically to identify trials on combined endoscopic/laparoscopic and total laparoscopic management for choledochocystolithiasis. Laparoscopic common bile duct (CBD) exploration was divided into TD and TC approach. Primary outcomes were successful stone clearance from CBD, postoperative/procedural morbidity, and mortality.

**RESULTS:** Eight randomized trials with 965 patients were included. Successful bile duct clearance varied between 52.6 and 97 % in the ERCP groups, 80.4 and 100 % in the TC groups, and 58.3 and 100 % in the TD groups. There were more bile leaks after TD stone extraction (11 %) than after ERCP (1 %) and TC stone extraction (1.7 %). Total morbidity varied between 9.1 and 38.3 % in the ERCP groups, 7 and 10.5 % in the TC groups, and 18.4 and 26.7 % in the TD groups. Methodological and statistical heterogeneity among the trials precluded a meaningful meta-analysis.

**CONCLUSION:** Stone clearance rates are comparable between the three modalities, but TD stone extraction is associated with a higher risk of bile leaks and should only be performed by highly experienced surgeons. TC stone extraction seems a more accessible technique with lower complication rates. If unsuccessful, per- or postoperative endoscopic stone extraction is a viable option.

# USE vs CPRE

World J Gastroenterol. 2014 Dec 21;20(47):17962-9. doi: 10.3748/wjg.v20.i47.17962.

## Small sphincterotomy combined with endoscopic papillary large balloon dilation vs sphincterotomy alone for removal of common bile duct stones.

Guo SB<sup>1</sup>, Meng H<sup>1</sup>, Duan ZJ<sup>1</sup>, Li CY<sup>1</sup>.

### ⊕ Author information

#### Abstract

**AIM:** To evaluate the efficacy and safety of endoscopic papillary large diameter balloon dilation (EPLBD) following limited endoscopic sphincterotomy (EST) and EST alone for removal of large common bile duct (CBD) stones.

**METHODS:** We retrospectively compared EST + EPLBD (group A, n = 64) with EST alone (group B, n = 89) for the treatment of large or multiple bile duct stones. The success rate of stone clearance, procedure-related complications and incidents, frequency of mechanical lithotripsy use, and recurrent stones were recorded.

**RESULTS:** There was no statistically significant difference between the two groups regarding periampullary diverticula (35.9% vs 34.8%,  $P > 0.05$ ), pre-cut sphincterotomy (6.3% vs 6.7%,  $P > 0.05$ ), size ( $12.1 \pm 2.0$  mm vs  $12.9 \pm 2.6$  mm,  $P > 0.05$ ) and number ( $2.2 \pm 1.9$  vs  $2.4 \pm 2.1$ ,  $P > 0.05$ ) of stones or the diameters of CBD ( $15.1 \pm 3.3$  mm vs  $15.4 \pm 3.6$  mm,  $P > 0.05$ ). The rates of overall stone removal and stone removal in the first session were not significantly different between the two groups [62/64 (96.9%) vs 84/89 (94.4%),  $P > 0.05$ ; and 58/64 (90.6%) vs 79/89 (88.8%),  $P > 0.05$ , respectively]. The rates of post-endoscopic retrograde cholangiopancreatography pancreatitis and hyperamylasemia were not significantly different between the two groups [3/64 (4.7%) vs 4/89 (4.5%),  $P > 0.05$ ; 7/64 (10.9%) vs 9/89 (10.1%),  $P > 0.05$ , respectively]. There were no cases of perforation, acute cholangitis, or cholecystitis in the two groups. The rate of bleeding and the recurrence of CBD stones were significantly lower in group A than in group B [1/64 (1.6%) vs 5/89 (5.6%),  $P < 0.05$ ; 1/64 (1.6%) vs 6/89 (6.7%),  $P < 0.05$ , respectively].

**CONCLUSION:** EST + EPLBD is an effective and safe endoscopic approach for removing large or multiple CBD stones.

**KEYWORDS:** Choledocholithiasis; Endoscopic papillary balloon dilation; Endoscopic retrograde cholangiopancreatography; Endoscopic sphincterotomy

# USE vs CPRE

Hepato gastroenterology. 2015 Mar-Apr;62(138):417-24.

## **Evaluation of antibiotic use to prevent post-endoscopic retrograde cholangiopancreatography pancreatitis and cholangitis.**

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### **Abstract**

**BACKGROUND/AIMS:** The purpose of this study was to evaluate the relationship between prophylactic antibiotic use and complications following endoscopic retrograde cholangiopancreatography (ERCP).

**METHODOLOGY:** We retrospectively evaluated 605 consecutive patients who underwent ERCP in our hospital between September 2009 and November 2011. The antibiotic group included patients who underwent their procedure before October 2010, while the control group included patients after October 1, 2010, who did not receive antibiotics. We compared the incidence of postoperative pancreatitis and cholangitis between the groups.

**RESULTS:** There were no significant differences in the backgrounds of the 304 control and the 301 antibiotic-treated patients. The incidence of post-ERCP pancreatitis was 4.9% in the control group and 4.3% in the antibiotic group ( $p = 0.72$ ). The incidence of postoperative cholangitis was 2.0% in the control group and 1.7% in the antibiotic group ( $p = 0.99$ ). Choledocholithiasis, pancreatic duct injection, and female gender were detected as significant risk factors for postoperative pancreatitis by multivariate analysis; sclerosing cholangitis and incomplete biliary drainage were significant risk factors for postoperative cholangitis. Even in cases with these risk factors, prophylactic antibiotic use did not influence the incidence of pancreatitis or cholangitis.

**CONCLUSION:** Prophylactic antibiotics do not reduce the incidence of either pancreatitis or cholangitis following ERCP.

# USE vs CPRE

[Dig Dis Sci](#). 2015 Feb;60(2):550-6. doi: 10.1007/s10620-014-3337-6. Epub 2014 Sep 17.

## **Risk factors of open converted cholecystectomy for cholelithiasis after endoscopic removal of choledocholithiasis.**

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### **⊕ Author information**

#### **Abstract**

**BACKGROUND:** Open converted cholecystectomy could occur in patients who planned for laparoscopic cholecystectomy after endoscopic removal of choledocholithiasis.

**AIM:** To evaluate the risk factors associated with open converted cholecystectomy.

**PATIENTS AND METHODS:** The data for all patients who underwent cholecystectomy after endoscopic removal of choledocholithiasis were retrospectively reviewed. Factors predictive for conversion to open cholecystectomy were analyzed.

**RESULTS:** The rate of open converted cholecystectomy was 15.7 %. In multivariate analysis, cholecystitis (OR 1.908, 95 % CI 1.390-6.388,  $p = 0.005$ ), mechanical lithotripsy (OR 6.129, 95 % CI 1.867-20.123,  $p < 0.005$ ), and two or more choledocholithiasis (OR 2.202, 95 % CI 1.097-4.420,  $p = 0.026$ ) revealed significant risk factors for conversion to open cholecystectomy. Analyzing the risk factors for open converted cholecystectomy according to duration from endoscopic stone removal to cholecystectomy (within 2 weeks, between 2 and 6 weeks, and beyond 6 weeks), acute cholangitis (OR 3.374, 95 % CI 1.267-8.988,  $p = 0.015$ ), cholecystitis (OR 3.127, 95 % CI 1.100-8.894,  $p = 0.033$ ), and mechanical lithotripsy (OR 17.504, 95 % CI 3.548-86.355,  $p < 0.005$ ) were related to open converted cholecystectomy in  $\leq 2$  weeks group.

**CONCLUSIONS:** For patients who need cholecystectomy after endoscopic removal of choledocholithiasis, endoscopic retrograde cholangiography-related factors predictive for open converted cholecystectomy are helpful in planning the appropriate timing of surgery.

# USE vs CPRE

*J Hepatobiliary Pancreat Sci.* 2014 Dec;21(12):896-901. doi: 10.1002/jhbp.152. Epub 2014 Sep 4.

## **Systematic review and meta-analysis of minimally invasive techniques for the management of cholecysto-choledocholithiasis.**

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#### **Abstract**

**BACKGROUND:** The optimal management of patients with symptomatic gallstones and possible or proven common bile duct (CBD) stones and gallstones is still evolving. Today a number of options exist: preoperative endoscopic retrograde cholangiopancreatography (pre-op ERCP), laparoscopic cholecystectomy (LC) combined with intraoperative endoscopic sphincterotomy (IOES), laparoscopic common bile duct exploration (LCBDE) and postoperative ERCP (post-op ERCP). This meta-analysis was done to compare these management options and determine if any single option was clearly superior.

**METHODS:** A systematic search was conducted using several electronic databases. The search revealed 15 randomized controlled trials (RCTs). Six comparing pre-op ERCP with LCBDE, five comparing pre-op ERCP with IOES, two comparing IOES with LCBDE and two comparing post-op ERCP with LCBDE, comprising a total of 1992 patients.

**RESULTS:** The pre-op ERCP group had a significantly higher incidence of ERCP related complications (odds ratio: 2.40, 95% confidence interval: 1.21-4.75).

**CONCLUSIONS:** The evidence provided by this meta-analysis suggests that both of these approaches would appear comparable. To fully address which would be the better approach would require an RCT as discussed above.

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**KEYWORDS:** Endoscopic retrograde cholangiopancreatography; Laparoscopic cholecystectomy; Laparoscopic common bile duct exploration; Laparoscopic transcystic common bile duct exploration

# USE vs CPRE

*Am Surg.* 2014 Aug;80(8):746-51.

## What is the risk of diagnostic endoscopic retrograde cholangiopancreatography before cholecystectomy?

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### ⊕ Author information

#### Abstract

Many surgeons prefer to perform endoscopic retrograde cholangiopancreatography (ERCP) before cholecystectomy, specifically in patients at significant risk of having biliary pathology. However, a preoperative diagnostic ERCP, without the use of an endoscopic ultrasound or magnetic retrograde cholangiopancreatography, remains controversial. This is the result of the risk of either performing an unnecessary procedure and/or the development of post-ERCP pancreatitis (PEP). We performed a retrospective review of all surgeon-performed ERCPs at our institution between July 2011 and May 2013. This was done to examine patients who had pericholecystectomy ERCP. We had 550 ERCPs performed at our institution during this time period, 169 of which were pericholecystectomy procedures. We divided the 169 patients who had a diagnostic procedure (Diagnostic group) from those who had known biliary pathology before intervention (Therapeutic group). As a result, 34 patients (20.1%) were placed in the Diagnostic group and 135 patients (79.9%) in the Therapeutic group. Of the 34 Diagnostic patients, four (11.8%) developed PEP. Fifteen (44.1%) had unnecessary procedures, two of which had PEP (2.9%). Of the 135 ERCPs in the Therapeutic group, 18 patients (13.4%) developed PEP. Five of the 11 who had unnecessary procedures developed PEP. Based on the low incidence of complications, diagnostic ERCP has an acceptable rate of pancreatitis and/or unnecessary procedures when performed in highly selected patients and before cholecystectomy when compared with patients undergoing therapeutic ERCP. However, more aggressive use of diagnostic imaging before ERCP should be adopted given the number of unnecessary procedures performed.

# USE vs CPRE

