LCBDE vs IO-ERCP in Low-Reasource Settings

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INTRODUCTION

- Intraoperative Endoscopic Retrograde Cholangiopancreatography (IO-ERCP) and Laparoscopic Common Bile duct Exploration (LCBDE) are minimally invasive procedures used to extract common bile duct (CBD) stones and perform cholecystectomy in a single stage.
- There is no consensus as to which is the ideal method for CBD stone treatment and decisions are made based on surgeons' preference and hospital protocols.
- Even more, evidence in emergency and low-reasource (where choledoscopes may be unavailable) settings is limited.
- The objective of this study was to compare outcomes between ERCP and LCBDE in patients with CBD stones in emergency settings at a lower-income health center.

METHODS

- An observational and retrospective cohort study was conducted in patients with acute abdominal pain diagnosed with CBD stones and treated with IO-ERCP or LCBDE at Hospital Metropolitano, Monterrey, Mexico during a 3-year period.
- Primary outcome was CBD clearance rate.
- Secondary outcomes include intraoperative time, in-hospital stay length, complications, conversions, and retained stones at 30 days.

RESULTS

Table 1. Demographic characteristics

Variables	IO-ERCP (n = 39)	LCBDE (n = 35)	p Value
Age (years) median (range)	30 (18 – 88)	28 (18 – 86)	p = 0.673
Sex			
Male (%)	5 (12.8)	4 (11.4)	
Female (%)	34 (87.2)	31 (88.6)	p = 0.85
Comorbidities			
DM2	5 (12.8)	0 (0)	p = 0.02*
HTN	1 (2.5)	2 (5.7)	p = 0.49
Total bilirubin (mg/dL) Mean (SD)	4.9 (± 0.46)	4.9 (± 0.61)	p = 0.96
# stones			
1	22 (56.4)	18 (51.4)	
>1	17 (43.6)	17 (48.6)	p = 0.81
CBD diameter (mm) mean (DS)	9.2 (± 3.12)	9.4 (± 4.65)	p = 0.82
ASA			
I	31 (79.5)	30 (86.7)	
II	6 (15.4)	3 (8.6)	
III	2 (5.1)	2 (5.7)	p = 0.66
Preoperative diagnosis			
Cholecystitis + CBD stone	30 (76.9)	21(60)	
Acute pancreatitis	6 (15.4)	10 (28.6)	
Cholangitis	3 (7.7)	4 (11.4)	p = 0.28

IO-ERCP: Intraoperative endoscopic cholangiopancreatography, LCBDE: Laparoscopic common bile duct exploration; DM2: diabetes mellitus type 2; HTN: hypertension; CBD: common bile duct; ASA: American Society of Anesthesiologists.

- 74 patients were analyzed (39 IO-ERCP, 35 LCBDE) (Table1)
- CBD clearance, procedure time and retained stones between IO-ERCP and LCBDE was not statistically different (79% vs 62%, p = 0.12; 205 vs 193 min, p = 0.95; 5 IO-ERCP and 2 LCBDE cases, p = 0.26). (Table 2).
- IO-ERCP had shorter IHS (1 vs 2 days, p = 002). (Table 2)
- Postoperative complications were more common in IO-ERCP (5 vs 0 cases, p = 0.36). (Table 2).
- Choledocotomy in LCBDE was associated with better outcome in relation to transcistic approach (p = 0.006) (Table 3).

Table 2. Primary and secondary outcomes

Variables	IO-ERCP (n = 39)	LCBDE (n = 35)	*p* Value
CBD clearance rate (%)	31/39 (79.5)	22/35 (62.9)	*p = 0.12*
Operative time (min) median (range)	205 (109 – 428)	193 (139 – 445)	*p = 0.95*
IHS length (days) median (range)	1 (1 – 6)	2 (1 – 8)	*p = 0.002**
Complications	5 (12.8)	0 (0)	*p = 0.036**
Conversion (%)	4 (10.3)	10 (28.6)	*p = 0.04**
Retained stones at 30 days (%)	5 (12.8)	2 (5.7)	*p = 0.26*

IHS: intrahospital stay length.

Table 3. LCBDE CBD clearance rate by approach

LCBDE	Trancystic (n = 7)	Choledochotomy (n = 28)	
CBD clearance rate			
Success	1 (14.3)	21 (75)	
Failure	6 (85)	7 (25)	*p = 0.006**

CONCLUSION

- IO-ERCP has similar CBD clearance and retained stone rate compared to LCBDE in emergency settings at a resource-constrained health center. IO-ERCP has a higher complication rate, yet it had low impact on IHS length.