

Robotic Cholecystectomy with Transcystic Common Bile Duct Exploration:

A Single-Stage Solution for Challenging Choledocholithiasis

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Introduction

Choledocholithiasis in patients with altered anatomy or high operative risk presents a significant management challenge, as **endoscopic retrograde cholangiopancreatography (ERCP)** may not be feasible.

Robotic cholecystectomy with transcystic choledochoscopy provides an alternative **single-stage strategy** for biliary clearance.

Methods & Procedures

Study Design

Retrospective review of 8 patients undergoing robotic cholecystectomy with intraoperative transcystic choledochoscopy between August 2024 and September 2025.

Data Collected

Demographics, prior surgeries, operative details, pathology and short-term outcomes.

Technique

Robotic cholecystectomy with intraoperative transcystic choledochoscopy for single-stage biliary exploration and stone clearance.

Results

8	88%	0
Patients	Ductal Visualization	30-Day Complications

Patient Demographics

Characteristic	Value
Patients	8
Sex (F / M)	6 / 2
Mean Age (years)	64 (range 38–78)
Prior Bariatric Surgery	5 (62.5%)
– Roux-en-Y Gastric Bypass	4
– Duodenal Switch	1
ERCP Not Feasible/Incomplete	3 (37.5%)

Indications

Indication	n
Choledocholithiasis + Cholecystitis	6
Gallstone Pancreatitis	1
Cholangitis with Bacteremia	1

Choledochoscopy Outcomes

Outcome	n (%)
Ductal Visualization Achieved	7 (88%)
Stones Cleared	5 (63%)
– Intracorporeal Lithotripsy	3
– Balloon Sphincteroplasty	2
Dilated Duct, No Stones	2
Aborted (Severe Inflammation)	1

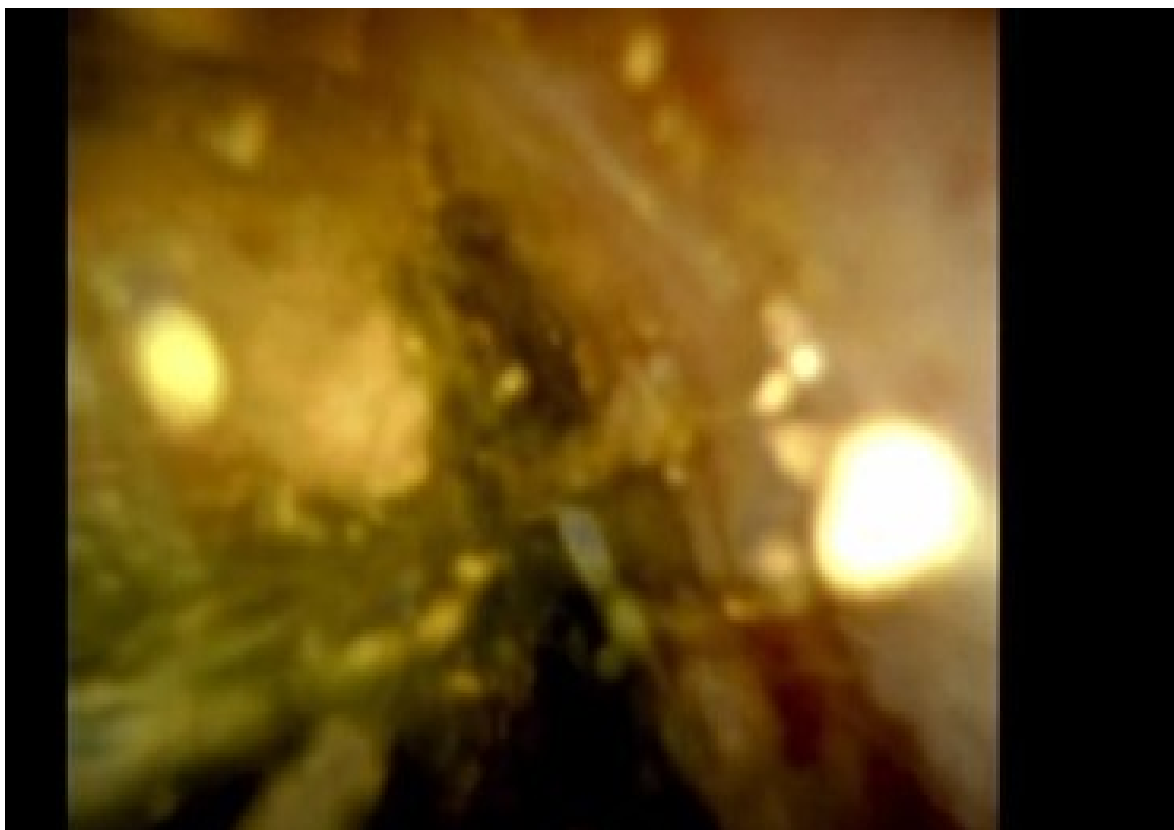
Perioperative Outcomes

Outcome	Value
Median LOS (days)	2 (range: 0–8)
EBL Range (mL)	20–250
Drains Placed	3
30-Day Bile Leaks	0
30-Day Reoperations	0
30-Day Readmissions	0

Intraoperative Images & Data

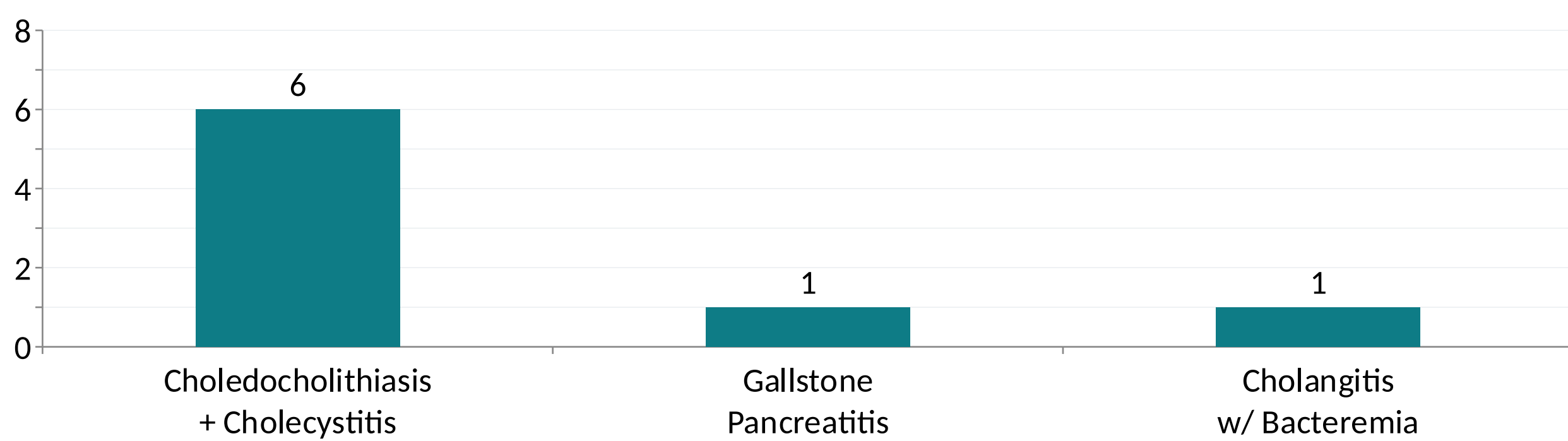


A. Robotic Dissection of Hepatocystic Triangle

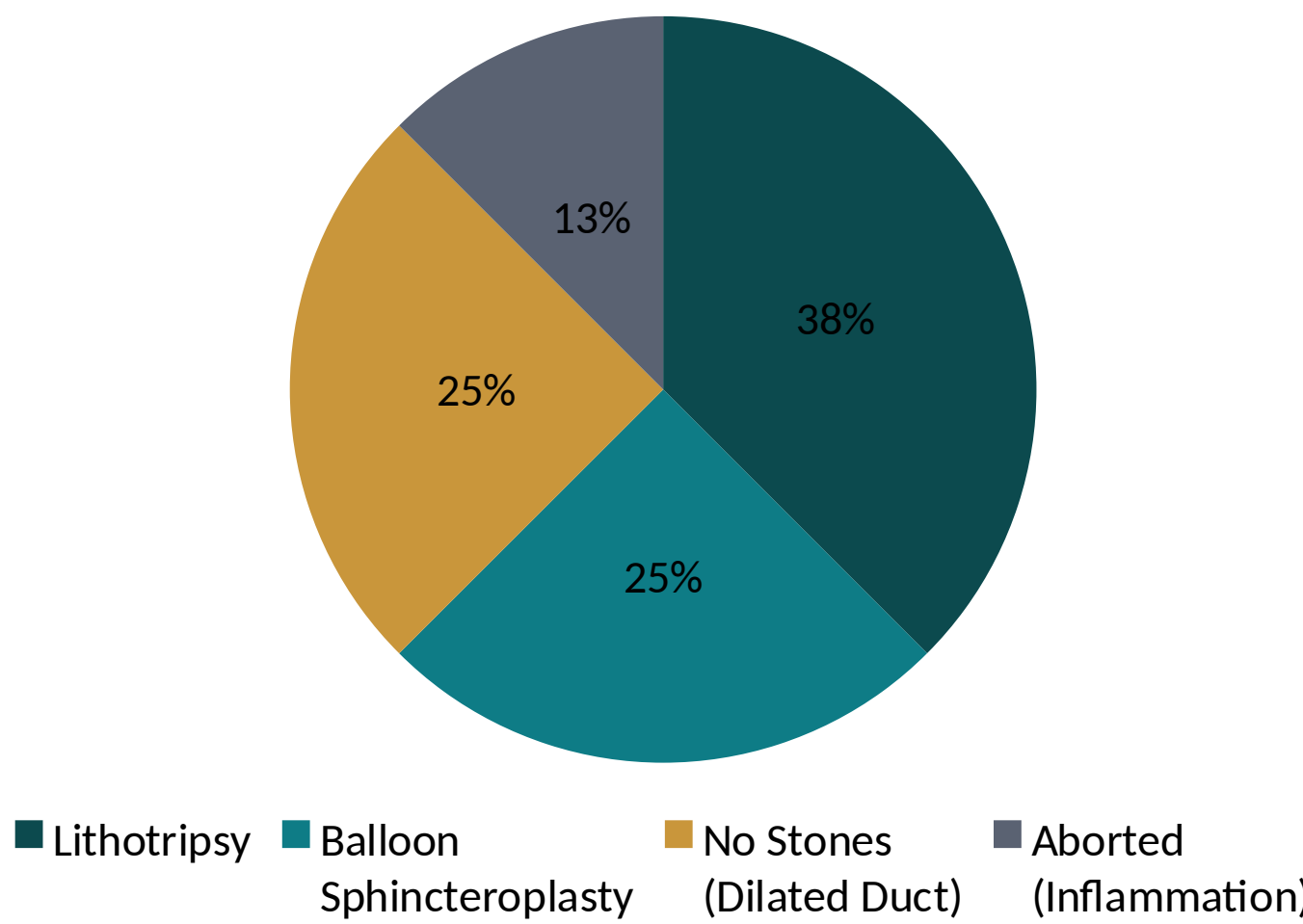


B. Transcystic Choledochoscopy View

Indications for Procedure (n = 8)



Stone Management Approach



Pathology Findings

Finding	n
Acute Cholecystitis	7
Incidental Neoplasm*	1

*Mixed acinar-neuroendocrine carcinoma

Notable Case

One patient had cystic artery hemorrhage (EBL 1000 mL), successfully controlled robotically without conversion to open.

Conclusions

Robotic transcystic choledochoscopy is a **safe and feasible** option for managing choledocholithiasis in patients unsuitable for ERCP, including those with:

Altered surgical anatomy
(prior bariatric surgery)

Advanced liver disease
(cirrhosis)

Failed or incomplete ERCP

This technique offers effective **single-stage management** and may expand the role of robotic platforms in complex biliary disease.

Key Findings

88% successful ductal visualization
63% complete stone clearance
0% bile leaks, reoperations, readmissions

Safety Profile

Zero 30-day bile leaks, reoperations, or readmissions across all 8 patients. Median length of stay: 2 days.

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