Endoscopic Retrograde Cholangiopancreatography for the Management of Common Bile Duct Stones and Gallstone Pancreatitis

Jeffrey J. Easler, MD*, Stuart Sherman, MD

KEYWORDS

• Choledocholithiasis • Cholangitis • Biliary pancreatitis • Lithotripsy
• Electrohydraulic lithotripsy • Balloon dilation

KEY POINTS

- Patients with biliary pancreatitis should be risk stratified for persistent biliary obstruction requiring endoscopic retrograde cholangiopancreatography (ERCP) based on admission biochemical testing and ultrasonography.
- Risk factors for a technically complex stone extraction should be identified before and during ERCP to select the most effective techniques and tools for bile duct clearance.
- Endoscopic balloon papillary dilation is an effective adjunct technique for extraction of complex common bile duct stones.
- Electrohydraulic and laser intraductal lithotripsy with the assistance of cholangioscopy is now emerging as a standard of care intervention for large, complex stone burden.

SYMPTOMATIC CHOLEDOCHOLITHIASIS AND BILIARY PANCREATITIS: WHEN TO IMAGE, INTERVENE, OR OBSERVE

Apart from alcohol abuse, biliary disease is the most common etiology of acute pancreatitis. Antecedent symptoms of biliary colic, cholelithiasis on imaging, and biochemical liver test abnormalities are important findings on presentation that increase suspicion for acute biliary pancreatitis (ABP). An alanine aminotransferase level 3 times the upper limit of normal is the most specific biochemical abnormality for

Disclosures: None relevant to this article.
Division of Gastroenterology and Hepatology, Indiana University School of Medicine, Indianapolis, IN, USA
* Corresponding author. Indiana University School of Medicine, 550 North University Boulevard, Suite 1634, Indianapolis, IN 46202.
E-mail address: jjeasler@iu.edu

Gastrointest Endoscopy Clin N Am 25 (2015) 657–675
http://dx.doi.org/10.1016/j.giec.2015.06.005 **giendo.theclinics.com**
1052-5157/15/$ – see front matter

ABP.[1] Beyond conservative measures such as IV fluid resuscitation and enteral nutrition support, establishing or excluding the presence of persistent pancreatobiliary obstruction and cholangitis is central to medical decision making in the early hours of presentation for patients with ABP.[2,3] A recent Cochrane review demonstrated a significant decrease in mortality, local and systemic complications of ABP with early endoscopic retrograde cholangiopancreatography (ERCP; <72 hours from admission) in subgroups of patients with persistent biliary obstruction or cholangitis. However, the benefit of this intervention was not significant for all patients with ABP.[4–6] In this context, a clinician must use and interpret the diagnostic resources at hand to identify patients with biliary pancreatitis who are likely to have symptomatic choledocholithiasis and consequently would benefit from early ERCP.

Biochemical liver testing and transabdominal ultrasonography are often the earliest tools available to stratify patients. Biochemical parameters before laparoscopic cholecystectomy are reliable predictors for concomitant choledocholithiasis at the time of presentation with ABP. Normal liver function tests have a negative predictive value of over 95% for stone disease at ERCP. Total bilirubin (>4 mg/dL) has the highest individual specificity for stone disease.[4] Bilirubin >2 mg/dL, patient age greater than 55 years, and common bile duct dilation on ultrasound (>6 mm, gall bladder in situ) have a 75% probability of predicting choledocholithiasis at the time of ERCP.[7] Options after assessing these early objective findings include ERCP, further imaging modalities with a high degree of accuracy (>90%) for choledocholithiasis or clinical observation (Fig. 1). High-risk individuals for persistent biliary obstruction have either "very strong"

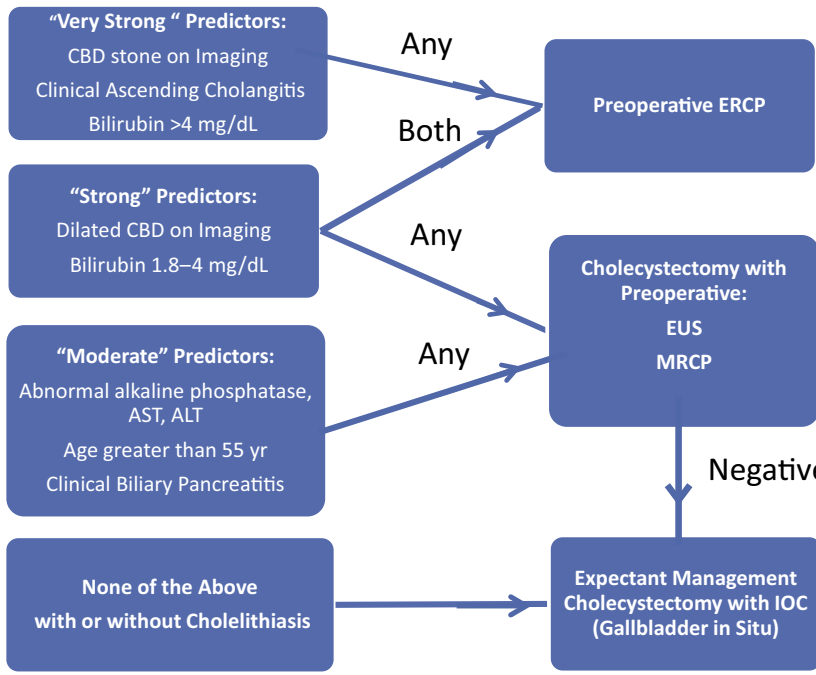

Fig. 1. Algorithm for risk stratification and management of choledocholithiasis in the setting of biliary pancreatitis. ALT, alanine aminotransferase; AST, aspartate aminotransferase; CBD, common bile duct; ERCP, endoscopic retrograde cholangiopancreatography; EUS, endoscopic ultrasonography; IOC, intraoperative cholangiography; MRCP, MR cholangiopancreatography.