

Common Bile Duct Investigation in Patients with Mild Biliary Pancreatitis. When and How? A Prospective Analysis of 48 Patients

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ABSTRACT

Background/Aims: To define how and when patients with mild acute biliary pancreatitis must have their biliary tree investigated.

Methodology: We analyzed 48 patients' files with mild biliary pancreatitis between 1995 and 2004. After clinical treatment, magnetic resonance or endoscopic retrograde cholangiopancreatography and then surgery was performed. Statistical data were analyzed through SPSS version 11.0.

Results: Of the 48 patients, 13 (27%) patients had choledocholithiasis. Five of these (38%) were diagnosed and treated by endoscopic retrograde cholangiopancreatography and 8 (62%) patients had choledocholithiasis at magnetic resonance cholangiopancreatography. These 8 patients underwent endo-

scopic retrograde cholangiopancreatography that found common bile duct stones in only 4 (50%) of them that were treated successfully with papillotomy. All patients underwent laparoscopic cholecystectomy at the same hospital stay with a low morbidity and no mortality.

Conclusions: We believe that patients with mild biliary pancreatitis should have their biliary tree investigated just after clinical recovery and as close as possible to the operation because many gallstones pass spontaneously through the papillae. We believe that magnetic resonance cholangiopancreatography can avoid an unnecessary endoscopic retrograde cholangiopancreatography.

KEY WORDS:

Pancreatitis;
 Choledocholithiasis;
 MRCP; ERCP;
 Laparoscopy;
 Treatment

ABBREVIATIONS:

Acute Biliary
 Pancreatitis (ABP);
 Magnetic
 Resonance
 Cholangio-
 pancreatography
 (MRCP);
 Endoscopic
 Retrograde
 Cholangio-
 pancreatography
 (ERCP);
 Laparoscopic
 Cholecystectomy
 (LC); Common
 Bile Duct (CBD)

INTRODUCTION

Acute pancreatitis presents variable causes, mostly biliary lithiasis and alcohol abuse, which make up to 80% of all cases (1-3). Epidemiological studies have shown that biliary lithiasis is the cause of 30 to 50% of all cases of acute pancreatitis (4).

Although few patients with biliary lithiasis present acute pancreatitis, it is known that stones smaller than 5mm increase four-fold the risk of acute pancreatitis (5-7). Other risk factors include a cystic duct wider than 5mm and more than 20 stones in the gallbladder (5).

Initial management of acute biliary pancreatitis is based on fasting, relief of the pain and fluid resuscitation. Common biliary duct investigation is also important, and its clearing when necessary and lastly laparoscopic cholecystectomy (LC) as part of its definitive treatment in the same hospital stay.

Several imaging exams may help assess the common biliary duct, such as abdominal sonography, endoscopic retrograde cholangiopancreatography (ERCP) and recently, magnetic resonance cholangiopancreatography (MRCP) (8-10). Ideal timing to

perform these exams, specially ERCP and MRCP in patients with acute biliary pancreatitis (ABP) is still controversial (9-14,16,17). A rational sequence to use these diagnostic tools may improve the care of these patients, avoiding the use of unnecessary invasive methods (ERCP), high cost (MRCP), or operative procedures (biliary tree exploration) (8,13,15,16).

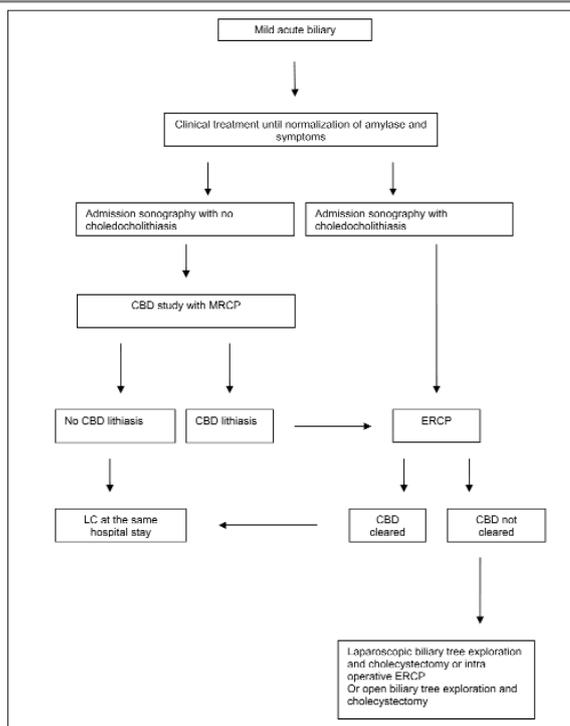
METHODOLOGY

We analyzed data of patients admitted at our service with mild acute biliary pancreatitis (Ranson score < 3), from April 1994 to April 2004.

Diagnostic criteria used were: compatible clinical history, 2 to 3-fold increase in amylase serum level, biliary lithiasis at abdominal sonography. Data were collected prospectively using a standardized form filled by our staff.

The pancreatitis treatment followed our general surgery division algorithm (**Figure 1**) (18) that consists of initial clinical treatment with fasting, venous saline infusion and pain control. After normal amylase serum level and the patient being asymptomatic, food was restarted and a biliary tree investigation per-

FIGURE 1
AUTHOR please
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formed. At the first 5 years this assessment was done through ERCP exclusively, with stone removal if needed. In 1999, MRCP became available at our hospital; we have been using this method more often, leaving ERCP to common bile duct stone removal when diagnosed through MRCP or abdominal sonography. MRCP, as a noninvasive exam, was done within the first 48 hours independently of pain or serum amylase level.

LC was performed after pain relief and normal amylase level. When choledocholithiasis was found the LC was done within the first 24h after clearing through ERCP, always at the same hospital stay. It was not necessary to perform surgical biliary tree exploration in this series because we successfully cleared the CBD of all patients before surgery.

RESULTS

From 48 patients included in this study, 33 were female (68.8%), with average age of 49.3 years, ranging from 23 to 90 years. Abdominal pain was the main symptom at admission in 39 patients (81%), followed by nausea and vomiting in 28 patients (58%). Amylase serum level ranged from 527 to 12755 U/L (average of 2828).

Of the 48 patients, 13 (27%) patients had choledocholithiasis. Five of these (38%) were diagnosed and treated by ERCP after pain relief and amylase normalization. Eight (62%) patients had choledocholithiasis at MRCP. These 8 patients underwent ERCP that found common bile duct stones in only 4 (50%) of them that were treated successfully with papillotomy.

Nine (18.7%) patients of all had the common bile duct cleared with ERCP before surgery and 20 (41.6%)

underwent an unnecessary ERCP, four (8.3%) with a previous MRCP. There was no morbidity or death due to ERCP. A LC was performed in every patient after the CBD was cleared. Surgical procedure lasted 70.8 minutes on average, ranging from 40 to 150 minutes. There was no conversion to open surgery. There were no ERCP complications but four surgical complications: one abdominal bleeding due to injury to the cystic artery, which was controlled by laparoscopy; a severe anaphylactic reaction due to the use of antibiotics and controlled with steroids; and two patients presented mild atelectacy which improved after physical therapy. The average hospital stay was 12.04 days, 9.36 days between the admission and the surgery and 2.68 days after the surgery until the hospital discharge, there was no readmission and no death.

DISCUSSION

The treatment of ABP depends on a well structured Hospital with the capability to study and explore the biliary tree properly. We have been treating our patients based on our General Surgery Division algorithm (18) that consists of clinical treatment of the pancreatitis and a further evaluation of the CBD that starts with MRCP just before surgery. If CBD lithiasis is diagnosed, the patient goes for ERCP. We did not mention sonography results in our paper because it is a technical dependent method and even in optimal conditions and experienced hands it has a low sensitivity for choledocholithiasis (20%) (27). All the patients were admitted through emergency and sonographies were performed without a routine standardization by different radiologists on duty. Most of the patients were with abdominal distention and not fasting reducing even more the sensitivity and accuracy of the method. We preferred to use exams with a higher sensitivity than sonography like MRCP (80%) and ERCP (90%) (27) to study the biliary tree. The MRCP and ERCP were performed always by the same radiologist and endoscopist. ERCP was performed after normalization of symptoms and amylase serum level because it is an invasive procedure and can recidivate pancreatitis. As MRCP is a non-invasive method that does not change the course of disease we used to indicate it at patient's admission and were done at any time during the clinical course of the disease. The role of ERCP in the ABP was always controversial due to potential complications and its timing, once ERCP for any purpose brings 5 to 8% of morbidity in the literature. The most frequent complications are: hemorrhage, cholangitis, duodenal perforation and pancreatitis recurrence (9,11,12,14,15). In our practice in the last 18 months (300 patients) our incidence of complications is around 3%: one papillary hemorrhage, one pancreatitis and one duodenal perforation treated promptly by surgical duodenography *as long as cholecystectomy with no surgical complications (unpublished data)*. (AUTHOR please rephrase this part of the sentence)

Throughout the years many authors have tried to establish the criteria for the use of ERCP. Currently,

the rise in the use of a non-invasive exam such as MRCP is reducing costs and patient risks. Controversies persist because of the not well established accuracy of MRCP that varies depending on the experience of each institution, ranging from 89 to 92% in detecting choledocholithiasis (22-24). The accuracy can be lower for stones smaller than 5mm (25). Another issue is the best timing for biliary tree assessment. In this study, four patients with confirmed choledocholithiasis on MRCP underwent ERCP that showed no stone. We believe that this happened due to an early MRCP study that missed the patient with spontaneous passage of gallstones through the papillae. It can happen in around 34% (28) in literature. Biliary acute pancre-

atitis always has a surgical outcome, mostly through LC, after certifying that the CBD is cleared. Surgery should happen in the same hospital stay to diminish costs and avoid pancreatitis recurrence (4,26).

CONCLUSION

We believe that all patients with mild biliary pancreatitis should have their biliary tree investigated by MRCP just after clinical recovery, as close as possible to the operation because many gallstones pass spontaneously through the papillae. We believe that magnetic resonance cholangiopancreatography can avoid an unnecessary endoscopic retrograde cholangiopancreatography and intraoperative cholangiography.

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