



Prospective study of EUS guided ERCP or IOC approach in the detection of common bile duct stones in patients undergoing cholecystectomy

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Abstract: Introduction: Choledocholithiasis (common bile duct stones) develops in up to 20 percent of patients with gallbladder stones. It is generally accepted that stones in the common bile duct (CBD) should be removed, even if patients are asymptomatic, because they may be associated with severe complications such as pancreatitis and cholangitis. **Materials and Methods:** This is a Prospective and analytical study conducted at Department of Surgical Gastroenterology in a Tertiary care Teaching Hospital with suspected common bile duct stones consenting to study protocol were recruited and outcome on management was recorded for each arm of the study over a period of 1 year. In positive EUS group, therapeutic ERCP was performed at the same EUS session or later if CBD stone was found. In the EUS group negative for CBD stones, IOC was performed during laparoscopic cholecystectomy. **Result:** Mean patient age was 62 years (range, 44 to 74 years), 12 were women and 7 men. Eight of 19 patients (42%) had undergone a previous cholecystectomy; none had undergone previous ERCP. Seven patients (37%) had mild acute biliary pancreatitis (Glasgow score <3) at admission. Six patients, who were referred by other hospitals for EUS, previously had undergone MRCP without evidence of biliary stones. **Conclusion:** MRCP and EUS have only diagnostic roles, and ERCP is needed for therapeutic purposes. It has been suggested that, when CBDS are found at EUS, they should be treated in the same session. Ideally EUS should be performed in a facility that allows ERCP and to be performed immediately thereafter with no interruption.

Keywords: Endoscopic retrograde cholangiopancreatography, Common bile duct stones, Cholecystectomy.

INTRODUCTION

Choledocholithiasis (common bile duct stones) develops in up to 20 percent of patients with gallbladder stones. It is generally accepted that stones in the common bile duct (CBD) should be removed, even if patients are asymptomatic, because they may be associated with severe complications such as pancreatitis and cholangitis. ^[1]

Diagnosis of common duct stones is not always straightforward. Clinical evaluation and biochemical tests are insufficiently accurate. Conventional ultrasonography is limited in the detection of bile duct stones due to poor visualization. Endoscopic retrograde cholangiopancreatography (ERCP) and Intraoperative cholangiography (IOC) are currently the Gold standard investigations of choice for suspected choledocholithiasis, but are not without morbidity.

The role of Endoscopic ultrasound (EUS) in the management of patients with suspected choledocholithiasis has not been well established. ^[2]

ERCP has been considered the criterion standard for diagnosis and treatment of biliopancreatic diseases, but the potential for complications has stimulated the development of alternative imaging diagnostic techniques, such as EUS and MRCP, to achieve a highly targeted use of therapeutic ERCP. ^[3]

Both of these procedures are reliable and accurate in the diagnostic assessment of extrahepatic cholestasis, especially in the detection of common bile duct stones (CBDS). ^[4] Moreover, EUS is considered the most reliable technique for the detection of sludge in the gallbladder and common bile duct, and it was shown to be the most cost-effective diagnostic

test in patients with probabilities of common bile duct stones ranging from 7% to 50%.^[5] However, EUS and MRCP have only diagnostic roles, and subsequent ERCP is needed if therapy is indicated.^[6]

EUS may be used to reduce the need of diagnostic ERCP. Our purpose is to investigate the benefits and safety of a EUS-guided ERCP or IOC approach in the management of suspected biliary obstructive diseases caused by choledocholithiasis. We aim to evaluate the utility of EUS guided approach in suspected biliary stone disease.

MATERIALS AND METHODS:

This is a Prospective and analytical study conducted at Department of Surgical Gastroenterology in a Tertiary care Teaching Hospital with suspected common bile duct stones consenting to study protocol were recruited and outcome on management was recorded for each arm of the study over a period of 1 year.

Interventions:

In positive EUS group, therapeutic ERCP was performed at the same EUS session or later if CBD stone was found. In the EUS group negative for CBD stones, IOC was performed during laparoscopic cholecystectomy.

Inclusion Criteria: Patients Age 18 – 75 years and suspected CBD stone (clinical, biochemical, radiological)

Exclusion Criteria: Patients requiring emergency ERCP (e.g.: cholangitis), Patients with previous cholecystectomy

RESULT

This study was carried out in a selected population of patients with intermediate risk of CBDS and no urgent indication for ERCP. Nineteen patients with acute abdominal pain associated with increased liver enzyme values (aminotransferases and γ -glutamyl transpeptidase or alkaline phosphatase >3 times the normal values) and abdominal US results negative for CBDS were included in this observational pilot study.

All patients were admitted to our gastroenterology department. Mean patient age was 62 years (range, 44 to 74 years), 12 were women and 7 men. Eight of 19 patients (42%) had undergone a previous cholecystectomy; none had undergone previous ERCP. Seven patients (37%) had mild acute biliary pancreatitis (Glasgow score <3) at admission. Six patients, who were referred by other hospitals for EUS, previously had undergone MRCP without evidence of biliary stones. Common bile duct dilation was found in 3 and 2 cases at MRCP and US, respectively; none of these patients presented with jaundice and imaging findings of biliary stones. EUS was performed within 3 days of admission in all cases.

Patients at high risk for CBDS (either with US or MRCP findings compatible with stones, or with bile duct dilation associated with jaundice) were excluded from the study and underwent standard ERCP directly. A written informed consent was obtained from all patients, and the study was approved by the ethical committee of our hospital.

All procedures were performed by using an Olympus JF-UM20 (Olympus Europe GmbH, Hamburg, Germany) fiberoptic oblique-viewing echoendoscope, with an operative channel of 2.2 mm and a standard elevator; the instrument is equipped with a mechanical radial US scanner with a single frequency of 7.5 MHz. All procedures were performed in an operative endoscopy room equipped with an Advantx TC+ angiography imaging system (General Electric Co, Fairfield, Conn). The operators (R.R., C.D.A.) were aware of the results of other imaging techniques before EUS examinations.

Discussion

As previously noted by Sivak, “When the clinical features strongly suggest common bile duct stones, management is fairly straightforward: diagnostic and therapeutic ERCP can always represent the entire strategy.”^[7] However, clinical, biochemical, and abdominal US features can be equivocal or indefinite, and noninvasive or minimally invasive techniques seem mandatory to avoid unnecessary ERCP and to select those patients who definitely are benefit from this therapeutic procedure.^[8] Comparative studies on imaging techniques have shown similar accuracy for EUS and MRCP in detecting CBDS, but some reports showed a superiority of EUS for small stones and biliary sludge, especially if the bile duct is not dilated.^[9]

MRCP and EUS have only diagnostic roles, and ERCP is needed for therapeutic purposes.^[10] A diagnostic algorithm in patients with suspected biliary disease should be oriented by the probability for CBDS. In patients classified as intermediate risk, CBDS are found in 20% to 50% of cases; in this range of probabilities, economical evaluation of different strategies showed EUS to be the best cost-effective diagnostic modality.^[11] It has been suggested that, when CBDS are found at EUS, they should be treated in the same session: “Ideally EUS should be performed in a facility that allows ERCP and [endoscopic sphincterotomy] to be performed immediately thereafter with no interruption [in sedation].”^[13]

CONCLUSION

MRCP and EUS have only diagnostic roles, and ERCP is needed for therapeutic purposes. It has been suggested that, when CBDS are found at EUS, they should be treated in the same session.

Ideally EUS should be performed in a facility that allows ERCP and endoscopic sphincterotomy to be performed immediately thereafter with no interruption.

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