

ERCP and laparoscopic cholecystectomy as a single setting procedure, can it be done safely in peripheral rural hospital?

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Abstract

Background: The ideal management of cholecysto-choledocholithiasis is an open cholecystectomy (OC) with the CBD exploration worldwide. The single setting 2-stage approach- Endoscopic retrograde cholangiopancreatography (ERCP), sphincterotomy (EST) and common bile duct (CBD) clearance followed by laparoscopic cholecystectomy (LC) offers advantages, mainly by reducing the hospital stay and the morbidity. **Objective:** To compare the ERCP + LC single setting approach with an OC with the CBD exploration for the treatment of cholecysto-choledocholithiasis.

Methods: We included the retrospective review of the open procedure which was maintained database from November 2012 onwards at our hospital and did a prospective study of the ERCP +LC procedure October 13 to October 2015 at Lumbini Medical College and Teaching Hospital, Palpa, Lumbini. The open cases were our control group. Patients with cholecysto-choledocholithiasis underwent 2-stage ERCP + LC in a single setting was compared with the 2-stage OC with CBD exploration in a single setting approach. All the cases included in the study are elective. The primary objective is to study the feasibility of the procedure, whereas secondary objectives are to 1). Detect the morbidity (Post-ERCP, Cholangitis, Pancreatitis, Abdominal collection, Wound infection) 2). The length of stay and 3). Stone clearance respectively. This is an interim analysis with 83 patients in ERCP + LC and 77 in open group respectively.

Results: Hospital stay was significantly shorter in the ERCP + LC group; 3.92±0.719 days versus 10.30±1.557 days, $P < 0.05$. There was significant difference in total morbidity of ERCP + LC group 7(8.4%) vs. 14(18.2%), p -value < 0.05 , where wound infection in ERCP + LC group was 2(2.4%) vs. 4(5.2%) and there was one case of abdominal collection (1.2%) which was managed symptomatically. The incidence of retained CBD stone in ERCP + LC was 3(1.2%) which was managed successfully with ERCP. Post-ERCP amylase value was found within the normal limit in all the cases.

Conclusions: The analysis of our results suggests ERCP + LC in the settings of the peripheral hospital are feasible in terms of cost, length of hospital stay, morbidity and stone clearance.

Choledocholithiasis is the cause of significant morbidity and mortality due to its complications in the form of gallstone pancreatitis, obstructive jaundice, and cholangitis. The incidence ranges from 5 to 15% and up to 20% in the elderly population. And, up to 25% of cases, CBD stones are discovered intraoperatively.

The primary imaging modalities like Transabdominal USG has the sensitivity of 73% and specificity of 91%. Similarly, MRCP has the sensitivity of 81-100% and specificity of 92-100% whereas, ERCP/EUS has 88-97% and 96-100%. These imaging modalities can detect CBD stones as well as dilated biliary ductal system. Other modalities available are Liver function test (LFT), intraoperative laparoscopic ultrasonography and helical CT cholangiography. Laparoscopic cholecystectomy with or without intraoperative cholangiogram (IOC) is the current gold standard for the treatment of acute or chronic cholecystitis. There is no single method or algorithm that is superior to others when it comes in the treatment of the obstructive complication of calculous biliary diseases like jaundice, pancreatitis, cholangitis, and asymptomatic choledocholithiasis. There has been a drastic transformation in the management of CBD stones after the introduction of ERCP in 1968. Recently, Aleknaite et al. showed that ERCP has a better diagnostic performance than IOC.

Traditionally, the treatment involves what is known as a two setting procedure, that consists of preoperative ERCP followed by LC. Alternatively, LC with IOC and intraoperative CBD exploration or ERCP performed at a later date in the traditional two step framework. A recent systemic review and meta-analysis recommended ERCP followed by LC rather than ERCP followed by the wait and watch. Even though two groups had no differences in mortality, results showed that LC after ERCP could be done safely including high risk patients. In the

United States nationwide assessment for the treatment of CBD stone showed drastic increase in the use of ERCP+LC from 52.8% to 85.7% ($p<0.001$) and decrease in the trend of open CBDE (30.6% vs 5.5%; $p<0.001$) and laparoscopic CBDE (9.2% vs 3.0%; $p<0.001$).¹⁶ Safety and efficacy of single setting ERCP+LC were shown in the RCT done by Cuschieri et al. long back. Where they found that with the proper selection of the patients, ERCP+LC leads to the better management of patients with CBD stones. Here, in our study both the procedures (ERCP+LC) had been done in a single setting by a single team at the peripheral-level hospital.

And thus the primary objective of this study is to check the feasibility of the procedure, whereas secondary objectives are to detect the morbidity (cholangitis, pancreatitis, abdominal collection and wound infection), the length of hospital stay, and stone clearance, respectively. The new thing about this study is that all of these procedures ERCP and LC were performed at the single setting by the same surgeon who was trained for the ERCP, LC and open procedure, respectively.

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