

ENDOSCOPIC MANAGEMENT OF POST OPERATIVE BILE LEAKS – SINGLE CENTER STUDY

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Abstract

Background: Endoscopic management of iatrogenic biliary complications continued to be technically challenging for the therapeutic endoscopist. Endoscopic retrograde cholangiopancreatography (ERCP) procedure reduces the trans papillary pressure gradient and helps to bridge the leak site. Currently medical literature doesn't provide much information about decision making in iatrogenic bile leak. We analyzed 28 patients with biliary leak managed by ERCP and these patients developed leak after cholecystectomy both by open and laproscopic cholecystectomy. In these 28 patients cannulation both CBD sphincterotomy and stenting done and successful in 23 patients; in 5 patients guide wire couldn't traverse the transection point due to complete transection. The leak closed in 7 days, biliary stent removed after 8 weeks of procedure. **Materials and Methods:** Retrospective study of 28 patients who underwent ERCP for bile leak after cholecystectomies both laparoscopy and open are analysed. Only patient who underwent ERCP for bile leak secondary to cholecystectomies are included. Bile duct injuries are were classified on Strasberg classification. **Result:** Among the 28 patients CBD cannulation along with CBD sphincterotomy and stenting done and successful in 23 patients; in 5 patients guide wire couldn't traverse the transection point due to complete transection. The leak closed in 7 days, biliary stent removed after 8 weeks of procedure. We followed Strasberg classification of bile duct injuries and type A is the commonest injury, type E is difficult for ERCP. **Conclusion:** ERCP is a better option for bile duct injuries secondary to cholecystectomies, early referral can able to bridge the transection, and helps to reduce the patients morbidity. Starsberg classification can guide the endoscopist.

INTRODUCTION

Laparoscopic cholecystectomy patients have 0.5% to 1.5% incidence compared with open cholecystectomy patients whose incidence is 0.1% to 0.2%.^[1] Other causes include surgical drainage of liver abscess and hydatid cyst, trauma.^[2] Persistent bile drain from the post-surgical drain and altered LFT and abdomen distention should raise a suspicion of bile leak.^[3] Erpc management of bile duct leak gaining popularity because less complication rates.

MATERIALS AND METHODS

This is a retrospective study, over a period of 1 years. Hospital records of patients who had undergone ERCP from 2021-2022 were retrieved. All patients who underwent ERCP were included in the study. Detailed information on clinical presentation, site of leak, all patients underwent MRCP before ERCP. All patients underwent preliminary investigation like complete hemogram, liver function tests, renal function tests, random blood glucose, ultrasonography of abdomen to look for any intra-abdominal collection. Classification of bile duct injury based on Strasberg [Figure 1].

The criteria used for resolution of leak – decrease drain output, decrease in LFT, improvement in symptoms.

In patients in whom guidewire couldn't be crossed the leak site, biliary sphincterotomy done.

RESULTS

During this 1year period, 28 patients underwent ERCP for clinical suspicion of a biliary leak, 20 patients are female and mean age is 44 years. All

patients had biliary leak following cholecystectomy are included in this study. Persistent external biliary drainage leak seen in 90%, persistent abdomen pain seen in 44%. Intra -abdomen fluid collection seen in 40%. ERCP was attempted in all patients to find the site of bile duct injury. 0.035" guidewires couldn't be negotiable beyond the leak in 5 patients. During balloon troling stones were retrieved in 8 cases. Type A injury is most common 42.8% (n=12), placement of 7fr stent is feasible in 23 cases, patient with complete transection referred to the surgery.

Table 1: classification of bile duct injury based on Strasberg classification

Type A 15 (58%)
Type D 8 (28.5%)
Type E 5(17.8%)

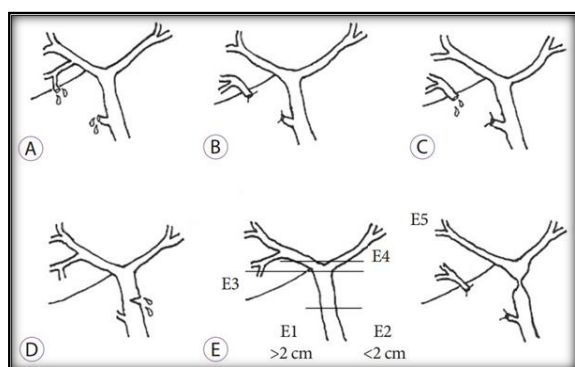


Figure 1: Strasberg classification [9]. (A) bile leak from the cystic duct or liver bed without injury, (B) partial occlusion of the biliary tree, most commonly from the aberrant right hepatic duct, (C) bile leak from the duct (aberrant right hepatic duct) without communication with the common bile duct, (D) lateral injury of the biliary system without loss of continuity, and (E) circumferential injury of the biliary tree with loss of continuity: (E1) transected main bile duct with a stricture >2 cm from the hilum, (E2) transected main bile duct with a stricture <2 cm from the hilum, (E3) stricture of the hilum with communication between the right and left ducts, (E4) stricture of the hilum with separation of the right and left ducts, and (E5) stricture of the main bile duct and the right posterior sectorial duct.

DISCUSSION

Bile duct leak is a serious complication in hepato biliary surgery various options for managing biliary leaks are surgical repair, percutaneous biliary drainage, or endoscopic intervention. ERCP is nowadays widely recommended as first-line therapy for postoperative biliary leaks.^[4] Endoscopic sphincterotomy with stone extraction and stent placement was feasible option compared to surgery.^[5] Donnellan et al. demonstrated that the combination of endoscopic sphincterotomy with 7-Fr double pigtail stents results in excellent outcomes.^[6] Sadha GS et al. in their study noticed leakage of cystic duct is most common constitutes 78% in our study constitutes 58%.^[7] A retained cbd stones after cholecystectomy is seen in 2.5% of cases.^[8] To

support ERCP in retained CBD stones, Anward et al showed successful outcome after ERCP, in the present study stones were retrieved in 8 cases after laproscopic cholecystectomy.^[9] Kenny Vlaemynck et al in a systematic review recommend that sphincterotomy with stenting if leak can be bridged.^[10] In our study we done sphincterotomy with stenting and success rate is 82.1%. Panagiotis Katsinelos et al. found no difference in outcome with 10 -fr and 7- fr plastic stents similarly our study also showed no difference in outcomes between straight and double pig tail plastic stents.^[11] Most authors advocate removal of stents after an interval of 4-8 weeks.^[12] In most of our patients stent removed after 8 weeks. K Mergener et al found that endoscopic stenting is successful in accessory bile duct injuries after cholecystectomy,^[13] in our study successful endoscopic stenting done in Strasberg type A, D. Mild pancreatitis seen in 6 cases and improved with supportive care and no mortality seen in the study. All cases with intervention less than 3 weeks have better improvement in this study all cases done within 2 weeks.^[14,15]

CONCLUSION

We recommend ERCP a better option for bile duct injuries compared to surgery. Whenever guidewire negotiable both CBD sphincterotomy and stenting should be done. Time interval between ERCP and bile duct injury < 3 weeks have better outcome.

Limitation of Study

Single center study, small study population, included only post cholecystectomy cases, follow up of patients after stent removal not done.

Conflicts of interest of statements: Nil

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