PRIMARY CLOSURE OF COMMON BILE DUCT AFTER OPEN CHOLEDOCHOTOMY

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ABSTRACT

Objective — *To assess the outcome of primary closure of common bile duct after open choledochotomy.*

Study design — *Descriptive case series.*

Place & Duration of study — *Department of surgery, unit II, III and VI, Dow University of Health Sciences and Civil Hospital Karachi from June 2005 to May 2009.*

Patients and Methods — *Clinical records of all the patients who underwent bile duct exploration followed by primary closure were reviewed. Main outcome measures were operating time, duration of hospital stay and postoperative complication; including bile leakage, subphrenic abscess, biliary peritonitis and postoperative jaundice. The SPSS version 11 was applied to the data for analysis.*

Results — *A total of 38 patients were found from clinical records having male to female ratio of 1:6.6. Mean (± SD) operating time was 95 (+ 7) minutes. The overall complication rate was 10.52%. Bile leak was encountered in three (7.89%) patients whereas small subphrenic collection was noticed in one (2.63%) patient who was treated conservatively. None of the patients experienced postoperative jaundice and biliary peritonitis. Mean (± SD) duration of hospital stay was 7.63 (+ 1.63) days.*

Conclusion — *Primary repair of common bile duct after open choledochotomy is safe and associated with low complication rate.*

Key words — *Common bile duct, Choledochotomy, Choledocholithiasis.*

INTRODUCTION:

Choledocholithiasis is the common problem that necessitates surgical intervention. It is managed either by endoscopic sphincterotomy or surgical exploration i.e. choledochotomy.[1] Traditionally, common bile duct (CBD) is closed over T-tube but potential of complications exists with this therapeutic modality.[2] These include bacteremia, dislodgement of tube, obstruction and/or fracture of tube.[3] Furthermore, leakage of bile may be encountered after removal.[4] Patient may have to carry it for several weeks before removal.[5] All of these lead to prolong length of hospital stay.[6]

Currently, primary closure of CBD has been described in literature to overcome these adverse consequences of T-tube.[7,8] This study was designed to assess the outcome of primary repair of CBD in terms of operating time, duration of hospital stay and postoperative complications.

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METHODOLOGY

This retrospective case series was conducted at the Department of Surgery, unit II, III and VI of Dow University of Health Sciences and Civil Hospital Karachi. Clinical records of all the patients who underwent open CBD exploration with primary closure between June 2005 to

May 2009 were retrieved. Patient's demographics (like age and gender), operative time, duration of hospital stay, and postoperative complications; including bile leakage, biliary peritonitis, subphrenic abscess and postoperative jaundice were recorded on a proforma. Duration of hospital stay included postoperative days up to discharge of the patient. The data was compiled and the results tabulated using SPSS (Version 11, 2002, SPSS Inc., Chicago, IL, USA).

RESULTS:

A record of 38 patients was retrieved who underwent open choledochotomy for ductal stone followed by primary closure over the four year period. There were 05(13.2%) males and 33(86.8%) females. The male to female ratio was 1:6.6. The ages of the patients ranged from 18-65 years with mean (± SD) age as 41.16 (+ 13.48) years. All patients were accessed through right subcostal incision. After cholecystectomy, longitudinal incision was made over supraduodenal portion of bile duct. Stones were extracted with the help of Desjardin forceps and patency of distal passage was confirmed by negotiation of Bakes dilators into second part of duodenum. This was followed by irrigation of bile duct with normal saline via feeding tube. Then primary repair of CBD was done with placement of interrupted polyglycolic 3/0 suture. In all cases, subhepatic drain was placed.

Mean (± SD) operating time was 95 (+ 7) minutes. The overall complication rate was 10.52% in this study. Bile leak was encountered in three (7.89%) patients whereas small subphrenic collection was noticed in one (2.63%) patient. All of them were treated conservatively. Mean (± SD) duration of hospital stay was 7.63 (+ 1.63) days.

DISCUSSION:

This study showed no major morbidity associated with primary repair of bile duct after supraduodenal choledochotomy for choledocholithiasis. Moreover, this technique carried shorter operating time and duration of hospital stay. T-tube placement after CBD exploration has long been a standard surgical practice for choledocholithiasis.[9] The main advantages of this modality were provision of external biliary drainage till edema of sphincter of Oddi subsided and percutaneous removal of retained bile duct stones.[6] However, this technique is associated with significant complications, therefore, primary repair of CBD has been advocated in literature. Zhang et al[10] noticed 28.6% of complications rate associated with T-tube in contrast to 11.1% in whom primary repair was performed. In this study, overall complications rate was 10.52% which is nearly comparable to the study conducted by Leida and associates.[11] They encountered 15% complications in those patients in whom primary closure was the method used.

In this study, bile leak was encountered in three (7.89%) patients whereas small subphrenic collection was noticed in one (2.63%) patient. Biliary complications are considered to be the major consequence after primary repair of CBD, however, their overall frequencies are much less than that of T-tube closure. Ahmad and colleagues[2] observed 22% and 8.9% of these complications in T-tube and primary closure groups respectively. Ambreen et al[4] noticed one (6.3%) patient of bile leakage that subsided conservatively, which is comparable to this study. Ha et al[7] also encountered one patient of subphrenic collection in their series. None of the patients in this study experienced postoperative jaundice and biliary peritonitis. This is comparable to the study conducted by Ambreen and associates.[4] However, Perez et al reported biliary peritonitis after removal of T-tube.[12]

As a result of postoperative complications and long placement of T-tube till removal, duration of hospital stay gets prolonged. This forced surgeons to move towards primary repair technique that have been advised in literature. In this study, mean duration of hospital stay was 7.63 days which is nearly comparable to the study conducted by Decker et al.[13] The mean operating time was 95 minutes, as previously encountered by Ha and colleagues in their retrospective case series.[7]

This study is distinctive in approach, but has a limitation of being a retrospective analysis. To correlate the complications and further comparison between the two treatment options, randomized clinical trials will be needed to strengthen the scientific evidence in favor of primary closure.

CONCLUSION

Primary closure of CBD is safe and effective alternative measure and associated with low complication rates.

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