



COMMON BILE DUCT INJURY; MANAGEMENT AND OUTCOME STUDY AT ISRA UNIVERSITY HOSPITAL HYDERABAD SIND.

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ABSTRACT...Objectives: To evaluate management and outcome of Iatrogenic Common Bile Duct injury after cholecystectomy. **Material and methods: Study Design:** Descriptive study. **Place and Duration of Study:** Isra University Hospital Hyderabad during the period of April 2013 to April 2014. **Methodology:** All patients presented with CBD injury after cholecystectomy included while CBD tumor and CBD stone and trauma were excluded from study. Total of sixteen patients with CBD injury were admitted from outside the hospital in surgical ward in Isra University hospital either through OPD or Emergency Room or Endoscopy Suite depending on the mode of presentation and failure of ERCP if performed according to the need and clinical presentation. All patients were resuscitated and investigated thoroughly and the procedure whether ERCP, or reconstructive surgery or conservative treatment performed based on patient's clinical presentation and mode of injury and is recorded in the preset approved Performa from relative hospital's ethical review committee and the data compiled in SPSS version 10. **Results:** All 16 patients; 4(25%) male and 12(75%) females admitted from outside the hospital in two year period. Presented in variable time interval 12 (75%) patients admitted in 1 month, 3(18.8%) in 6 months & 1(6.3%) in 12 months. Jaundice was the main presenting symptom. Patients were resuscitated and optimized for invasive procedure i.e. ERCP and reconstructive surgery. Six patients were treated with ERCP successfully and 9 underwent reconstructive surgery and 1 with some biliary drainage responded to simple conservative treatment. Operative success rate was 75% with 25% mortality which was related to the presence of peritonitis, development of multiorgan failure and late repair of bile duct injury. **Conclusion:** Although CBD injury is one of the most devastating complication but its early diagnosis and prompt treatment can prevent patient's life with subsequent few or no complication even after its reconstructive surgery. Training must be emphasized to find the all possible ways of recognizing biliary tract anatomy during surgery and possess skills to overwhelm the primary and leading cause of bile duct injury i.e. the visual misperception.

Key words: Cholesectomy, Bile duct injury, ERCP, T-tube, choledochojejunostomy.

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INTRODUCTION

Common Bile duct injury after cholecystectomy is remain one of the most serious iatrogenic catastrophes associated with significant Perioperative morbidity¹ and often leads to death after a short period of systemic inflammatory response syndrome and multiorgan failure syndrome.

Despite the fact that gall stones are the most common biliary pathology therefore the most commonly performed operation of cholecystectomy,² still heralded by CBD injury. This injury is often overlooked and misbehaved

by operating surgeon either because of disorientation of anatomical variables, or by inadvertent dissection at Calot's triangle or by visual misperception.³

It has two most frequent scenarios bile leak and bile duct obstruction. Prior is recognized during first post operative week by constant bile effusion which is presented either through surgical drains or surgical wound while later has insidious evolution with relapsing abdominal pain and jaundice.⁴ Still extremely late presentation may be with significant Hepatocellular damage which need liver transplantation.^{5,6}

These injuries present at variable time after the primary surgery. The prompt recognition and active early management affects the morbidity and mortality associated with it.⁷ Between 34% to 49% of Surgeons are expected to cause such an injury during their career.⁸

Avoidance of injury can be achieved by optimum exposure of Calot's triangle, judicious use of diathermy near territory of CBD, using 30 degree telescope, safe clip application without tenting of CBD^{9,10} and keeping in consideration the rule of thumb to prevent common bile duct injury.³

Role of intraoperative cholangiography can be used to define biliary anatomy. Many studies have been performed, the question as to whether IOC prevents BDI remains unresolved and controversial.¹¹ Other diagnostic imaging like ultrasound, CT Scan are important during initial evaluation for bile duct injury and intra-abdominal fluid collection similarly helpful during late postoperative phases for biliary tract dilatation and ruling out other causes of cholangitis and jaundice.⁵

This study was conducted to document our experience about evaluation of management and outcome of patients with common bile duct injury after cholecystectomy.

MATERIAL AND METHODS

This descriptive study was conducted at Surgical Unit II, Isra University hospital Hyderabad from April 2013 to April 2014 on total of sixteen patients admitted from outside the hospital. Demographic profile, modes of admission, clinical presentation, and place of prior surgery, status post, and clinical presentation at the time of admission in Isra University Hospital and Perioperative management of CBD Injury all were recorded in preset approved Proforma by respective hospital's ethical review committee. Investigations like CBC, liver function test, coagulation profile including prothrombin time, international normalized ratio and ultrasound abdomen renal assessment tests were performed for clinical assessment and anesthesia fitness for reconstructive surgery if needed. Initially patient was resuscitated

and optimized. ERCP was performed as a first diagnostic and therapeutic tool or if indicated. All patients with bile duct injury presented after cholecystectomy were included while CBD stones and tumor were excluded from the study. Resolution of the jaundice or cholangitis was defined as a good result and is demonstrated by free flow of bile through restored biliary conduit. SPSS-10 used for statistical analysis.

RESULTS

A total 16 patients; 4 (25%) males and 12 (75%) females admitted in Isra University hospital in 2 years. Mean age was 51.37 while overall age range from 27-76 years. Mode of common bile duct injury is mentioned in Table-I. Patients presented in time interval between prior surgery and onset of symptoms after getting biliary injury complication were 12 (75%) within one month, 3 (18.8%) in 6 months and only 1 (6.3%) patient within 1 year. Around all patients presented with jaundice in whom, some of them were with complex clinical picture shown in Table-II. Management given was ranged from ERCP and conservative treatment to reconstructive surgery. Table-III. Total six patients underwent ERCP after prior cholecystectomy 5 after open and 1 after laparoscopic cholecystectomy. Five patients were found with narrowing in proximal CBD which was dilated and stented with sphincterotomy while 1 was with minor biliary leakage from cystic duct stump which was stented as well. Reconstructive surgery was performed in nine patients following cholecystectomy causing CBD injury 6 after open cholecystectomy out of them 2 came with prior reconstructive surgery & 3 after laparoscopic cholecystectomy out of them 1 came with prior reconstructive surgery. Conservative treatment was given only to 1 patient who came after open cholecystectomy with controlled bilio-cutaneous fistula by means of percutaneous tube drainage. Post ERCP follow up was uneventful. Reconstructive surgery was performed in total 9 patients; 5 got smooth & uneventful recovery, 1 developed intra-abdominal collection which was drained percutaneously under ultra sound guidance and 3 were expired after a short period of illness 1 from pulmonary embolism, and 2 from systemic inflammatory syndrome and multi

organ failure syndrome, in whom 2 got prior reexploration for reconstruction of CBD injury and were presented to us in the period of 1 month and 6 months. In this study morbidity was 6.25% (n=1) and overall mortality was 18.75 % (n=3).

Patients with Status post admitted in Isra Hospital n=16		
Procedure/Mode of CBD injury	Number	%
Open Cholecystectomy	8	50.0
Open Cholecystectomy with Subsequent ERCP	2	12.5
Open Cholecystectomy with Subsequent Reconstructive surgery	2	12.5
Laparoscopic Cholecystectomy	3	18.8
Laparoscopic Cholecystectomy with Subsequent ERCP	0	0.0
Laparoscopic Cholecystectomy with Subsequent Reconstructive Surgery	1	6.3

Table-I.

Clinical Presentation At the time of Admission in Isra Hospital n=16		
Clinical Presentation	Number	%
Jaundice alone	2	13
Jaundice With Fever	2	13
Jaundice With Vomiting	2	13
Jaundice With Paralytic Ileus	0	0
Jaundice With Biliary Peritonitis	1	6
Jaundice With Biliary Ascites	3	19
Jaundice With Biliocutaneous Fistula	5	31
Jaundice With Episodic Cholangitis	1	6
Jaundice With Cirrhosis	0	0

Table-II.

Management given At Isra Hospital n=16		
Treatment given	Post Open Chol: n=12 N (%)	Post Lap Chol: n=4 N (%)
ERCP	5 (31.25)	1 (6.25)
Reconstructive Surgery	6 (37.5)	3 (18.75)
Conservative	1 (6.25)	0(0)

Table-III.

DISCUSSIONS

CBD injuries are the most dreaded complication associated with either open or laparoscopic cholecystectomy.^{12,13} BDI is more common in laparoscopic cholecystectomy but in this study it was more common during open

cholecystectomy i.e. 75% as compared to laparoscopic cholecystectomy 25 % the reason behind this all patients were referred from peripheral hospital where still open cholecystectomy is performed by junior Surgeons which is comparable to other study.⁸

Although the reported incidence of CBD injury is 0.7% the true incidence is still unknown.^{14,15} Either because of none or ill reporting of correct data at national level for not to gain the bad fame of the institution or clinical set up. In one large series the primary cause of error in 97% of cases was a visual perceptual illusion. Faults in technical skills were present in only 3% of injuries.^{16,17} It is reported that BDI more often than not occurs due to an error in perception rather than due to lack of knowledge, skills or judgment. The cognitive misperception of anatomy is so compelling that injuries are seldom recognized at the time of surgery and operation may be thought to be normal.³ Our study gives comparable result with the above studies where visual misperception might be recognized as a primary cause of presented bile duct injury as detailed below. Three patients with biliary leakage and peritonitis and treated with hepaticojejunostomy and they expired after a short period of illness. Five patients were found stitch or clip ligature on CBD which was removed followed by choledochotomy and repair over T-tube. All developed smooth recovery except one who developed intraabdominal collection which was drained under ultrasound guidance. In this series only one patient presented with mid CBD stricture, which was dealt with choledochojejunostomy and was with smooth post operative period. Some injuries are remain unrecognized for many years, occasionally coming to light only when the patient develops secondary biliary cirrhosis⁶ but we didn't find such complication in two years follow up.

Our operative success rate was 75% with 25% mortality which was related to the presence of peritonitis, development of multiorgan failure and late repair of bile duct injury. Study biased by short term follow up for long term complications either of biliary tract stricture formation or development of liver cirrhosis.

CONCLUSIONS

CBD injury complication with early diagnosis and prompt treatment can prevent patient's life with subsequent few or no complication even after its reconstructive surgery. Training must be emphasized to find the all possible ways of recognizing biliary tract anatomy during surgery and possess skills to overwhelm the primary and leading cause of bile duct injury i.e. the visual misperception.

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PREVIOUS RELATED STUDY

Jahangir Sarwar Khan, Hamid Hasan, Mohammad Iqbal. LAPAROSCOPIC CHOLECYCTECTOMY; COMMON BILE DUCT INJURY AFTER LEARNING CURVE (Original) Prof Med Jour 17(3) 373-378 Jul, Aug, Sep 2010.



“Women are made to be loved,
not understood.”

Oscar Wilde



AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Ambreen Mannan	Assembly of data and different article and final approval	
2	Dr. Suhail Ahmed Soomro	Revising Article critically	
3	Dr. Rizwanullah Junaid Bhanbhro	Concept and design	
4	Dr. Amir Ghauri	Compiling endoscopic data	
5	Professor Muhammad Hussain Laghari	Active Participant of medical management of CBD repair	
6	Dr Shakir	Active participant of surgical management of CBD repair	