

# A Study of 25 cases of CBD Injury Post Laparoscopic Cholecystectomy

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**Abstract:** A study to evaluate the types of CBD injuries that occur during a Laparoscopic Cholecystectomy, their relative frequencies and to note the management and their outcomes. A retrospective-prospective study done in our hospital during 2010-2012 to evaluate factors like the age distribution and the types of injuries and to note the management modality associated with the best outcome.

**Keywords:** Laparoscopic Cholecystectomy, CBD Injury, Management of CBD injury, complications of Laparoscopic cholecystectomy.

## 1. Introduction

- Gallstones is the most common biliary pathology making cholecystectomy the most commonly performed operation throughout the world by general surgeon & one of the most commonly performed operations in our country<sup>6</sup>.
- Carl Langenbach performed first Open cholecystectomy for patients with biliary colic due to G.B.stone in 1882. The treatment for Gallstones was revolutionized in 1986 when Carl Muhe performed first Laparoscopic cholecystectomy<sup>1</sup>.
- Invention of Laparoscopy has revolutionized the surgical management of calculus cholecystitis. The past saying that "Big surgeon makes big incisions" is reversed in present era<sup>2</sup>.
- Bile duct injury is a rare but one of the worst complications of this procedure. Although infrequent in expert hands, it is usually encountered when comparatively inexperienced surgeons are operating<sup>9</sup>. These injuries present at variable time after the primary surgery. The prompt recognition and active management affects the morbidity and mortality associated with it.
- The bile duct is prone to be damaged by use of diathermy and the excessive dissection, required to delineate the anatomy of Calot's triangle, results in ischemic injury to the biliary tract<sup>3</sup>. Other risk factors include difficulty in dissection due to acute or severe chronic inflammation, morbid obesity, unexpected bleeding, and presence of anomalous duct or vessel<sup>4</sup>. These biliary injuries include leaks, strictures, transections, or ligation of major bile duct. The management of various complications consists of variety of interventional procedures including simple drainage to stricturoplasty, and others like Roux-en-Y hepaticojejunostomy<sup>5</sup>

## 2. Aims and Objectives

- A. Mode of presentation and investigations to diagnose CBD injuries
- B. Various management modalities of CBD injuries

C. Outcome of the management modalities.

## 3. Materials and Methods

- 25 cases of CBD injury following Laparoscopic Cholecystectomy were studied prospectively & retrospectively in civil hospital Ahmadabad during 2005 to 2010. The information recorded in planned set Proforma on the basis of references available in the literature and with guidance of my teacher's experience
- After filling the details of Proforma a master chart was prepared. Detailed analysis was done & various observations derived, discussed & concluded

## 4. Selection of Patients

Major criteria are as follows:

1. Selection of patients in both procedures randomised on alternate bases
2. Patients presenting with biliary colic were proved to be calculus in gallbladder by USG & having normal common bile duct free of calculus were only selected
3. All patients operated electively.
4. No other surgically correctable intra abdominal disease or disorder present.
5. Patient requiring associated abdominal procedures (e.g. Common bile duct exploration) were excluded.
6. Some routine investigations were performed in all patients with minor variations and largely similar pre-operative preparations were made for all patients

## 5. Observation and Discussion

### 5.1 Age wise distribution of CBD injury

**Table 1:** Age wise distribution of CBD injury

Age In Year	Number of Patients
35 – 39	1
40 – 44	3
45 – 49	4

50 – 54	7
55 – 59	4
60 – 64	5
65 – 69	1
TOTAL	25

**5.2 Typewise Distribution of CBD Injury**

**Table 2:** Type wise distribution of CBD injury

Type of Injury	Number of Patients
PARTIAL CBD TRANSECTION	8
COMPLETE CBD TRANSECTION	11
CBD STRUCTURE	6

**6. Management**

**6.1 Management of Complete CBD Transaction**

Out of 4 patients in which low roux en y hepaticojejunostomy was done 2 developed stenosis at anastomosis site and none of the patients of high roux en y hepaticojejunostomy developed stenosis at anastomosis site. Thus 50% of patients developed stenosis of anastomosis following low bilioenteric anastomosis suggesting high bilioenteric anastomosis is preferable over low bilioenteric anastomosis.

**Table 3:** Management of complete CBD Transaction

Hepatico-Jejunostomy	Number	Post-Op Stricture Formation	%Of Stricture Formation Post HJ
High	4	0	0
Low	4	2	50

**6.2 Management of Complete CBD injury**

All the three patients in whom late repair of complete CBD transaction in form of roux en y hepaticojejunostomy done died in perioperative period due to overwhelming sepsis suggesting that if expertise is available immediate on table repair is the best.

**Table 4:** Management of complete CBD Injury

No. of pt	Type of surgery	Time interval	Outcome
8	Roux –en- y hepatico-jejunostomy	Immediate repair	Good
3	Roux- en- hepatico-jstomy	Late repair	Expired

**6.3 Management of partial CBD injury with Bile Leak**

All patients of Low output bile leak due to partial cbd injury were treated successfully with conservative management without any intervention, on the contrary 1 patient out of 4 patients of high output bile leak due to partial cbd injury who was treated conservatively died and other 3 were treated satisfactorily by stenting or t tube placement.

**Table 5:** Management of partial CBD injury with Bile Leak

No. of pt	Bile leak output	Conservative y treated	Stenting done	T tube placement	prognosis
4	Low (<300cc)	4	0	0	Good
1	High (>300cc)	1	0	0	Expired
3	High (>300cc)	0	2	1	Good

**6.4 Management of CBD Stricture**

All patients with cbd stricture when treated with roux en y hepatico jejunostomy showed good prognosis.

**Table 6:** Management of CBD stricture

No. of pt	Cbd stricture	Roux en y HJ	prognosis
6	yes	yes	Good

**7. Summary**

- 1.High bilio enteric anastomosis following complete cbd injury or cbd stricture is preferable to low bilo enteric anastomosis.
- 2.Low output bile leak following partial cbd injury can be treated conservatively without any surgical or radiological intervention.
- 3.High output bile leak following partial cbd injury should undergo intervention either surgical in form of t tube placement or radiological in form of stenting.

**8. Conclusion**

- Proper management of iatrogenic cbd injury is mandatory to avoid immediate and late life threatening sequelae.
- Results of surgery depend mainly on type of injury, detection of injury and timing of surgery.
- Lesions detected during laparoscopic surgery should be repaired immediately if expertise is available.
- Early referral to tertiary care center to assure optimal short and long term complications should be done.
- In acute settings complex lesions should be treated with high bilio enteric anastomosis.
- Low bilio enteric anastomosis are associated with higher dysfunction and future stricture formation.
- Prevention is the best way of managing iatrogenic cbd injury.

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