

Assessment of Cases of Biliary Leakage after Cholecystectomy

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ABSTRACT

Background: To assess cases of biliary leakage after cholecystectomy.

Materials and Methods: We selected 1000 cases in four years from 2019- 2022 of laparoscopic cholecystectomy of both genders. 20 patients of biliary leakage after cholecystectomy of both genders were enrolled and site of bile leak and management were recorded.

Results: Out of 1000 patients of laparoscopic cholecystectomy, males were 450 (45.0%) and females were 550 (55.0%). Out of 20 patients of biliary leak, males were 8 (40%) and females were 12 (60%). Site of injury was CBD in 3 cases, CHD in 8, GB Bed in 5 and cystic duct in 4 cases. The difference was significant ($P < 0.05$). Management performed was primary suturing in 4, hepaticojejunostomy in 5, conservative with controlled external fistula in 8 and suturing of cystic duct in 3 cases. The difference was significant ($P < 0.05$).

Conclusion: Bile leak from major bile duct injury should be managed promptly and requires skilled surgical intervention. Management included primary suturing, hepaticojejunostomy, conservative with controlled external fistula in and suturing of cystic duct.

Keywords: Bile leak, duct injury, laparoscopic cholecystectomy.

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INTRODUCTION

The introduction of laparoscopic cholecystectomy has dramatically changed the approach to gallstone disease over the last decade. However, the laparoscopic approach has been associated with a higher incidence of biliary complications, particularly in the early years of its adoption. Bile leak after laparoscopic cholecystectomy is generally due to a minor biliary complication, although it can sometimes herald a major duct injury. Several series have reported bile leakage rates of 1.2–4.0 per cent in laparoscopic cholecystectomy which is higher than the incidence with open cholecystectomy.¹

the laparoscopic approach bears a higher risk for iatrogenic bile duct injury (IBDI) and injury of the (right) hepatic artery.² IBDI is a complication associated with significant perioperative morbidity and mortality, reduced long-term survival and quality of life, and high rates of subsequent litigation. Despite increasing experience and progress in laparoscopic skills of surgeons, the incidence of IBDI is still elevated compared to open cholecystectomy. The rate of clinically relevant bile leaks after conventional open cholecystectomy ranges between 0.1 and 0.5%. In contrast, biliary leakages have increased in the era of laparoscopic cholecystectomy (LC) by up to 3%.³

Cholecystectomy whether laparoscopic or open is the most commonly performed hepatobiliary surgery. Therefore, post operative biliary leakage is also more common following cholecystectomy. And also because of long learning curve of laparoscopic

procedure, IBDI is on higher side in laparoscopic cholecystectomy than in open variety.⁴ Unrecognised or late diagnosis of bile duct injury can lead to serious consequences such as hepatic failure or death.⁵ We performed this study to assess cases of biliary leakage after cholecystectomy.

MATERIALS & METHODS

After considering the utility of the study and obtaining approval from ethical review committee, we selected 1000 cases in four years from 2019- 2022 of laparoscopic cholecystectomy of both genders. A written consent was obtained from all patients.

Data such as name, age, gender etc. was recorded. Parameters such as clinical presentations following biliary leak, timing of detection of bile leak post operatively, acute or chronic cholecystitis at the time of operation, amount of bile leak, duration of bile leak, postoperative investigation for bile leak, site of bile leak and management were recorded. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

RESULTS

Table I Patients Distribution

Total- 1000		
Gender	Males	Females
Number (%)	450 (45.0%)	550 (55.0%)

Out of 1000 patients of laparoscopic cholecystectomy, males were 450 (45.0%) and females were 550 (55.0%) (Table I).

Table II Cases of biliary leak

Total- 20		
Gender	Males	Females
Number (%)	8 (40%)	12 (60%)

Out of 20 patients of biliary leak, males were 8 (40%) and females were 12 (60%) (Table II).

Table III Assessment of site of injury

Site	Number	P value
CBD	3	0.05
CHD	8	
GB Bed	5	
Cystic duct	4	

Site of injury was CBD in 3 cases, CHD in 8, GB Bed in 5 and cystic duct in 4 cases. The difference was significant ($P < 0.05$) (Table III).

Table IV Assessment of management

Management	Number	P value
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Primary suturing	4	0.05
Hepaticojejunostomy	5	
Conservative with controlled external fistula	8	
Suturing of cystic duct	3	

Management performed was primary suturing in 4, hepaticojejunostomy in 5, conservative with controlled external fistula in 8 and suturing of cystic duct in 3 cases. The difference was significant ($P < 0.05$) (Table IV).

DISCUSSION

Cholecystectomy is one of the most frequently performed procedures in gastrointestinal surgery, and the laparoscopic approach is now the gold standard for symptomatic cholelithiasis as well as for chronic and acute cholecystitis.⁶ The ideal endoscopic approach – whether endoscopic sphincterotomy, long versus short stent placement or nasobiliary tube drainage – has not yet been established.⁷ It largely depends on personal experience based on small series, there being no prospective comparative studies. The use of endoscopic sphincterotomy to reduce distal bile duct pressure and facilitate closure of leaking cystic ducts is well described.⁸ Short stent placement, if possible without sphincterotomy so as to avoid sphincterotomy complications, was thought to achieve the same purpose, as it effectively eliminates sphincter resistance.^{11,12} We performed this study to assess cases of biliary leakage after cholecystectomy.

Our results showed that out of 1000 patients of laparoscopic cholecystectomy, males were 450 (45.0%) and females were 550 (55.0%). Out of 20 patients of biliary leak, males were 8 (40%) and females were 12 (60%). Tzovaras et al¹³ evaluated the efficacy of minimal access endoscopic and percutaneous techniques in treating symptomatic bile leak. Twenty-one patients with symptomatic bile leak following laparoscopic cholecystectomy underwent assessment of the extent of the bile leak via ultrasound/CT and ERCP. Following diagnosis, the patients were treated by sphincterotomy and biliary drainage and, if necessary, percutaneous drainage of the bile collection. Only one patient required primary surgical treatment following diagnosis of a major duct injury. The other 20 were treated by a combination of sphincterotomy plus percutaneous drainage in six. In 19 of 20, this minimal access approach stopped the leak.

Site of injury was CBD in 3 cases, CHD in 8, GB Bed in 5 and cystic duct in 4 cases. Abhinandan et al¹⁴ in their study a total of 1190 cholecystectomies were conducted, out of which 785 were open cholecystectomies and rest 405 were laparoscopic cholecystectomies. In this study, 20 bile leak cases were registered, out of which 6 were diagnosed as major bile duct injury and another 4 cases of bile leak were diagnosed as originated either from GB bed, duct of luschka or minor bile duct injury. In the rest 10 cases, bile leak was presumed to be either from GB bed, duct of luschka or minor bile duct injury as they resolve spontaneously after conservative management. In this study the incidence of major bile duct injury after cholecystectomy is 0.50 whereas the overall incidence of bile leak after cholecystectomy is 1.68.

We found that management performed was primary suturing in 4, hepaticojejunostomy in 5, conservative with controlled external fistula in 8 and suturing of cystic duct in 3 cases. Adamsen S et al¹⁵ found that bile duct injuries are more common following laparoscopic cholecystectomy including fistulae, which are reported in 1.3% to 5.5% of cases.

CONCLUSION

Bile leak from major bile duct injury should be managed promptly and requires skilled surgical intervention. Management included primary suturing, hepaticojejunostomy, conservative with controlled external fistula in and suturing of cystic duct.

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