

POST – CHOLECYSTECTOMY BILE DUCT INJURIES: A RETROSPECTIVE STUDY

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INTRODUCTION

Bile duct injury (BDI) is still a major worrisome complication that is feared by all surgeons undergoing cholecystectomy. The overall incidence of biliary duct injuries still falls between 0.2-1.3%. BDI classification remains an important method to define the type of injury conducted for investigation and management. In recent years, a Consensus has been taken to clearly define BDI using the ATOM classification. Early management brings better results than delayed management. The current perspective in biliary surgery is the laparoscopic role in diagnosing and managing BDI. Diagnostic laparoscopy has been conducted in various entities for diagnostic and therapeutic measures in both minor and major BDIs.

AIM OF THE WORK

Reviewing the literature on effective methods to prevent BDIs, the recent classification systems conducted in defining BDIs, and the management methodologies for post-cholecystectomy BDIs. Retrospectively compared the undertaken methodologies of management to the recent guidelines, to further determine the most feasible, and effective methods for managing BDIs. The role of laparoscopy in diagnosing and managing BDIs is highlighted briefly for further research and studies.

SUBJECTS AND METHODS

35 cases with iatrogenic BDI following cholecystectomy (after both open and laparoscopic approaches) both happened in or were referred to Alexandria Main University Hospital surgical department from January 2019 till May 2022 and were analyzed retrospectively. Patients were classified according to the ATOM classification. Management options undertaken were mentioned and compared to the timing of diagnosis, and the morbidity and mortality rates (using the Clavien-Dindo classification).

RESULTS

Table: Classification of bile duct injuries in 35 patients according to ATOM

ATOM Classification (n=35)	No.	%
Anatomical Level		
MBD (Major)	16	45.7
• MBD 1	6	17.1
• MBD 2	6	17.1
• MBD 3	1	2.9
• MBD 4	1	2.9
• MBD 5	2	5.7
• MBD 6	0	0.0
NMBD (Minor)	19	54.3
• Cystohepatic accessory duct	1	2.9
• The duct of Luschka (hepatico-cholecystic bile duct) / Aberrant Subvesical bile duct	8	22.8
• A leak from the cystic stump (slipped cystic duct clip)	7	20.0
• Aberrant right hepatic duct	1	2.9
• Lateral injury to CHD	2	5.7
Type and extent of the injury		
Partial division	13	37.1
Complete division	14	40.0
Partial occlusion	5	14.3
Complete occlusion	3	8.5
Vasculobiliary injury		
No	34	97.1
Right hepatic artery	1	2.9
Time of detection		
Intraoperative (Ei)	10	28.6
• Devisu	2	5.7
• bile leak	7	20.0
• IOC	1	2.9
Early Postoperative (Ep)	22	62.9
• <72 hrs.	9	25.7
• >72 hrs. <3 weeks	13	74.3
Late (L)	3	8.6
Mechanism of damage		
Unknown	19	54.3
Mechanical (Me)	13	37.1
Energy-driven (ED)	3	8.6

35 patients with BDI after both laparoscopic cholecystectomy (LC) (54.3%), and Open cholecystectomy (OC) (45.7%) (20% were converted and 25.7% were Open from the start) were classified according to ATOM classification. 45.7% were main bile duct injuries (MBDI), and 54.3% were non-main bile duct injuries (NMBDI), where only one case 2.9% was associated with vasculobiliary injury (VBI). 28% (n=10) of the cases were diagnosed intraoperatively (Ei), 62.9% were diagnosed early postoperatively (Ep), and 8.6% were diagnosed in the late postoperative period (L). LC was associated with 84.2% of the NMBDI, and only 18.8% of the MBDI., compared to OC which was associated with 81.3% of MBDI, and 15.8% of NMBDI. By the Clavien-Dindo classification, 68.6% fell into Class IIb, 20% into Class I, 5.7% into Class V (mortality rate), 2.9% into Class IIIa, and 2.9% into Class IV. The Clavien-Dindo classification and the patient's injury (type and time of detection) were compared to investigation and management options.

CONCLUSION

Management options should be defined individually according to the mode of presentation, the timing of detection of injury, and the type of injury. Early detection and management are associated with lower morbidity and mortality. Diagnostic Laparoscopy was associated with lower morbidity and better outcomes.