Recent Trends in Management of Bile Duct Injury

Essay

Submitted for partial fulfillment of Master Degree
in **General Surgery**

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List of Abbreviations

ALT	: Alanine aminotransferase
AST	: Aspartate amino transferase
CBC	: Complete blood count
CBD	: Common Bile duct
CHD	: Common Hepatic duct
CT	: Computed tomography
ERCP	: Endoscopic Retrograde Cholangio pancreatography
LC	: Laparoscopic cholecystectomy
LFTs	: Liver function tests
MRCP	: Magnetic Resonance Cholangiopancreatography
OC	: Open Chole cystectomy
PTC	: Percutaneous transhepatic cholangiography
US	: Ultrasound

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بسْمِ اللهِ الرَّحْمنِ الرَّحِيمِ

﴿وأنزل الله عليك الكتاب والحكمة وعَلَّمَكَ مَا لَمْ تَكُن تَعْلَمُ وكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيماً﴾

صدق الله العظيم
النساء .. آية رقم ١١٣

Acknowledgement

*First, thanks are all direct to **ALLAH** for blessing this work until it has reached its end, as a part of generous help throughout my life.*

*It is with immense gratitude that I acknowledge the support and help of **Prof. Dr.Alaa El Dien Esmael,** Prof. of General Surgery, Faculty of Medicine, Ain Shams University this thesis would not have been possible unless his great effort, meticulous revision, and scientific guidance. I have the honor to complete this work under his supervision.*

*I am profoundly grateful to **Dr. Anas Hassan Ali Mashaal,** Lecturer of General Surgery, Faculty of Medicine, Ain Shams University, for his guidance, valuable comments and careful supervision.*

I would like to dedicate this Essay to my Father*,*
to my Mother *and to my* ***Wife,***
to them I will never find adequate words
to express my gratitude.

Also to all my ***Family*** *for dealing tactfully*
and patiently during this work

Introduction

Cholecystectomy is one of the most commonly performed abdominal surgeries in which bile duct injury and bile leaks are the most important complications ***(Balakrishnan et al., ٢٠٠٨)***.

Bile duct injury (BDI) occurring during cholecystectomy has been proposed as the most serious and important cause of morbidity after this procedure. The diagnosis, management and prevention of iatrogenic bile duct injuries (IBDI) remain a challenge for all general surgeons ***(Wu et al., ٢٠٠٧).***

The most frequently reported cause was poor identification of the anatomical features of the hepatic pedicle, followed by inflammatory changes in the gallbladder, anatomical anomalies, improper use of monopolar coagulation, an unspecified technical mistake, and a problem during the control of intraoperative hemorrhage. Technical mistakes, reflected by the latter ٣ factors, accounted cummulatively for about more than ١/٤ of the recognized causes of injury. With regard to the technical complexity of the operation during which the injury had occurred, the procedure was described as easy in less than the half and difficult in more than the half of cases, a rate that did not change significantly with the number of laparoscopic cholecystectomies performed ***(Nuzzo et al., ٢٠٠٥).***

Laparoscopic cholecystectomy (LC) has recently become the more preferred operation over open cholecystectomy (OC). Although LC has shortened hospitalization and decreased mortality and morbidity, reviews have reported that LC has a two-fold higher incidence of bile duct injuries than OC (٠,٦٪ vs ٠,٣٪). There are also some reviews which have reported the incidence of biliary leakages as up to ١,١٪ ***(Parlak et al., ٢٠٠٥).***

The frequency of bile duct injuries associated to laparoscopic cholecystectomy is about ٠,٣-٠,٦٪ ***(Mercado et al., ٢٠٠٨)***.

Routine intraoperative cholangiography (IOC) has been advocated as a viable strategy to reduce common bile duct injury (CDI) during cholecystectomy ***(Livingston et al., ٢٠٠٧)***.

Most iatrogenic bile duct injuries are recognized in the early postoperative period. These patients usually have additional complications such as subhepatic collections and external biliary fistula ***(Mercado et al., ٢٠٠٥)***.

Endoscopig Retrograde Cholagiopancreatographv (ERCP) is an effective and safe method for diagnosis and management of bile leakages after cholecystectomy. Stricture development in the main bile duct leakages is an important complication ***(Parlak et al., ٢٠٠٥)***.

The ease of management, operative risk, and outcome of bile duct injuries vary considerably, and are highly dependent on the type of injury and its location ***(Lau et al., ٢٠٠٧)***.

Most of the minor bile duct injuries, including cystic duct leaks and bile duct strictures, are well treatable with endoscopic techniques, whereas most of the major injuries require operative treatment, which at optimal circumstances gives good results ***(Karvonen et al., ٢٠٠٧)***.

Aim of the Work

This essay aims to discuss the recent trends on diagnosis and management of operative bile duct injury, also how to prevent its occurrence.

Chapter (١)
Anatomy of Biliary System

Biliary exposure and precise dissection are the most important steps in any biliary operative procedure. A thorough anatomical knowledge is essential if optimal results are to be obtained ***(Blumgart and Hann, ٢٠٠٧).***

The biliary tree consists of the system of vessels and ducts which collect and deliver bile from the liver parenchyma to the second part of the duodenum. It is conventionally divided into inrtahepatic andextrahepatic biliary ducts. The intrahepatic ducts are formed from the larger bile canaliculi which come together to form segmental ducts. The extrahepatic biliary tree consists of the right and left hepatic ducts, the common hepatic duct, the cystic duct and gall bladder and the common bile duct ***(Borley, ٢٠٠٥).***

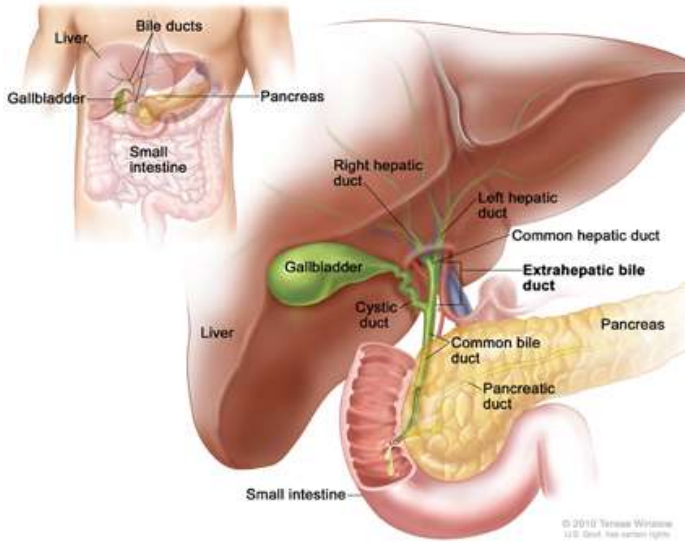

Figure (١): Anatomy of extrahepatic biliary tract ***(Avaiable at http://www.uchospitals.edu/online-library/content=CDR ٢٥٨٠١١)***