COMPLICATIONS OF LAPAROSCOPIC CHOLECYSTECTOMY

Essay

Submitted For Partial Fulfillment of Master Degree in General Surgery

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Mohamed Maher Mohamed

LIST OF ABBREVIATIONS

BD	Bile Duct
BDI	Bile Duct Injury
CBD	Common Bile Duct
CHD	Common Hepatic Duct
CM	Centi Meter
CO_2	Carbon Dioxide
CT	Computerized Tomography
ERCP	Endoscopic Retrograde Cholangio- Pancreatography
GB	Gall Bladder
GIT	Gastro-Intestinal Tract
HID	Hepato-biliary scintigraphy
LC	Laparoscopic Cholecystectomy
MRCP	Magnetic Resonance Cholangio- Pancreatography
PTC	Percutaneous Transhepatic Cholangiography
US	Ultra Sonography

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مضاعفات عملية استئصال المرارة بالمنظار

دراسة مقدمه من الطبيب

محمد ماهر محمد إبراهيم

بكالوريوس الطب والجراحة

توطئة للحصول على درجة الماجستير فى الجراحة العامة

تحت إشراف

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Introduction

The advantages of laparoscopic cholecystectomy over traditional open *cholecystectomy* in terms of limited postoperative pain, shorter hospitalization, early resumption of activity, and improved cosmesis have been-readily apparent. **(Vikas , et al, ٢٠٠٩).**

Serious complications of laparoscopic cholecystectomy occur in less than ٢٪ of all cases . laparoscopic cholecystectomy is essentially a safe procedure with low morbidity and mortality rate. ***(Strasberg ,*** ***)***.

Knowledge of relevant anatomy is important for safety of any operative procedure , specifically in laparoscopic cholecystectomy , it has recognized since long that misinterpretation of normal anatomy as well as the presence of anatomical variation contribute to occurrence of major postoperative complications especially biliary injuries . **(Sanjay , ٢٠٠٥).**

Trocar/Veress needle injury is one of complication of laparoscopic cholecystectomy which may lead to Intestinal injury that may occur during establishment of abdominal access, adhesiolysis, or dissection of gall bladder away from the duodenum or colon . If an accidental intestinal injury is

made with a Veress needle,no treatment is generally necessary. The incidence of injury to viscera or vessel from a trocar or Veresss needle is well documented at ٠,٢٪, This can be avoided by proper anterior abdominal wall distraction with proper positioning of the patient. **(Barkum , ٢٠٠٩)**.

Hemorhage is another complication of laparoscopic cholecystectomy, Excessive bleeding in the region of porta hepatis should not be treated laparoscopically. Attempts at clipping or cauterizing significant bleeding usually leads to worsening haemorrhage and/or hepatic artery injury. If a bleeding occurs at the site of the cystic artery or smaller can be identified by irrigation, and the location of both the hepatic artery and the common bile duct are known,bleeding can be controlled with electrocautery or clips.**(Jones , et al , ٢٠١٠)**.

Injuries to the common bile duct is one of the complication of laparoscopic cholecystectomy which occur in approximately ٠,٥٪ of laparoscopic cholecystectomies, The most common cause of bile duct injury during laparoscopic cholecystectomy is misidentification of a major bile duct for the cystic duct. Causes of misidentification are usually technical and result from superior traction (not enough lateral traction) on the gall bladder aligning the cystic duct and common bile duct. This

can be avoided by meticulous dissection of the calott's triangle which exposes the"critical view" of the structures surrounding the neck of the gall bladder. **(Soper, et al,٢٠٠٨).**

Gall stone spillage may occur During laparoscopic cholecystectomy, gall bladder perforation with leakage of bile and/or gall stones into the abdominal cavity occurs frequently. Perforation may occur secondary to traction applied by the grasping forceps or because of thermal injury during removal of gall bladder from its bed. Spillage should be avoided by closure of gall bladder perforations when they occur. Escaped stones composed primarily of cholesterol probably pose little threat of infection, however pigment stones frequently harbor viable bacteria and may potentially lead to subsequent infectious complications.**(Jones, ٢٠٠٩).**

The decision to convert to an open cholecystectomy is a matter of judgement. Experienced surgeons do not hesitate to convert to a traditional open cholecystectomy if the anatomy is unclear or if complications occur such as massive haemorrhage, bowel perforation, or major injury to the bile duct. **(Daneil , et al, ٢٠٠٩)**.

Retained common bile duct stones is another complication of laparoscopic cholecystectomy, Such complication can be

avoided by intraoperative cholangiogram. **(Strasberg ,٢٠٠٩).**

Laparoscopic cholecystectomy refers to the removal of the gall bladder through small incisions in the abdomen. Over ٥٠٠،٠٠٠ minimally invasive cholecystectomies are performed annually, with the majority being removed through a laparoscopic approach. This is the procedure of choice for patients with asymptomatic, symptomatic, and most forms of complicated gallbladder disease. **(Vikas, et al , ٢٠٠٩).**

Aim of the work

The aim of our work is to review the complication of laparoscopic cholecystectomy, procedure-related problems , its causes and how to avoid it.

Anatomy of the biliary system

Understanding of the anatomy of the gall bladder and the extra hepatic biliary system is essential to all clinician caring for patients with hepatobiliary disorders. Biliary anomalies are not uncommon and over ٥٠٪ of all patients undergoing a biliary tract procedure will have either a ductal or arterial anomaly. The failure to recognize such a congenital problem can result in significant per operative morbidity *(Roslyn and Zinner,* . *)* (figure ١).

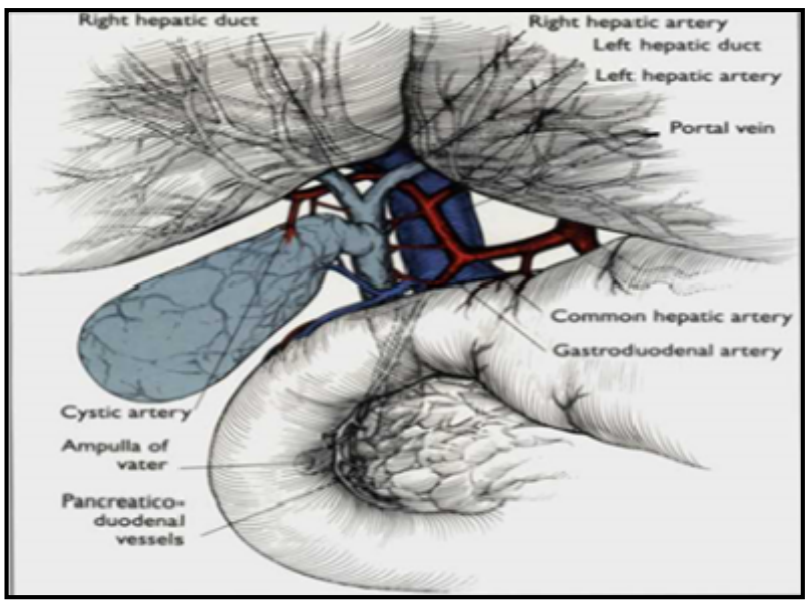

Figure (١): Normal anatomy of the biliary system.

(Daniels and Chekan, ١٩٩٩).

The Gall bladder

It is a pear-shaped hollow organ that lies in a fossa on the under surface of the liver. Its position is the anatomic boundary between the right and left lobes of the liver. The gall bladder is attached to the liver by loose areolar tissue rich in small blood vessels and lymphatics.

The extrahepatic portion of the gall bladder is covered by peritoneum, fewer than ١٠٪ of gall bladders are completely covered by peritoneum, and are attached to the liver by a mesentery ***(Roslyn and Zinner,*** ***.)*** **.**

The average measures of the gall bladder is ٧ to ١٠ cm long, ٣ cm broad at its widest and ٣٠-٥٠ ml in capacity in normal condition ***(Williams and Dyson,*** **٧).**

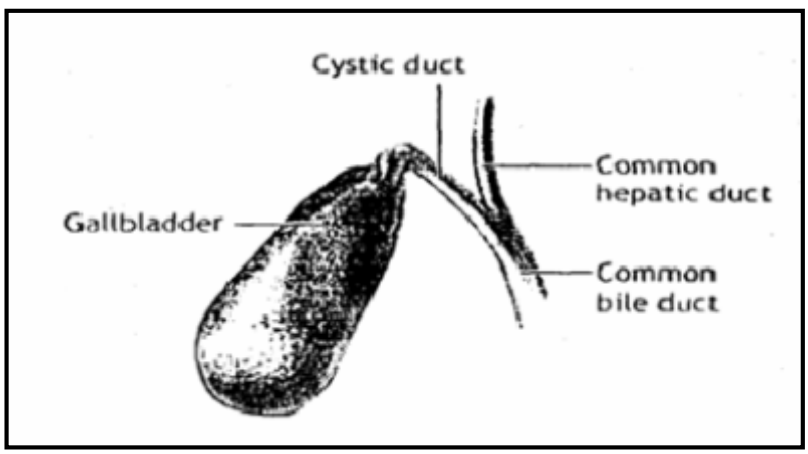

Figure (٢): Anatomy of the gall bladder ***(Daniels and Chekan, ١٩٩٩).***

- The fundus, is the rounded blind end which projects a little beyond the sharp lower border of the liver and touches the parietal peritoneum of the anterior abdominal wall at the tip of the right ninth costal cartilage at the lateral border of the right rectus sheath. ***(McMinn,١٩٩٢)*** **.**
- The body, directed up and back to the right end of porta hepatis, continuous with the neck. It is related above to the liver, below to the transverse colon, and further back to the first and upper end of the second part of the duodenum ***(Williams and Dyson,٢٠٠٧).***
- The infundibulum is the tapering transitional area between the body and the neck of the organ. It usually appears as a shallow diverticulum, lying close to the undersurface of the cystic duct, It is attached to the right lateral surface of the first part of the duodenum by a relatively avascular, double-layered fold, which is derived from the inferior margin of the right free border of the hepatoduodenal ligament, helps guide the surgeon to the major vascular and ductal structures lying in the biliary fossa ***(Roslyn and Zinner,٢٠٠٨)*** **.**
- The neck, is narrow curving up and forwards and then abruptly back and downwards., to become the cystic duct.