Comparison Study between Clipping, Ligasure and Diathermy of Cystic Artery in Laparoscopic Cholecystectomy

Thesis

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By

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بسم الله الرحمن الرحيم
وَأَنْزَلَ اللهُ عَلَيْكَ
الْكِتَابَ وَالْحِكْمَةَ
وَعَلَّمَكَ مَا لَمْ
تَكُنْ تَعْلَمُ وَكَانَ
فَضْلُ اللهِ عَلَيْكَ
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List of Abbreviations

Abb.	Full term
ALT	*Alanineaminotransferase*
AST	*Aspartateaminotransferase*
CBD	*Common bile duct*
CLC	*Conventional Laparoscopiccholecystectomy*
CT	*Computed tomography*
EBS	*Endoscopic Biliary Sphincterotomy*
ERCP	*Endoscopic retrograde cholangiopancreatography*
HIDA	*Diethyacetanilido-iminodiaceticaci*
LC	*Laparoscopic cholecystectomy*
LFT	*Liver function tests*
MRCP	*Magnetic resonance cholangio pancreatography*
MRI	*Magnetic resonance imaging*
OC	*Open cholecystectomy*
PD	*Pancreatic duct*
POC	*Per operative cholangiography*
PTC	*Percutaneuc transhepaticcholangiography.*
PTD	*Percutaneuc transhepatic dilatation*
SGOT	*Glutamic oxaloacetic transaminas*
SGPT	*Glutamic pyruvate transaminase*
TPN	*Total parenteral nutrition*

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INTRODUCTION

The first laparoscopic cholecystectomy was done on September 12, 1985 by Prof Dr Med Erich Mühe of Böblingen, Germany. In 1990, at the Society of American Gastrointestinal Surgeons Convention (SAGES) perform early laparoscopic cholecystectomy, but Mühe was not. However, in 1999 he was recognized by SAGES for having performed the first laparoscopic cholecystectomy ***(Phillips et al., 2012).***

Laparoscopic cholecystectomy has become the gold standard in the treatment of symptomatic gall stones, the major advantages of laparoscopic cholecystectomy include less postoperative pain, less time required for hospitalization and recovery, and better cosmetic results ***(Terho et al., 2016).***

Laparoscopic cholecystectomy was compared with the open procedure in a prospective comparative study focusing on complications. The only postoperative death occurred after open cholecystectomy. The need for postoperative analgesics and Hospital stay was significantly reduced by laparoscopic cholecystectomy so it carries a lower risk of serious complications than the open procedure ***(Bhar et al., 2013).***

However, in comparison between two different school new and old one, open and laparoscopic cholecystectomy we shouldn't forget important of open cholecystectomy in laparoscopic contraindication including empyema of the

gallbladder, gangrenous cholecystitis, coagulopathy, portal hypertension and peritonitis. Take in consideration different preoperative predictor factor of conversion of Laparoscopic cholecystectomy to open cholecystectomy ***(Widmer et al., 2015; Ghazanfar et al., 2017).***

Gall stone disease is one of most common disease all over the world, as in USA >700,000 Cholecystectomies, 10:15% of white adults in developed countries harbor gallstones ***(Knab et al., 2014).***

A good knowledge of the incidence and types of anomaly or variation is key to a safe cholecystectomy, as 50% of patients presenting with significant variation from the expected normal pattern ***(Al-Sayigh et al., 2010).***

The best way to avoid laparoscopic cholecystectomy complication is using the Critical View of Safety (CVS) to identify cystic duct and cystic artery during laparoscopic cholecystectomy ***(Strasberg et al., 2010).***

The technique of performing LC has undergone many changes and variations. Several surgeons have tried to reduce the size and number of ports to improve cosmetic and postoperative outcomes and developed their own different versions. The standard technique of performing LC is to use 4 ports. However The most recent development in technique of LC is single incision laparoscopic surgery (SILS), single site

laparoscopic cholecystectomy (SSLC), 3 ports, Natural orifices transluminal endoscopic surgery (NOTES) ***(Haribhakti et al., 2015).***

There are many ways to achieve homeostasis: monopolar electro coagulation (ME), bipolar electro coagulation (BE), Ligasure (LS), a modern bipolar vessel sealing system, and Ultracision (UC) ***(Prokopakis et al., 2010).***

The Ligasure Vessel Sealing System (LVSS) is a bipolar electrosurgical device with integrated active feedback control, sealing vessels up to 7 mm in diameter. It facilitates surgery by achieving the efficient haemostasis of blood vessels encountered during dissection, and allowing the rapid and secure division of vascularised tissues, while minimizing thermal injury to adjacent tissues ***(Prokopakis et al., 2010).***

Aim of the Work

To review the procedure's safety and effectiveness. Through a comparison review between clipping or clippless either Diathermy cauterization or Ligasure during laparoscopic cholecystectomy, the authors examine the operative and post operative complication to this techniques.

Chapter I

ANATOMY OF THE BILIARY TREE AND THE GALL BLADDER

a) Embryology of the Biliary Tract:

The Biliary tree and liver develop from a diverticulum of the embryonic foregut at approximately 18 days of gestation. Between the fourth and fifth weeks, the diverticulum consists of a solid cranial portion and a hollow caudal portion.

1. The solid cranial portion differentiates into the: liver with the development of hepatocytes and intrahepatic bile ducts.

2. The hollow caudal portion gives rise to: the gallbladder, the extra hepatic bile ducts, and the ventral pancreas ***(Schulick, 2011)*.(fig1)**

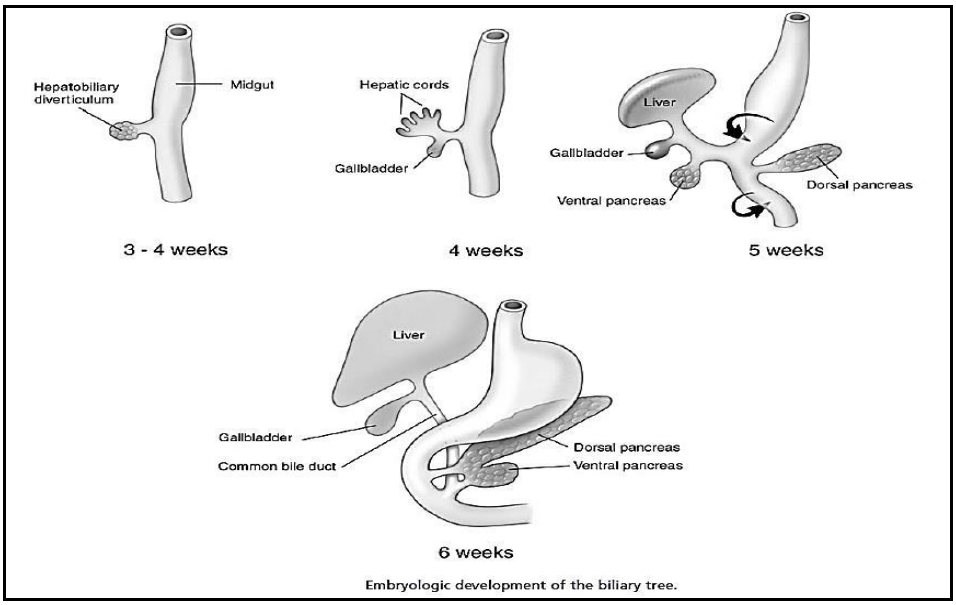

Figure (1): Embryologic development of Biliary tree
(Skandalakis et al., 2004).

b) Topographic Anatomy of the Biliary Tree and the Gall Bladder:

Gall bladder:

The gallbladder is a reservoir for bile located on the under surface of the liver at the confluence of the right and left halves of the liver. It is separated from the hepatic parenchyma by a cystic plate, which is constituted of connective tissue applied to the Glisson capsule. The gallbladder may be deeply imbedded into the liver or occasionally presents on a mesenteric attachment, but usually lays in a gallbladder fossa. The gallbladder varies in size and consists of a fundus, a body, and an infundibulum ***(Schulick, 2011).***