Two Stages versus Single Stage Management for Concomitant Gall Stones and Common Bile Duct Stones

Essay

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Figure List

List of Abbreviations

ERCP endoscopic retrograde cholangiopancreatography

CBD common bile duct

CD cystic duct

CHD common hepatic duct

CFTR cystic fibrosis conductase regulator

ET1 endothelin receptor 1

ATPadenyl triphosphate

cAMP cyclic adenyl monophosphate

VIP vasoactive intestinal peptide

ICU intensive care unit

CT computerized tomography

IL1,6,8 interlukines (1,6,8)

MSMirizzi syndrom

GB gall bladder

CBF cholecysto-biliary fistula

CBDS common bile duct stone

ALT Alanin amino transferase

MRCP magnetic resonance cholangiopancreatography

MRI magnetic resonance imaging

AJPBD anomalous junction of pancreatic Biliary junction

CBC complete blood count

G GT gamma glatamyl transferase

PTC percutaneous transhepaticcholangiography

HIDAhydroxy iminodiacetic acid

I.V. intravenous

LC laparoscopic cholecystectomy

LCBDE laparoscopic common bile duct exploration

PDS polydiaxanone

IOC intraoperative cholangiography

LERV laparoscopic endoscopic rendezvous teqnique

Contents

Introduction

Gallstone disease remains one of the most common problems leading to surgical intervention. It has been well demonstrated that the presence of gallstones increases with age. During the reproductive years, the female-to-male ratio is about 4:1, with the sex discrepancy narrowing in the older population to near equality. The risk factors predisposing to gallstone formation include obesity, diabetes mellitus, estrogen and pregnancy, hemolytic diseases, and cirrhosis**.**

(Schirmer et al,. 2005)

Asymptomatic gallstones are reported to cause either symptoms or complications in figures ranging from 10% to 50% within 10 to 20 years after diagnosis. Approximately 10% to 18% also have common bile duct stones. It can be suspected pre-operatively by symptoms or signs of jaundice, pancreatitis or cholangitis. Up to 25% of common bile duct stones discovered unexpectedly at surgery**.**

(Winters et al,. 2005)

(ERCP) enables patients to avoid open common bile duct exploration dramatically reducing their morbidity and mortality. The development of laparoscopy surgery has also dramatically changed the field of biliary surgery. Laparoscopic cholecystectomy has been used as a gold standard for cholecystectomy since its introduction. On the other hand, in the case of laparoscopic common bile duct exploration, more operating time is required and its procedure is relatively complicated compared to laparoscopic cholecystectomy. However, there are many reports about the efficacy and safety of laparoscopic common bile duct exploration compared to ERCP with laparoscopic cholecystectomy or without laparoscopic cholecystectomy.

(Lee et al,. 2011)

Laparoscopic common bile duct exploration has lower morbidity and mortality rates compared to preoperative ERCP in the management of patients with suspected common bile duct stones even if the chance of common bile duct stones reaches 100%.

(Kharbutli , Vilanovich, 2008)

Simultaneous Laparo-endoscopic "Rendezvous"approach carries high effectiveness and safety at least comparable to those reported for other options. The endoscopist is very often satisfied with this approach because of the minimization of some steps of the endoscopic procedure and avoidance of relevant iatrogenic risk factors.

(Greca et al,. 2008)

American Society for Gastrointestinal Endoscopy published a review for screening methods used to detect common bile duct stones. It proposed a scoring system to categorize common bile duct stones risk into high, intermediate and low and also advised a diagnostic and therapeutic algorithm for its management.There is a general consensus regarding the therapeutic algorithm of 1st and 3rd ones. The 1st group would require preoperative ERCP followed by laparoscopic cholecystectomy, and the 3rd only laparoscopic cholecystectomy. However, intermediate-risk patients have a great variety of endoscopic/surgical therapeutic options (laparoscopic cholecystectomy with cleaning of the bile duct in a single stage, or with the assistance of intraoperative ERCP, or two-stage management with preoperative ERCP followed by laparoscopic cholecystectomy, or laparoscopic cholecystectomy and postoperative ERCP).

(Rábago et al,. 2011)

In the management of patients with gall bladder and common bile duct stones a one-stage procedure is associated with significantly less costs as compared with a two-stage procedure. From the economical point of view these patients should preferably be treated via a one-stage procedure as long as safety and efficacy of this approach are provided.

(Martín et al,. 2012)

EMBERIOLOGY AND ANATOMY OF THE GALL BLADDER AND BILIARY SYSTEM

Emberyology of the biliary system

The biliary system and liver originate from the embryonic foregut. Initially, at week four, a diverticulum arises from the ventral surface of the foregut (later duodenum) cephalad to the yolk sac wall and caudad to the dilation that will later form the stomach. The development of the liver involves interplay between an endodermal envagination of the foregut and the mesenchymal cells from the septum transversum. The liver diverticulum initially separates into a caudal and cranial portion. The caudal portion gives rise to the cystic duct and gallbladder and the cranial portion gives rise to the intrahepatic and hilar bile ducts. As the cranial diverticulum extends into the septum transversum mesenchyme, it promotes formation of endothelium and blood cells from the mesenchymal cells. The endodermal cells differentiate into cords of hepatic cells and also form the epithelial lining of the intrahepatic bile ducts The ductal cells follow the development of the connective tissues around the portal vein branches.

(Larsen W., 2000)

This developmental process results in the similarity seen between the portal vein branching pattern and the bile duct pattern. At, first, the bile duct precursors are discontinuous but eventually they join one another and then connect with the extrahepatic bile ducts. The