COMPLICATIONS THAT MAY OCCUR AFTER CHOLECYSTECTOMY

ESSAY

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BY

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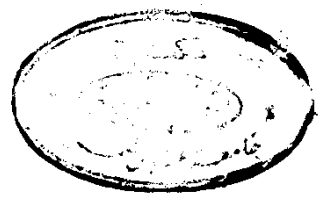

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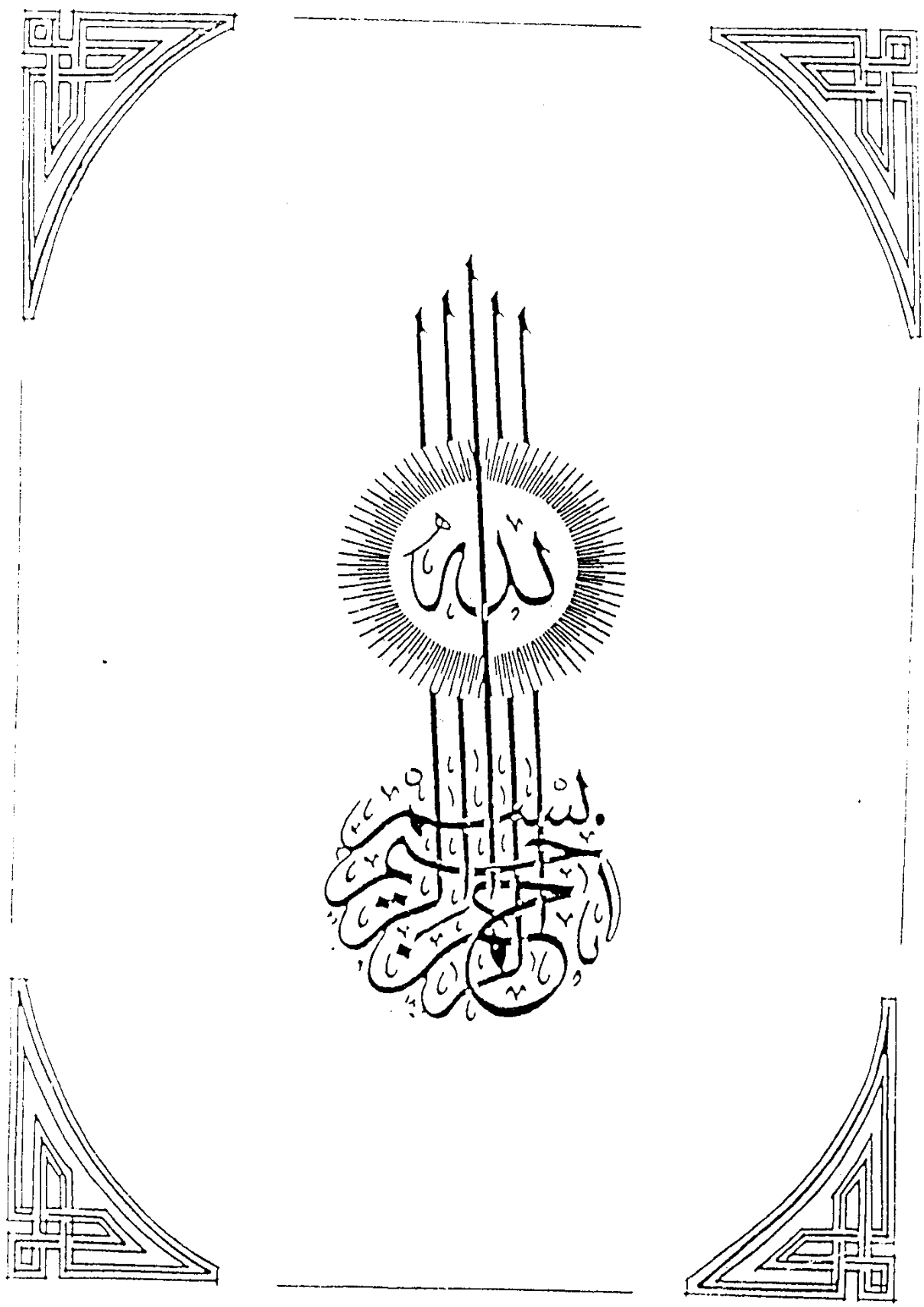

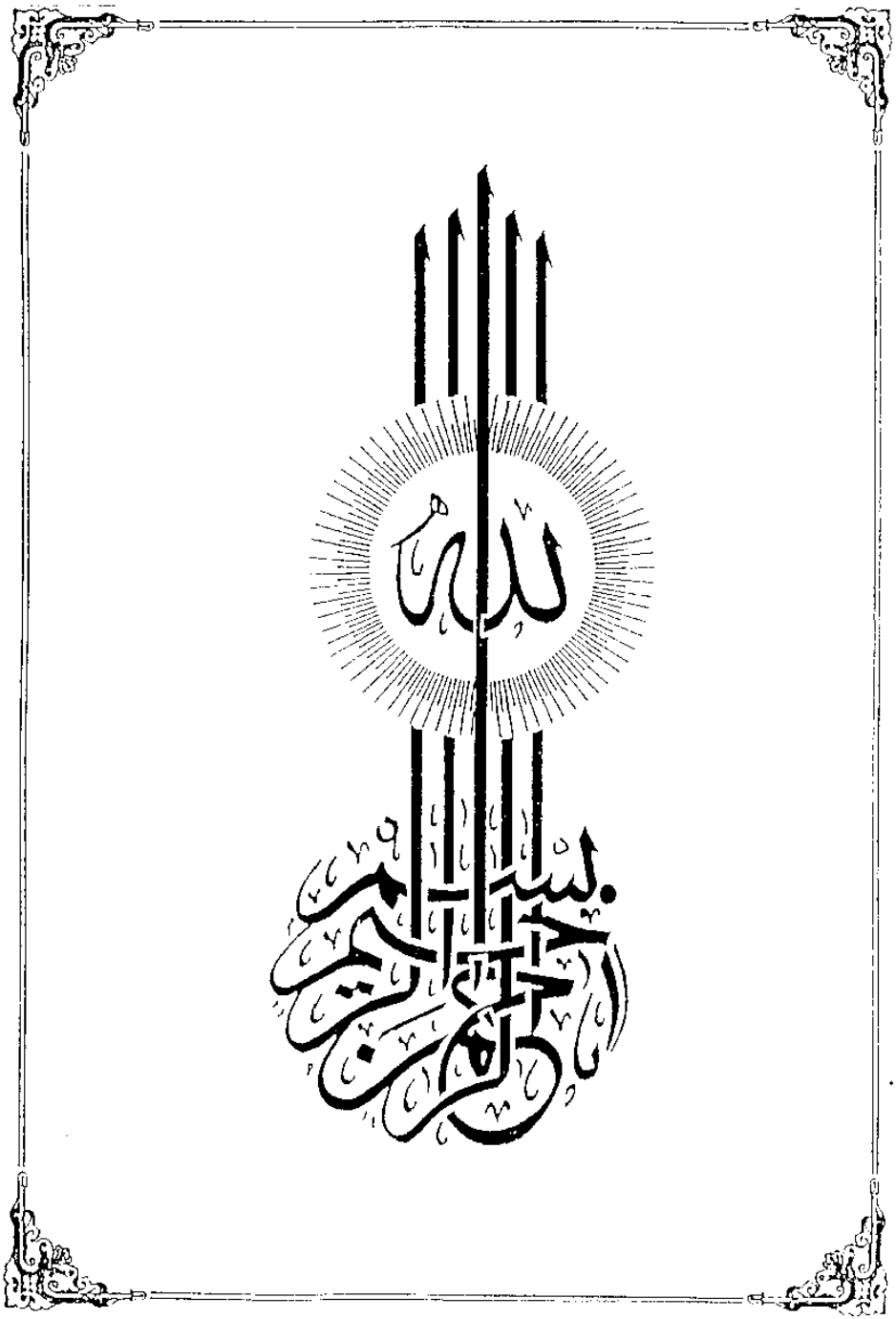

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INTRODUCTION AND AIM OF THE WORK

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The availability of recent investigations for the biliary tract has made possible , the early diagnosis and management of gall-bladder diseases with subsequent increase in the number of cholecystectomies.

When cholecystectomy is carefully performed it becomes one of the simplest and safest of all abdominal procedures and is associated with a low operative mortality rate, certainly less than one percent and gratifying immediate and late results. However, it may be a most difficult and hazardous procedure, demanding the greatest technical skill, experience and endurance.

Inadequate knowledge of the anatomy of the biliary system and its vascular supply, inadequate visualisation of the operative field, undue haste and continuing to operate in a difficult case where preliminary cholecystostomy would be safer are factors that are responsible for the most major post operative complications such as ductal stricture or fistula and bile peritonitis (Ellis,1985)..

Because of the frequency of this operation the main aim of this work is to discuss the different complications that may occur after cholecystectomy for avoidance and proper management of these complications accordingly.

SURGICAL ANATOMY OF THE BILIARY TRACT

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Anatomical normality in the Biliary Tree:

Normality, in the sense of an anatomical pattern which is repeated in the majority of individuals, is a term which can not be used in relation to the biliary tree (Benson and Page, 1976), variation is such that less then 50% of individual exhibit apattern common in even major details, any attempt to define the "normal" anatomy of the biliary tree therefore, would be artificial and misleading, so each major area of the extrahepatic biliary tree, and its related vessels will be considered separately and the major variational groups described

Gall Bladder:

The gall bladder is an elongated saccular organ with arounded fundus, 9 cm long and of about 50 cc capacity. The body of the gall bladder is found in a groove on the under surface of the liver as it turns upwards and backwards, covered by a layer of peritoneum. The body of the gall bladder then leaves the under surface of the liver, narrows and becomes slightly lax and is called the infundibulum when this part is

distended by a calculus it forms a pouch-like structure called Hartman's pouch. The cystic duct issues from the infundibulum. (Kune and Sali, 1980).

The valves of Heister are spiral folds of mucous membrane in the wall of the cystic duct and neck of the gall bladder (Sherlock, 1981). The wall of the gall bladder consists of a musculo-elastic network without definite layers. The mucous membrane is in delicate closely woven folds with deep indentations The crypts of luschka. The Rokitansky - Aschoff sinuses are branching evaginations from the lumen into the mucosa and muscularis of the gall bladder (Sherlock, 1981).

Variants and anomalies of the gall bladder: (Kune and Sali, 1980):

-Phrygian cap deformity; folding of the fundus present in about 18% of normal gall bladder.

-Hartman's pouch: is thought to be an acquired condition secondary to the lodgement of a stone in the infindibulum of the gall bladder.

-Intrahepatic gall bladder: in these cases chole-cystectomy may be accompanied by considerable bleeding from the liver.

- Gall bladder on a mesentry: Torsion can occur.
- Double gall bladder.
- Absent gall bladder rare anomaly

(Ferris and Galzer, 1965).

Cystic duct:

The length and course of the cystic duct as well as its site and mode of union with the common hepatic duct, are extremely variable. The lumen is from 2-3mm (Kune and Sali, 1980).

* Site of union: in about 80 percent of subjects the cystic duct joins the common hepatic duct at some point of its course in the gastrohepatic omentum, in about 20 percent the cystic duct joins the bile duct in its retroduodenal or retropancreatic portion.

*In about 1 percent of subjects the cystic duct open into the right hepatic duct (Moosman and Coller, 1951; Benson and Page, 1976).

Mode of union (Fig ,1) may be angular parallel, or spiral (Kune and Sali, 1980).

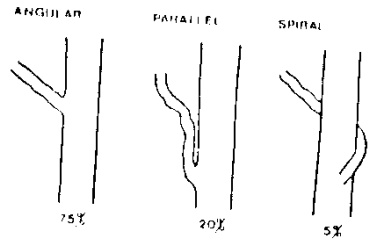

Fig. 1 -(From Kune and Sali , 1980)

Mode of union (Fig. 1): The mode of union of the cystic duct with the common hepatic duct may be described as angular, parallel, or spiral (Kune and Sali, 1980).

- The angular union is the most common arrangement it is about 75 percent of instances (Moosman & Coller, 1951)

- The parallel union was noted in about 20 percent of dissections. The cystic duct runs alongside and parallel with the common hepatic duct before joining it, and a connective tissue sheath commonly surrounds the two ducts over this distance (Warren et al., 1966) operative injury of the bile ducts occured when a clamp was applied to the incompletely mobilized cystic duct also included the adjacent common hepatic duct (Warren et al., 1966). Over diligent efforts meticulously to dissect the ducts apart so as to put "a flush tie" on the common duct could result in either immediate direct injury to the common hepatic duct or delayed damage if the length of this duct is devascularised. Also vigorous traction on the cystic duct may produce marked angulation and tenting of the common hepatic and bile ducts which may then be caught in aclamp (Benson and Page, 1976).

- Spiral union of the cystic duct is the least common arrangement and was seen in about 5 percent of dissections "flush" ligation of the cystic duct at apoint where it joins the bile duct would be difficult and dangerous (Kune and Sali, 1980).

Blood supply and lympatics:

The cystic artery is a single trunk in the majority of cases. (80%) which arises from the right hepatic artery and passes to the gall bladder above and behind the cystic duct. In approximately 20 percent of subjects, the cystic artery has an uncommon site of origin or an unusual course or both (Michels, 1951).

The gall bladder lymphatics drain to the lymph glands along side the common bile duct, which eventually drain to the celiac glands. Some of the lymphatics pass through the cystic lymph node (Kune and Sali, 1980). One relatively large node is near the upper margin of the pancreas, behind the duodenum, inferolateral to the common bile duct and was termed the common duct gland by (Cattell, 1959). Because it was an accurate guide to the position of the distal bile duct.

Bile ducts at the hilum:

It is important to note that some portions of both the right and left hepatic ducts and hence their confluence, are always, extrahepatic, and therefore, accessible at the porta (Kune & Sali, 1980). In some cases portions of the major tributaries of the right and left ducts are also outside the liver. Fig.2)

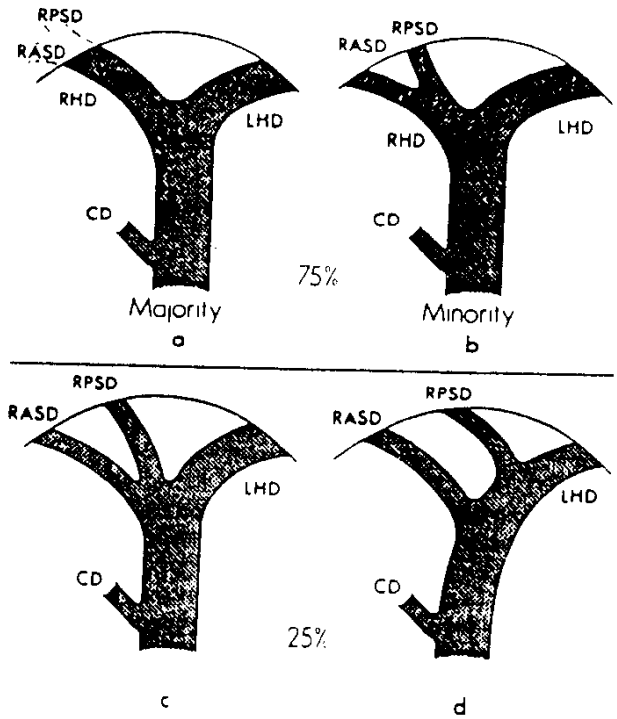

Fig. (2) Patterns of formation of hepatic ducts. A true right hepatic duct (RHD) is present in 75% of individuals, usually formed within the liver (a), but sometimes outside (b). In 25% no ture RHD is found, the segmental ducts forming a triple confluence with the LHD (c) or joining it separately (d). In the latter instance, the RASD has in the past been wrongly designated an "accessory duct". RASD = right anterior segmental duct; RPSD = right posterior segmental duct; RHD = right hepatic duct; LHD = left hepatic duct; CD = cystic duct.

Right hepatic duct: (RHD)

The functional right lobe of the liver (the part of the liver to the right of the lobar fissure marked by the gall bladder fossa and inferior vena cava) compromises two segments anterior and posterior, in

75% of individuals the right anterior and posterior segmental ducts join to form the true right hepatic duct i.e. a single channel carrying whole bile output of the functional right lobe. In the remaining 25% there is no true R.H.D. The segmental ducts emptying into the left hepatic duct (LHD) separately (Healey & Schroy, 1953; Balasegarem, 1970; Kune & Sali, 1980). Among those individuals 75% in whom aatrue right hepatic duct is present, it is wholly, extrahepatic in but a few. The extrahepatic segment is of variable length, being 1-2.5 cm long in 80% of cases but may be up to 6 cm in length (Johnson & Anson, 1952; Kune and Sali, 1980).

The R.H.D. is readily approached by dividing the peritoneum and fat overlying it in the porta hepatis. The right hepatic artery usually runs inferior to it, while the right branch of the portal vein lies posterior to these structures.

Left Hepatic Duct :

This structure is hardly ever seen during routine cholecystectomy, though it can be damaged during this procedure (Warren et al., 1971). Unlike the right lobe, the left lobe of the liver is always drained