SURGICAL VERSUS NON SURGICAL TREATMENT OF BILIARY STONES

ESSAY

SUBMITTED FOR PARTIAL FULFILMENT

OF MASTER DEGREE (M.Sc.) IN

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INTRODUCTION

Biliary stones are a common disease that faces many surgeons.These stones may impact in the common bile duct and constitute a major problem.Gallstone disease is very common in most developed countries.In the majority of cases inflammation of gallbladder is associated with calculi (Maingot,1985).

Although surgery has been the time honored treatment for cholelithiasis,dissolution of biliary stones has recieved increasing interest in the past decade(Pitt et al.,1987).

Since the introduction of endoscopic sphincterotomy and the augmentation of the technique by the addition of mechanical lithotripsy,endoscopic removal of bile duct stones has been generally accepted,in particular in patients carrying an increased surgical risk (Ell et al.,1986).

Recently,the extracorporeally generated shock waves can be employed to disintegrade gallbladder and common bile duct stones (Sauerbruch et al.,1986).

In this essay we will throw light on the different methods of treatment of biliary stones,to conclude whether the different non-surgical methods can replace surgery or not.Also,to be able to choose the proper method of treatment for every case.

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ANATOMY

OF BILIARY SYSTEM

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ANATOMY

GALLBLADDER

The gallbladder is a pear-shaped fibro-muscular sac, lies against the under surface of the right lobe of the liver (Last, 1984). It is about 7 cm long with a normal capacity of about 30-50 ml (Smith, 1981).

The gallbladder is attached to the liver by areolar connective tissue that contains multiple small lymphatics and veins, which connect the lymphatic and venous systems of the gallbladder with those of the liver. In rare cases one or more small accessory bile ducts pass throught this tissue to enter the gallbladder directly. Normally, only that portion of the gallbladder not in direct contact with the liver is covered with peritoneum. Some gallbladders are suspended on a mesentery and thus are almost completely covered with peritoneum (Lindner, 1987).

The gallbladder is usually divided into a fundus, body, infundibulum and neck.

Fundus

It is the rounded blind end of the gallbladder, which usually projects 0.5 to 1 cm beyond the free edge of the right lobe of the liver. The top of the fundus is usually found lying in the angle formed by the right lateral border

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of the rectus abdominis muscle and the ninth costal cartilage.In this position it comes in contact with the anterior peritoneum of the abdominal wall.

Body

The fundus passes into the body without a demonstrable transition.The body constitutes the largest part of the gallbladder.The entire superior surface of the body is closely attached to the visceral sueface of the liver over the gallbladder bed.The free surface of the body and the infundibulum lie in close approximation to the first portion and the superior segment of the second portion of the duodenum.

Infundibulum

It is the tapering transitional area between the body and the neck of the gallbladder.It lies 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 peritoneal fold which is derived from the inferior margin of the right free border of the hepato-duodenal ligament.This fold,called the cholecysto-duodenal ligament.

Hartmann's pouch:is a bulge of the inferior surface of the gallbladder infundibulum.It lies close to the neck.

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Neck

The infundibulum rapidly tapers into the neck, which is short, narrow and curves upon itself in the form of S-shaped. It is usually directed superiorly, dorsaly and to the left. It is situated close to the right lateral free border of the hepato-duodenal ligament. It narrows into a well-marked constriction at its junction with the cystic duct (Lindner, 1987).

CYSTIC DUCT

It connects the neck of the gallbladder to the common hepatic duct. It is about 5 cm long, with circumference varies from 3 to 12 mm. It usually runs dorsaly, to the left, and inferiorly to join the common hepatic duct. The distal end of the cystic duct is usually found within the free right border of the hepato-duodenal ligament. This free border is known as the cholecystoduodenal ligament and is the key to the operative search for the cystic duct (Lindner, 1987).

Lobes and segments of the liver (Fig 1)

The true division between the right and left lobes of the liver is not at the falciform ligament, but at a line through the bed of the gallbladder projecting posteriorly towards the inferior vena cava. Each lobe is divided into two segments; the right lobe into anterior and posterior by an oblique line running anterioposteriorly and the left lobe

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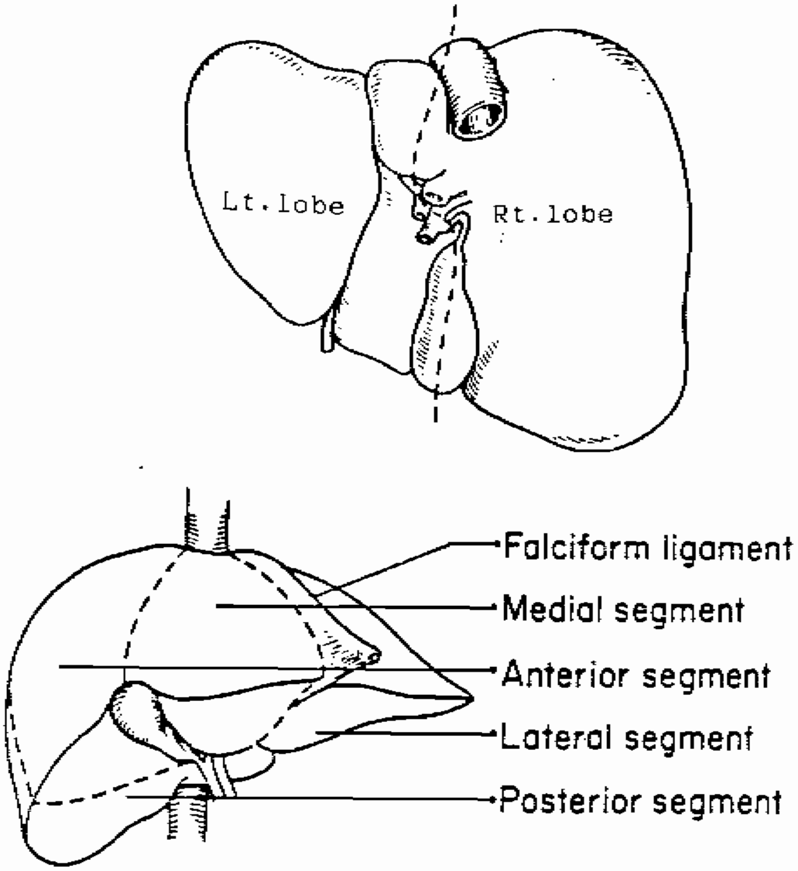

Fig.1 : The lobes and the segments of the liver

(Decker etal.,1986)

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into medial and lateral segments by the insertion of the ligamentum teres and ligamentum venosum (Decker et al.,1986).

Right Hepatic Duct (R H D)

In each individual liver segment,the smaller bile ducts unite to form a single channel called the segmental bile duct (Lindner,1987).In 75 % of individuals the right anterior and posterior segmental ducts join to form a true right hepatic duct,i.e.a single channel carrying the whole bile output of the right lobe;in the remaining 25 % there is no true RHD,the segmental ducts emptying into the left hepatic duct (LHD) separately (Fig.2) (Healey&Schroy,1953;Kune&Sali,1980).The length of the true RHD varies from 0.5 to 1.5 cm(Lindner,1987).

Left Hepatic Duct (L H D)

Unlike the right lobe,the left lobe of the liver is always drained by a single channel,the true left hepatic duct,and in most cases all its tributaries are intrahepatic (Healy&Schroy,1953;Kune&Sali,1980).The left hepatic duct is longer than the right and is more transverse in direction (Maingot,1985).

Common Hepatic Duct (C H D)

It is formed by the final confluence of all ducts issuing from the liver and ends when the lumen of the cystic duct opens into it to form the common bile duct(CBD).In most

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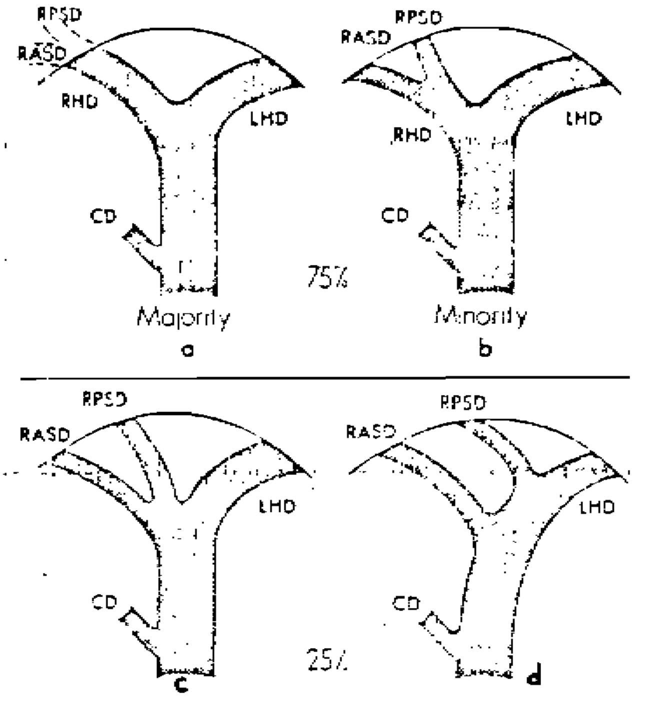

Fig. 2: Patterns of formation of hepatic ducts. A true right hepatic duct (RHD) is present in 75% of individuals. usually formed within the liver (a), but sometimes outside (b). in 25% no true RHD is found, the segmental ducts forming a triple confluence with the LHD (c) or joining it separately (d). RASD = right anterior segmental duct; RPSD= right postrior segmental duct; RHD= right hepatic duct; LHD= left hepatic duct; CD= cystic duct.

(Kune and Sali, 1980)

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