DIAGNOSIS AND MANAGEMENT OF EXTRAHEPATIC BILIARY STRICTURE

An Essay
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In General Surgery

By

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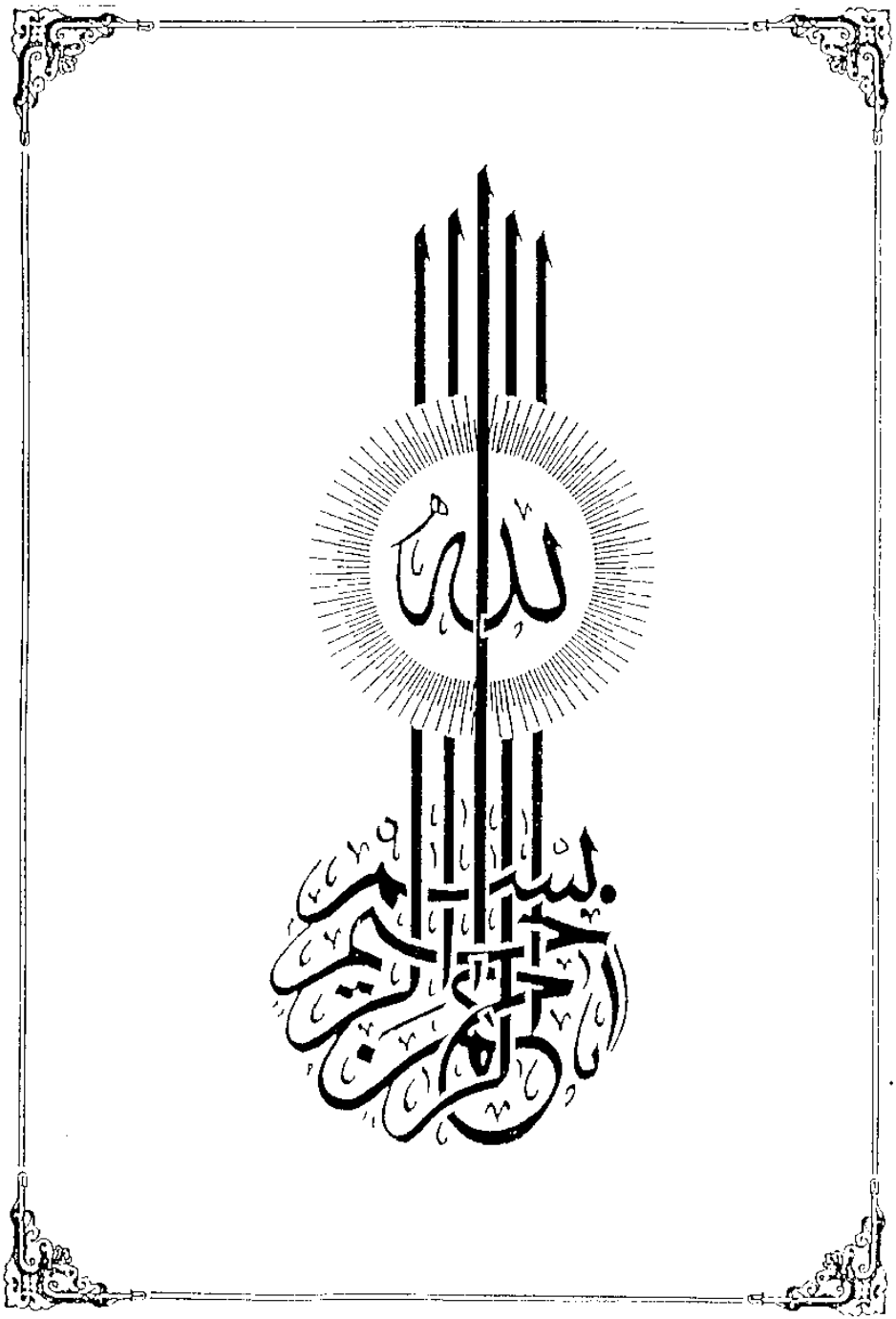
بسم الله الرحمن الرحيم

وقل رب زدني علما

صدق الله العظيم



ACKNOWLEDGEMENT

First and formost I thank ***ALLAH*** *for enabling me tto attain new knowledge and experience through this work I pray that he will guide me through the mysteries of his creations.*

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INTRODUCTION

Strictures of extrahepatic bile duct continue to pose one of the more demanding challanges in abdominal surgery. This essay will discuss the pathology of different types of extrahepatic biliary strictures whether congenital or acquired and will show the effect and complications of these strictures. This essay will give a spot light on the different methods of diagnosis which include clinical, laboratory and radiological investigations. Then it will discuss the different lines of treatment of extrahepatic biliary strictures, such as surgical procedures with their operative morbidity and mortality, instrumental and other lines of treatment.

ANATOMY

SURGICAL ANATOMY OF THE BILIARY TREE

Introduction:

Biliary anatomy first become of practical importance to surgeons towards the end of the last century, following the first cholecystectomy by carl langenbuch in 1882 **(Northover and Terblanche, 1982).**

The extra hepatic biliary tree probably has more anomalous structures and relationships than any other areas of the anatomy. This review of the embryologic development and anatomy of the biliary tree should assist the operating surgeon in understanding and recognizing the anomalies that may be encountered.

Emberyology of the biliary tree (Fig. I)

At about 3 mm stage (fifth week of intrauterine life). The embryo shows the begining of an outpouching from the ventral surface of the primitive gastro-intestinal tract gust distal to junction of the foregut and midgut. The outpouching penetrates the primitive ventral mesogastrium and ultimately results in the formation of the two lobes of the liver. The intra and extra hepatic biliary tree, the gall bladder, cystic duct, dorsal posterior half of the head of the pancreas and the uncinate process.

Also at this time a dorsal sacculation leaves the primitive bowel tube at slightly more superior level to become the analogue of the remainder of the pancreas.

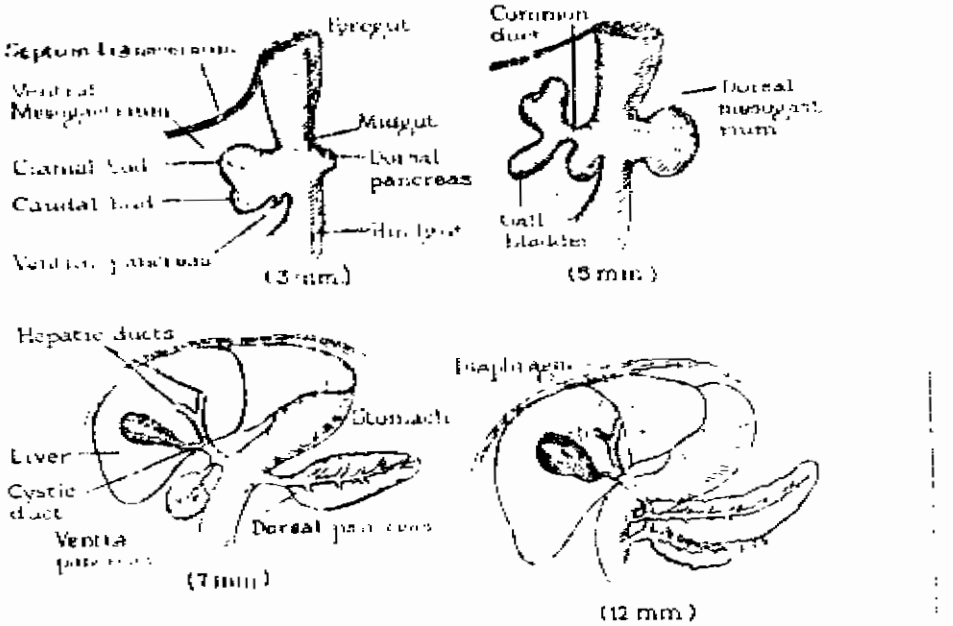

Figure 1 . Development of extrahepatic biliary tract in the embryo from the 3 mm to the 12 mm stage

As the ventral sacculation pushes its way ventrally and superiorlyorly between the two leaves of the ventral mesogastrium, its distal or advancing tip divides into a superior and an inferior bud, has appeared. The superior bud of the ventral saculation finaly reaches the septum transversum, the primitive mesodermal sheet that separates the thorax from the abdominal cavity. Just before it reachs the septum, the advancing superior bud divides into right and left cellular column each of which will form one of the lobes of the liver. The advance of the liver, at which point is develops into the gallpladder and the cystic duct. The growth superiorly of the superior bud of the biliary diverticulum is the mechanism by which the hepatic duct, the common hepatic duct are formed.

With the embryo at 7 mm stage the common bile duct is seen to be still attached to the ventral pancreatic bud attached to its inferior wall, the pancreatic bud rotate to the left. This rotation allows the ventral pancreatic bud to form the complete pancreas. By begining of the seventh week of intrauterine life vacuolization starts to take place within the future biliary tree, within week, a completely open lumen has formed within the gall-bladder. By the end of the 3rd month of fetal life, the liver begins to secrete bile (Lindner, 1987).

EMBRYOLOGIC ERRORS RESULTING IN CONGENITALMAL FORMATION OF THE EXERAHEPATION BILIARY TREE

Abnormalities of the gallbladder:

Congenital anomalies of the gallbladder may be classified as follows:

1. **Anomalies of number:**

   A genesis of the gallbladder double or triple gallbladder replacement a fibrous nodule.

2. **Anomalies of form:**

   Partitioned bilobed, septate hourglass, diverticulum of the gallbladder and phyringian cap.

3. **Anomalies of position:**

   Interhepatic, transverse, life sided gallbladder, double gallbladder one on each side, ptosis of the gallbladder **(Schwartz, 1985).**

Anomalies of number

* **Abscense of the gallbladder:** Is a rare condition with an autopsy incidence of 0.3 percent before the diagnosis is made, the persence of an intrahepatic vesicle or left-sided organ, must ruded out. (Fig. 2)

* **Double gallbladder:** In this solution there are two separate organs and two separate cystic ducts full duplication of the gallbladder occurs one gallbladder was situated on the right side and the other on the left side beneath the lobe of the liver. At times

there were small circular ovoid a necessary anomolous or rudimentary gallbladder that arose from the common duct by narrow neck. (Fig. 3)

Anomalies of form

Bilobed gallbladder represents an anomaly in which the gallbladder has two cavities that drain a common cystic duct. Fewer than two dozen cases have been reported three varieties of bilobed gallbladder have been noted (1) the cavities may be divided by septum, and the septum may be partial or complete (2) there may be two cavities that coasce at their necks to join the cystic duct. (3) there may be two vesicles of equal size that have their own cystic duct that unite to form a single duct before this drains into the main bile duct (Fig. 4).

Another anomaly is the diverticulum of the gallbladder, the most common site of which Hurtmann's Poutch.

Other malformations of form and contour include dumbel or hourglass gallbladder.

The pharymgian cap has been described as congenital malformation (Schwartz, 1985).

Anomalies of position

Floating gallbladder is one in which the organ is completely covered by peritoneum, it is usually suspended from the liver by mesentery. If mesentery is absent, the only connection of the gallbladder to the liver may be cystic duct mesentery. Both types

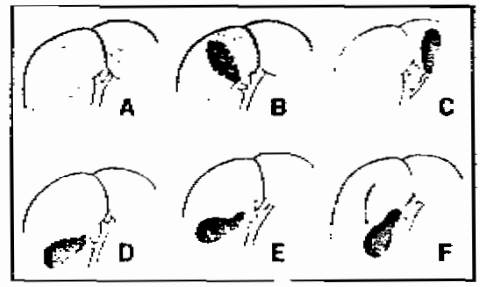

Figure 2. Anomalies of the gallbladder. **A.** Absence or agenesis. **B.** Intrahepatic gallbladder. **C.** Gallbladder on the left side. When the gallbladder is situated on the left side, the cystic duct may drain into the left hepatic duct or the common hepatic duct. **D, E, and F.** Gallbladder with and without a mesentery. Ptosis or "floating" gallbladder. (*Source: From Gross RE: Congenital anomalies of the gallbladder. Arch Surg 32:131, 1936, with permission.*)

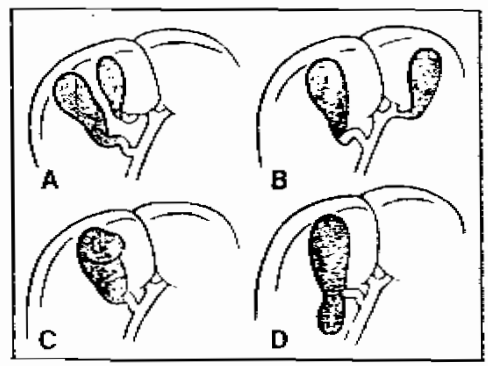

Figure 3. Anomalies of the gallbladder. **A.** Double gallbladder. **B.** One gallbladder in its normal position and another on the left side. **C.** Phrygian cap. **D.** Enlarged Hartmann's pouch. (*Source: From Gross RE: Congenital anomalies of the gallbladder. Arch Surg 32:131, 1936, with permission.*)

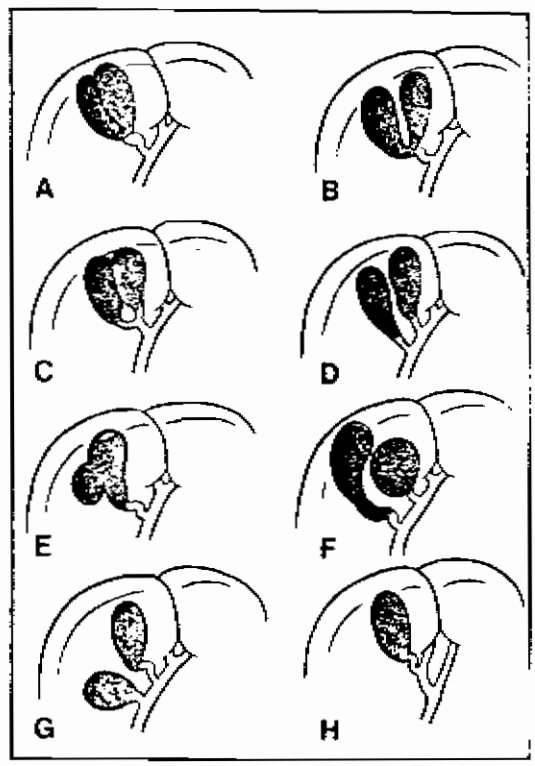

Figure 4 Anomalies of the gallbladder. **A, B,** and **C.** The three types of bilobed gallbladder: septal, T-, and Y-shaped. **D, F,** and **G.** The small rounded "gallbladders" are rudimentary in origin. **E.** Diverticulum of the gallbladder. **H.** High position of the gallbladder with its cystic duct draining into the right hepatic duct. (*Source: From Gross RE: Congenital anomalies of the gallbladder. Arch Surg 32:131, 1936, with permission.*)