STRICTURE OF THE COMMON BILE DUCT

ESSAY

Submitted In Partial Fulfilment For

The Master Degree In

General Surgery

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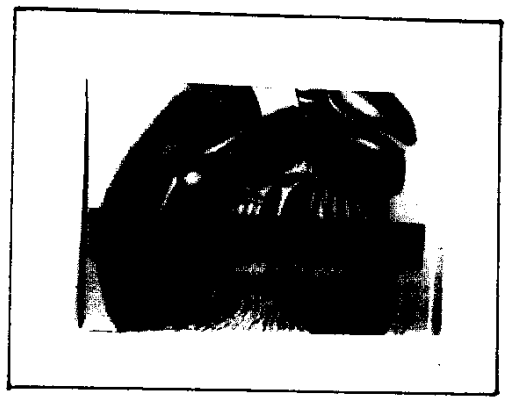

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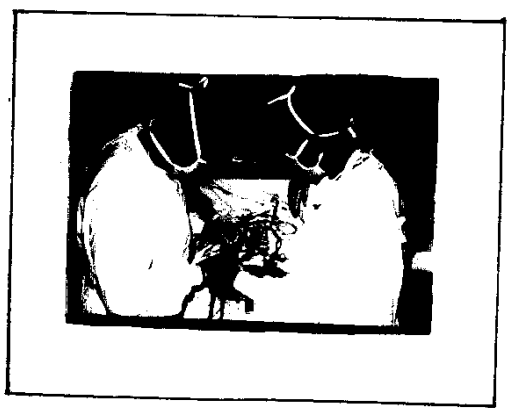

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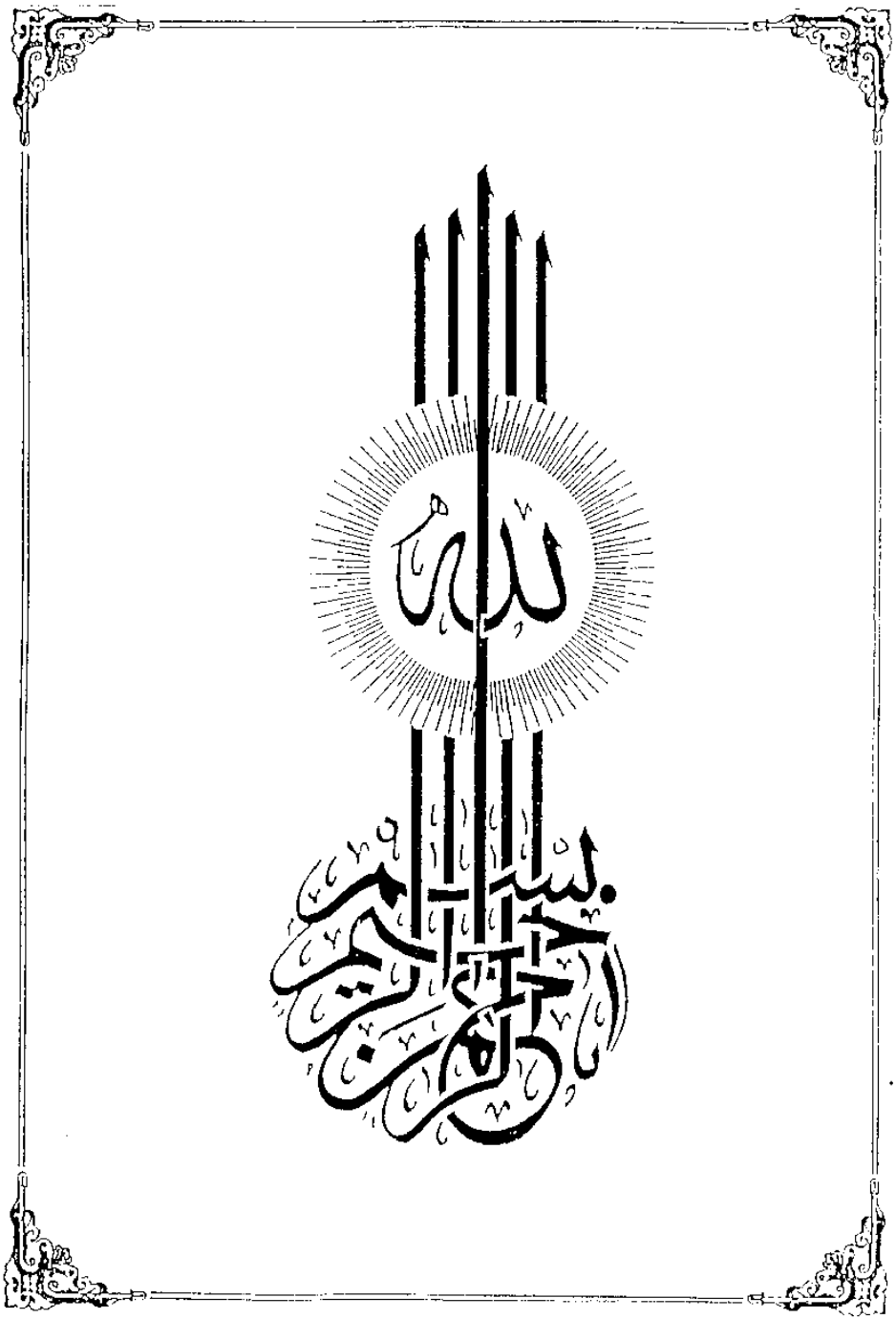

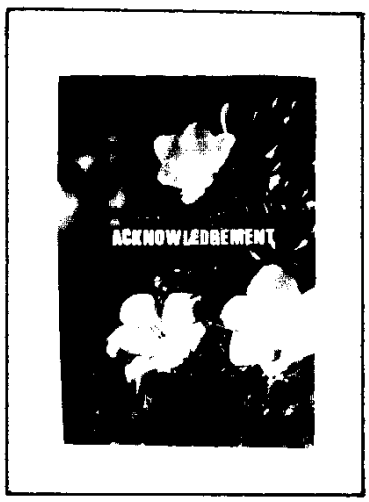

FIRST AND FOREMOST, THANKS ARE DUE TO GOD.

The credit of bringing this work to light goes to my **Professor Doctor Mohamed Samir Abou-Zeid**, Professor of General Surgery, Faculty of Medicine, Ain Shams University, who encouraged me too much, he suggested the subject, set up the plan, and offered brilliant ideas from the start to the end. I wish to express a particular gratitude to his sincere guidance.

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(1985)

INTRODUCTION AND AIM OF THE WORK

Stricture of the common bile duct is not uncommon surgical challenge facing us in practice. There are numerous causes classified under tow headings, benign and malignant strictures of the C.B.D.

Prognosis differs according to the cause, site, early proper diagnosis, number of previous repair procedures, general condition of the patient and the proper management.

The aim of this work is to review the literatures for biliary stricture including normal and abnormal anatomy of the gall bladder and the extra hepatic biliary passages, aetiopathology, diagnosis and treatment.

In this work we are going to shed the light on this subject with particular emphasis on post-operative stricture which really is the main bulk of this problem.

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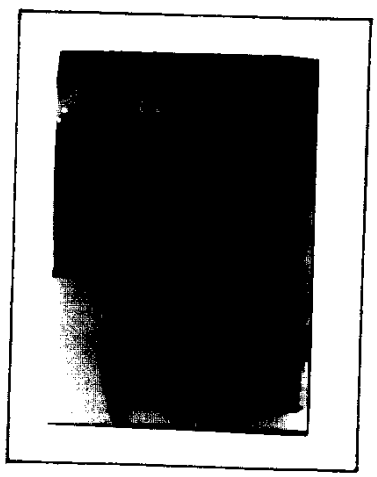


anatomy

EMBRYOLOGY

Hepatic diverticulum:

The liver and its ductal system originate as an endodermal bud-like ventral projections at the junction of the foregut and midgut during the third or fourth week of embryogenesis (Arey, 1965).

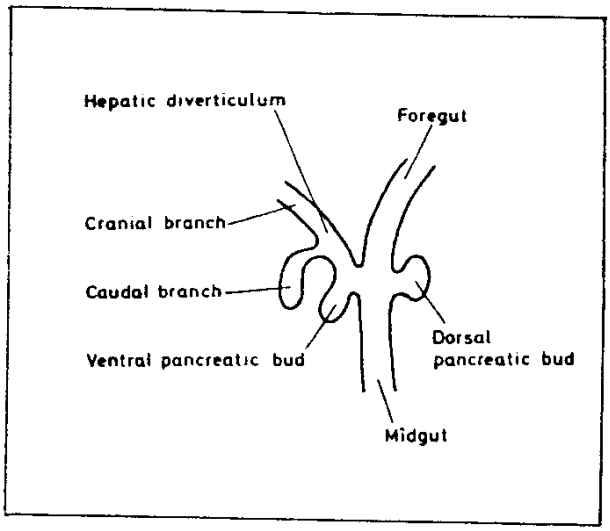
This diverticulum divides into cephalic (pars hepatica) and caudal (pars cystica) projections. The common bile duct is derived from that portion of the diverticulum common to the cephalic and caudal projections(Fig. 1). The cephalic projection gives rise to the liver cells and the hepatic ducts, while the caudal one is the predecessor of the cystic duct and the gall blader. Bridges of hepatic elements may connect the pars hepatica and pars cystica (Hayes et al., 1958).

Intra hepatic ducts:

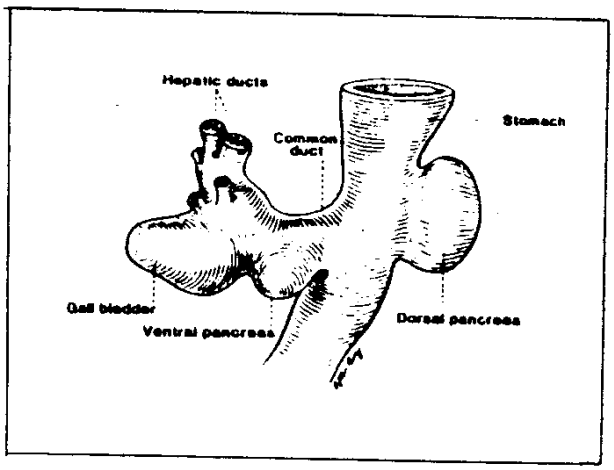
Endodermal cells capping the cephalic diverticulum differentiate into plates of hepatocytes which surround a vascular plexus emanating from the vitelline vein. The hepatic diverticulum then penetrates the transverse septum as a solid cord of hepatic cells. Cords of two cells in thickness give rise to the hepatic parenchyma and the intercellular bile canaliculi, cords of four or five cells in thickness become ductal cells forming the intralobular ductules converge to form the interlobular ducts these then connect with the extrahepatic ducts that are developing from the original cephalic diverticulum. Aberrant bile ducts may form during the development of proliferating branches of the primitive tubular liver cords.

Extra hepatic ducts:

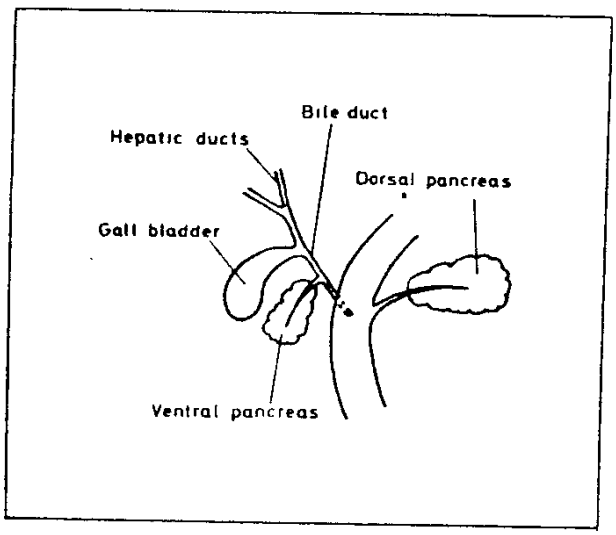
Early in their development from the hepatic diverticulum the common and hepatic bile ducts become solid structures containing multiple spaces lined with epithelial cells. Later about the seventh week, these spaces coalesce to form the lumen of the ducts. The common duct acquires its lumen first followed by the cystic duct which expands at its distal end to form the definitive gall bladder. Accessory ducts or biliary atresia may result if this process of solidfication and vacuolization is aborted at certain developmental stages. At three months the fetal liver begins to secrete bile (Jackson and kelly, 1964). Whether the papilla of Vater migrates from its original ventral position or is brought to the dorsal wall of the duodenum as a result of duodenal rotation has not been established .



(a) The hepatic diverticulum divides into cranial and caudal branches.

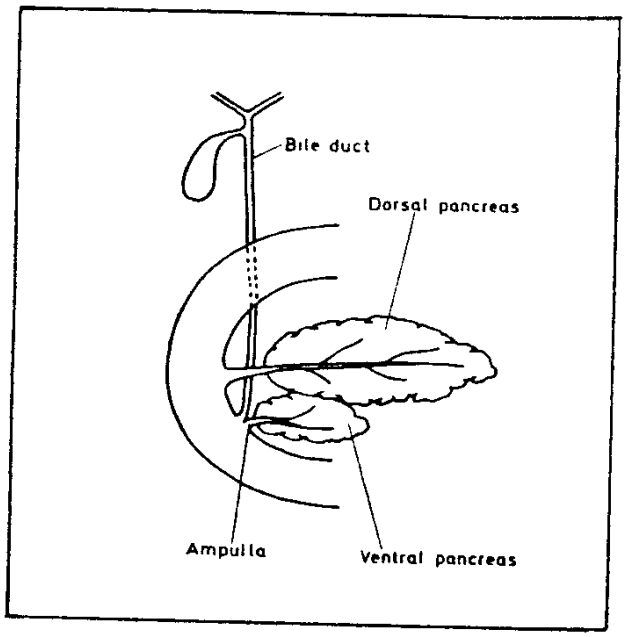


(b) further devlopment.

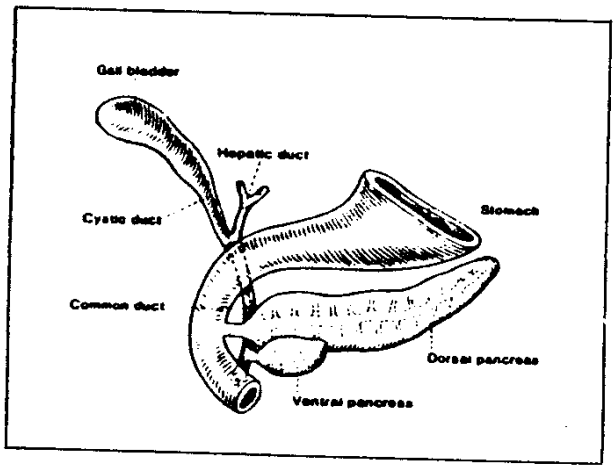


(c) further development.

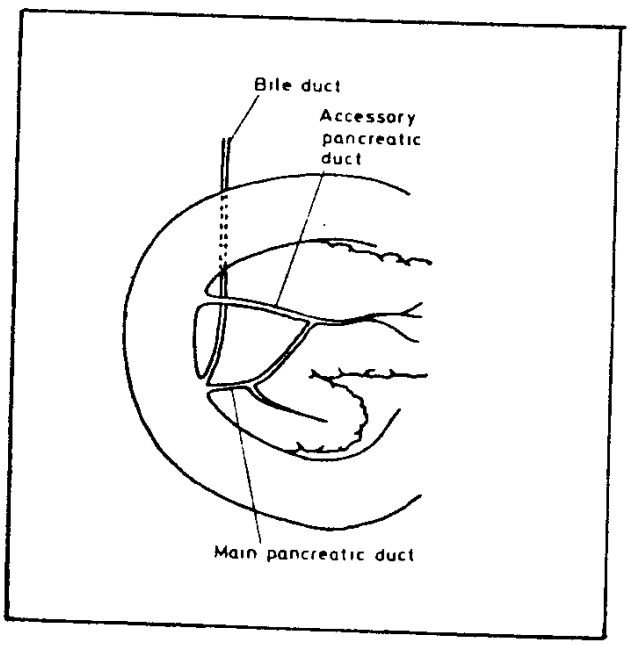
Fig.(1) Embryological development of bile ducts.



(d) Migration of the ventral pancreas dorsally.



(e) Fusion has occured and ductal anastomosis is begining.



(f) Anastomosis of the duct systems of the pancreatic buds.

Fig.(1) Contd.

ANATOMY OF THE EXTERNAL BILIARY APPARATUS

Introduction:

Biliary anatomy first became of practical importance to surgeons towards the end of the last century, following the first cholecystectomy by Carl Langenbuch in 1882 (Glenn and Grafe, 1966).

The surgeon should be familiar not only with the anatomy of the gall bladder, the biliary passages and the associated blood vessels but also with various abnormalities that may from time to time be encountered during operation in these areas. The external biliary apparatus is formed of the gall bladder and the extra-hepatic bile ducts (Fig.2&3).

1. The gall bladder:

It is a pear shaped sac partly contained in a fossa on the inferior surface of the right hepatic lobe, extending from near the right extermity of the porta hepatis to the inferior border of the liver (Fig. 4). Its upper surface is attacned to the liver by connective tissue, its under surface and sides are covered with peritoneum continued from the surface of the liver. Occasionally it is completely invested with peritoneum and may be connected to the liver by a short mesentery. It is from 7 to 10cm long, 3cm broad at its widest part, and from 30 to 50 ml in capacity. It consists of fundus, body, infundibulum and neck (Fig. 5).

* **The fundus:** or expanded end, is directed downwards forwards and to the right. It projects beyond the inferior border of the liver, and comes into relationship with the posterior surface of the anterior abdominal wall below the

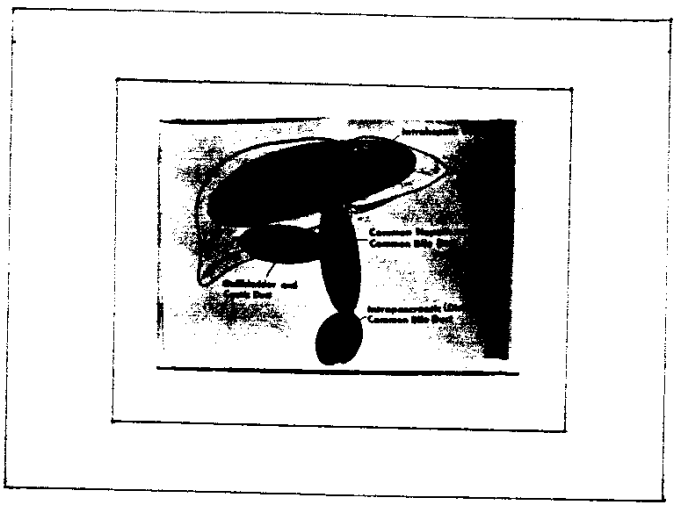


Fig.(2) Four surgical anatomical components of the biliary system: * intrahepatic bile ducts(yellow), * common hepatic and common bile ducts(pink), * gall bladder and cystic duct(green), * intrapancreatic(distal) common bile duct and ampullary region(blue).

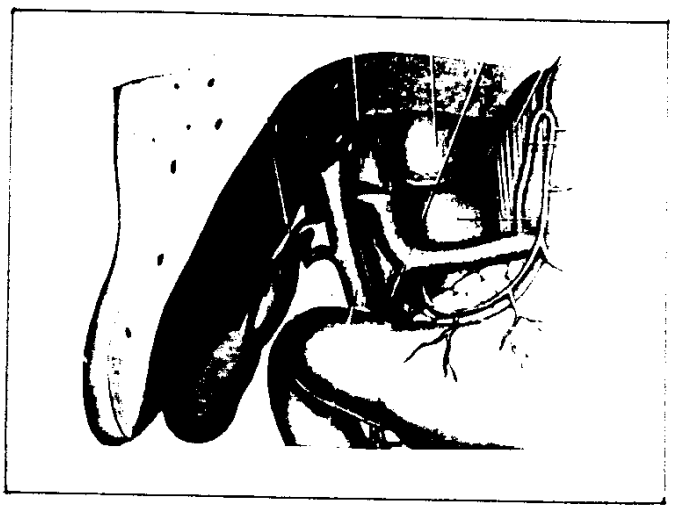


Fig.(3) Relations of bile ducts, hepatic artery and portal vein in the lesser omentum.

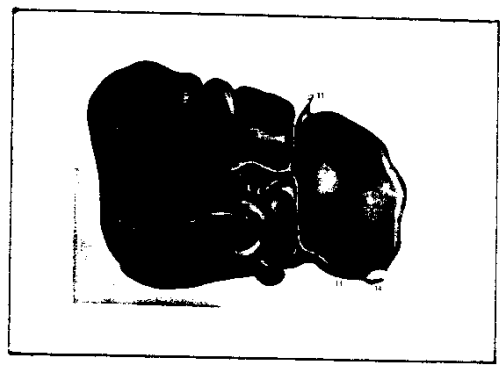


Fig. (4) The gall bladder in its fosss on the inferior surface of the right hepatic lobe.

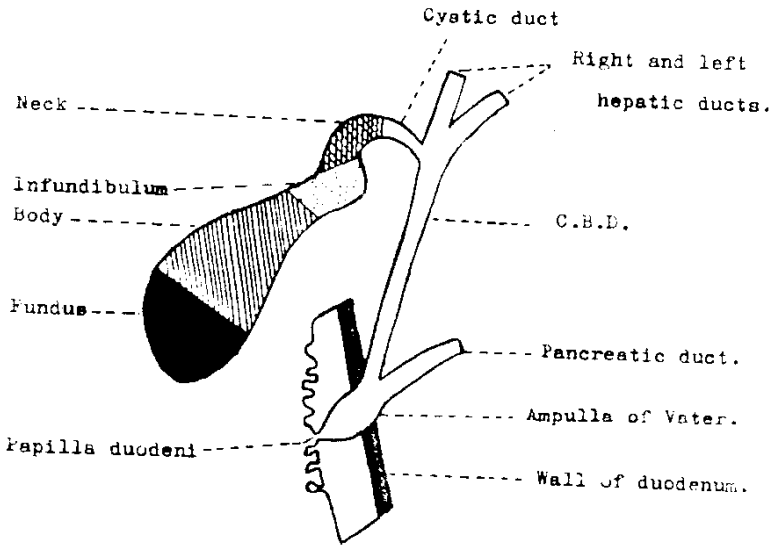


Fig. (5) Anatomy of the gall bladder.