MANAGEMENT OF PANCREATITIS

ESSAY

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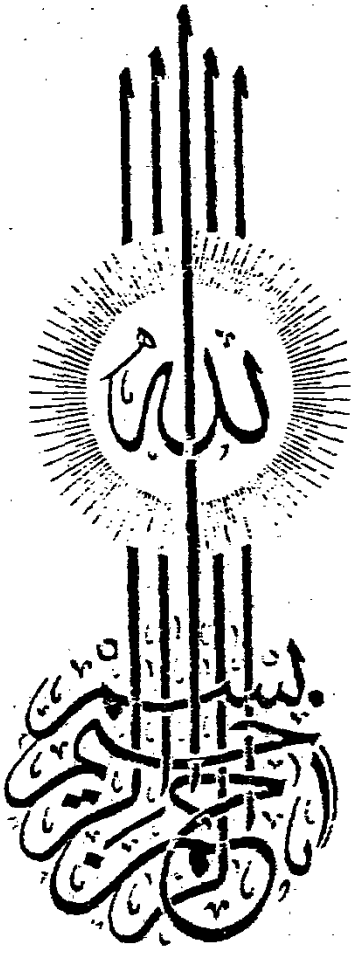
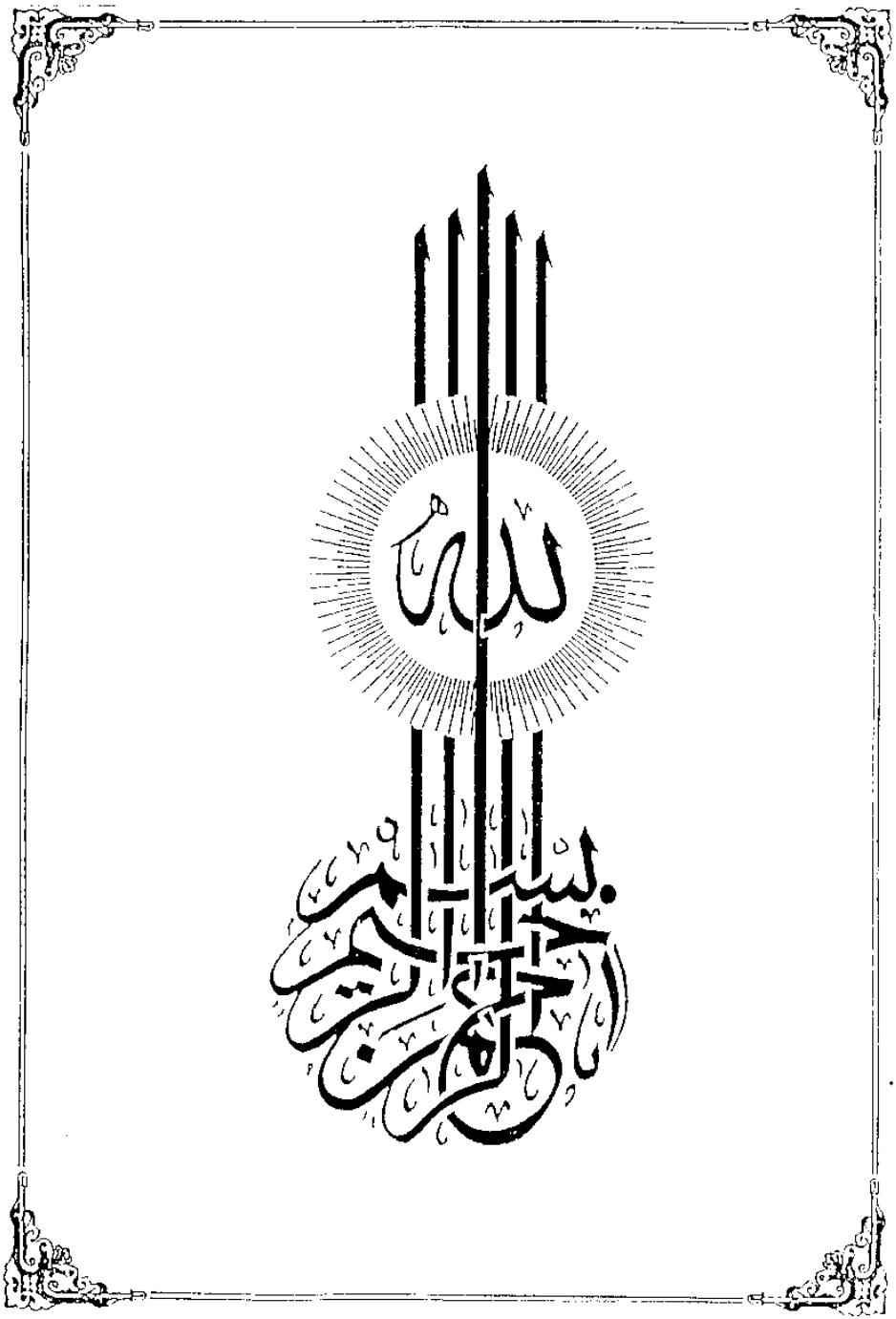


« علم الانسان ما لم يعلم »

صدق الله العظيم

سورة العلق آية ٥



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INTRODUCTION

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Acute and chronic pancreatitis have been represented by high rate of morbidity and mortality due to difficulties in diagnosis, and laboratory investigations, hence the subsequent differential diagnosis and treatment in the proper time .

Pancreatitis is a common non bacterial inflammatory disease which results from activation, interstitial liberation, and autodigestion of the pancreas by its own enzymes. The process may or may not be accompanied by permanent morphological and functional changes in the gland.

Much is known about the causes of pancreatitis, but despite the accumultation of a considerable amount of experimental data, our understanding of the pathogensis of this disorder is still incomplete.

The high mortality remains the greatest challenge facing the clinician. Great advances have occurred recently in the laboratory, radiological and scanning techniques. Thanks to these advances it has been possible to reach a proper aetiological diagnosis of pancreatitis and to achieve a valuable management.

ANATOMICAL AND PHYSIOLOGICAL CONSIDERATIONS

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Developmental Anatomy :

The pancreas develops as two separate buds, each as an out growth of the endoderm at the junction of foregut and midgut. The ventral bud grows into the ventral mesogastrium in common with the out growth of the bile duct and the dorsal bud grows independently from a separate duct into the dorsal mesogastrium [*Last, 1984*].

The pancreatic duct system :

The pancreatic secretions are drained into the doudenum through the main pancreatic duct and [in 5% of the population the accessory pancreatic duct.

The main pancreatic duct of wirsung :

This is about 8.2 inches in lenghth starting one inch from the tip of the tail by an internal diameter about 0.5mm. [*Grant Anatomy 1982*]. as the junction of small ducts of the lobules in the tail.

The duct runs near to the posterior surface, along its course the duct receive the ducts of lobules at right angles. As proceeding toward the head, the diameter increases to become 3.5mm at the head. [*Grant anatomy-1982*].

At the neck of pancreas the duct turns downwards, backwards and to the right so as the common bile buct become on its right side [*Gray-1984*].

The two ducts unite within the wall of the doudenum to form the "hepato-pancreatic ampula of vater" which opens into the doudenal lumen at the junction of medial and posterior wall of the second [desending] part of doudenum about 8-10 cm from the pylorus, on the summit of the "major doudenal papilla "which is guarded by the " sphincterof Oddi".

The accessory duct of santorin :

This is present in 50% of the population and begins at the lower part of the head, runs upwards infront of the duct of wirsung to which it is connected by a communicating duct, it drains the lower part of the head and uncinate process.

Santorini duct opens into the doudenal lumen at the summit of the minor doudenal papilla which lies 2cm above the major papilla .

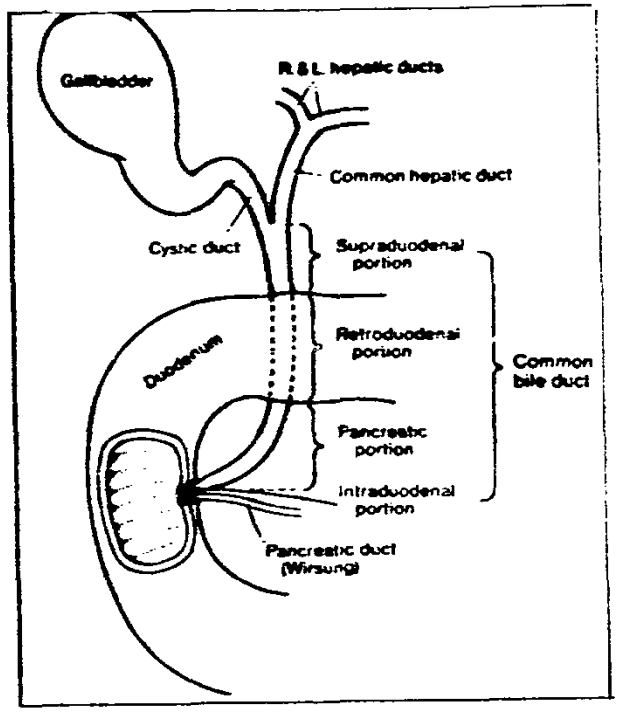


Figure . **The extrahepatic biliary tract and the four portions of the common bile duct.** (*Source: From Skandalakis JE, Gray SW, et al, 1983, with permission.*)

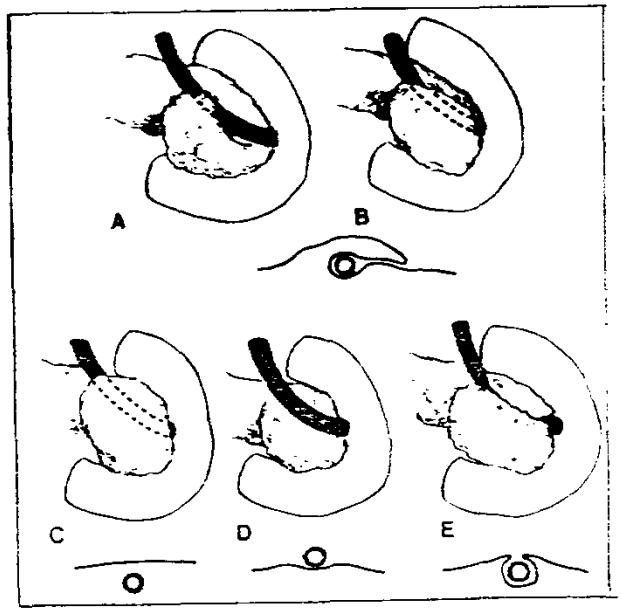


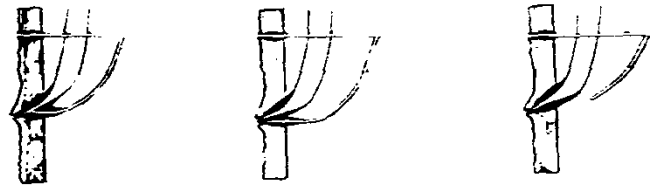
Figure . Relation of the pancreas and the common bile duct. **A** and **B**. The duct is partially covered by a tongue of pancreas (44 percent). **C**. The duct is completely covered by the pancreas (30 percent). **D**. The duct lies free on the surface of the pancreas (16.5 percent). **E**. The duct is covered by two tongues of pancreas with a cleavage plane between. (*Source: From Skandalakis JE, Gray SW, et al, 1983, with permission.*)

Some details about relation of bile duct to pancreatic duct:

The common bile duct is approximately 8.5cm in length. The normal external diameter Ranges between 4 and 10mm. Lesile has shown that at diameter of 10.2mm or above the probability of obstructive pathology is 50 precent. The upper portion is situated in the free edge of the lesser omentum, to the right of the hepatic artery and anterior to the portal vein. The middle third of the common bile duct curves tothe right behind the first portion of the duodenum where it diverges from the portal vein and hepatic arteries the lower third of the common bile duct curves more to the right beyond the head of the panceas, which it grooves and enters the ampulla of vater where it is frequently joined by pancreatic duct the pancreatic portion of the common duct is partially covered by pancreatic tissue in about 45 percent of cases and completely covered in another 30 percent of cases .

The final intraduodenal or intramural portion of the common bile duct passes obliquely through the duodenal wall with the main pancreatic duct and follows one of three patterns. The structures may unite outside the duodenum and traverse the duodenal wall and papilla; they may join within the duodenal wall and have a common short terminal portion; they may exit independently into the duodenum. Separate

orifices have been demonstrated in 29 percent of outopsy specimens, while injection into cadavers reveals reflux from the common bile duct into the pancreatic duct in over 50 percent of cases.



85% Common Channel 13% Separate openings 2% Atretic duct of Wirsung

FIG. —Relationship between termination of common bile duct and pancreatic ducts.

The distal common bile duct at the papilla of vater is regulated by a sphincteric mechanism originally named the sphincter of oddi but more accurately described by Boyden, who hos defined a complex of four sphincters composed of circular or spiral smooth muscle fibers surrounding the intramural portion of the common bile duct and pancreatic ducts. The common duct exits at the papilla of vater this point can be defined in the duodenum by the junction of a longtudinal mucosal fold meeting a transverse fold to form a T. ***[Maingots Abdominal Operation 1985]***

Microscopic anatomy :

The exocrine part of the pancreas is a lobulated, branched, acinar gland, surrounded and divided into lobules by loose connective tissue ***[Beck and sinclair, 1980]***. The gland is composed of alveoli of serous cells and very few ducts. In each alveolus the basal part of the cell is deeply

stained and basophilic, while the central part of the alveolus stains less heavily and is acidophilic. The nuclei, situated toward the basal part of each cell, are large and deeply stained [*Last, 1984*].

The endocrine part of the pancreas is formed of spheroidal clusters of cells randomly embeded in the exocrine part [islet of langerhans] The islet, which may number more than one million in normal individual, tend to be most numerous in the tail of the pancreas. Each consist of a mass of polyhedral endocrine cell characterized by a network of fenestrated capillaries and rich autonomic innervation [*Gray's anatomy, 1980*].

The most numerous endocrine cells are :

Type A or [alpha] secrete gulcagon it tend to be arranged toward the periphery of the islet.

B [or beta] cells secrete insulin are more central in position.

D cell contain somatostatin, which inhibit glucagon release.

F cell secrete pancreatic poly peptide.

So, the islet consists of two distinct regions: a homocellular medalla containing mainly B-cells, where insulin is secreted, and a heterocellular cortex of A, D and

F-cells, particularly rich in vascular and neural element *[Orci, 1980]*.