بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا

الاما علمتنا انك انت

العليم الحكيم

صدق الله العظيم

صورة البقرة الاية 32

Role of laparoscopy in pancreatic surgery

Thesis Submitted in partial fulfillment of the MD degree (General Surgery)

By

Mohmoud Ahmed Mohmoud Negida

Supervisors

Prof. Dr. Kaiss Abdel Dayem Abulata.

Prof. of General Surgery
Cairo University

Prof. Dr. Fahim Aly El Bassiony.
Prof. of General Surgery
Cairo University

Prof. Dr. Hesham Mahmoud Salah El Din Amer.
Prof. of General Surgery
Cairo University

Faculty of Medicine
Cairo University
2008

Dedication

Dedication

To:

The sole of my father,

My mother,

My wife and children,

My sister and her family

"Without your support and Love, this Piece of Work Wouldn Not have seen the Light"

Thank you

Acknowledgment

Acknowledgement

I am deeply indebted to Allah our lord, to whom I owe my existence, my faculties and blessings

I am greathy honored to express my deep thanks and gratitude to prof.Dr. Kaiss Abd El- Daim for his generous and continuous co- operation, valuable directions and support.

Words are not enough to express my deepest gratitude and great thanks to Prof.Dr.FAHEEM A. ELBASSIONY for his kind supervision, keen interest and significant contribution all through this work.

HOW grateful Iam to PROF. DR.HESHAM AMER for his constructive suggestions,planning,and continuous guidance throughout this work.

Last but not Least, Iam indebted to all my friends and colleages for their continuoes help.

Abstract

Laparoscopy has a very important role in management of pancreatic diseases either as a diagnostic or therapeutic tool. The present work is concerned with the assessment of the diagnostic & therapeutic potentials of laparoscopy in the management of 26 consecutive patients presenting with pancreatic lesions to a surgical section in Kasr El Ainy teaching hospital. Diagnostic laparoscopy will be scheduled for all the cases; to whom the required preoperative investigation was done. laparoscopic therapeutic options will be selected at random when properly indicated in each individual patient. These 26 Patients were arbitrarly divided into two groups:

1) ***Group A:*** 24 Patients presenting for staging of their pancreatic masses.
2) ***Group B:*** 2 Patients presenting for drainage procedures in cases of pancreatitis & its complications (e.g. pseudocysts).

For group A, therapeutic option as laparoscopic bypass (cholecyst.jaj., gast.jej.,jej.jej.) or laparoscopic resection, (enucleation of benign lesions , radical resection) could be done according to each case. For group B, laparoscopic drainage (cyst. Gast., cyst.jej) could be done.

Finally we can conclude that laparoscopy has a benefit of detection of preoperative understaging so preventing unnecessary laparotomies .Furthermore laparoscopy can provide a valid addition in the management by providing an option of palliative bypass in preoperatrivly under or properly staged cases with all the benefits of this minimal invasive technique.

Key words

Laparoscopy, laparoscopy pancreas, cholecysto. jej., gastroenterostomy, pancreatic Pseudocyst, pancreatic Neoplasms, pancreatitis , pancreaticoduodenectomy, jej. jej.

Contents

	Page
• *Review of literature*	*1*
• *Pathology of Pancreatic neoplasms*	*51*
• *Subject and methods*	*76*
• *Results*	*84*
• *Discussion*	*90*
• *References*	*94*
• *Summary*	*102*
• *Arabic summary*	

Review of literature

THE PANCREAS

Anatomy

The pancreas lies transversely across the posterior abdominal wall from the duodenum to the spleen and is behind the stomach. The gland is divided into head, neck, body, and tail. The head is the more expanded part of the pancreas, occupying the area defined by the c-shaped curve of the duodenum and separated from it by only a shallow sulcus. Continuing to the left and somewhat upward from the head are successively the neck, the body, and the tail of the gland. The transverse mesocolon crosses the anterior surface of the head, its layers reflecting above and below over the pancreas and duodenum. Superior to the attachment of the mesocolon the pancreas is related to the pylorus; inferior to it are the coils of the small intestine. Posteriorly, the head overlies the second and third lumbar vertebrae, the inferior vena cava, the renal veins and the right renal artery. The uncinate process is posteriorly related to the aorta. The common bile duct descends diagonally across the back of the head partially embedded in its substance. The lower left portion of the head of the pancreas is inserted behind the superior mesenteric vessels, forming the uncinate process.

The neck of the pancreas is continuous with the upper left portion of the head. This somewhat constricted portion is grooved posteriorly by the superior mesenteric artery and vein. The superior mesenteric vessels emerge through the pancreatic notch below the neck and descend across the uncinate process and the third part of the duodenum to enter the mesentery. Behind the neck of the pancreas the superior mesenteric and splenic veins unite to form the portal vein. The anterior surface of the neck, continuous with the corresponding surface of the body of the

pancreas, is covered by peritoneum and lies in the floor of the omental bursa. It is related superiorly to the pyloric portion of the stomach and is related, through the lesser omentum, with the left lobe of the liver.

The body of the pancreas continues from the neck toward the left and somewhat upward. In cross section this portion of the pancreas is somewhat triangular, the apex of the triangle being an anteriorly projecting ridge along which is attached the transverse mesocolon. The ridge separates an anterior surface above from an inferior surface below. The posterior surface of the gland is the base of the triangle. The borders of the triangular body are superior, anterior, and inferior. The anterior surface, in continuity with the neck of the pancreas, lies in the floor of the omental bursa and form part of the stomach bed. The posterior surface is flat and is covered by the fascia existing behind the pancreas. This surface crosses, from right to left, the aorta, the left suprarenal gland, and the left kidney. The splenic vein courses from left to right along the posterior surface. The narrow inferior surface is covered by the inferior reflection of the transverse mesocolon and is in relation with the duodenojejunal flexure and the coils of the jejunum. The superior border is invaded by the convoluted splenic artery. The anterior border is the ridge along which the transverse mesocolon attaches. The inferior border of the gland separates the inferior and posterior surfaces; the inferior pancreatic artery lies along or close to this border (Figure 1).

The tail of the pancreas is usually blunted and turned upward. It enters the splenorenal ligament and frequently makes contact with the spleen; inferiorly, it is in relation with the left flexure of the colon ***(Silen.,1964).***

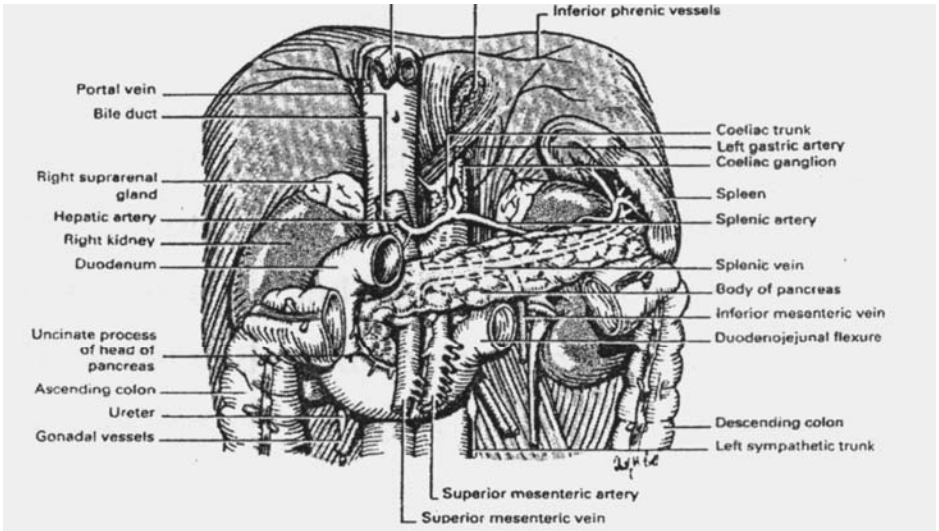

Fig.(1)Relation of pancreas to posterior abdominal wall viscra

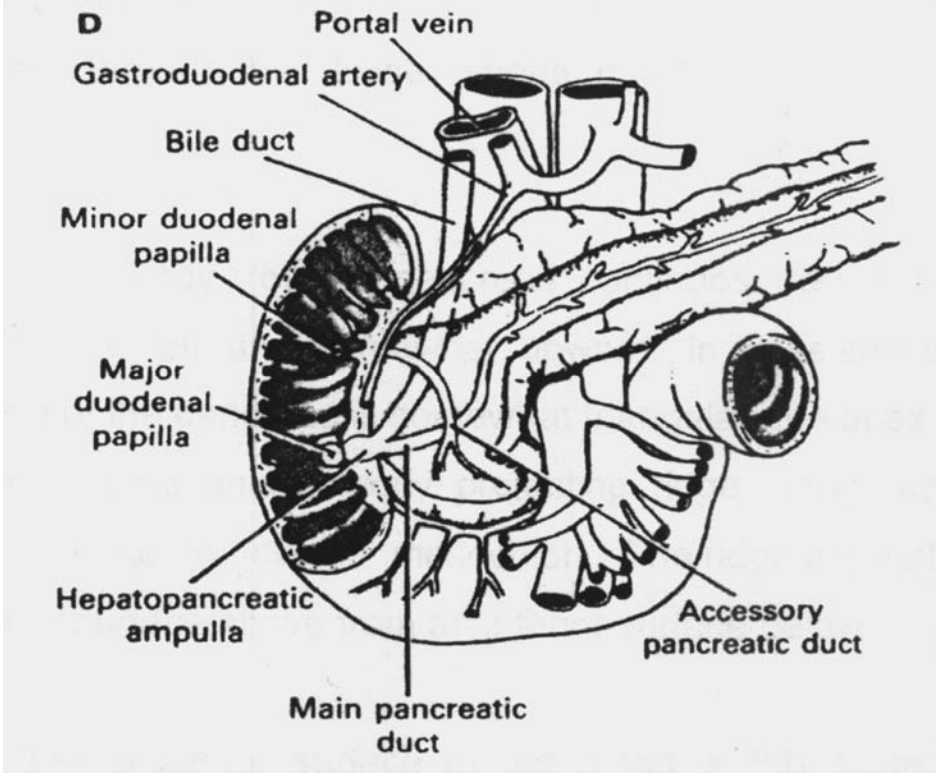

Fig. (2): Pancreatic ductal system

Bile and Pancreatic Ducts

The common bile duct passes posterior to the head of the pancreas on its way to the duodenum and is partially or completely covered by the pancreas in over 70% of cases. The duct enters the duodenal wall and runs within it for about 1.5 cm. The main pancreatic duct (Wirsung) arises in the tail of the pancreas and enters the duodenal wall caudal to the bile duct. The two ducts usually lie side by side for several millimeters before they join as a common channel. The single pancreaticobiliary duct enters the duodenal lumen on the papilla of Vater, located on the posteromedial wall of the second portion of the duodenum, at the level of the second or third lumbar vertebra.

The ampulla of Vater is a dilatation of the common pancreaticobiliary channel within the papilla and is distal to the junction of the two ducts. An ampulla is present in about 90% of cases, and it usually is quite short (5 mm or less). In 10% of people, the individual ducts empty separately into the duodenum, and there is no ampulla. When a common channel exist, it may be important in the pathogenesis of gallstone pancreatitis because a calculus could lodge in the ampulla and obstruct the ducts. The accessory pancreatic duct (Santorini) usually drains the anterior and superior portions of the head of the pancreas. In 60% of cases, it enters the duodenum about 2 cm cranial and slightly anterior to the papilla of Vater, through the minor papilla. Because the accessory duct often communicates with the duct of Wirsung, drainage can occur through either the minor or major papilla. The minor papilla is always found distal to the point where the gastroduodenal artery crosses posterior to the duodenum. To avoid injury to the accessory pancreatic duct during gastrectomy, dissection of the duodenum should not progress past the artery.

Numerous variations of ductal anatomy occur, but only pancreas divisum, which occurs in up to 10% of normal people, occasionally may cause disease. Pancreas divisum occurs when the embryologic dorsal and ventral pancreatic ducts do not fuse, and the main pancreatic duct empties through the minor papilla. In this case, only the duct draining the uncinate process empties through the papilla of Vater. In some people with pancreas divisum, pancreatitis may occur as a result of relative obstruction to the outflow of pancreatic juice through a minor papilla not normally required to handle such a large volume.

In adults the main pancreatic duct is about 3 to 4 mm in diameter in the head of the pancreas, 2 to 3 mm in the body, and 1 to 2 mm in the tail. Some dilatation occurs normally with aging, and a diameter of 5 to 6 mm may be normal in patients age 70. Nevertheless, ductal dilatation is more commonly an indication of disease and implies ductal obstruction ***(Silen, 1964).***

Vessels and Nerves of the Duodenum and Pancreas

The close positional relationship of the duodenum and the pancreas results in their blood and lymph vessels being the same in whole or in part and in their nerves reaching them by similar courses. They are therefore described together.

Arteries of the Duodenum and the Pancreas

The duodenum and the pancreas are situated between the celiac trunk and the superior mesenteric artery and receive major blood vessels from both. Furthermore, their branches anastomose in distinct arcades both anterior and posterior to the pancreas and thus from arterial connections between these two great ventral branches of the abdominal

aorta. The principal arteries from the celiac trunk to the duodenum and the pancreas are branches of the gastroduodenal artery - anterior superior pancreaticoduodenal and posterior superior pancreaticoduodenal arteries.

The principal arteries from the superior mesenteric artery are corresponding branches of its inferior pancreaticoduodenal artery anterior inferior pancreaticoduodenal and posterior inferior pancreaticoduodenal arteries. Of these paired sets, the anterior vessels anastomose openly with one another and the posterior vessels do likewise, and clear and definite anterior and posterior arcades are formed on the surfaces of the pancreas.

The anterior arcade is formed along the right border of the pancreas within about 1 cm of the groove between the descending part of the duodenum and the pancreas. It enters this groove where the pancreas abuts against the third part of the duodenum, and the arcade is completed on the posterior surface of the uncinate process. The posterior arcades is shorter and more superiorly located. It units, on the back of the pancreas, the posterior superior and posterior inferior pancreaticoduodenal arteries. The first jejunal artery is sometimes the origin of the single trunk of the separate inferior pancreaticoduodenal vessels. When these vessels take origin from a jejunal artery, they pass posterior to the superior mesenteric artery and vein in reaching their area of distribution on the back of the pancreas.

The anterior and posterior arcades provide both pancreatic branches to the head of the pancreas and vasa recta to the duodenum. The vasa recta are small straight arteries arising from the arcades and supplying either side of the duodenum.

He dorsal pancreatic artery is named for its dorsal origin and its dorsal course in relation to the pancreas. It is almost always present but shows variability in its origin.