Pathology Registry of Malignant tumors of The Pancreas & Biliary tree In Years 2001-2005 At Ain-Shams University Hospitals

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Introduction

Carcinoma of the pancreas shows markedly increased incidence during the past several decades and ranks as the fourth leading cause of cancer death in the United States. Estimated new cases of pancreatic cancer in the United States in 2007 are 37,170 while deaths are 33,370. ***(American Cancer Society: Cancer Facts and Figures 2007)***

In the year 2002, from a global viewpoint, pancreatic cancer is less common than tumors of the lung, breast, stomach, liver, large bowel, and prostate. Nevertheless, because of its high mortality rate, pancreatic cancer ranks eighth in a worldwide ranking of cancer deaths causing nearly a quarter of a million deaths each year. With respect to incidence, it ranks 13th and is considered a relatively rare tumor. The burden of pancreatic cancer is greatest in developed countries, where almost two-thirds of all deaths occur. ***(Ferlay et al., 2004)***

In Egypt, a cancer registry made by National Cancer Institute stated that the number of cases of malignant pancreatic tumors in the years 2003-2004 was 41 representing 2.9% of digestive organ malignancies and 0.42% of total malignancies detected in these years ***(Mokhtar et al., 2007)***.

A Population based cancer registry in Gharbia, Egypt in 1999 showed that the number of new cases of malignant pancreatic tumours was 41 in males (2.4% of all malignancies in males) and 31 in females (1.8% of all malignancies in females) ***(Ibrahim et al., 2002)*.**

There are few well-established risk factors for pancreatic cancer. Among the most convincing are cigarette smoking, inherited susceptibility to pancreatic cancer, chronic pancreatitis, and type II diabetes. Other risk factors of pancreatic cancer -including obesity, physical inactivity, gallbladder disease, dietary factors, and occupational exposures- are not firmly established because of sparse or inconsistent data. ***(Dominique, 2002)***

Gallbladder cancer is the most common malignancy of the biliary tract. While it is a rare entity compared to other gastrointestinal tract neoplasms such as gastric and colorectal cancers, it has a distinctly higher incidence in certain demographic groups and geographic areas. Among the highest incidences in the world are in women from Chile, Poland, India, Japan, and Israel. Other high-risk areas include parts of Pakistan, Korea, Slovakia, Spain, Ecuador, and Colombia. ***(Randi et al., 2006)***

In Egypt, there is no national registry of malignant biliary tumors. However, a cancer registry made by National Cancer Institute stated that the number of cases of malignant tumors of gall bladder and biliary tract was 12 representing 0.84% of digestive organ malignancies and 0.12% of total malignancies detected in the same period. ***(Mokhtar et al., 2007)***

A Population based cancer registry in Gharbia in 1999 showed that the number of new cases of malignant tumors of gall bladder and biliary tree was 11 in males (0.6% of all malignancies in males) and 6 in females (0.4% of all malignancies in females) ***(Ibrahim et al., 2002)***

Randi et al.,(2006) summarized risk factors for gall bladder carcinoma as follows: female gender, gall stones, High risk ethnic group, porcelain gallbladder, Anomalous pancreatobiliary duct junction (APBDJ), obesity, chronic gallbladder infection by salmonella or helicobacter and multiparity.

Overall, cholangiocarcinoma is a rare neoplasm. In the United States, approximately 5000 new cholangiocarcinoma cases are diagnosed yearly. ***(Shaib et al., 2004)***

Aim of the work

The aim of the present study is registration of different types of malignant tumors of the Pancreas, gallbladder and extra-hepatic biliary tract received at the pathology department of Ain-Shams University Hospitals (El-Demerdash and The Specialized Hospital) during 5 years (from January 2001- December 2005), with full registration of pathological data from the patients' files.

Anatomy of Pancreas

The pancreas is a mixed endocrine and exocrine gland that crosses the midline at the transpyloric plane (L1), extending between vertebral level (T10) on the left and (L2) on the right. For descriptive purposes pancreas is divided into head, neck, body and tail. ***(Flay et al., 2003)***

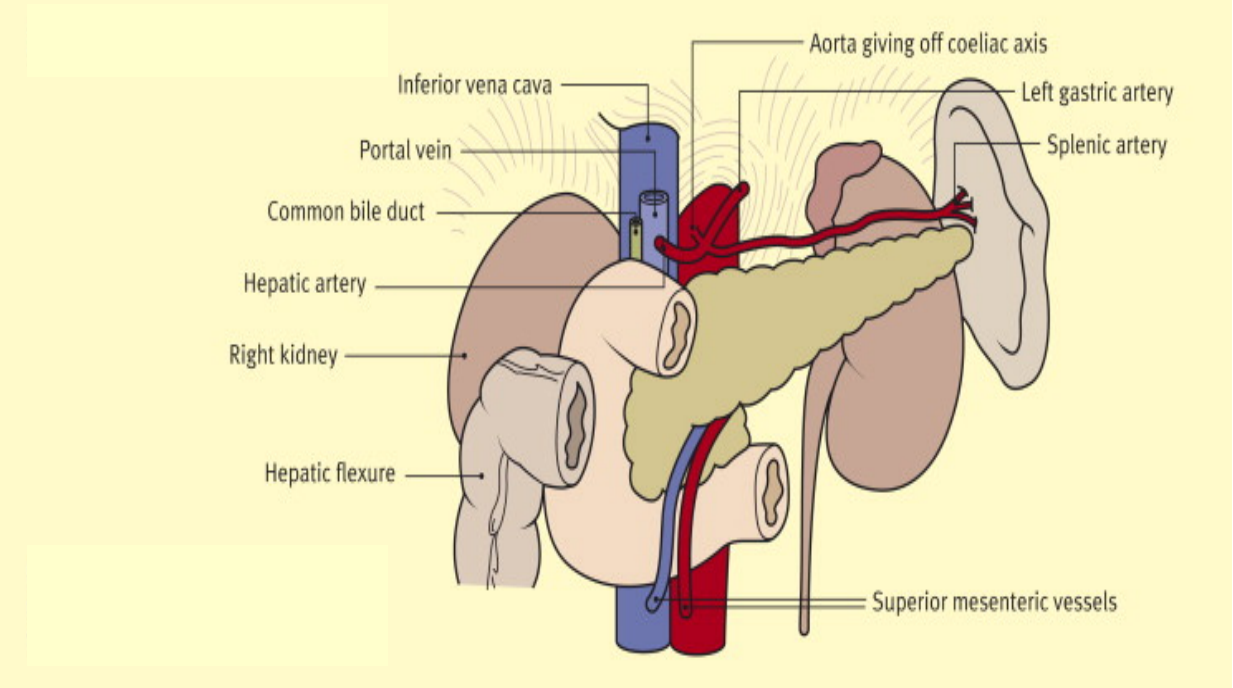

Figure 1: Principal relations of the pancreas. ***(Ellis, 2007)***

The head lies in the C-curve of the duodenum, to which it is firmly adherent ***(Ellis, 2007)*** (figure 1). The neck lies anterior to the origin of the portal vein. The body crosses the midline and lies anterior to the aorta, the splenic vein, the left suprarenal gland, the left renal vessels, the left kidney, and the left crus of the diaphragm. The tail is the only intraperitoneal part of the pancreas and lies within the splenorenal ligament. ***(Flay et al., 2003)***

The common bile duct lies either in a groove in the right extremity of the gland or embedded in its substance as it passes to open into the second part of the duodenum in common with the pancreatic duct. ***(Ellis, 2007)***

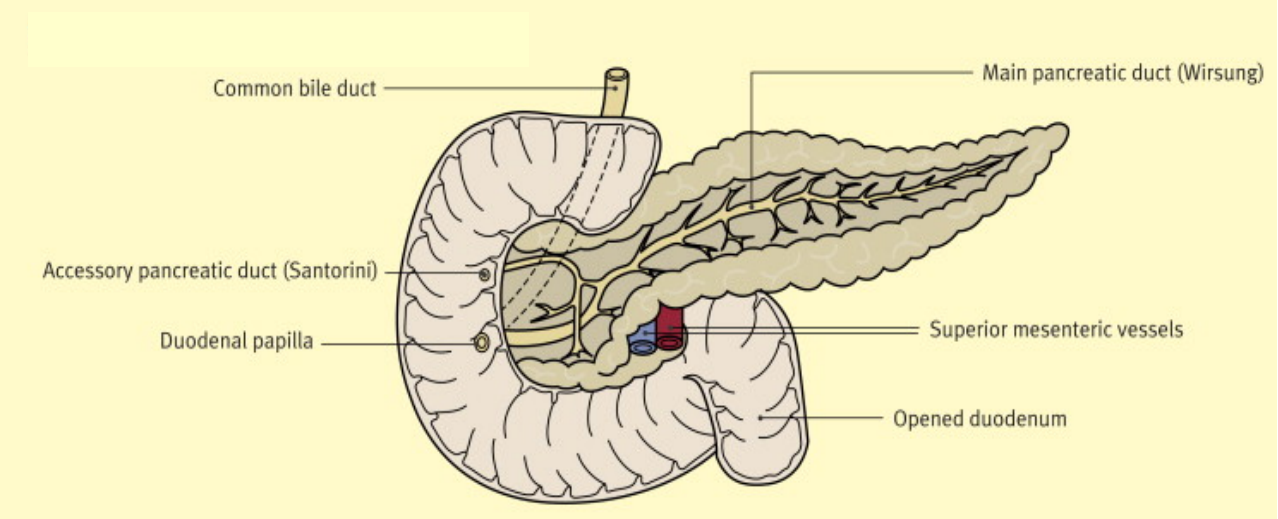

Figure 2: Pancreas opened to show the duct system ***(Ellis, 2007)***

Structures anterior to the pancreas include the stomach, omental bursa, and transverse colon. ***(Flay et al., 2003)***

Structure

Macroscopically, the pancreas is lobulated and is contained within a fine capsule; these lobules comprise alveoli of serous secretory cells draining via their ductules into the principal ducts. Between these alveoli lie the islets of Langerhans. The islets contain A cells (glucagon-secreting), B cells (insulin) and D cells (somatostatin, gastrin). ***(Ellis, 2007)***

The main duct of the pancreas (Wirsung) runs the length of the gland and usually joins with the termination of the common bile duct at the ampulla of Vater to open together at the duodenal papilla in the second part of the duodenum. The accessory duct (of Santorini) passes from the lower part of the head in front of the main duct, communicates with it, and then opens into the duodenum above it. Occasionally it is absent ***(Ellis, 2007)*** (figure 2).

Anatomic Considerations of the biliary tree

The extrahepatic biliary tree is comprised of the common bile duct, the common hepatic duct, the hepatic duct bifurcation, as well as the left and right hepatic ducts. The right hepatic duct is formed by the confluence of the anterior and posterior sectoral ducts draining the liver parenchyma of the right lobe. The right hepatic duct itself is inconsistent and is often short (<1 cm) or absent, with the sectoral ducts draining directly into the common hepatic duct. The posterior sectoral duct passes in a horizontal plane to join the anterior sectoral duct, which descends in a vertical plane, above the right portal vein. ***(Parikh et al., 2005)***

In contrast, the left hepatic duct is longer (1-5 cm) and is formed by the ducts draining the left lobe. It may be found outside the liver parenchyma, above and behind the left portal vein, surrounded by connective tissue and peritoneum derived from the gastrohepatic ligament and Glisson's capsule, which forms the hilar plate. ***(Parikh et al., 2005)***

The gallbladder is located in the cystic fossa. The gallbladder itself is comprised of the fundus, body, and neck. The gallbladder is histologically unique since it lacks a muscularis mucosae and therefore does not have a defined submucosa. *The cystic duct* arises from the gallbladder neck to join the hepatic duct. The length of the cystic duct is determined by the site of the cystic duct-hepatic duct junction, which usually (>80% of cases) occurs in the supraduodenal segment of the common hepatic duct but may extend down into the retroduodenal or retropancreatic segments ***(Blumgart et al., 2003)*** (figure 3).

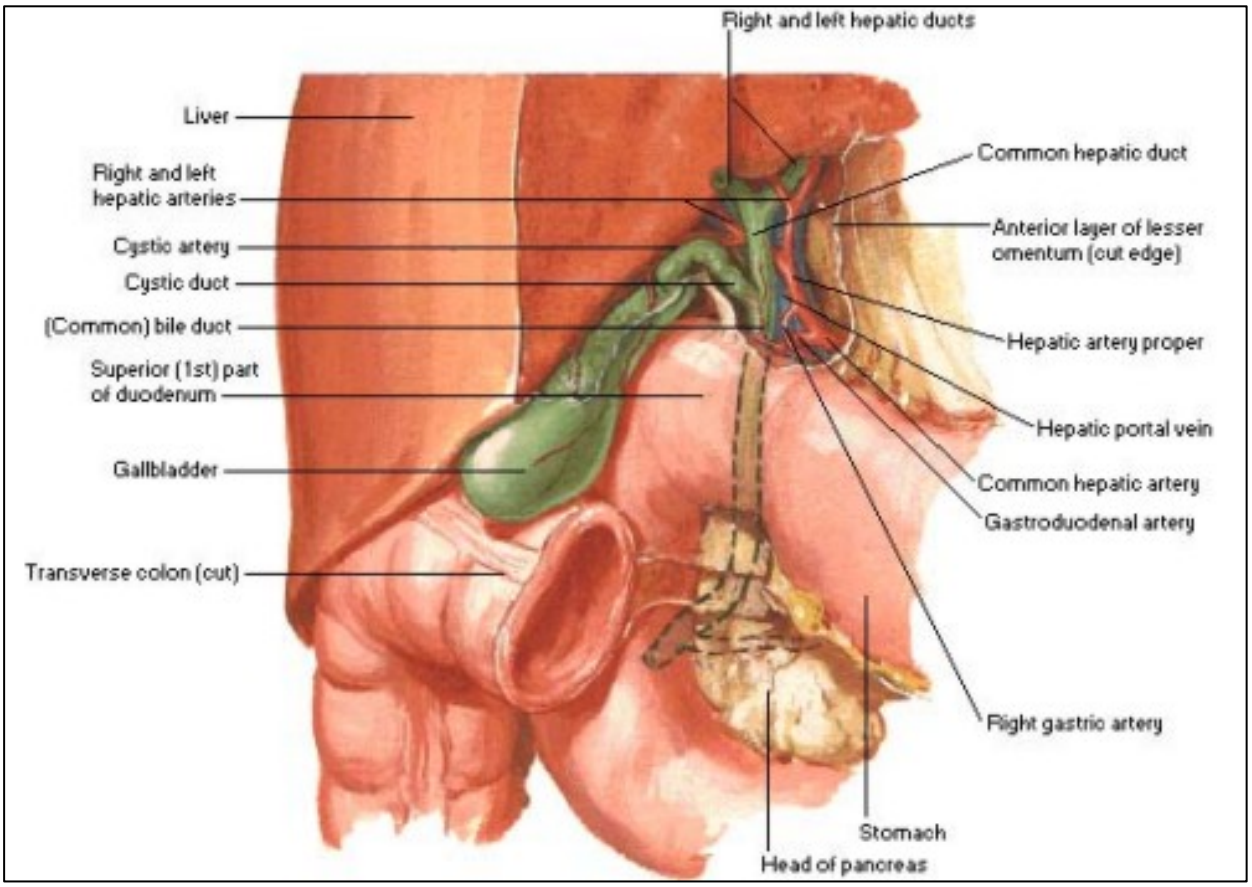

Figure 3: Anatomy of the gallbladder and extrahepatic biliary tree ***(Blumgart et al., 2003)***

WHO histological classification of tumors of the exocrine pancreas, 2000

Epithelial tumors

Benign

- Serous cystadenoma
- Mucinous cystadenoma
- Intraductal papillary-mucinous adenoma
- Mature teratoma

Borderline (uncertain malignant potential)

- Mucinous cystic neoplasm with moderate dysplasia
- Intraductal papillary-mucinous neoplasm with moderate dysplasia
- Solid-pseudopapillary neoplasm

Malignant

- Ductal adenocarcinoma
- Mucinous noncystic carcinoma
- Signet ring cell carcinoma
- Adenosquamous carcinoma
- Undifferentiated (anaplastic) carcinoma
- Undifferentiated carcinoma with osteoclast-like giant cells
- Mixed ductal-endocrine carcinoma
- Serous cystadenocarcinoma
- Mucinous cystadenocarcinoma
  – non-invasive
  – invasive