PANCREATIC CANCER

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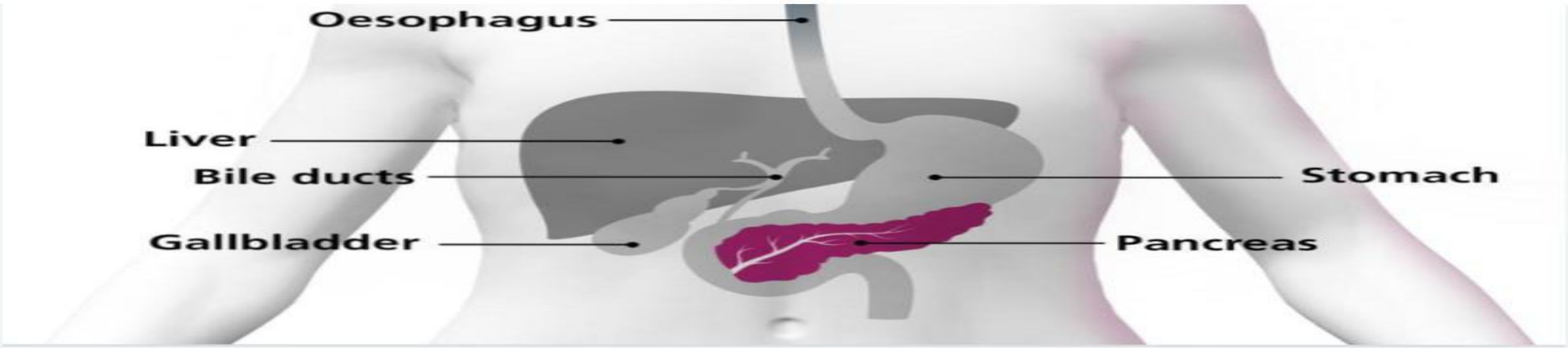
Group – 5

Sem - 5

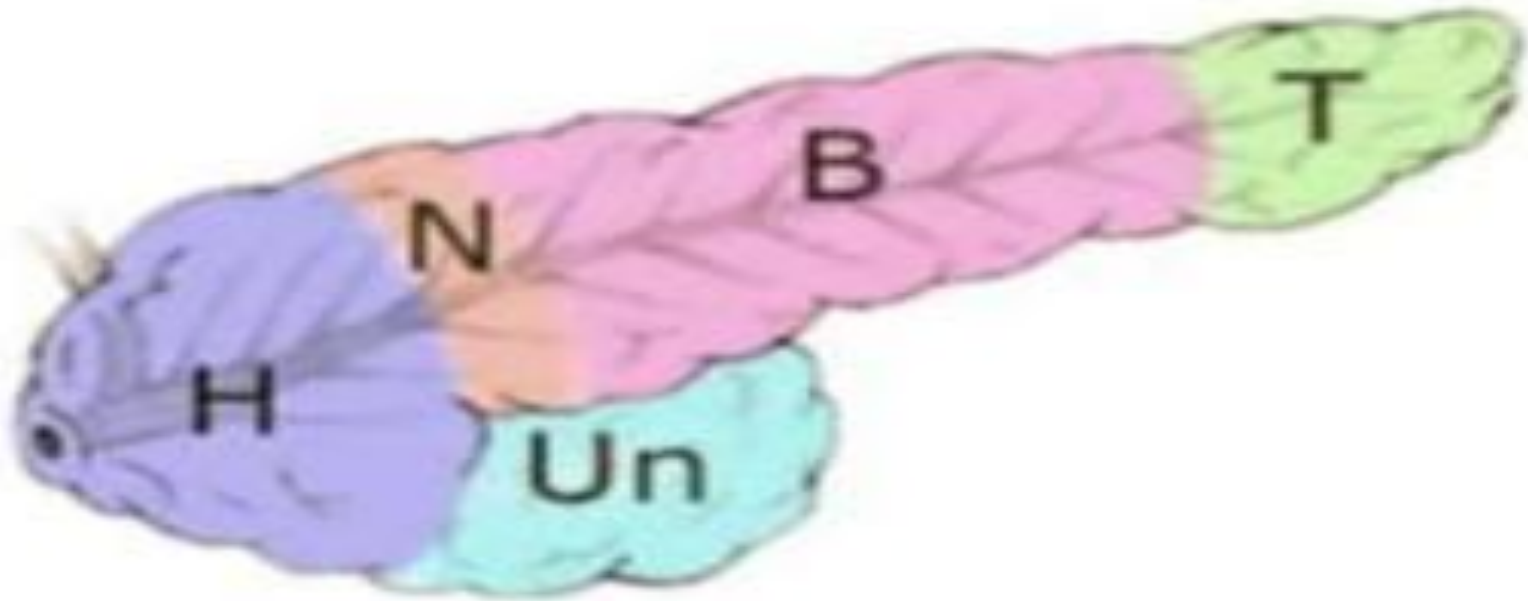


- Pancreatic cancer is a cancer that's found anywhere in the pancreas.
- The pancreas is an organ in the top part of your tummy.
- It helps you digest your food and makes hormones, such as insulin.
- How serious pancreatic cancer is depends on where it is in the pancreas, how big it is, if it has spread, and your general health.

Location of Pancreas Cancer

- 60 to 70 percent of exocrine pancreatic cancers are localized to the head
- 20 to 25 percent are in the body/tail and
- the remainder involve the whole organ

H = Head
N = Neck
B = Body
T = Tail
Un = Uncinate

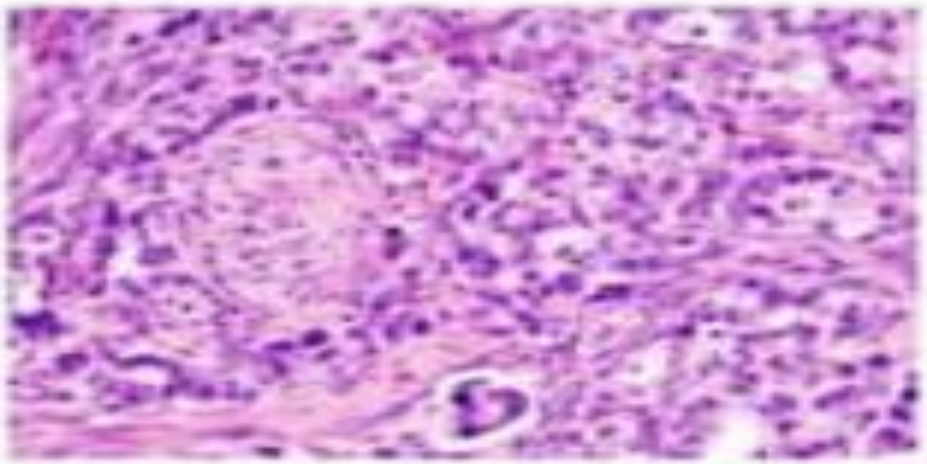


Cancer in the Head of the Pancreas

Pathology

Ductal **adenocarcinoma** accounts for about 85% of all neoplasms. And more than 95% of all pancreatic cancers arise from the exocrine (digestive enzymes) elements.

Cancers that arise from the endocrine cells (neuroendocrine, islet cells) account for 5% or less

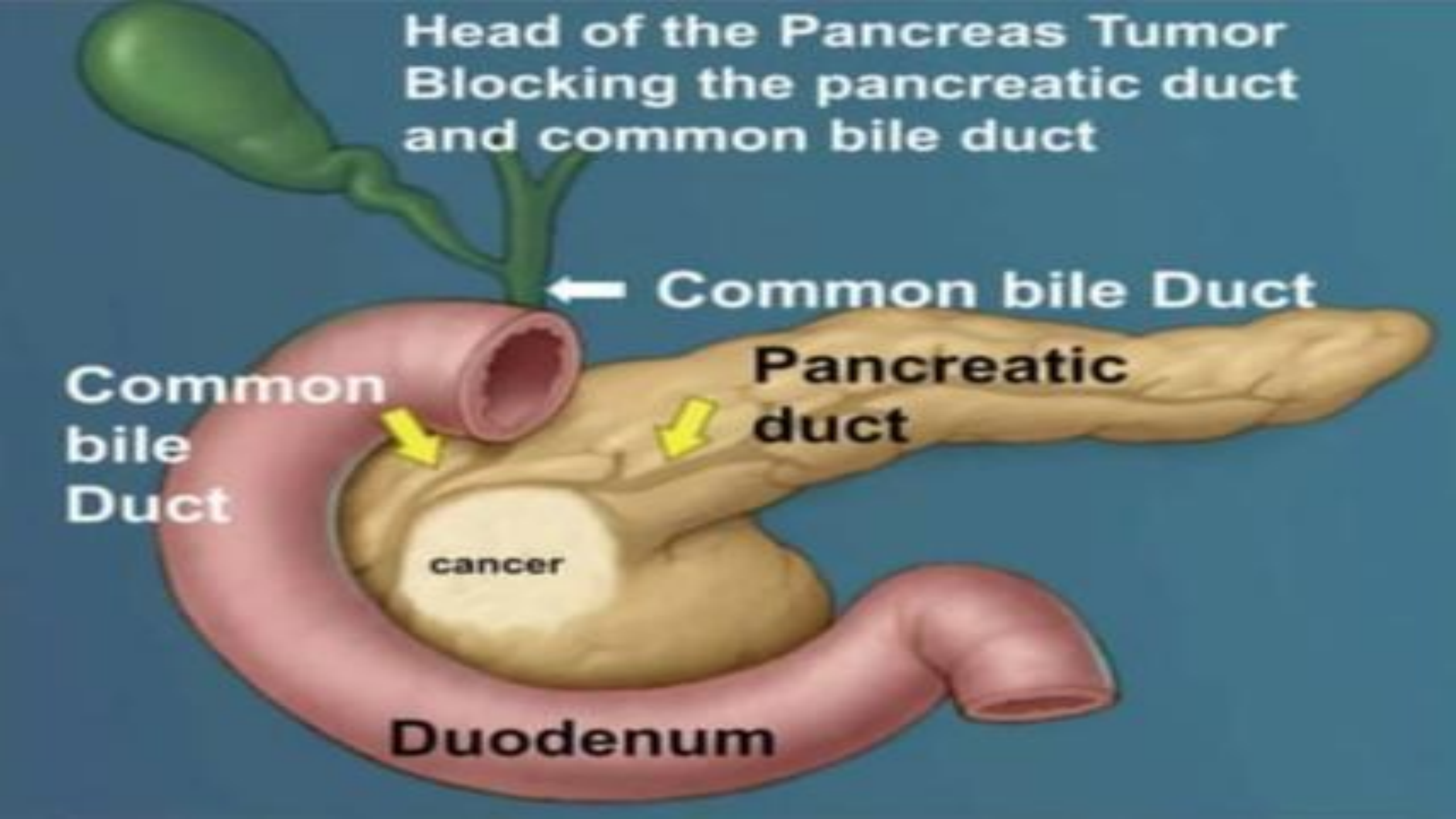


Signs of Pancreas Cancer

- Jaundice (yellow) – 55 percent
- Hepatomegaly (large liver) - 39 percent
- Right upper quadrant mass – 15 percent
- Cachexia (wasting) – 13 percent
- Courvoisier's sign (nontender but palpable distended gallbladder at the right costal margin) – 13 percent
- Epigastric mass (fell lump in stomach) – 9 percent
- Ascites (abdominal fluid) – 5 percent

Symptoms of Pancreas Cancer

- Asthenia (weakness) – 86 percent
- Weight loss – 85 percent
- Anorexia (no appetite)– 83 percent
- Abdominal pain – 79 percent
- Epigastric pain (stomach) – 71 percent
- Dark urine – 59 percent
- Jaundice – 56 percent
- Nausea – 51 percent
- Back pain – 49 percent
- Diarrhea- 44 percent
- Vomiting – 33 percent
- Steatorrhea (fatty stools)– 25 percent
- Thrombophlebitis – 3 percent


Head of the Pancreas Tumor
Blocking the pancreatic duct
and common bile duct
Common bile Duct
Pancreatic
duct
Common
bile
Duct
cancer
Duodenum

Exocrine cancers are thought to arise from several types of precancerous lesions within the pancreas, but these lesions do not always progress to cancer, and the increased numbers detected as a byproduct of the increasing use of CT scans for other reasons are not all treated.[3] Apart from pancreatic serous cystadenomas, which are almost always benign, four types of precancerous lesion are recognized.

The first is pancreatic intraepithelial neoplasia (PanIN). These lesions are microscopic abnormalities in the pancreas and are often found in autopsies of people with no diagnosed cancer. These lesions may progress from low to high grade and then to a tumor. More than 90% of cases at all grades carry a faulty KRAS gene, while in grades 2 and 3, damage to three further genes – CDKN2A (p16), p53, and SMAD4 – are increasingly often found.[2]

A second type is the intraductal papillary mucinous neoplasm (IPMN). These are macroscopic lesions, which are found in about 2% of all adults. This rate rises to about 10% by age 70. These lesions have about a 25% risk of developing into invasive cancer. They may have KRAS gene mutations (40–65% of cases) and in the GNAS Gs alpha subunit and RNF43, affecting the Wnt signaling pathway.[2] Even if removed surgically, a considerably increased risk remains of pancreatic cancer developing subsequently.[3]

The third type, pancreatic mucinous cystic neoplasm (MCN), mainly occurs in women, and may remain benign or progress to cancer.[48] If these lesions become large, cause symptoms, or have suspicious features, they can usually be successfully removed by surgery.[3]

A fourth type of cancer that arises in the pancreas is the intraductal tubulopapillary neoplasm. This type was recognised by the WHO in 2010 and constitutes about 1–3% of all pancreatic neoplasms. Mean age at diagnosis is 61 years (range 35–78 years). About 50% of these lesions become invasive. Diagnosis depends on histology, as these lesions are very difficult to differentiate from other lesions on either clinical or radiological grounds.[49]

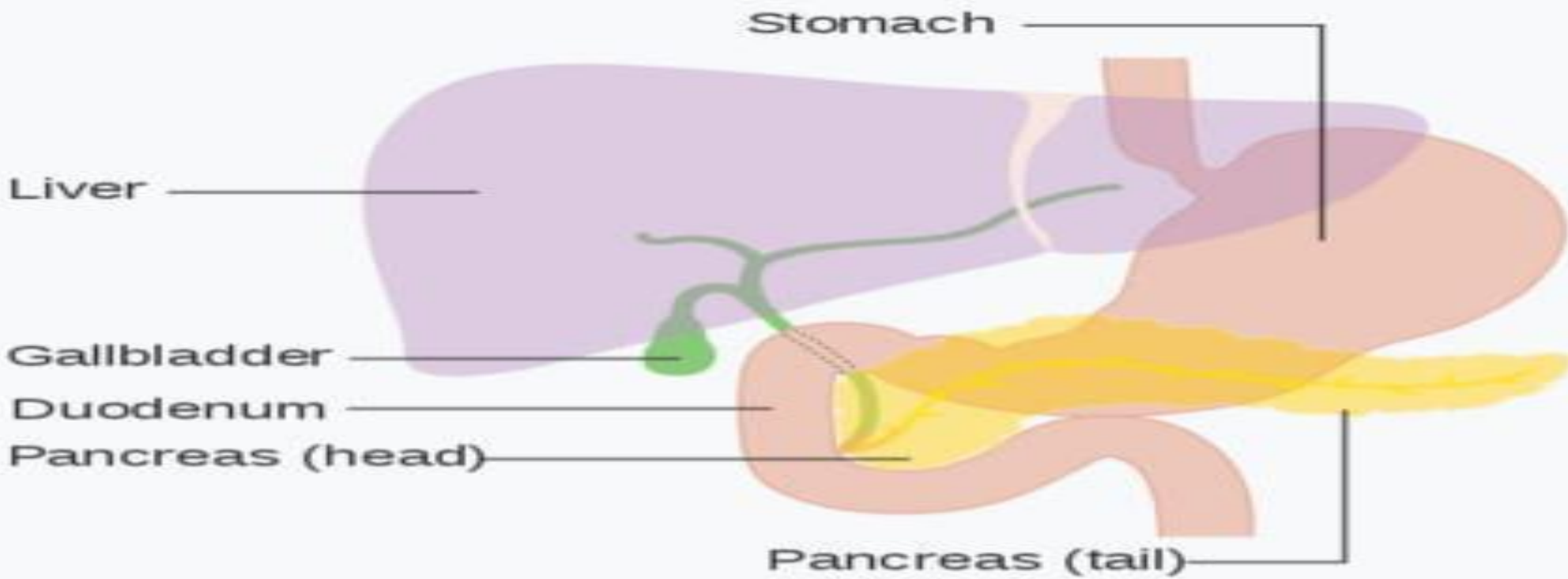
The risk of developing pancreatic cancer is lower among nonsmokers, and people who maintain a healthy weight and limit their consumption of red or processed meat;[6] however, the risk is greater for men, especially at very high levels of red meat consumption.[14] Smokers' chances of developing the disease decrease if they stop smoking and almost return to that of the rest of the population after 20 years.[10] Pancreatic cancer can be treated with surgery, radiotherapy, chemotherapy, palliative care, or a combination of these.[1] Treatment options are partly based on the cancer stage.[1] Surgery is the only treatment that can cure pancreatic adenocarcinoma.[12] and may also be done to improve quality of life without the potential for cure.[1][12] Pain management and medications to improve digestion are sometimes needed.[12] Early palliative care is recommended even for those receiving treatment that aims for a cure.[16]

Signs and symptoms of the most-common form of pancreatic cancer may include yellow skin, abdominal or back pain, unexplained weight loss, light-colored stools, dark urine, and loss of appetite. [1] *Usually, no symptoms are seen in the disease's early stages, and symptoms that are specific enough to suggest pancreatic cancer typically do not develop until the disease has reached an advanced stage.* [1][2] *By the time of diagnosis, pancreatic cancer has often spread to other parts of the body.* [10][12]

Pancreatic cancer rarely occurs before the age of 40, and more than half of cases of pancreatic adenocarcinoma occur in those over 70.[2] Risk factors for pancreatic cancer include tobacco smoking, obesity, diabetes, and certain rare genetic conditions.[2] About 25% of cases are linked to smoking.[3] and 5–10% are linked to inherited genes.[2] Pancreatic cancer is usually diagnosed by a combination of medical imaging techniques such as ultrasound or computed tomography, blood tests, and examination of tissue samples (biopsy).[3][4] The disease is divided into stages, from early (stage I) to late (stage IV).[12] Screening the general population has not been found to be effective.[13]

Pancreatic cancer arises when cells in the pancreas, a glandular organ behind the stomach, begin to multiply out of control and form a mass. These cancerous cells have the ability to invade other parts of the body. [9] *A number of types of pancreatic cancer are known.* [10]

Pancreatic cancer



CLASSIFICATION

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

Malignant tumours
- Severe ductal dysplasia-carcinoma *in situ*
- Ductal adenocarcinoma
  - Mucinous non-cystic carcinoma
  - Signet-ring-cell carcinoma
  - Adenosquamous carcinoma
  - Undifferentiated (anaplastic) carcinoma
  - Mixed ductal-endocrine carcinoma
- Osteoclast-like giant cell tumour
- Serous cystadenocarcinoma
- Mucinous cystadenocarcinoma
- Intraductal papillary-mucinous carcinoma
- Acinar cell carcinoma
- Pancreatoblastoma
- Solid-pseudopapillary carcinoma
- Miscellaneous carcinoma

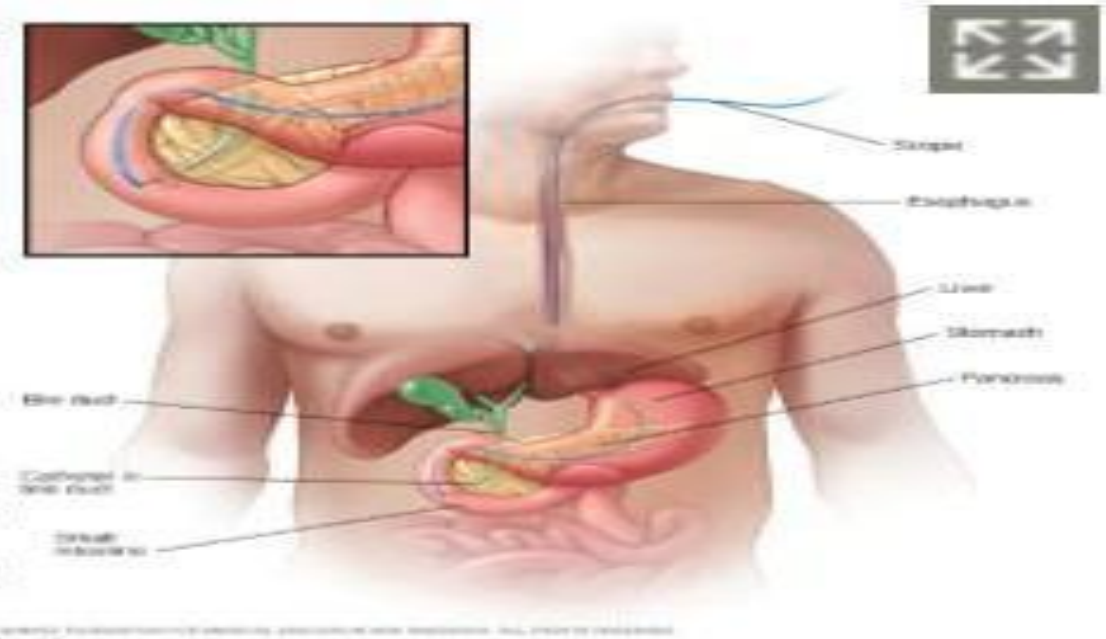
MORPHOLOGY

Pancreatic cancers take their origin from exocrine and endocrine components of the gland, but about 95% occur within the exocrine portion. In this short review, emphasis is placed on malignant tumors of exocrine epithelia. Ductal adenocarcinoma and its variants are discussed in more detail, and the pathology of the clinically most relevant special types of pancreatic carcinoma is presented. In addition, recent criteria used to identify preneoplastic lesions of the exocrine pancreas are reviewed. Finally, aspects of neuroendocrine differentiation in pancreatic carcinomas are discussed.

Complications

As pancreatic cancer progress
it can cause complications such

- Weight loss. A number
factors may cause weigh
loss in people with
pancreatic cancer. Weig
loss might happen as the
cancer consumes the body's
energy. Nausea and vomiting
caused by cancer treatments
or a tumor pressing on your
stomach may make it
difficult to eat. Or your body may have difficulty
processing nutrients from food because your
pancreas isn't making enough digestive juices.



Endoscopic retrograde cholangiopancreatography

- *Jaundice. Pancreatic cancer that blocks the liver's bile duct can cause jaundice. Signs include yellow skin and eyes, dark-colored urine, and pale-colored stools. Jaundice usually occurs without abdominal pain.*

- *Pain. A growing tumor may press on nerves in your abdomen, causing pain that can become severe. Pain medications can help you feel more comfortable. Treatments, such as radiation and chemotherapy, might help slow tumor growth and provide some pain relief.*

  In severe cases, your doctor might recommend a procedure to inject alcohol into the nerves that control pain in your abdomen (celiac plexus block). This procedure stops the nerves from sending pain signals to your brain.

- *Bowel obstruction. Pancreatic cancer that grows into or presses on the first part of the small intestine (duodenum) can block the flow of digested food from your stomach into your intestines.*

Tests used to evaluate and stage pancreas cancer

- Routine blood tests e.g. liver products like bilirubin
- Elevated tumor markers (CA 19-9 or CEA)
- MRI, CT scans, Ultrasound
- Endoscopy including endoscopic ultrasound or ERCP
- Laparoscopy
- Biopsy

TREATMENT

Chemotherapy

Elevated CA 19-9

Cancer

- Pancreas
- Biliary Cancer (gallbladder, cholangiocarcinoma, ampullary)
- Hepatocellular
- Gastric, ovarian, colorectal (less often)
- Lung, breast, uterus (rare)

Benign
- Acute cholangitis
- Cirrhosis and other cholestatic diseases (gall stones)

Thank you