International higher school of medicine

Topic : pancreatic cancer

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- Pancreatic cancer occurs when changes (mutations) in the pancreas cells lead them to multiply out of control. A mass of tissue can result. Sometimes, this mass is benign (not cancerous). In pancreatic cancer, however, the mass is malignant (cancerous).

- There are two types of tumors that grow in the pancreas: exocrine or neuroendocrine tumors. About 93% of all pancreatic tumors are exocrine tumors, and the most common kind of pancreatic cancer is called adenocarcinoma. Pancreatic adenocarcinoma is what people usually mean when they say they have pancreatic cancer. The most common type begins in the ducts of the pancreas and is called ductal adenocarcinoma.
- The rest of the pancreatic tumors — about 7% of the total — are neuroendocrine tumors (NETs), also called pancreatic NETs (PNETs), an islet cell tumor or islet cell carcinoma. Some NETs produce excessive hormones. They may be called names based on the type of hormone the cell makes — for instance, insulinoma would be a tumor in a cell that makes insulin.

Incidence (2014 Data)	Deaths
46,420 (2.8%)	39,590 (6.8%)

The 5 year survival is only 6.7%

Life time risk of developing this cancer is 1.5%

2014 Statistics

	Male	Female
New Cases	23,530 (2.7%)	22,890 (2.8%)
Deaths	20,170 (6.5%)	19,420 (7%)

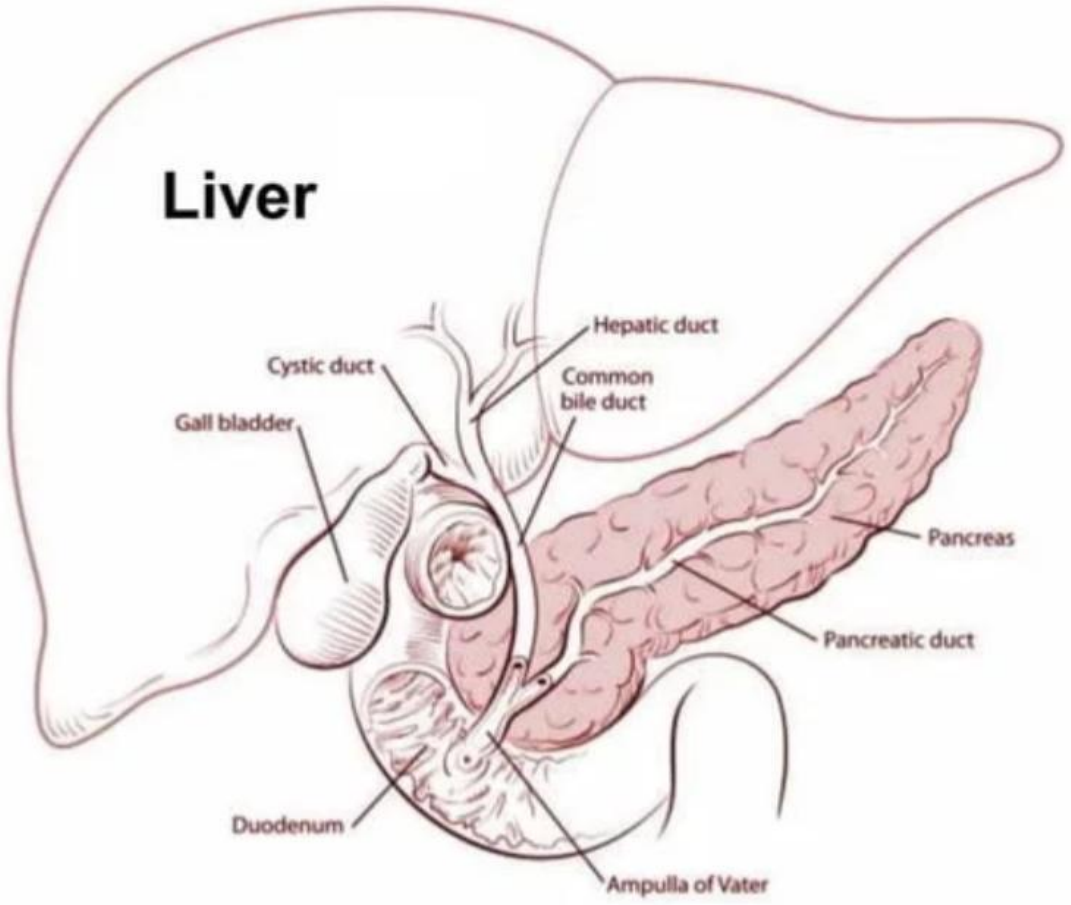
Risk factors for pancreatic cancer include the following

- Smoking
- Obesity
- Personal history of diabetes or chronic pancreatitis
- Family history of pancreatic cancer orpancreatitis
- Certain hereditary conditions

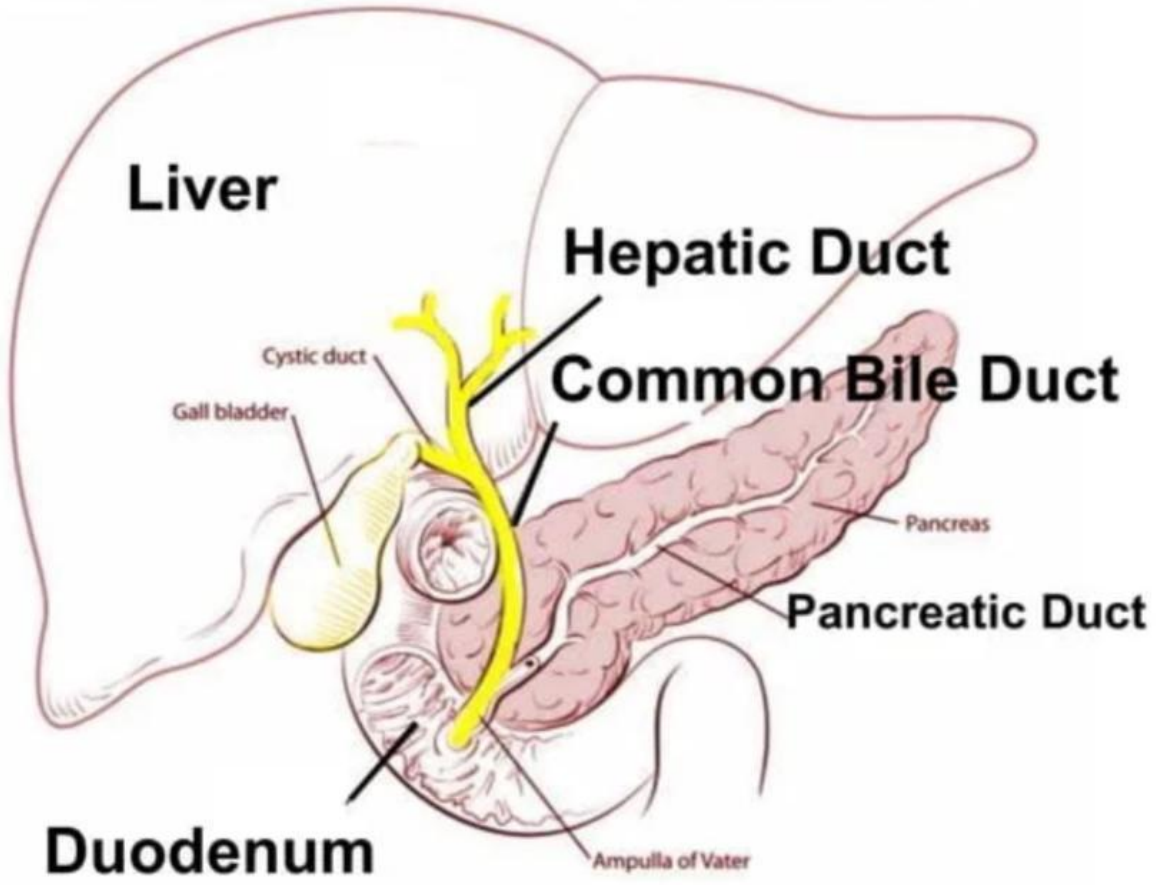
Symptoms

- Most patients present with pain (in the back) weight loss or jaundice
- Tumors in the head of the pancreas are more likely to have jaundice,
- Those that arose in the body or tail, more likely pain and weight loss.

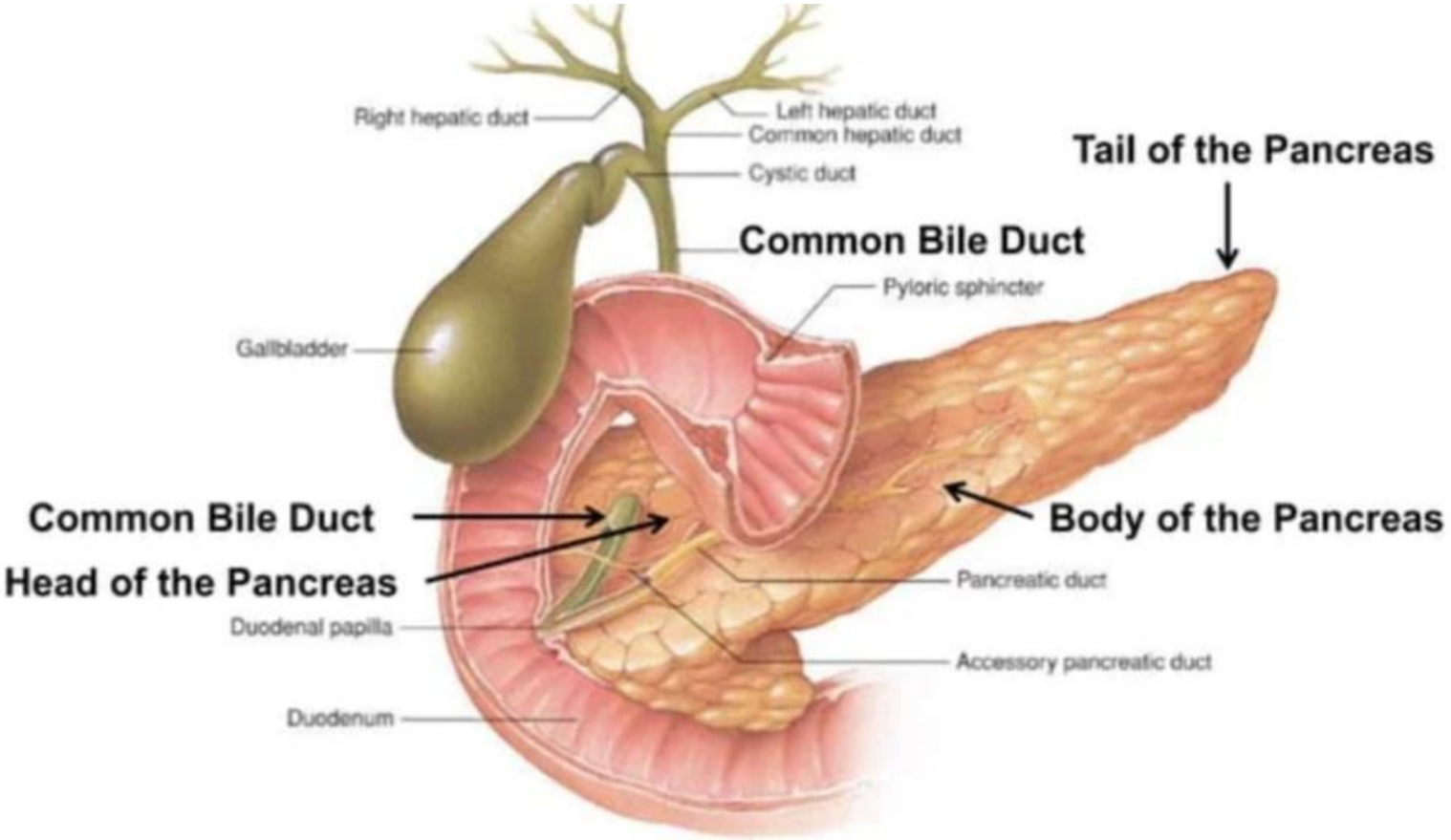
Bile: yellowish fluid produced in the liver that aids in digestion of fat in the small intestine



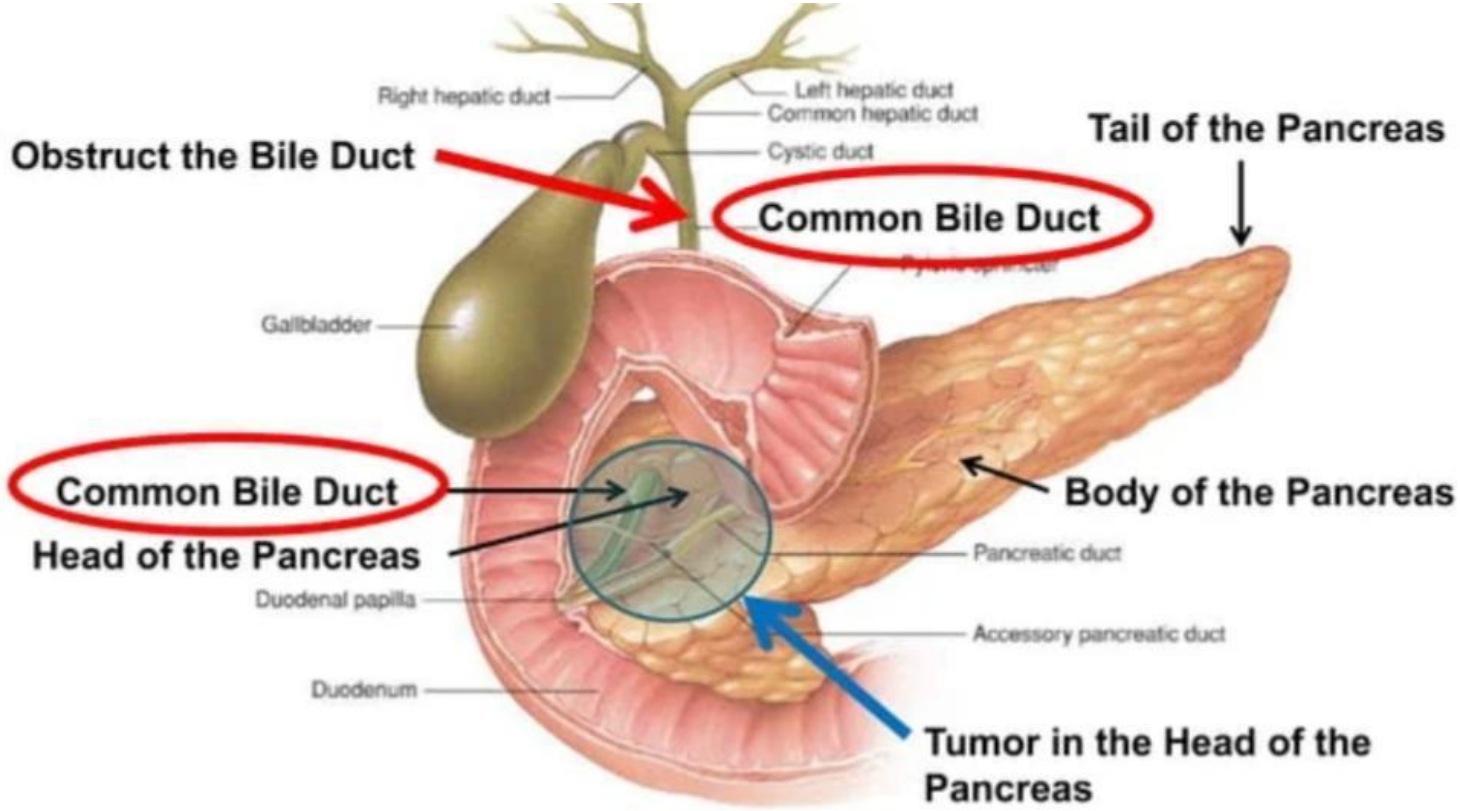
Bile: passes through the common bile duct through the head of the pancreas on it's way to the duodenum



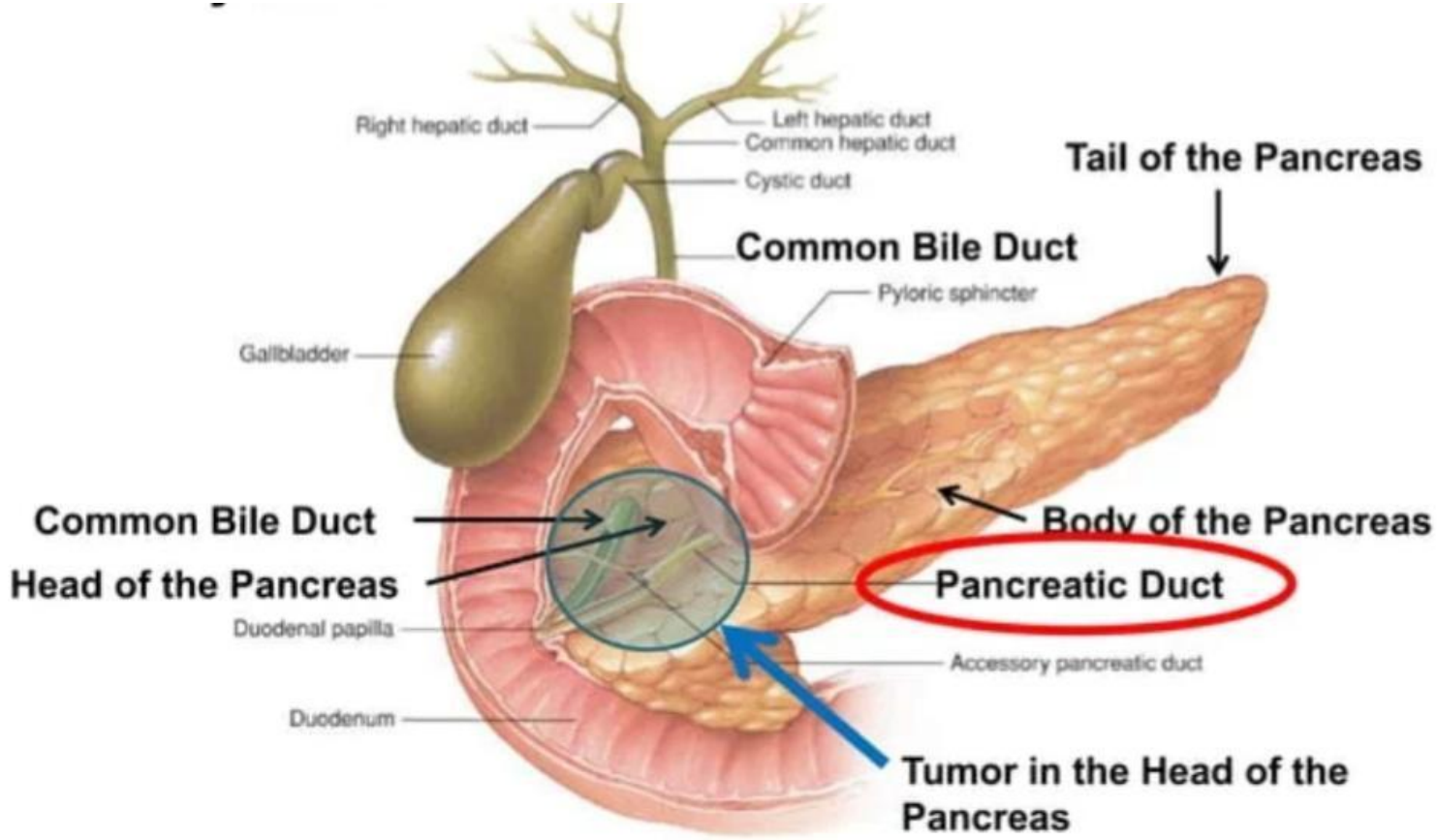
Bile duct carries the bilirubin through the head of the pancreas on it's way to the duodenum

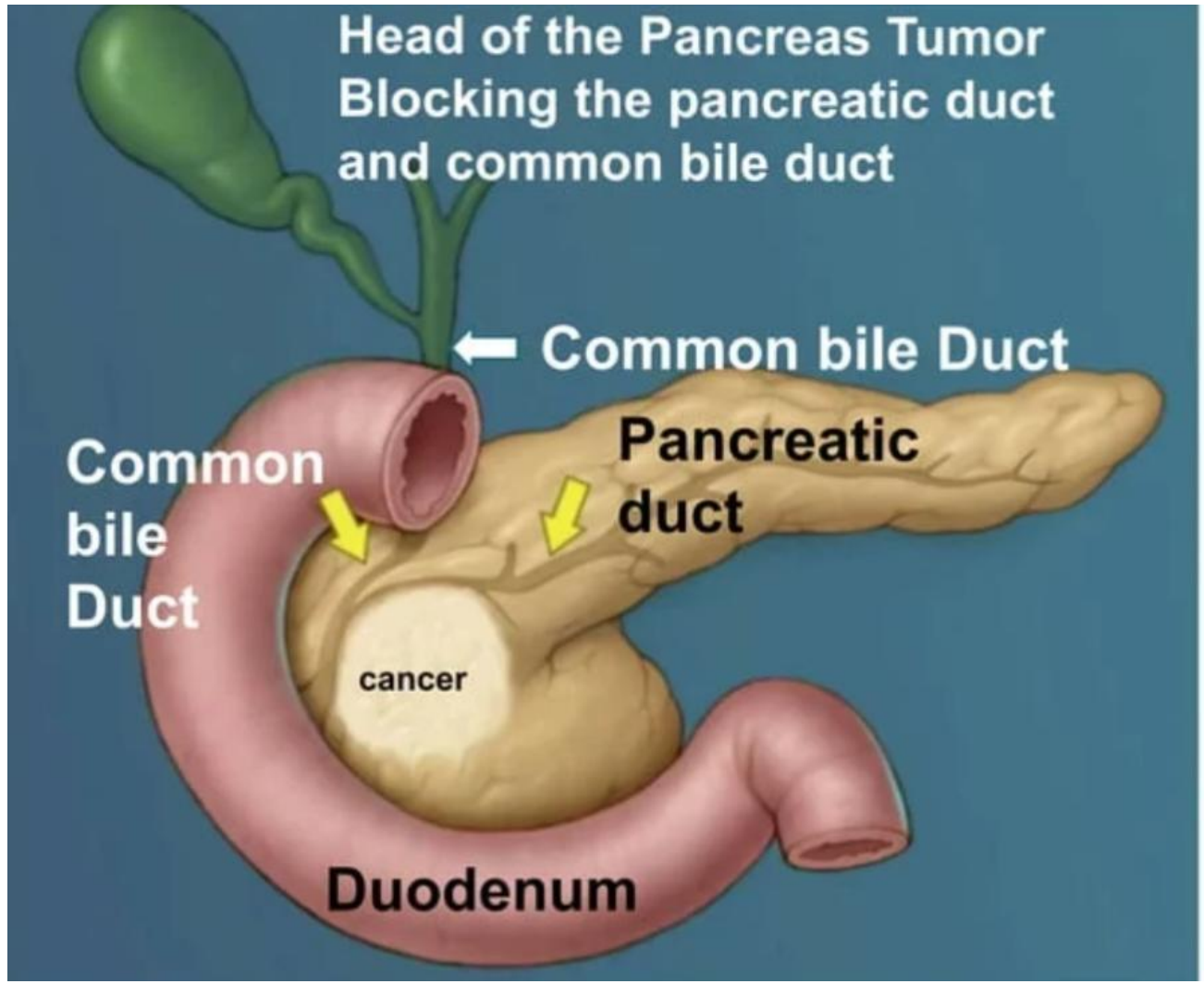


Tumors in the head of the pancreas are more likely to have jaundice

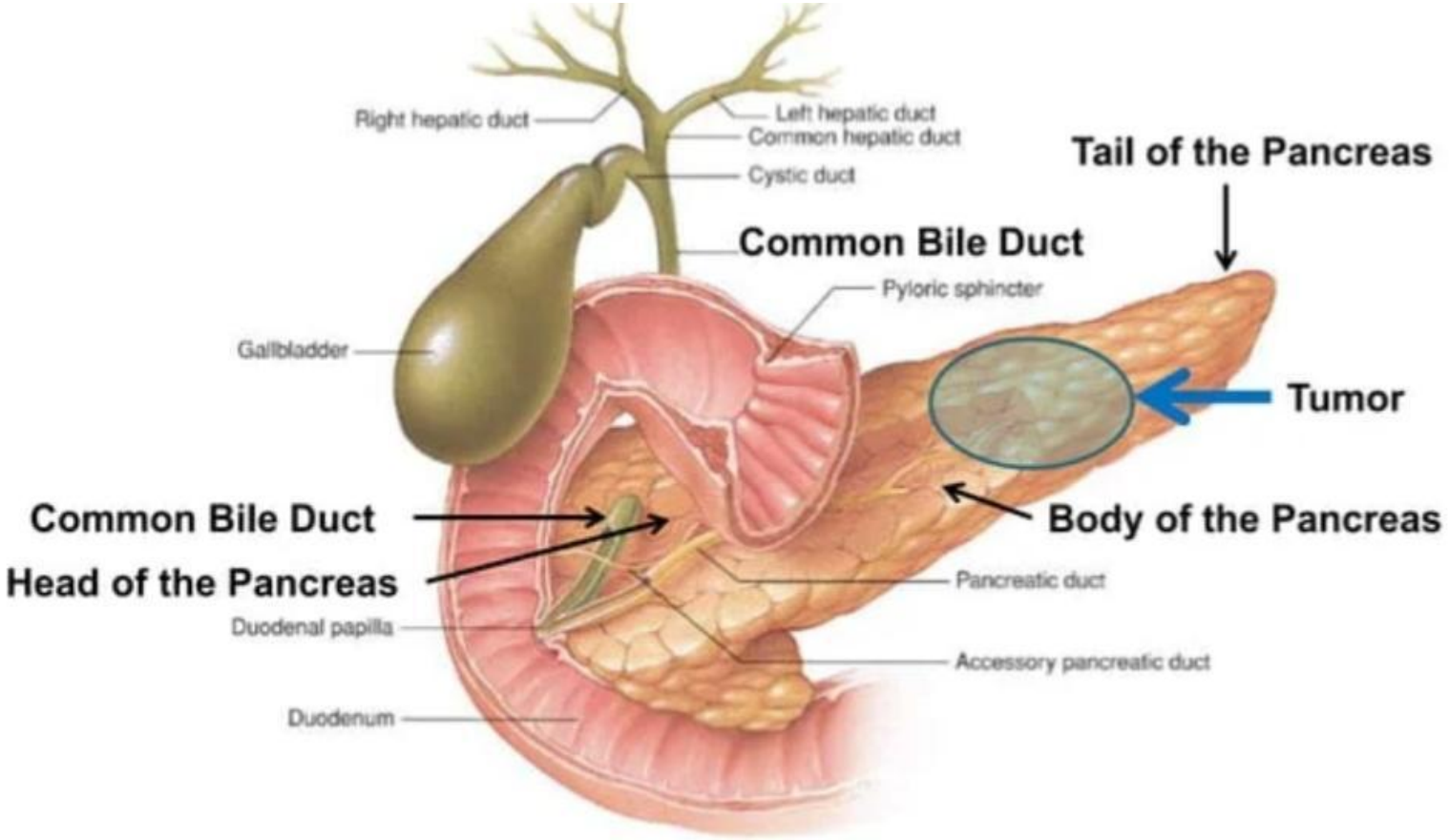


Tumors in the head of the pancreas are more likely to have jaundice




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

Tumors in the body or tail are more likely to present with pain or weight loss



Symptoms of Pancreas Cancer

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

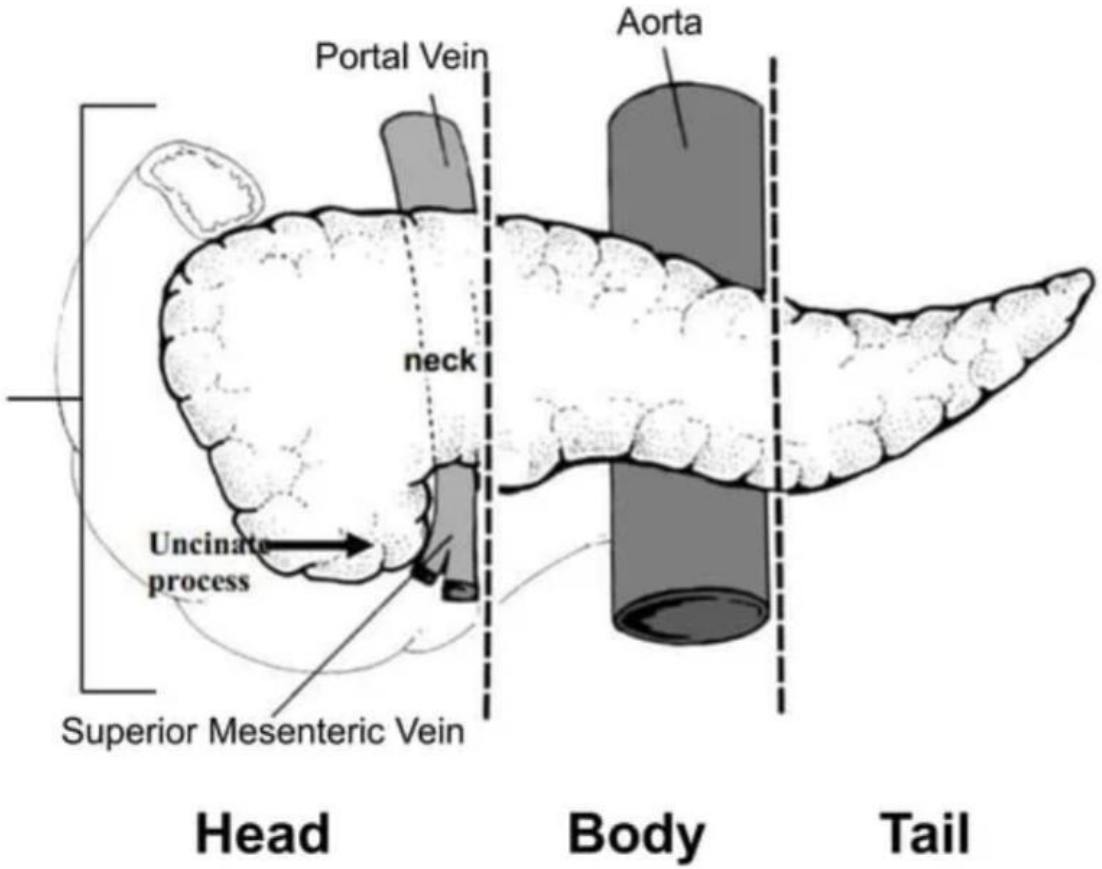
Signs of Pancreas Cancer

- 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

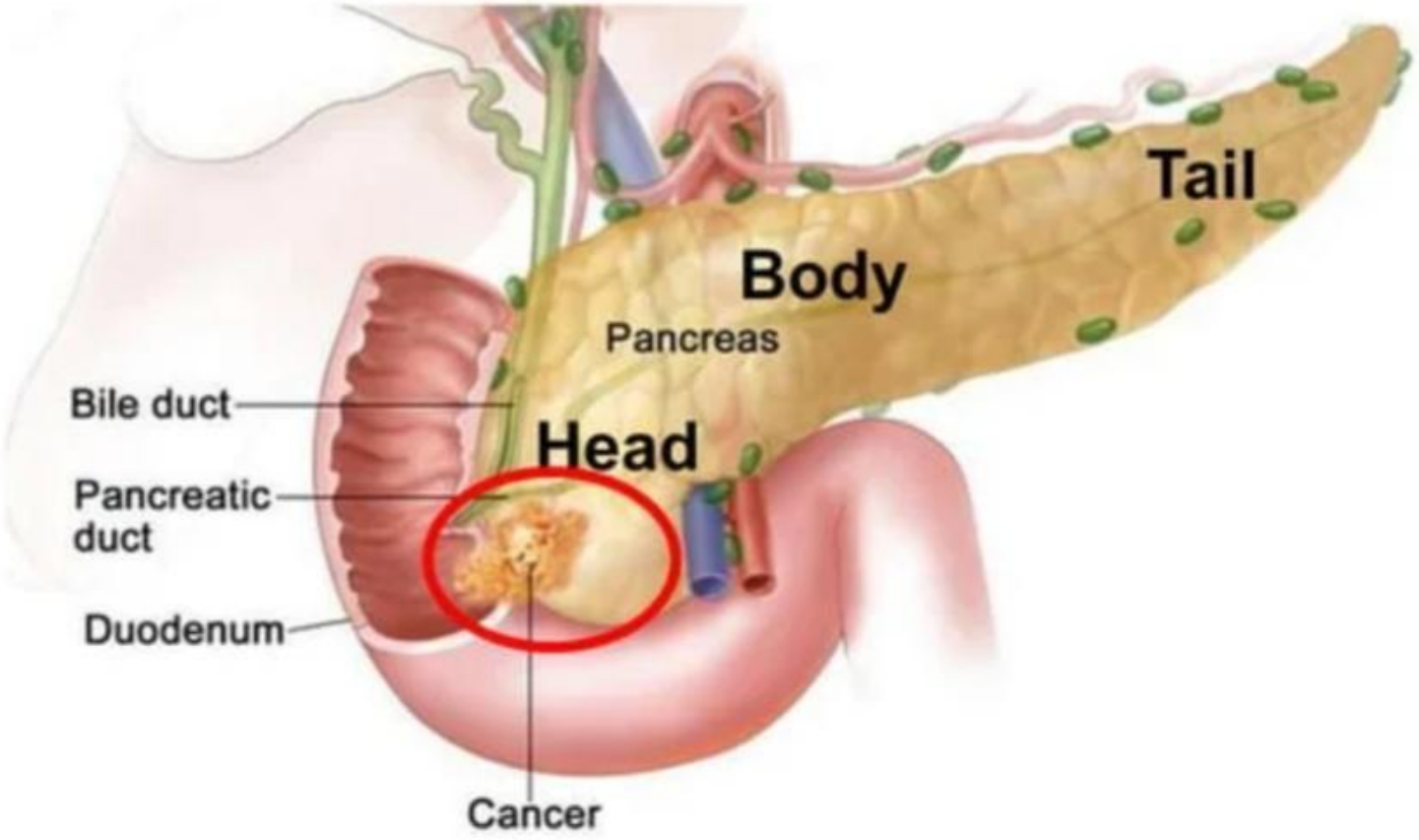
Pathology

- 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

Part of pancreas



Cancer in the Head of the Pancreas



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 = TailUn Uncinate

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
- LaparoscopyBiopsy

CA 19-9

- The reported sensitivity and specificity rates of CA 19-9 for pancreatic cancer range from 70 to 92, and 68 to 92 percent, respectively.The rates of unresectable disease among all patients with a CA 19-9 level ≥130 units/mL versus <130 units/mL were 26 and 11 percent, respectively. Among patients with tumors in the body/tail of the pancreas, more than one-third of those who had a CA 19-9 level ≥130 units/mL had unresectable disease.

Elevated CA 19-9

- Cancer

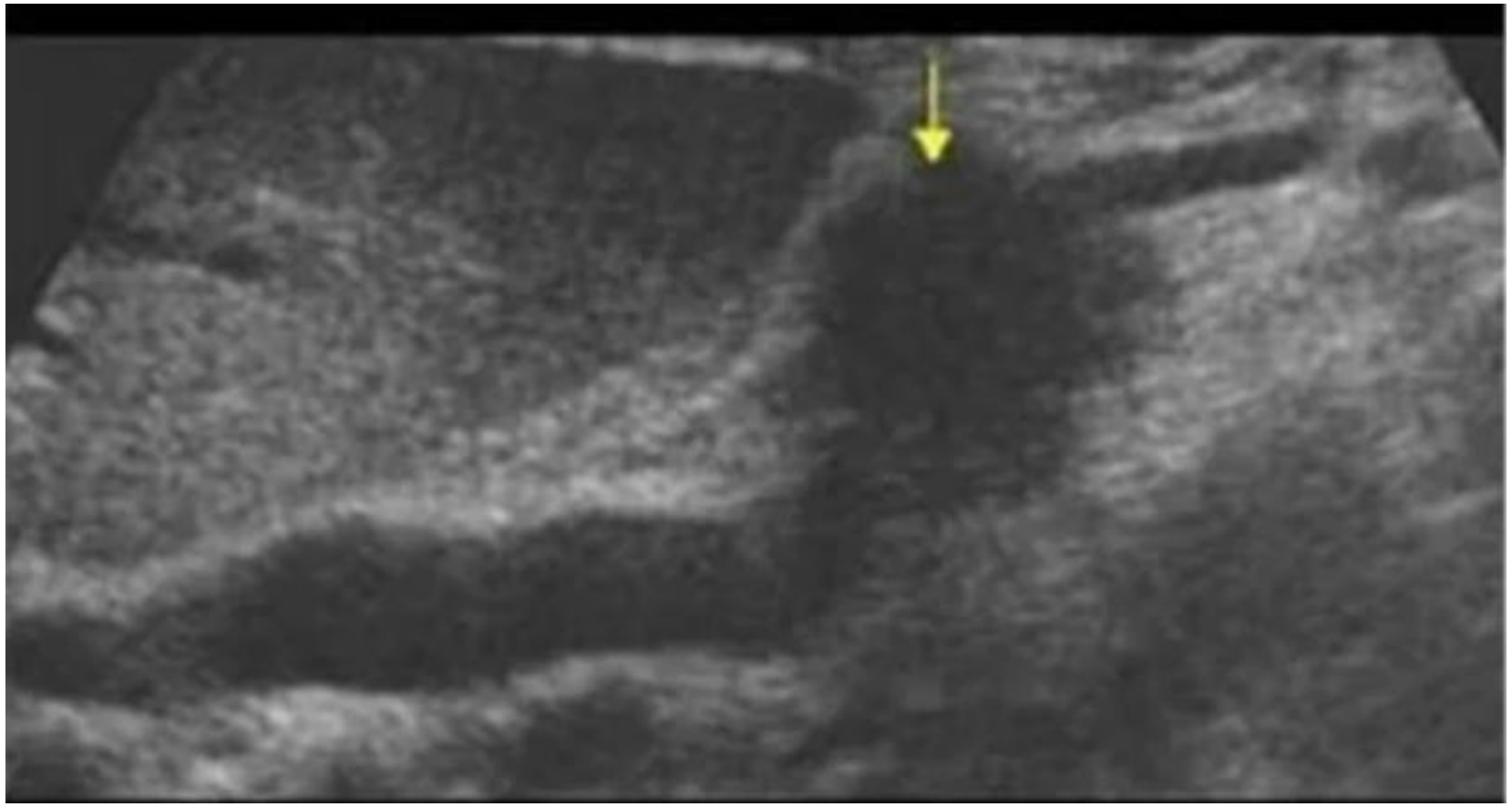
1. Pancreas
2. Biliary Cancer (gallbladder, cholangiocarcinoma,ampullary)-Hepatocellular
3. Gastric, ovarian, colorectal (less often)
4. Lung, breast, uterus (rare)

- Benign

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

Ultrasound

- study of 900 patients who underwent ultrasound to work up painless jaundice, anorexia, or unexplained weight lossThe sensitivity for detection of all tumors in the pancreas was 89 percent Among the779 patients who were followed over time and established not to have developed a pancreatic tumor, nine had false-positive US findings (specificity 99 percent).



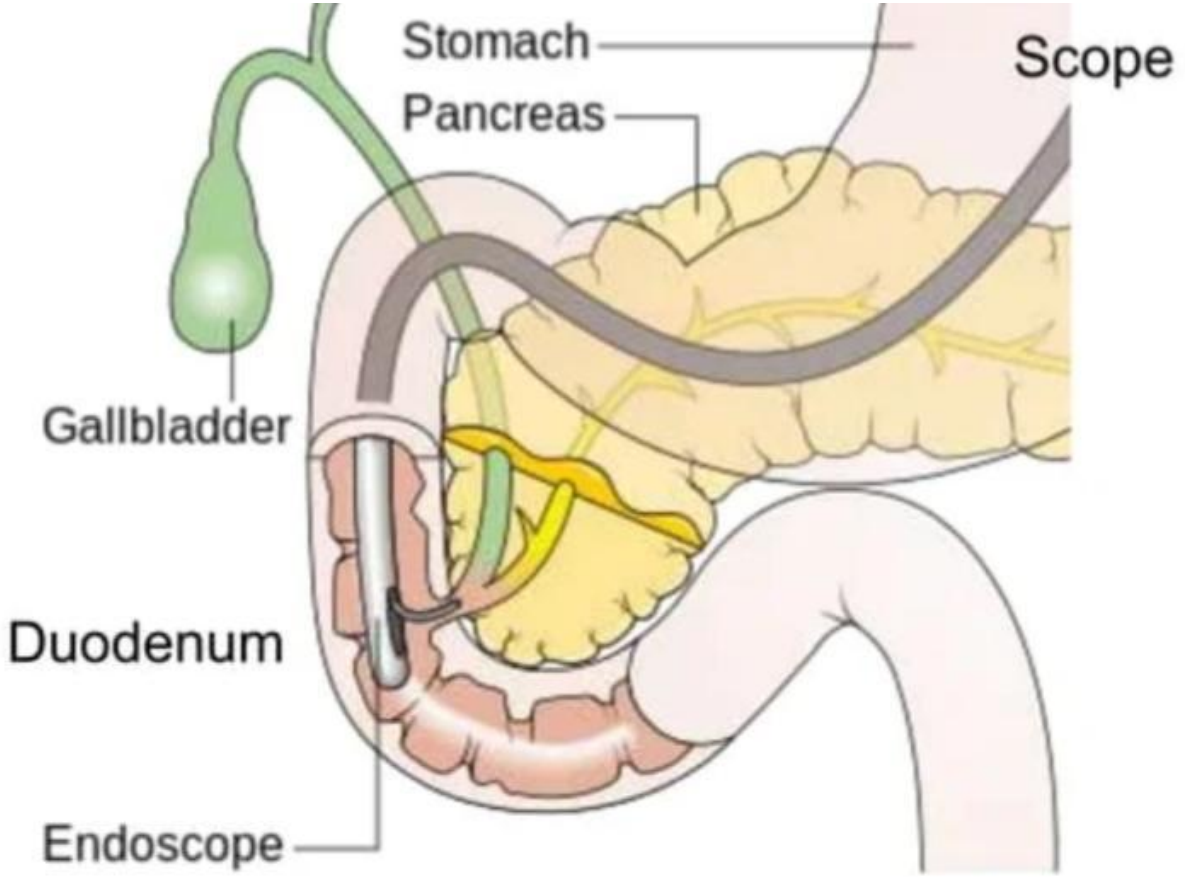
Mass in the pancreatic head and dilated common bile duct and pancreatic duct

CT

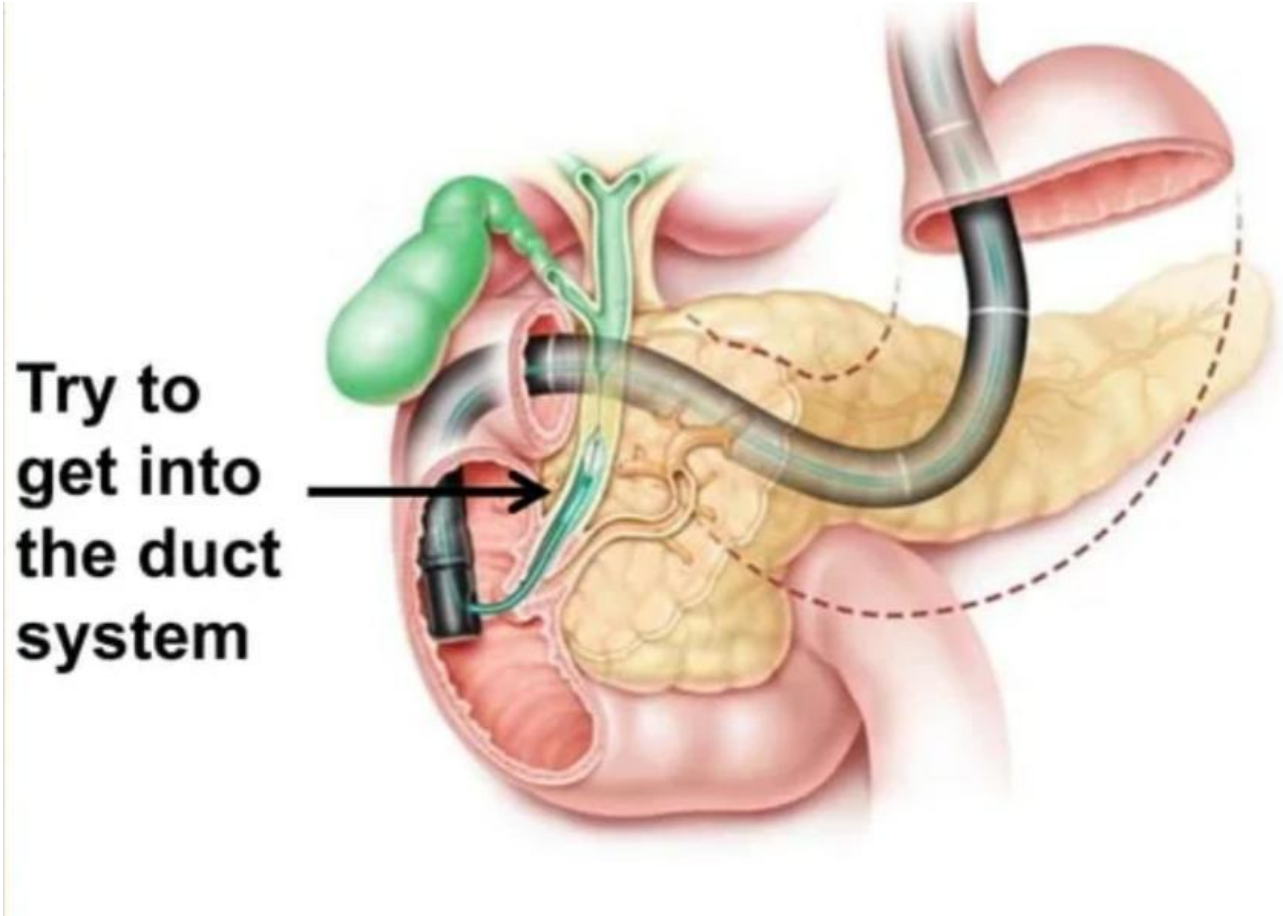
- Sensitivity of CT for pancreatic cancer depends on technique and is highest (89 to 97 percent) with triple-phase, helical multidetector row CTAs expected, sensitivity is higher for larger tumors; in one study, the sensitivity was 100 percent for tumors >2 cm, but only 77 percent for tumors ≤2 cm in size

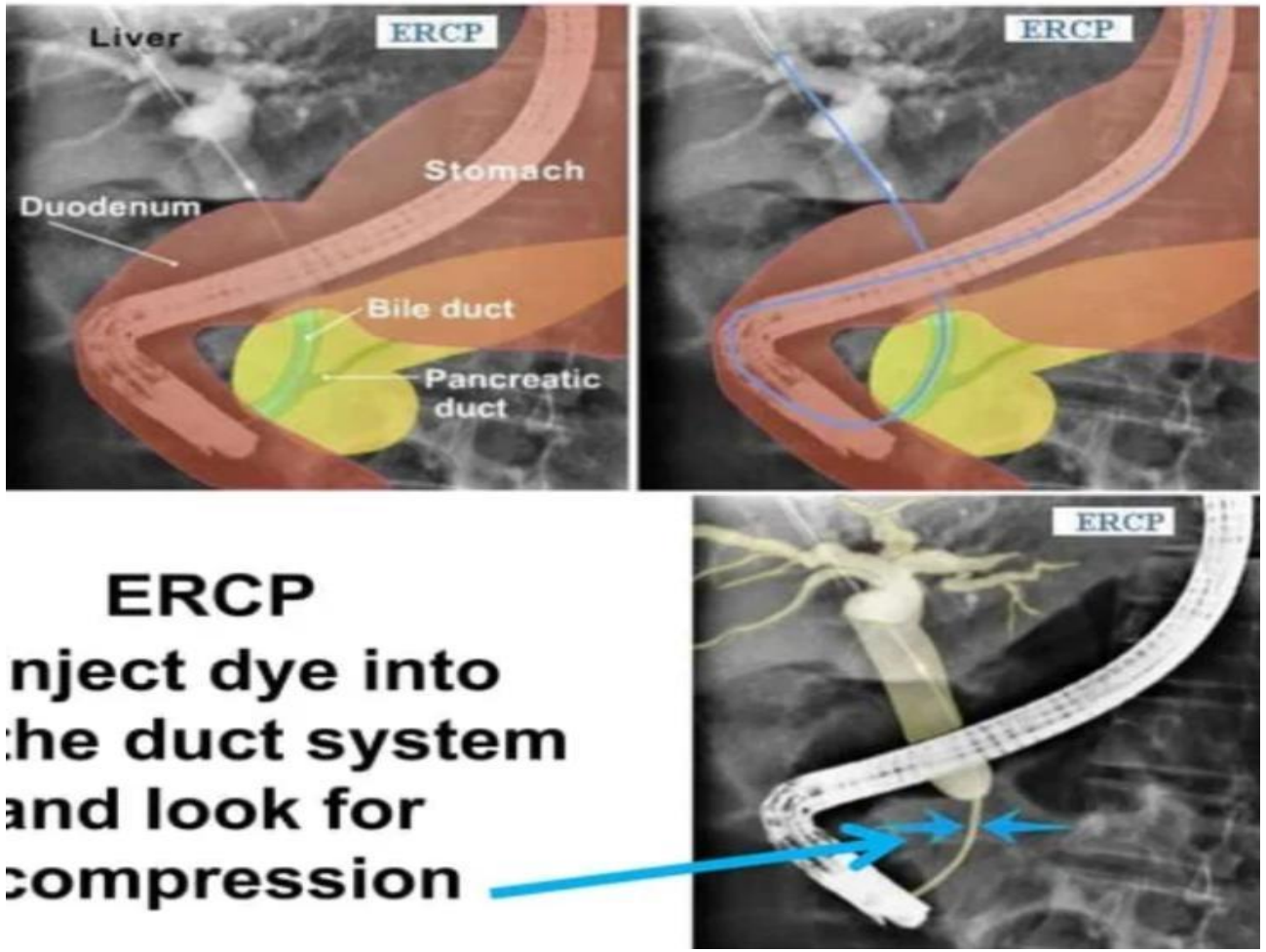
Endoscopy or ERCP or EUS

ERCP or Endoscopic retrograde cholangiopancreatography



ERCP



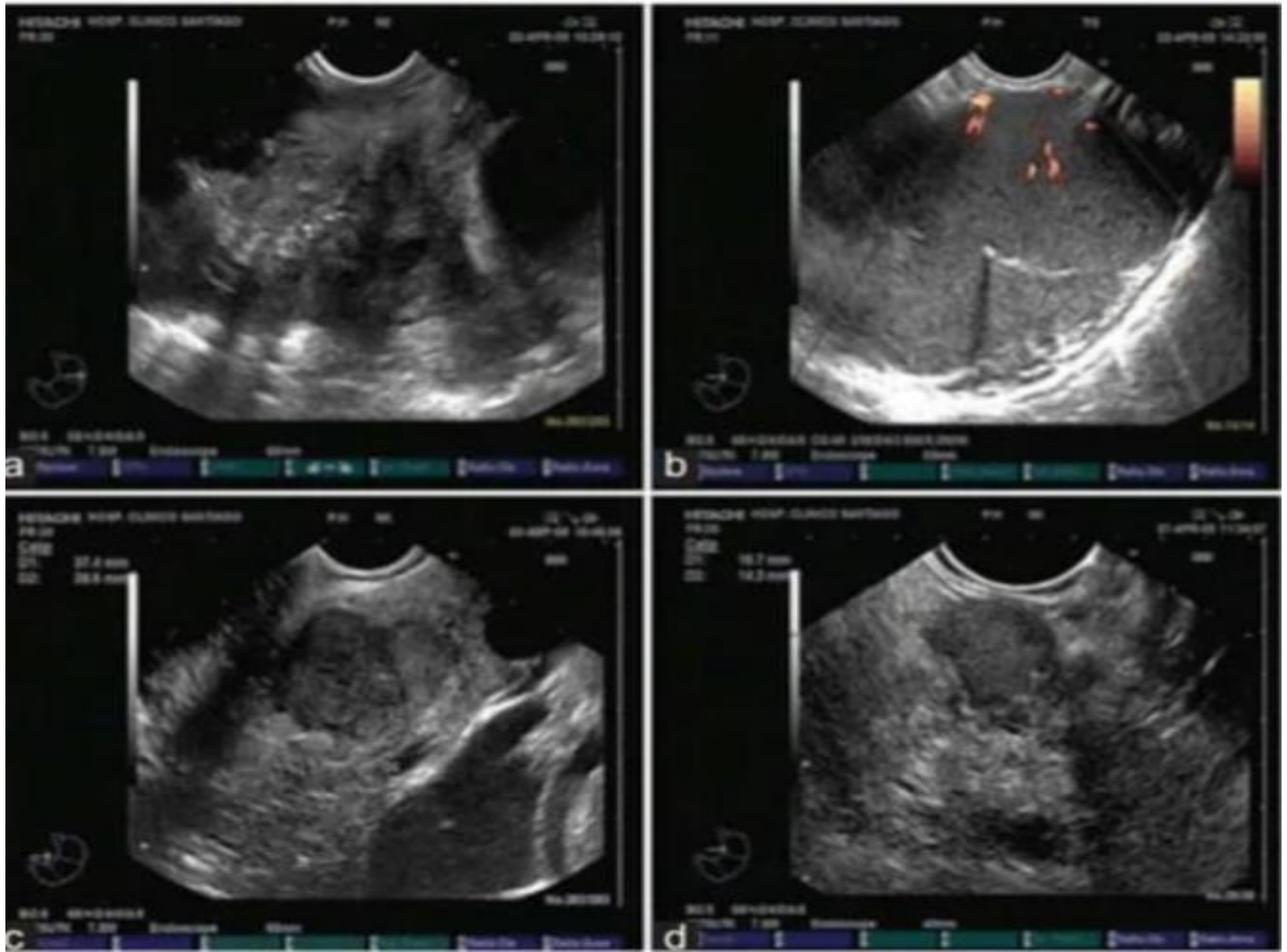


ERCPInject dye into the duct system and look for compression

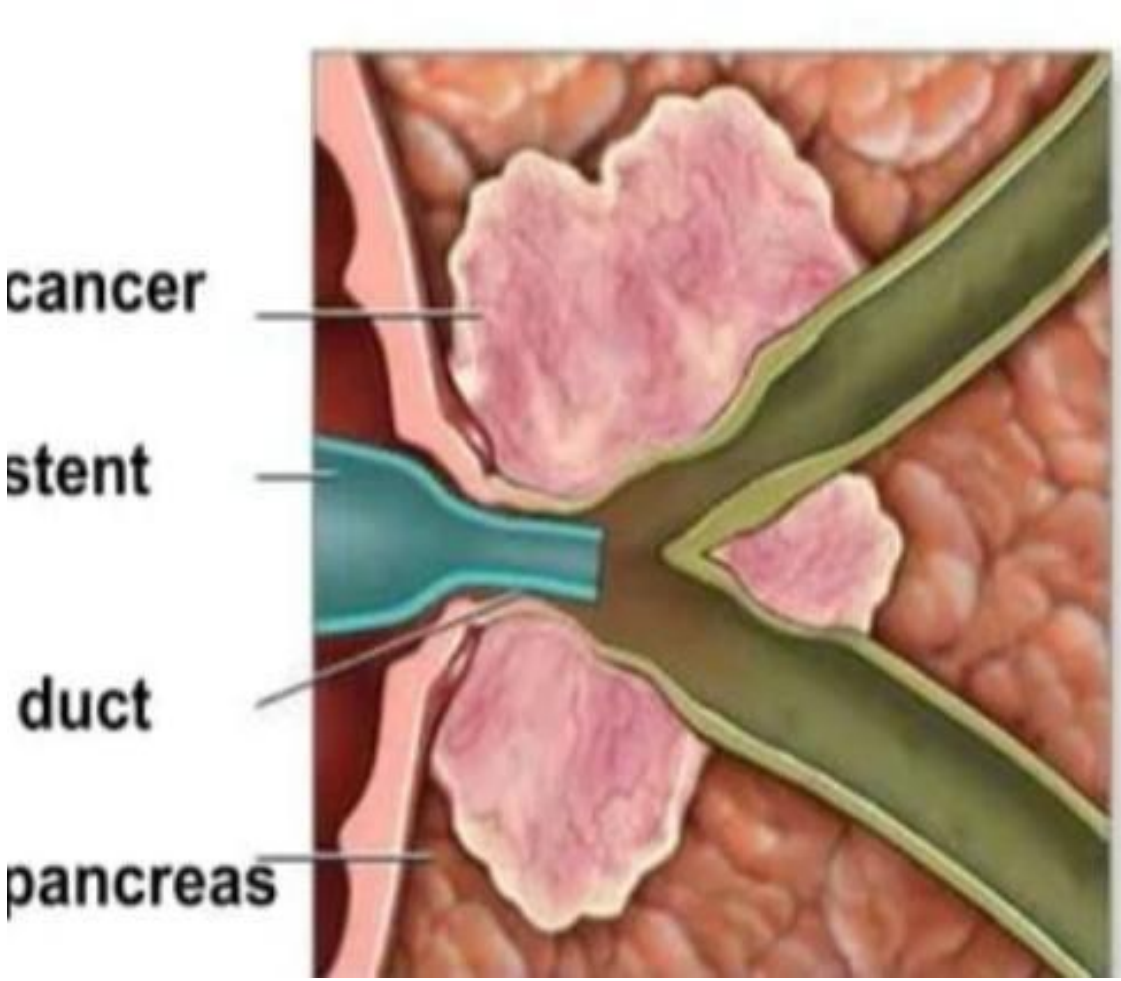
ERCP

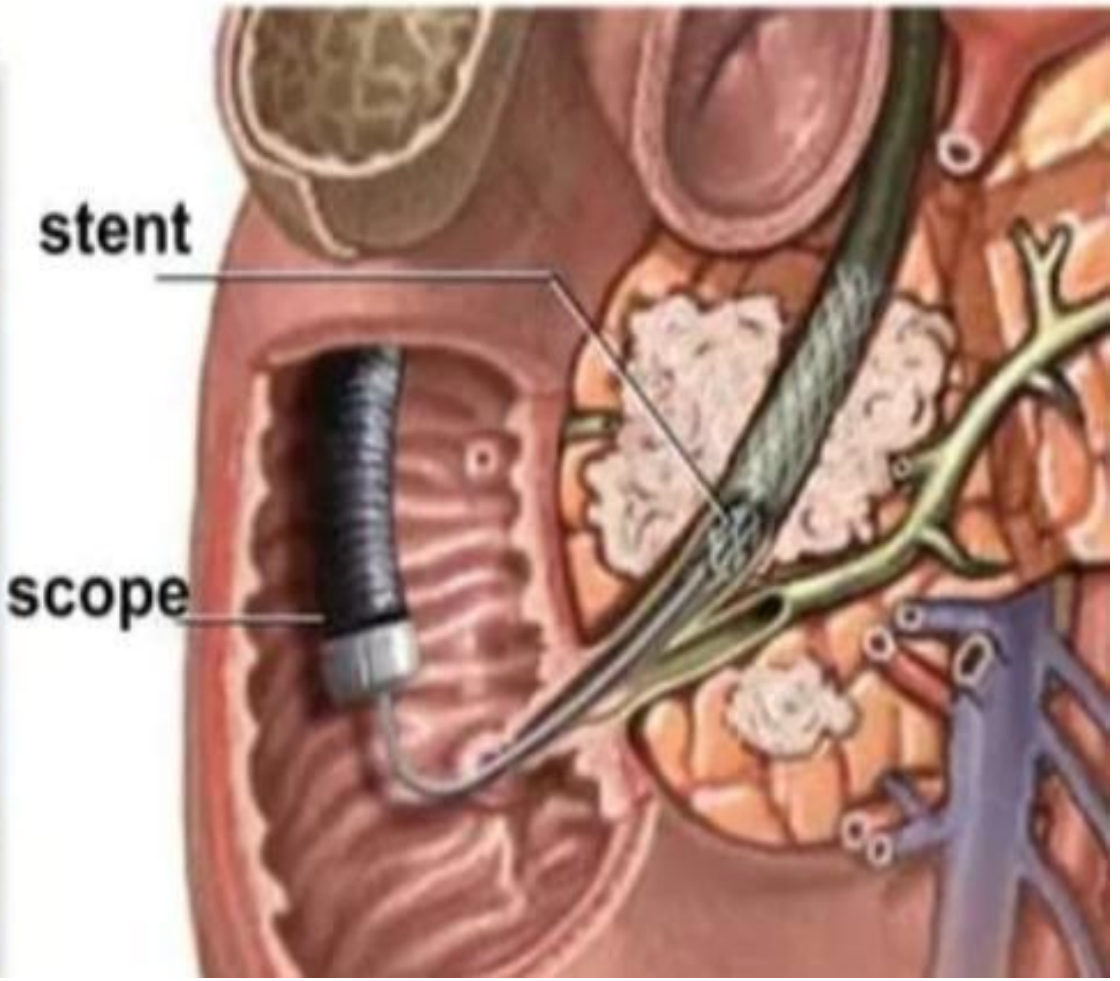
- Sensitivity of 92 percent and Specificity of 96 percent for diagnosing cancer of the pancreas by ERCPERCP provides an opportunity to collect tissue samples(forceps biopsy, brush cytology) for histologic diagnosis.However, the sensitivity for detection of malignancy (approximately 50 to 60 percent) is lower than that of endoscopic ultrasound (EUS)-guided FNA (sensitivity 92 percent)

EUS or Endoscopic Ultrasound

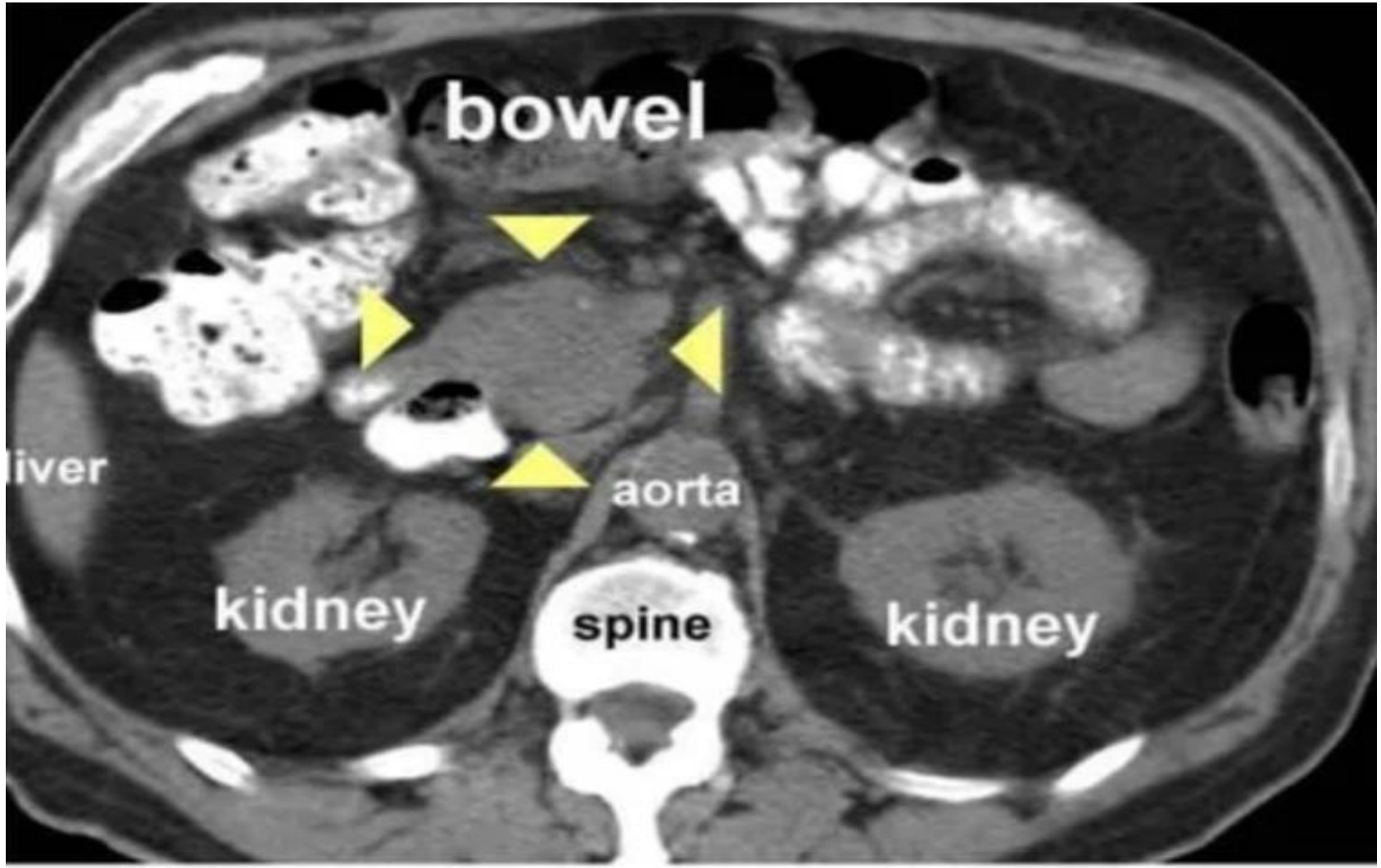


Endoscopic Placement of a Stent

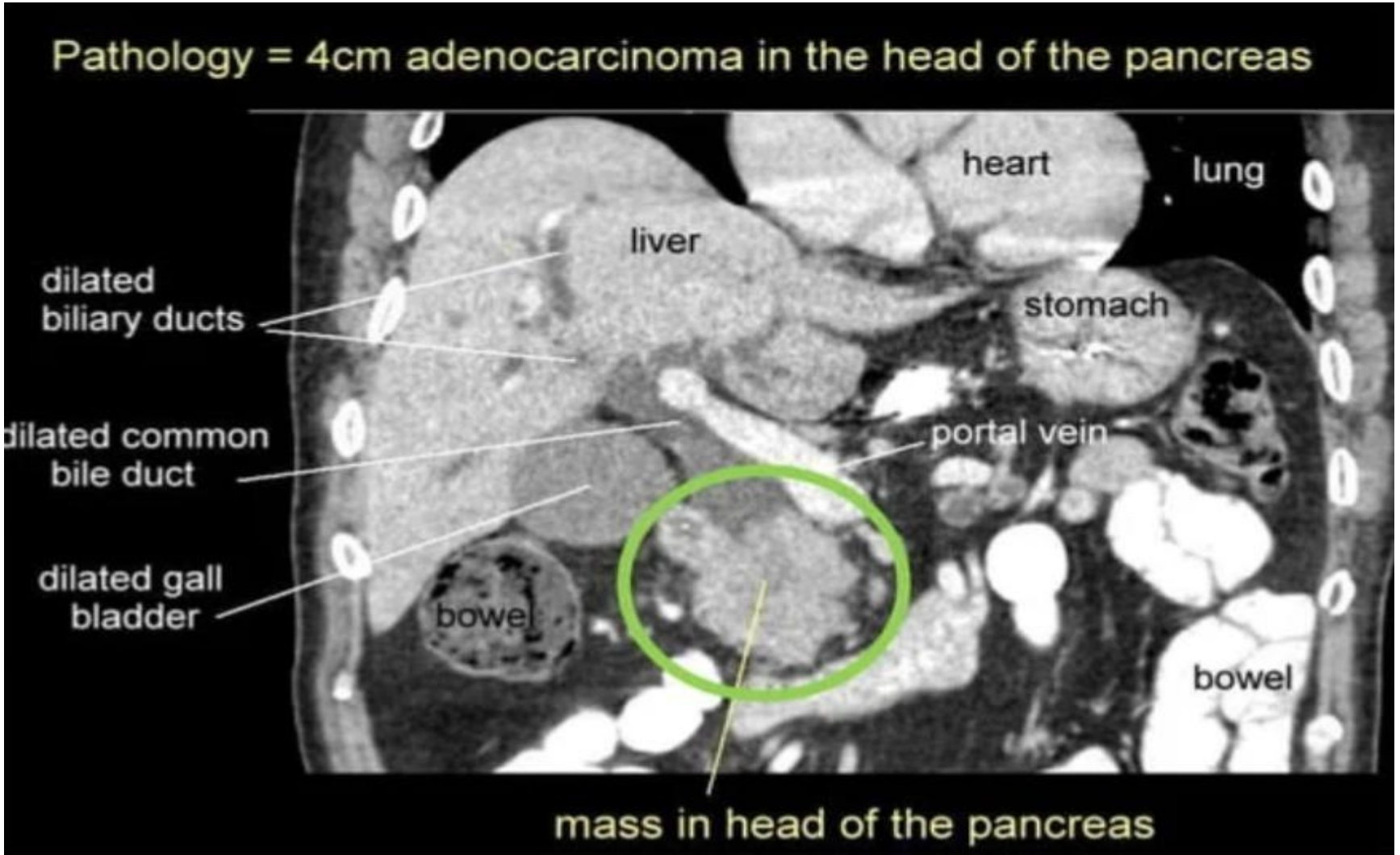




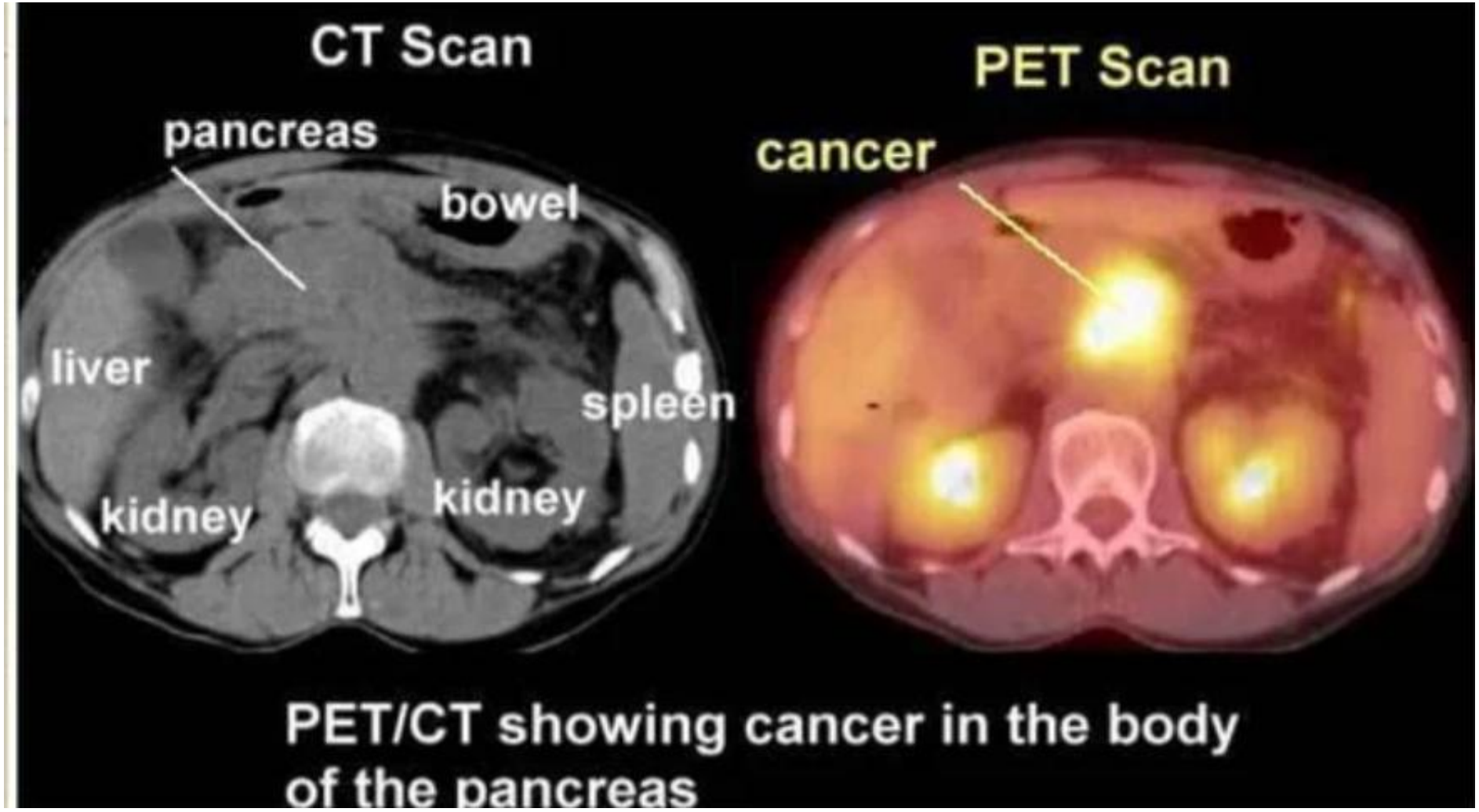
CT Scan - Pancreas Cancer

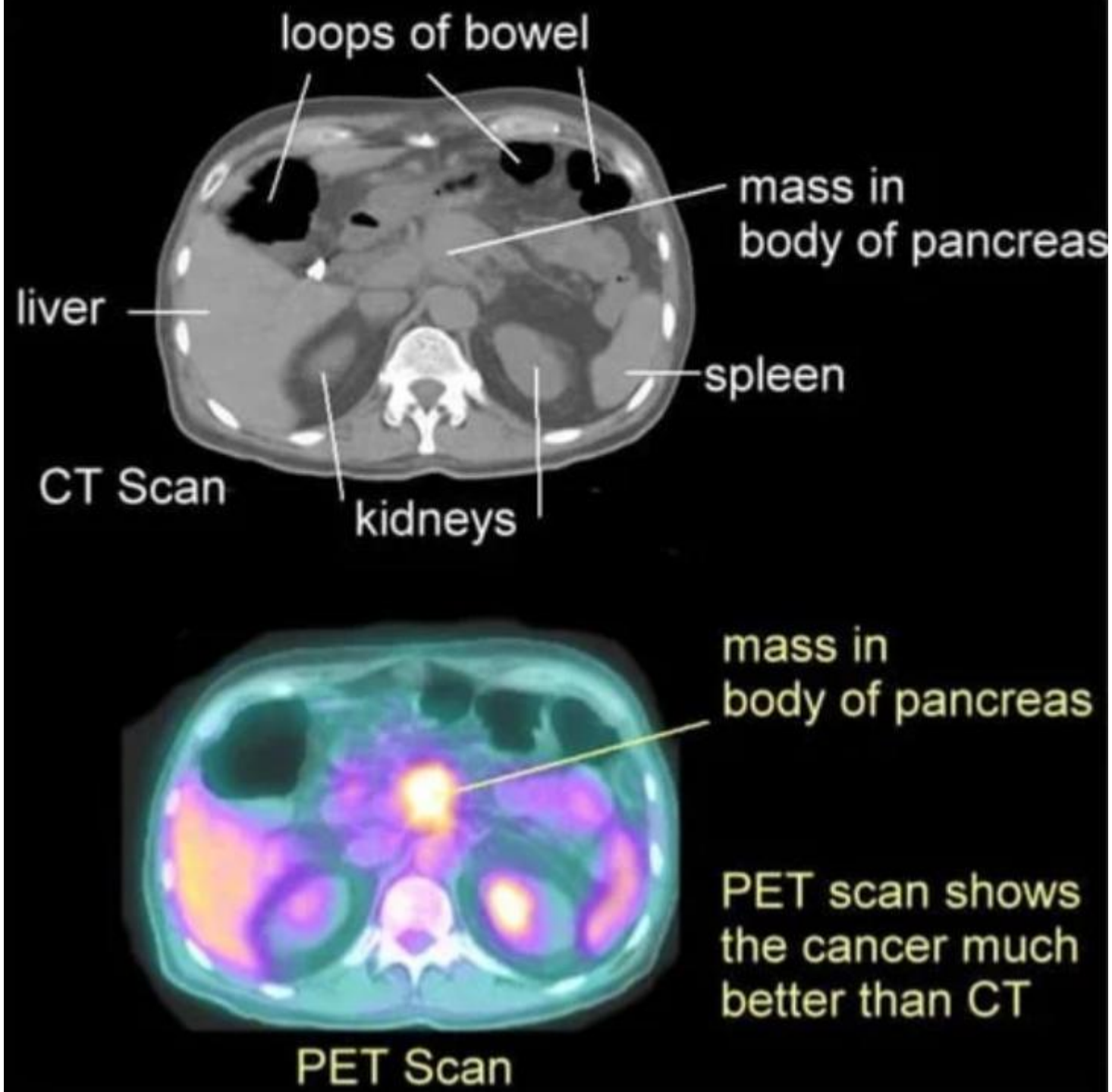


CT Scans

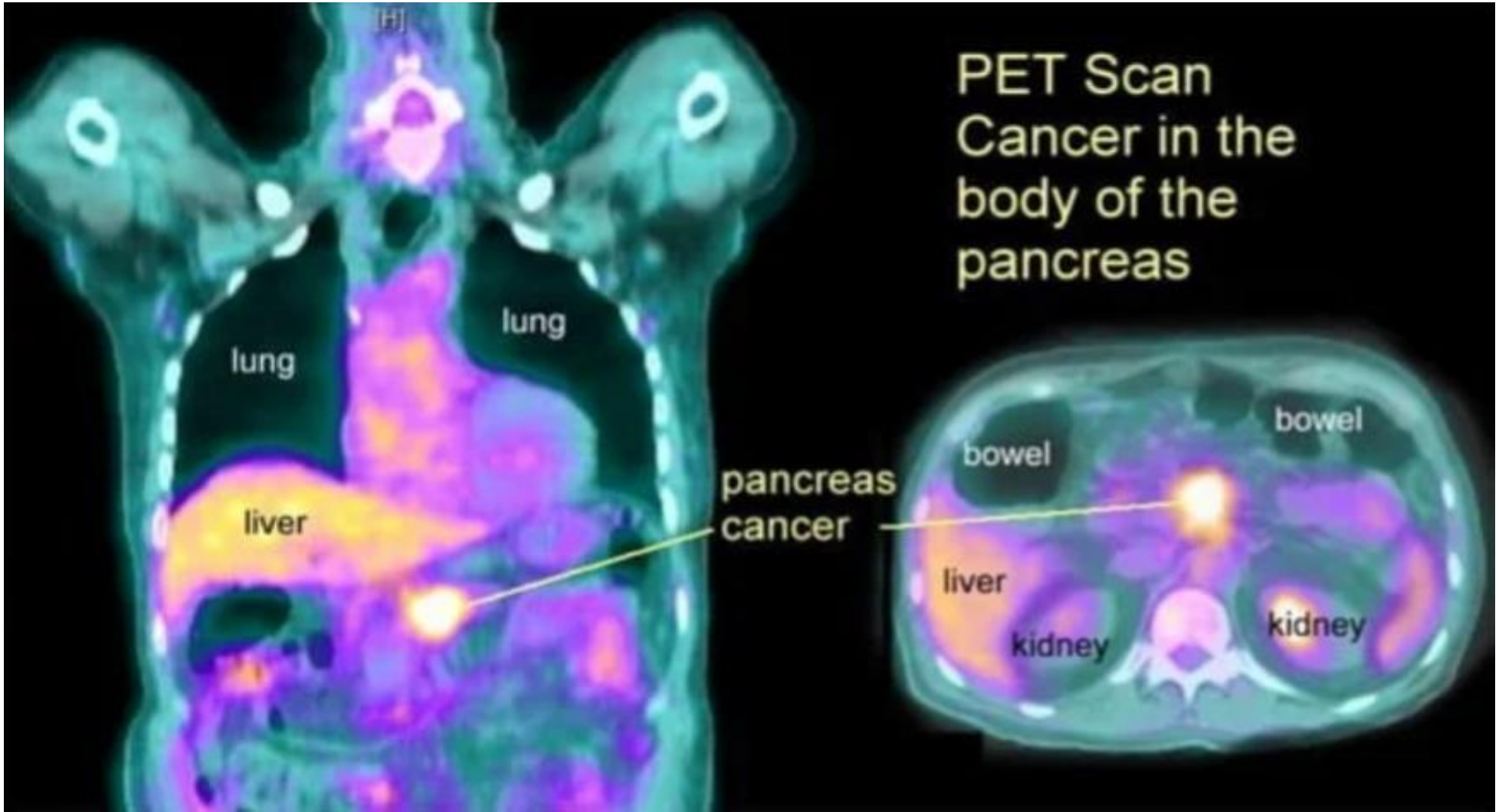

Pathology = 4cm adenocarcinoma in the head of the pancreas
heart
lung
liver
dilated
biliary ducts
stomach
dilated common
bile duct
portal vein
dilated gall
bladder
bowel
bowel
mass in head of the pancreas

CT or PET Scan

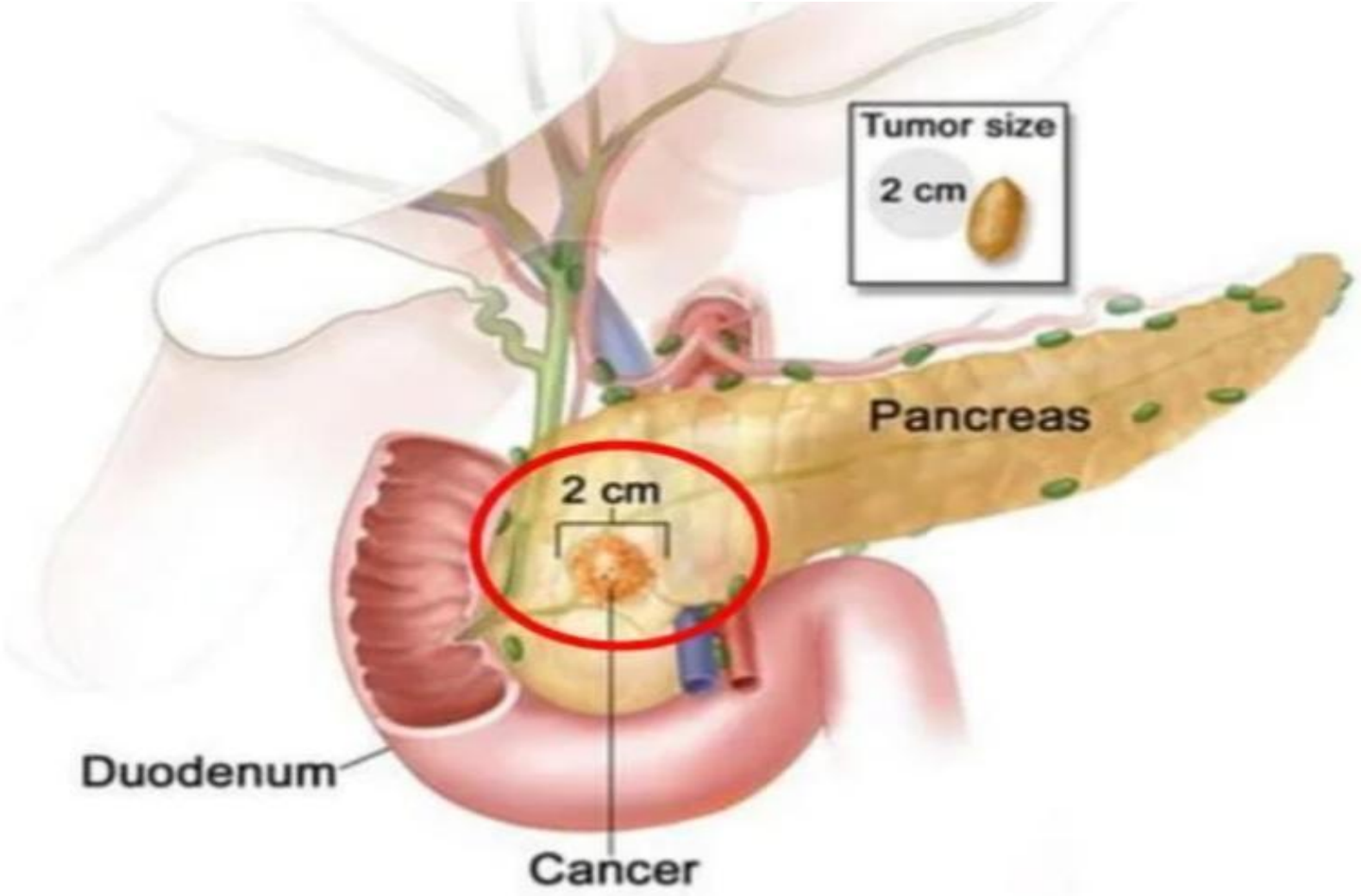



loops of bowel
mass in
body of pancreas
liver
spleen
CT Scan
kidneys
mass in
body of pancreas
PET scan shows
the cancer much
better than CT
PET Scan

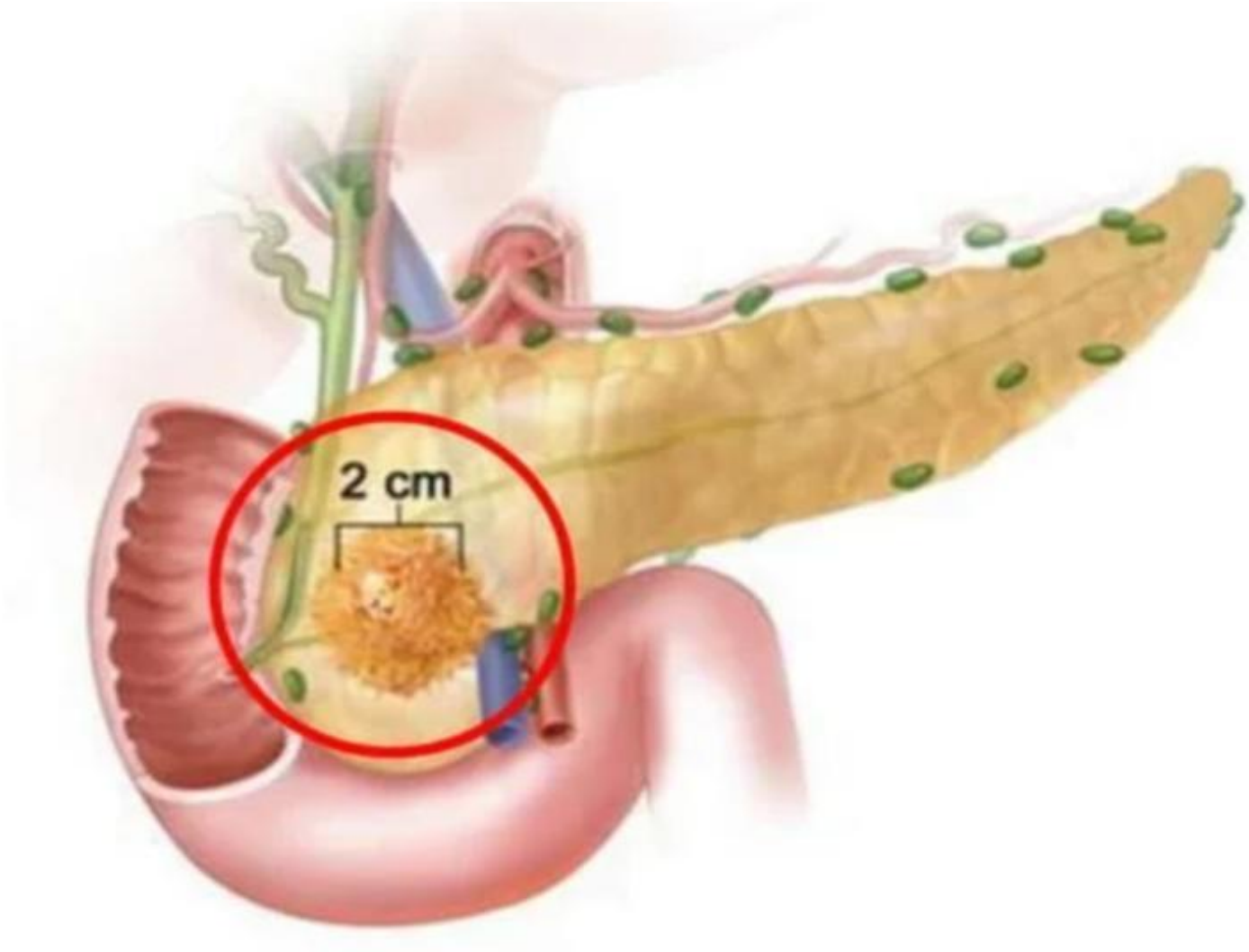
PET Scans


PET Scan
Cancer in the
body of the
pancreas
lung
lung
liver
pancreas
cancer
bowel
bowel
liver
kidney
kidney

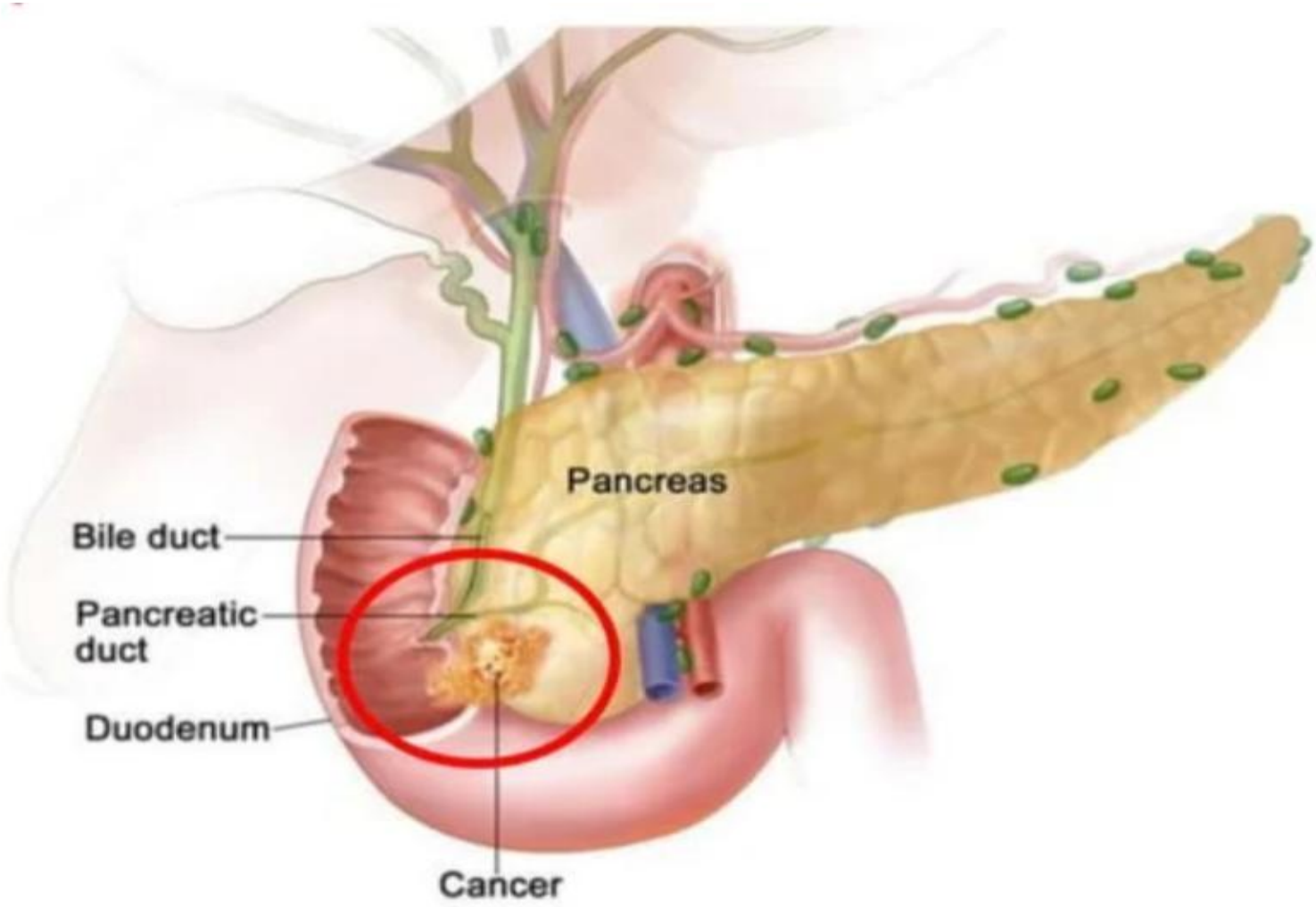
Stage IA (T1aNOMO)



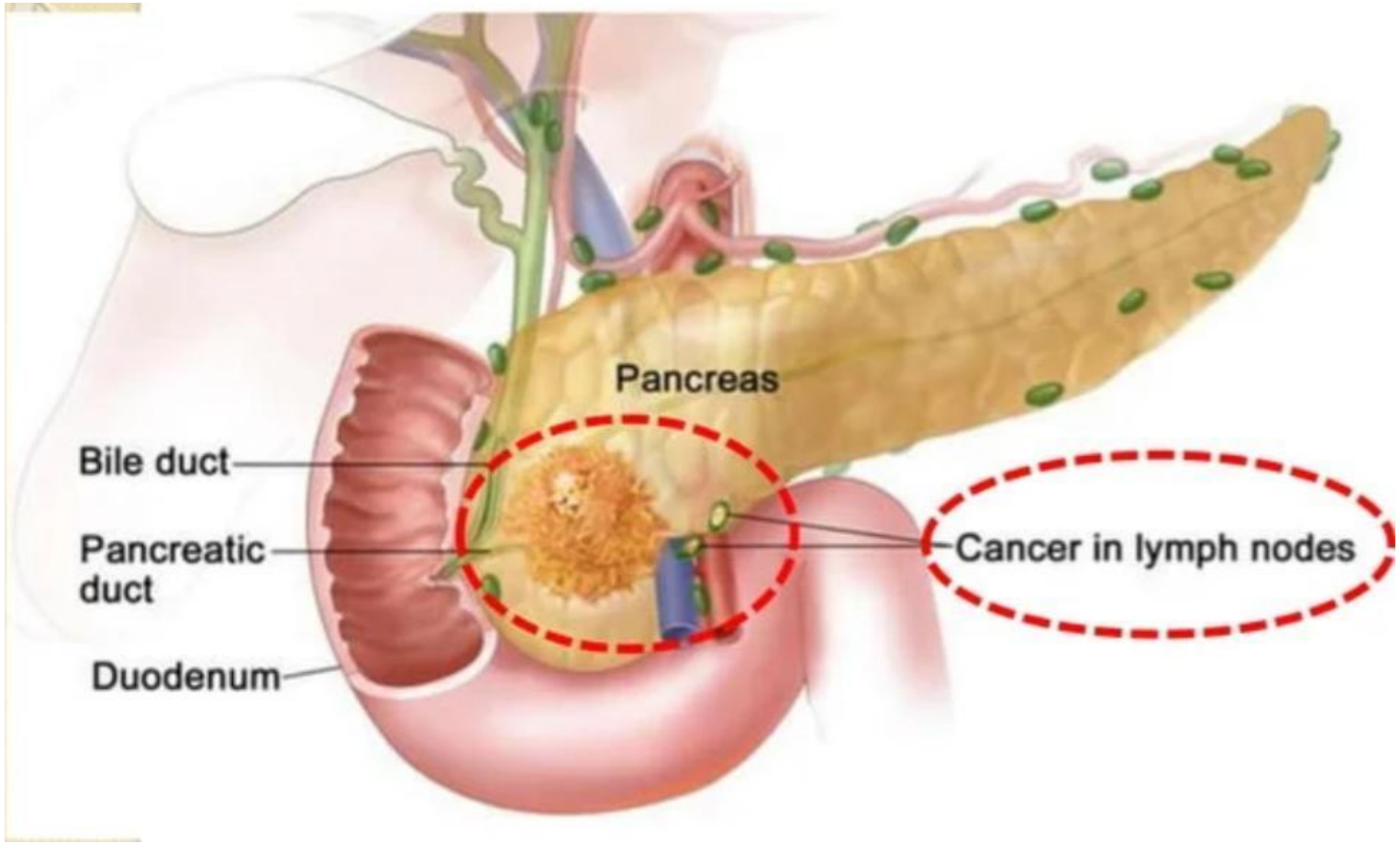
Stage IB (T2NOMO) over 2cm, limited to pancreas



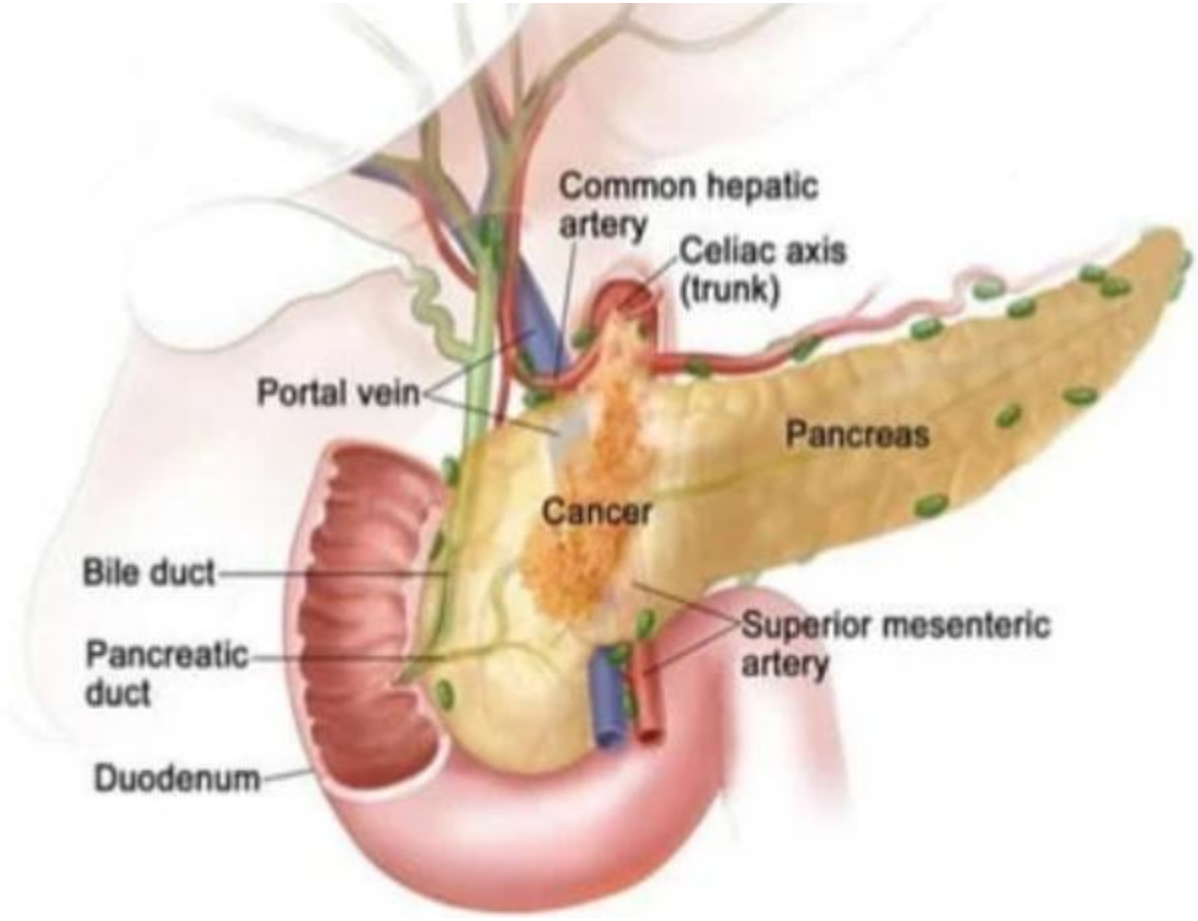
Stage IIA (T3N0) beyond the pancreas



Stage IIB (T1-3N1M0)



- **Stage III (T4) Unresectable Cancer has spread to the major blood vessels near the pancreas. These include the superior mesenteric artery, celiac axis, common hepatic artery, and portal vein.**



Thank you