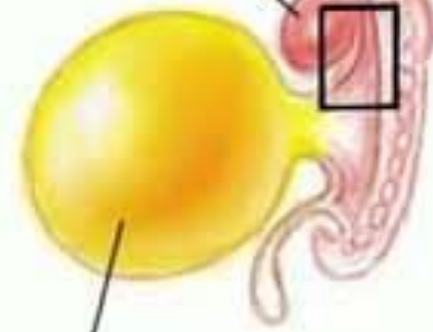


PANCREAS

OBJECTIVES

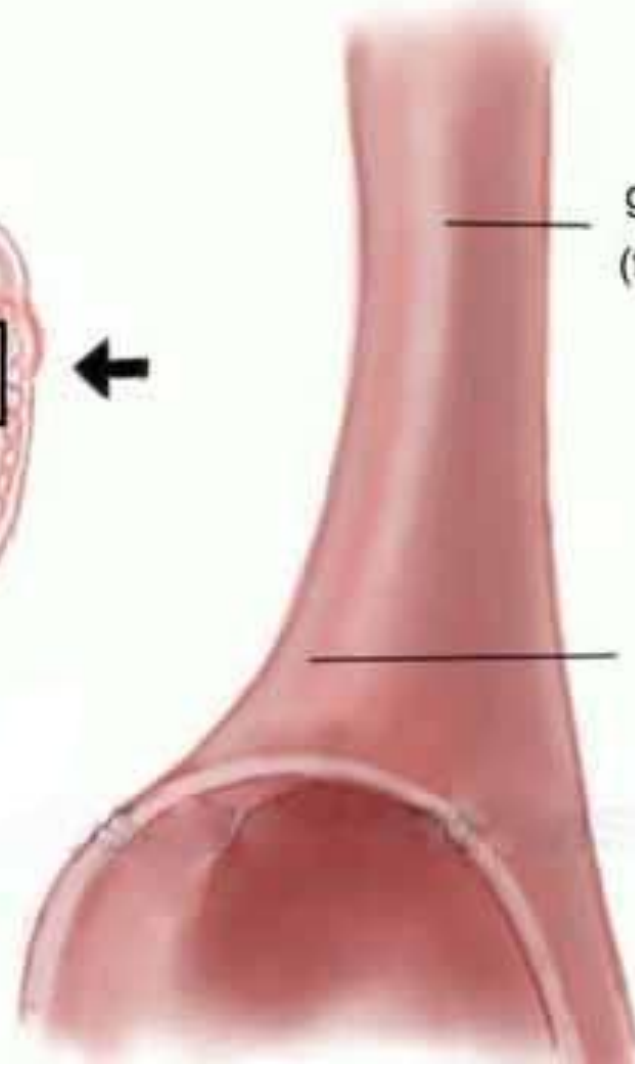
- Understand the etiology/risk factors, pathogenesis, morphology, clinical features and outcome of pancreatic inflammations and neoplasms

heart

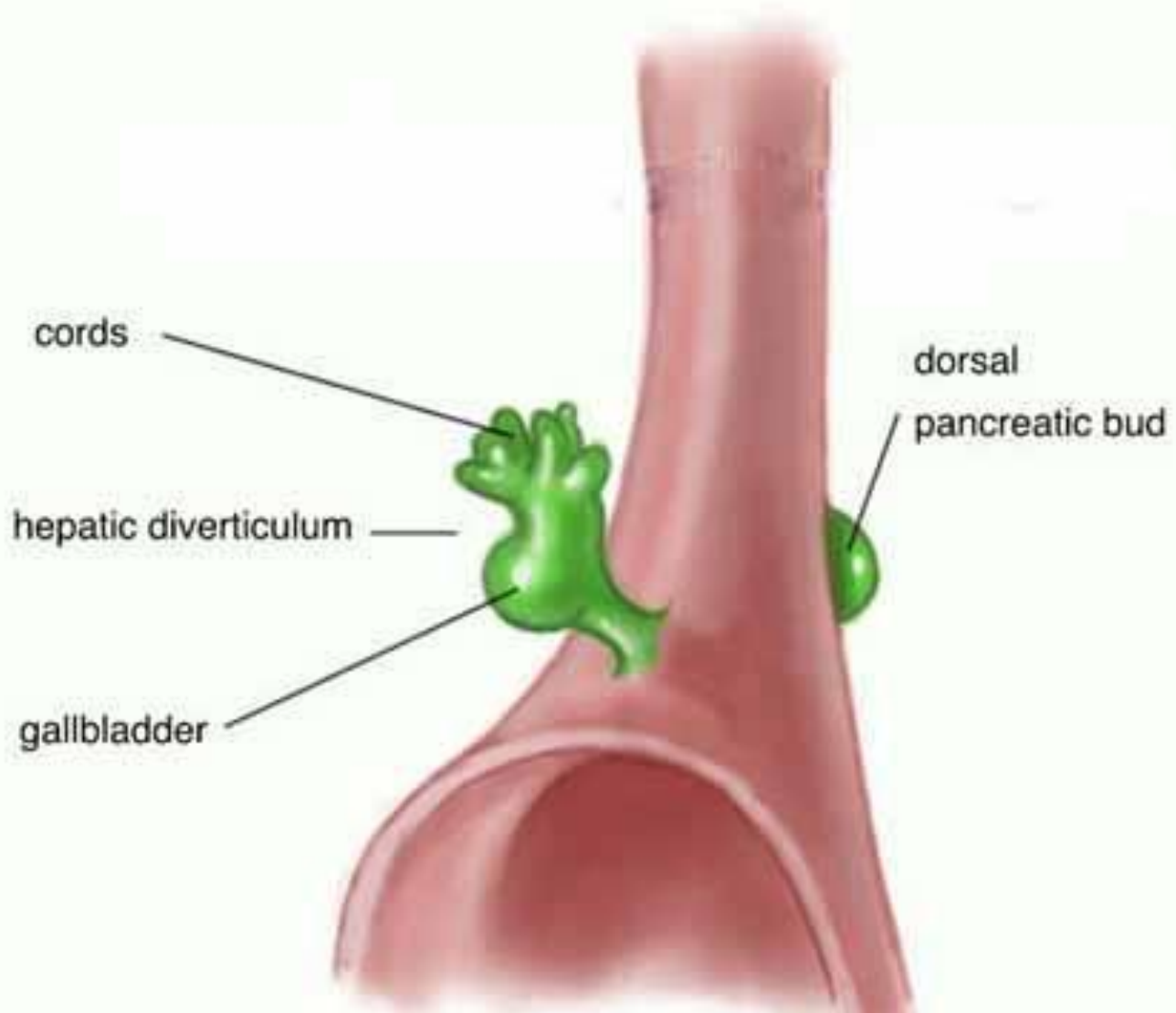


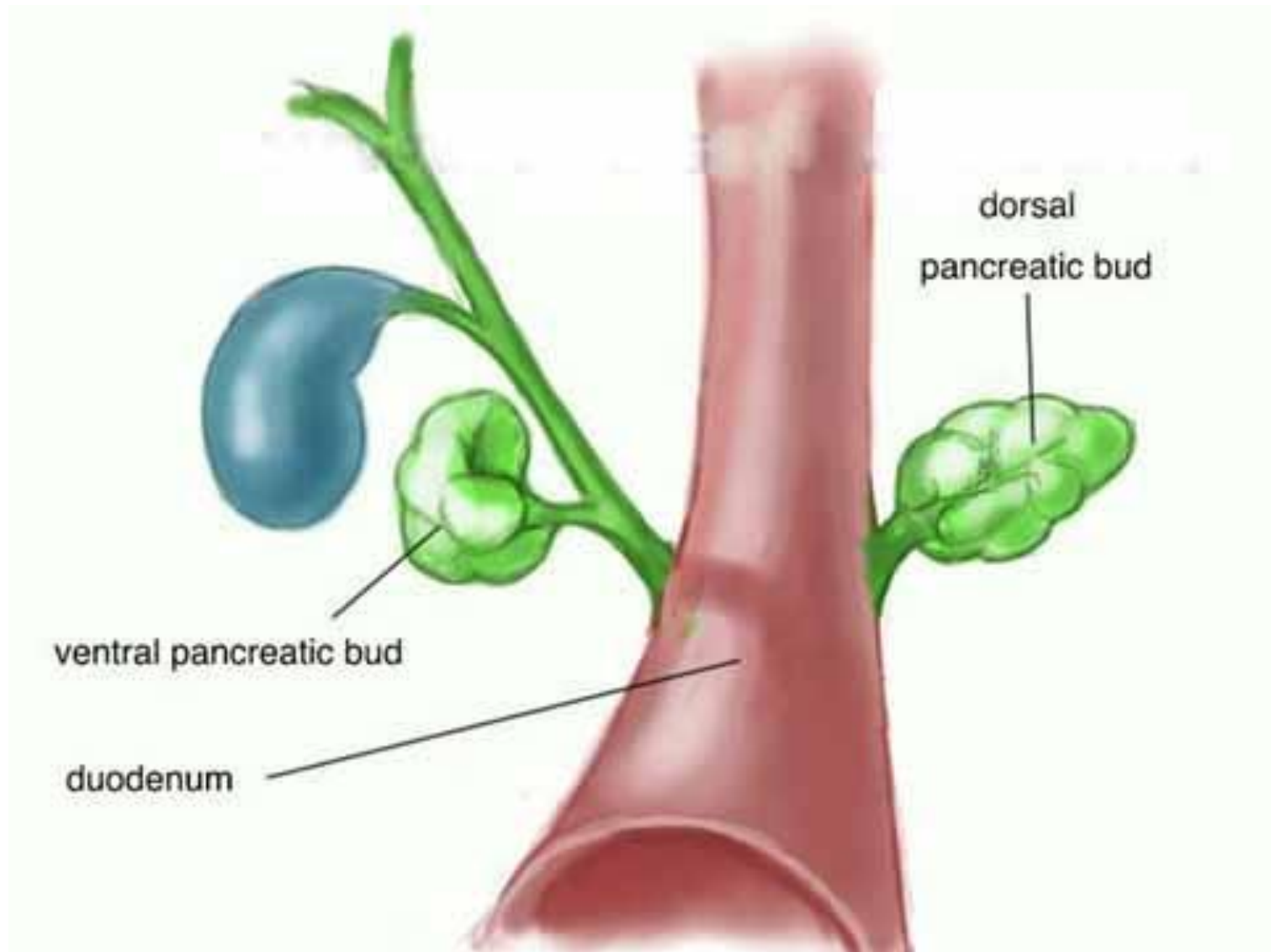
yolk sac

gut tube
(foregut)



position of septum
transversarum

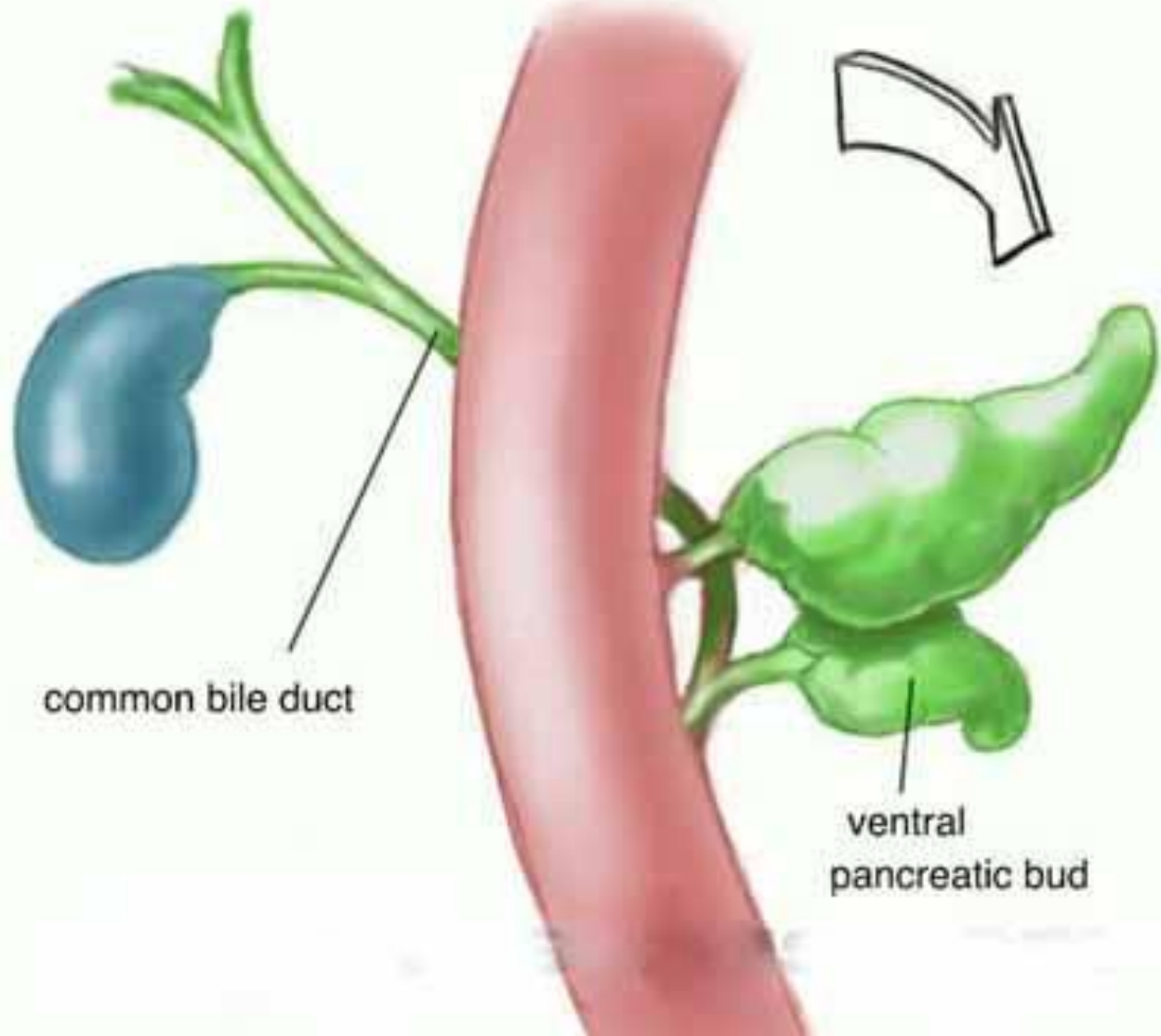


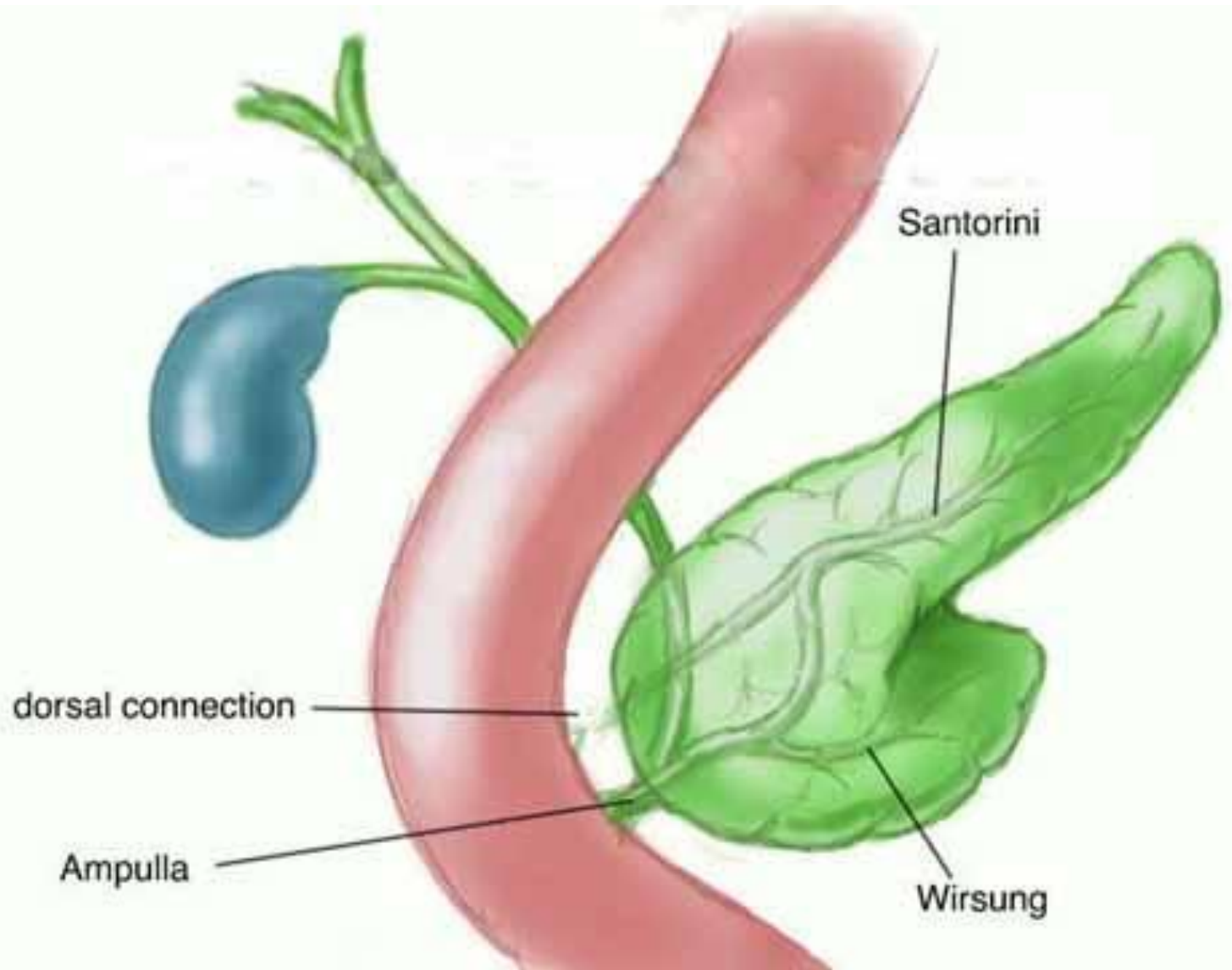


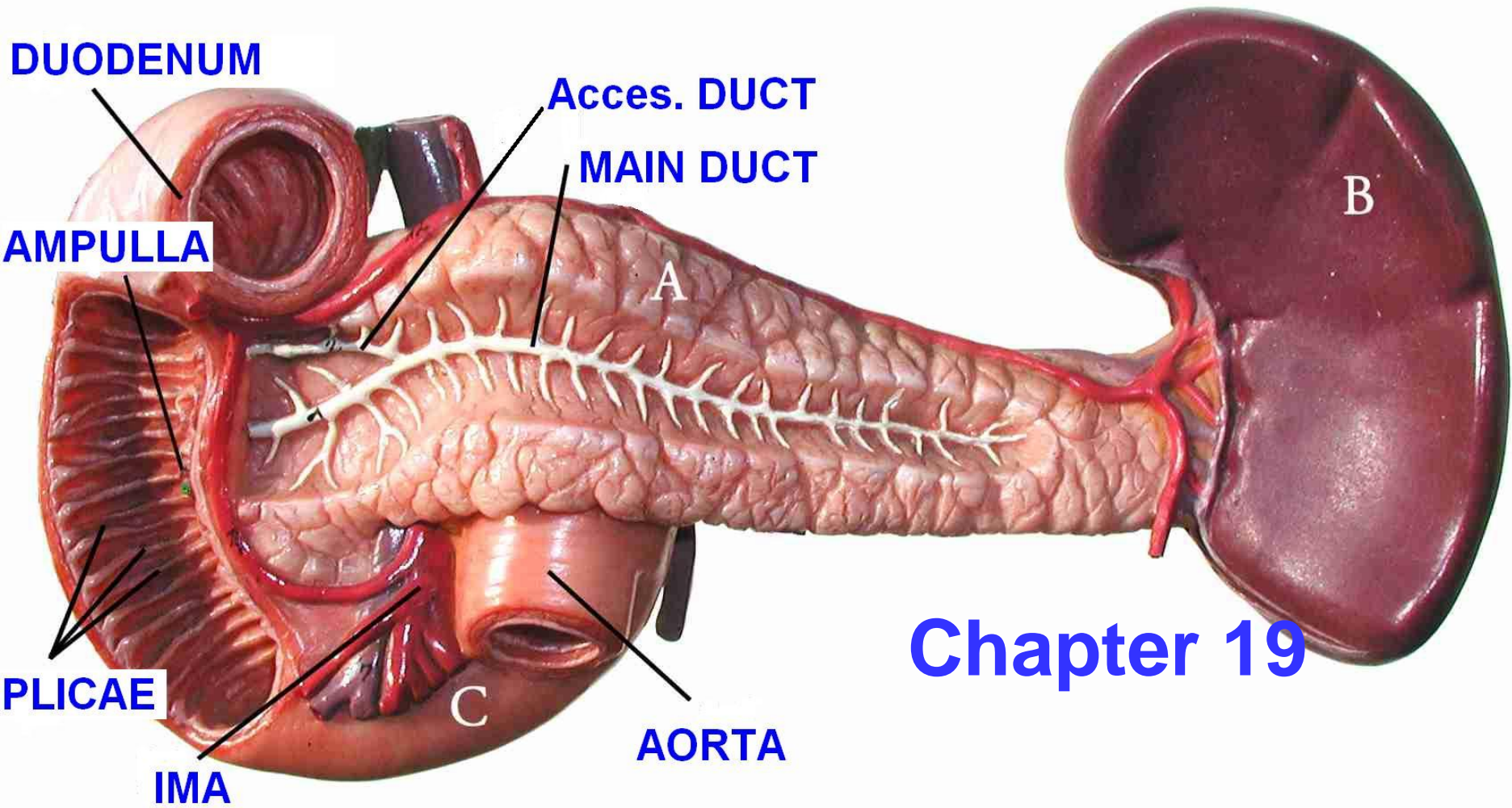
dorsal
pancreatic bud

ventral pancreatic bud

duodenum

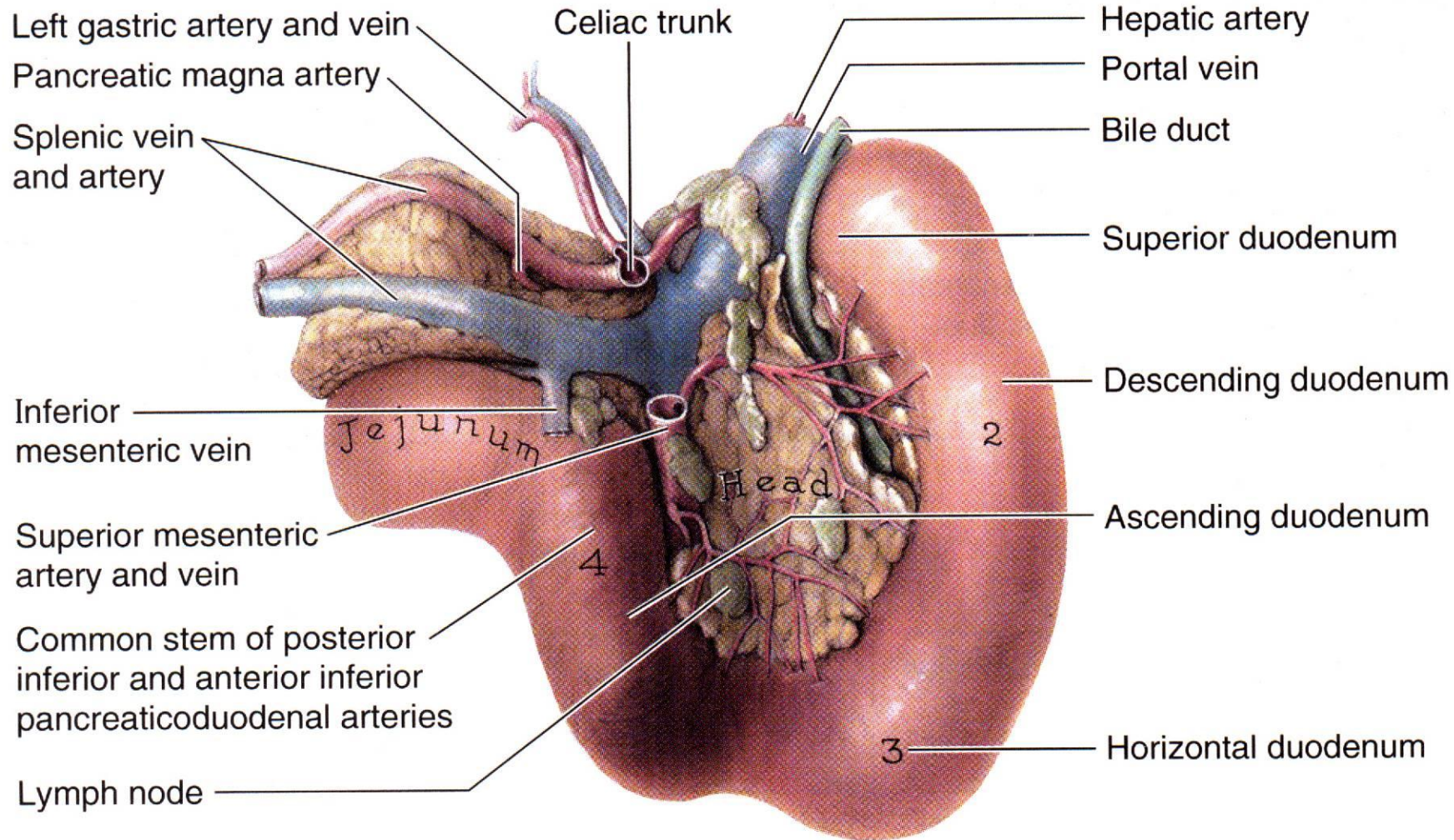




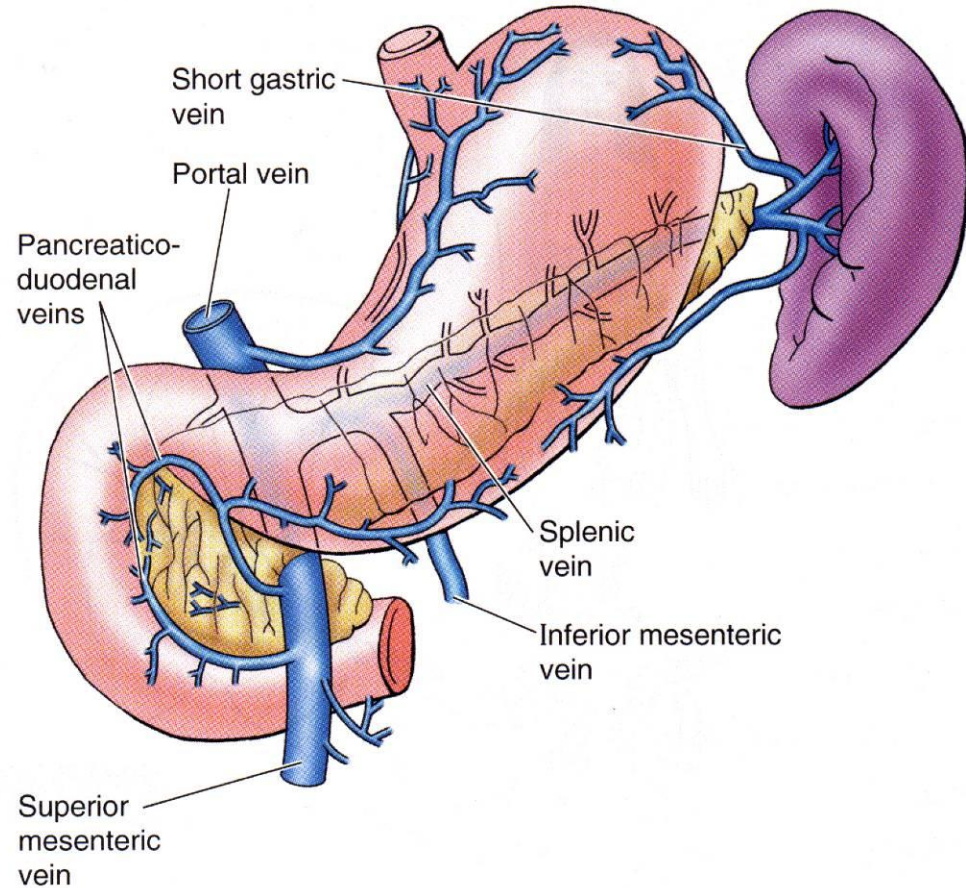
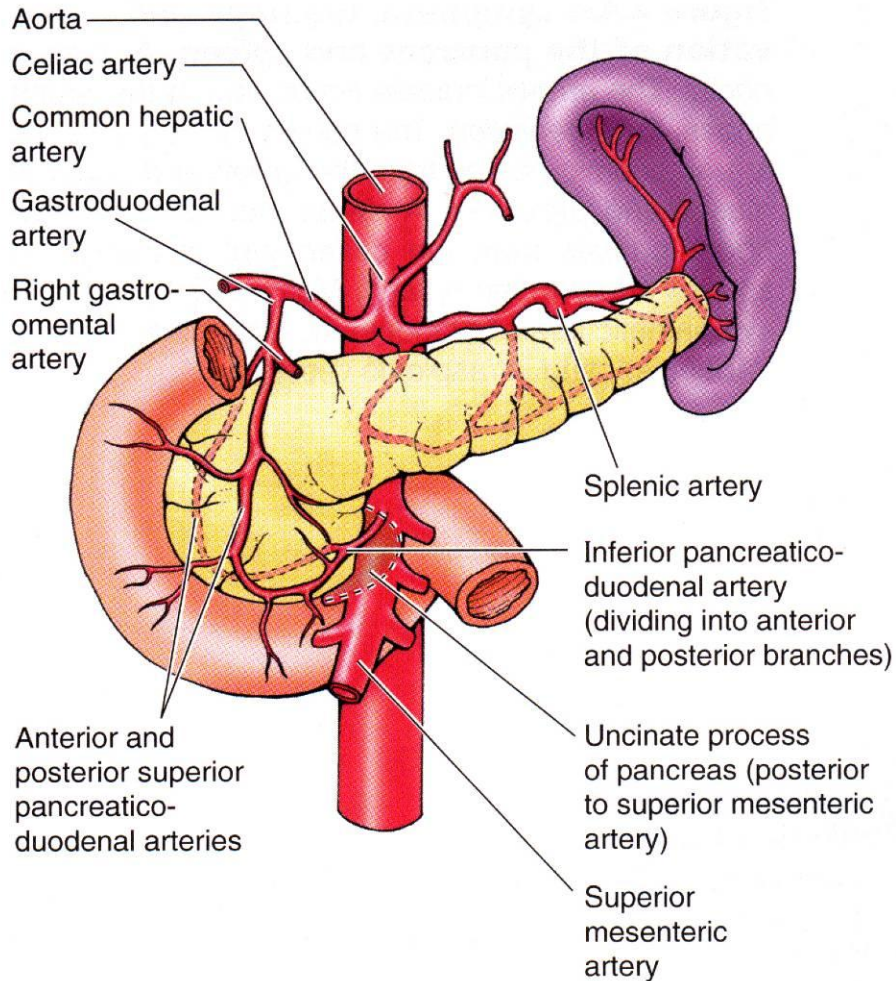


Chapter 19

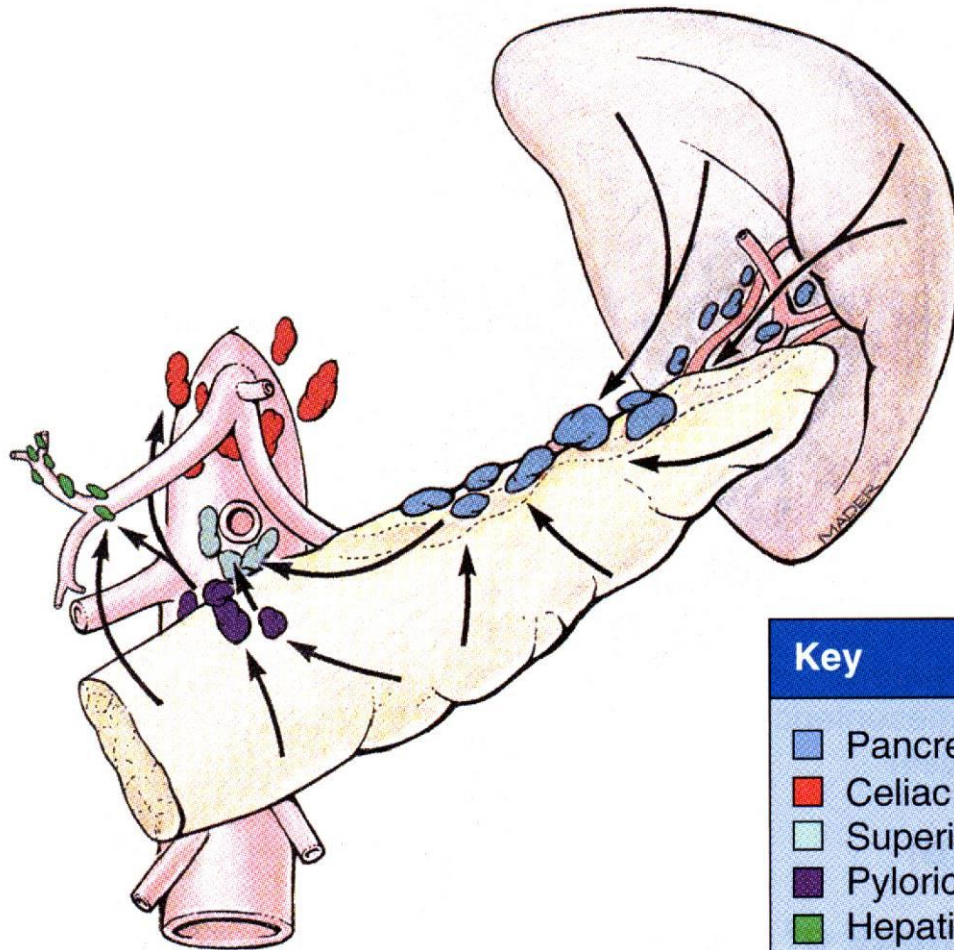
Posterior view of duodenum/pancreas



Arterial supply and venous drainage of the pancreas and spleen



Lymphatic drainage of the distal pancreas and spleen

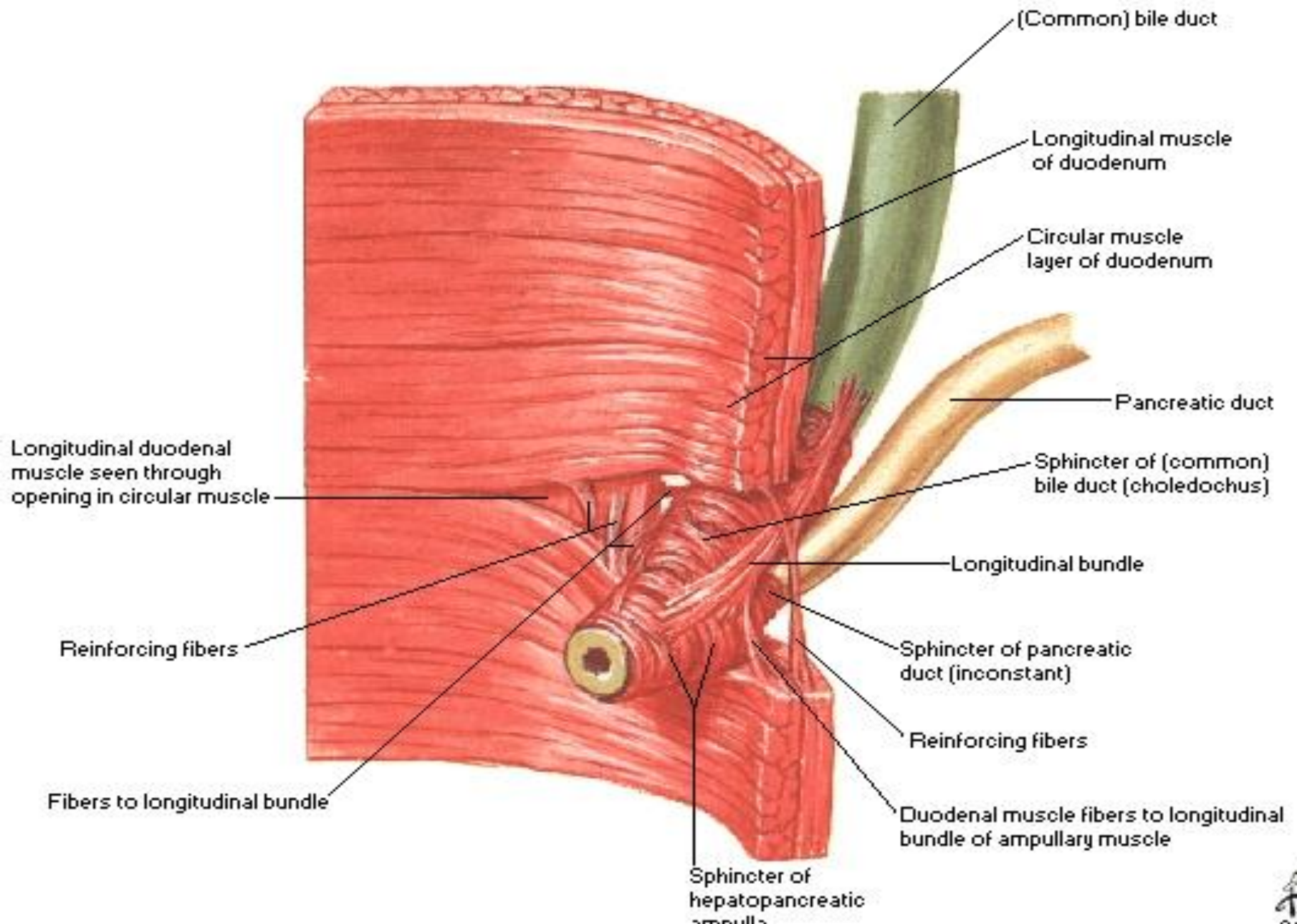


Key

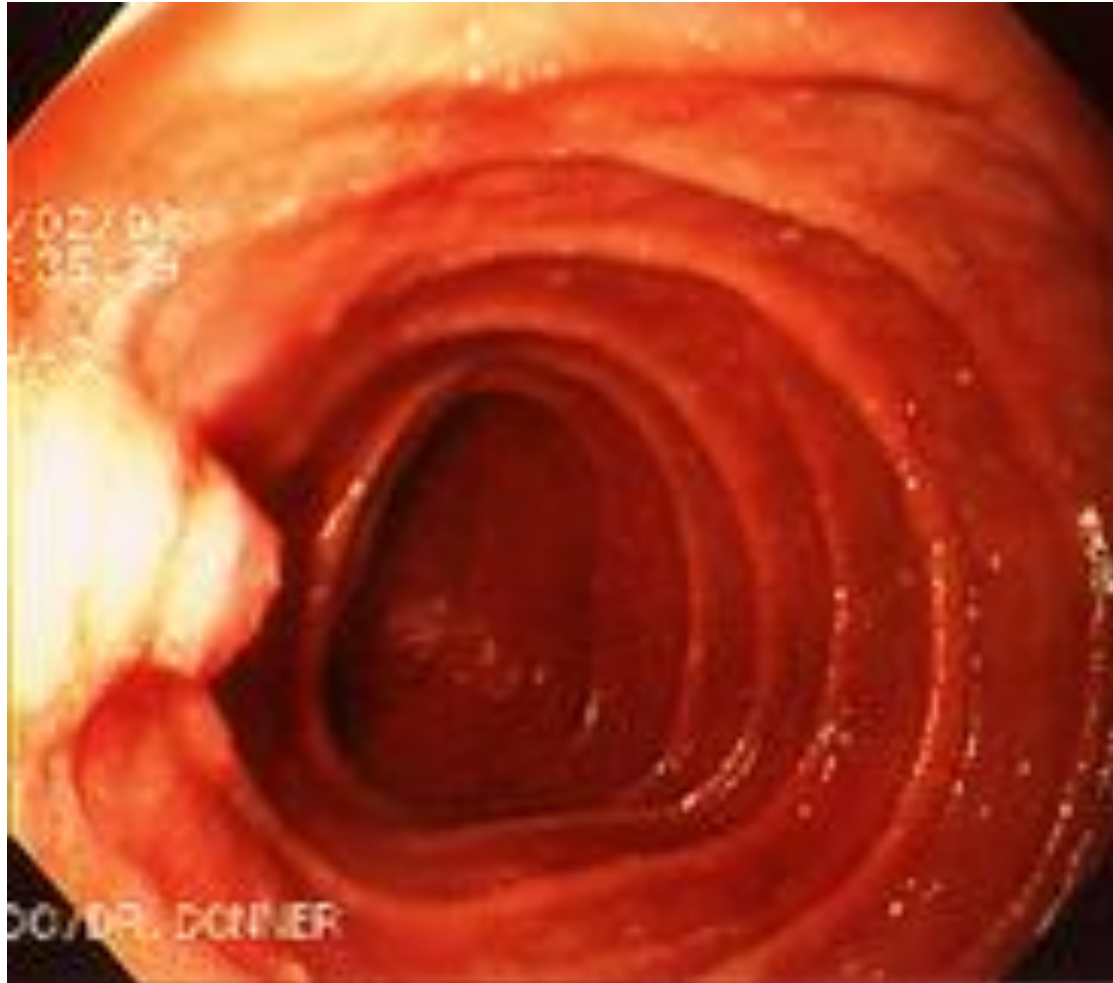
- Pancreaticosplenic nodes
- Celiac nodes
- Superior mesenteric nodes
- Pyloric nodes
- Hepatic nodes

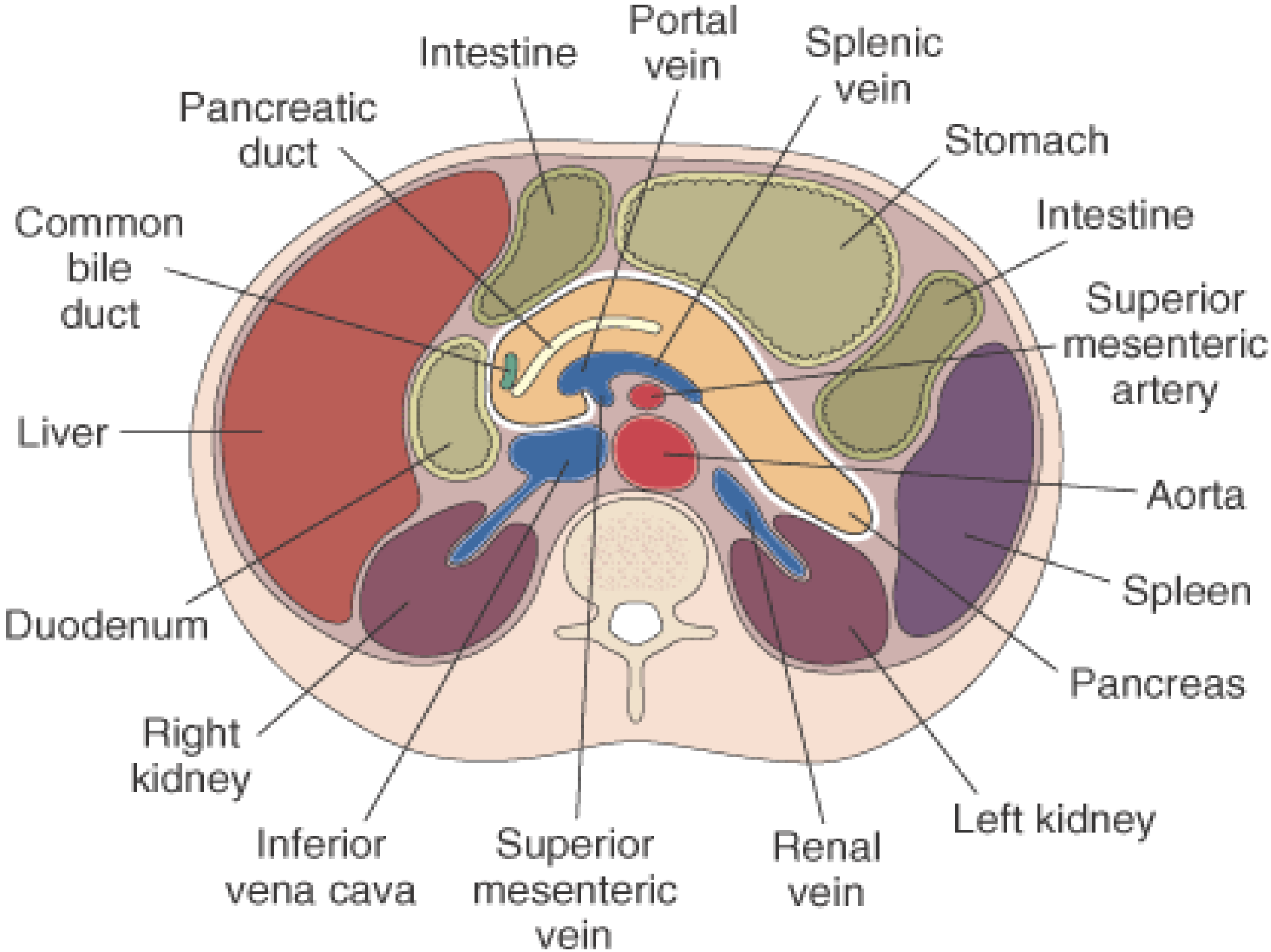
Junction of Bile Duct and Duodenum

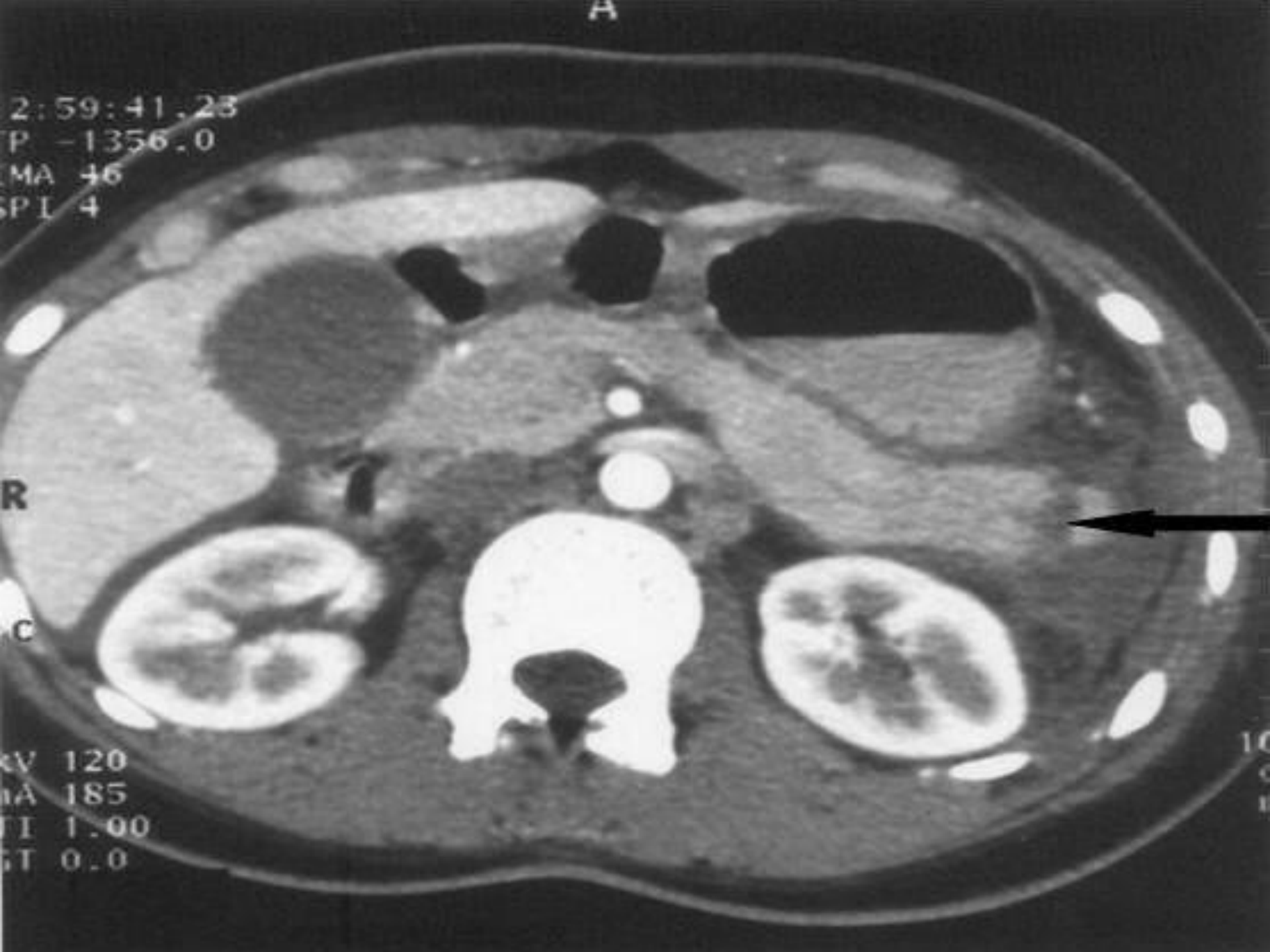
Dissection



Hepaticopancreatic ampulla (Ampulla of Vater)

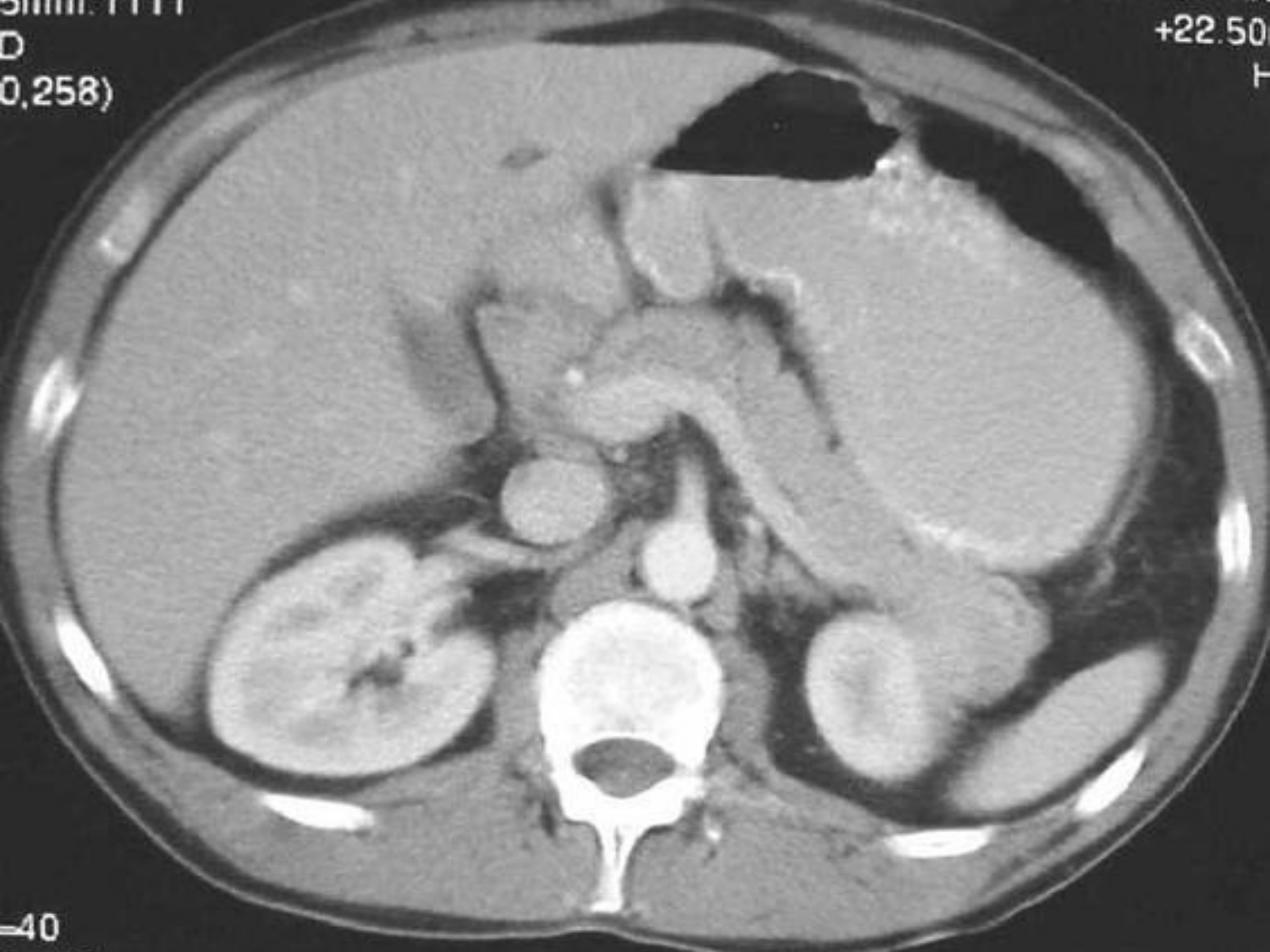




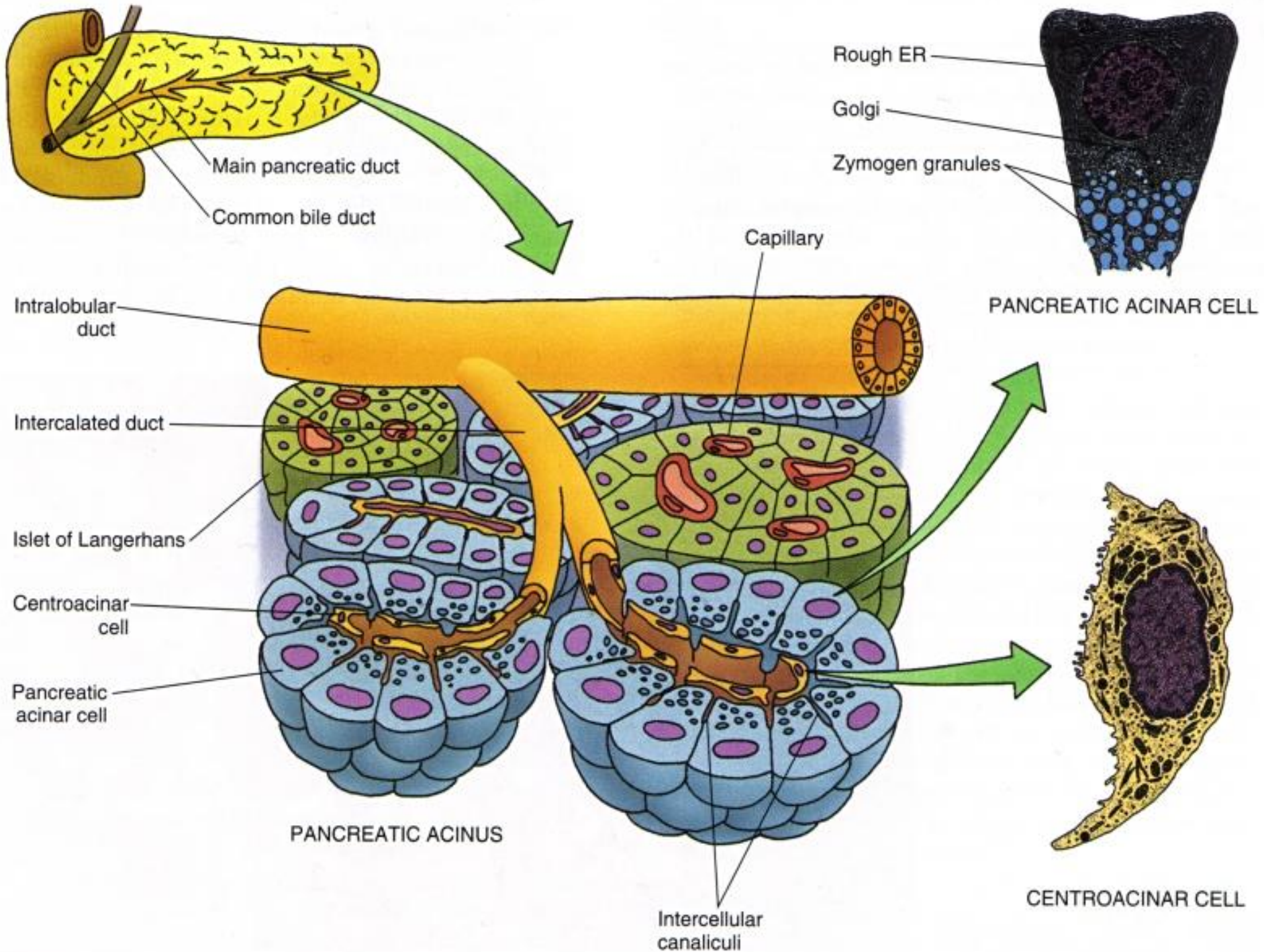


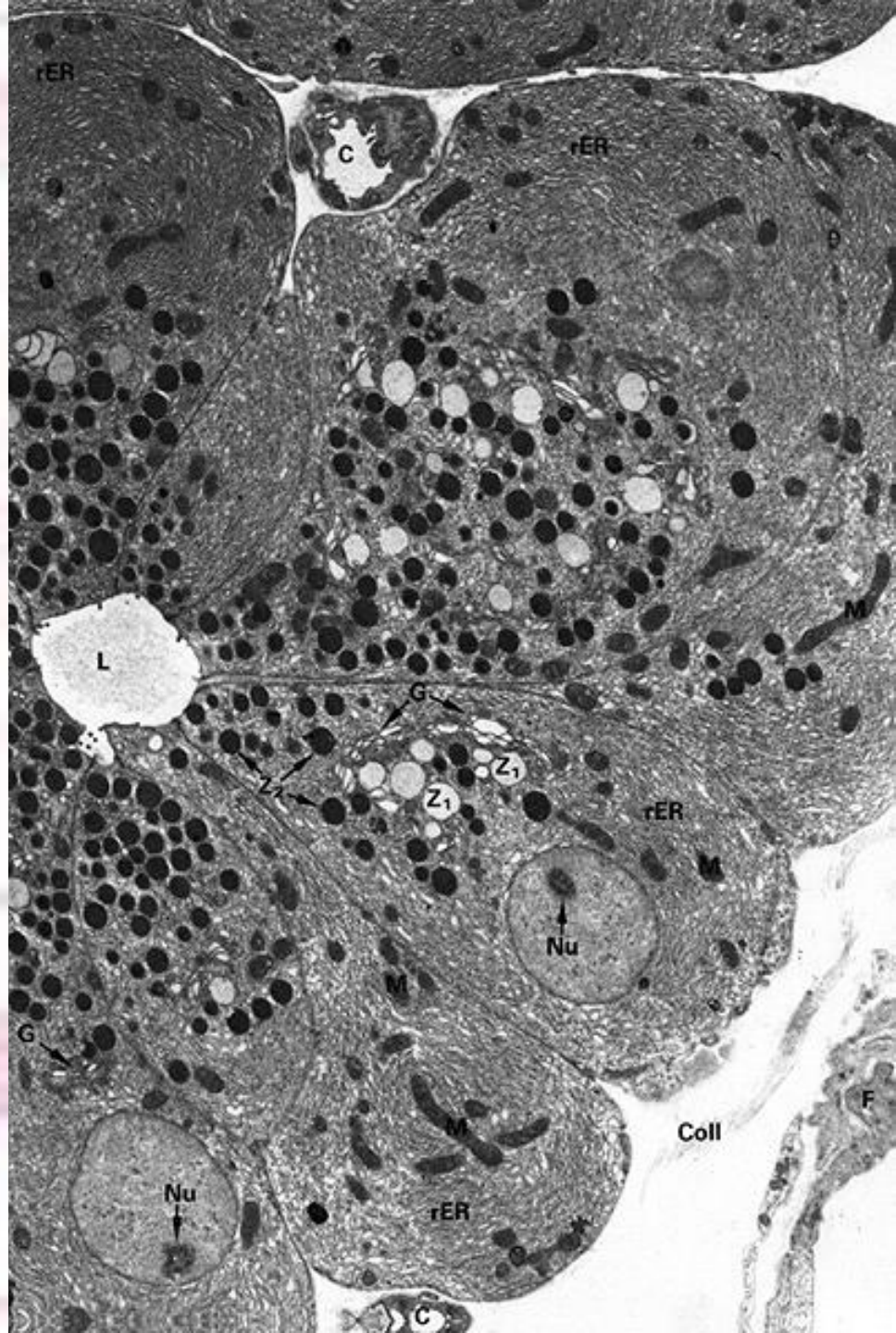
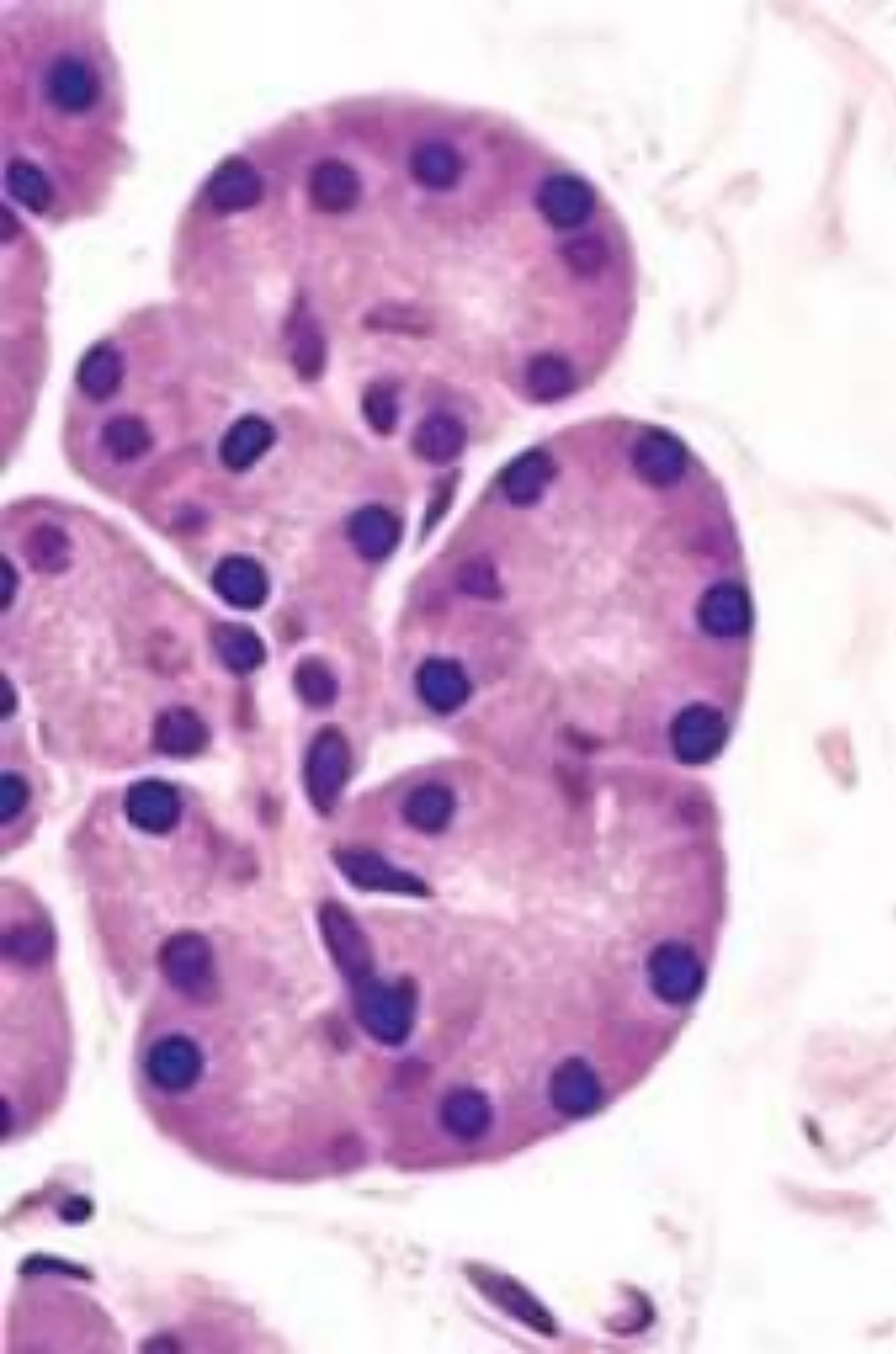
3mm. 111
D
(0,258)

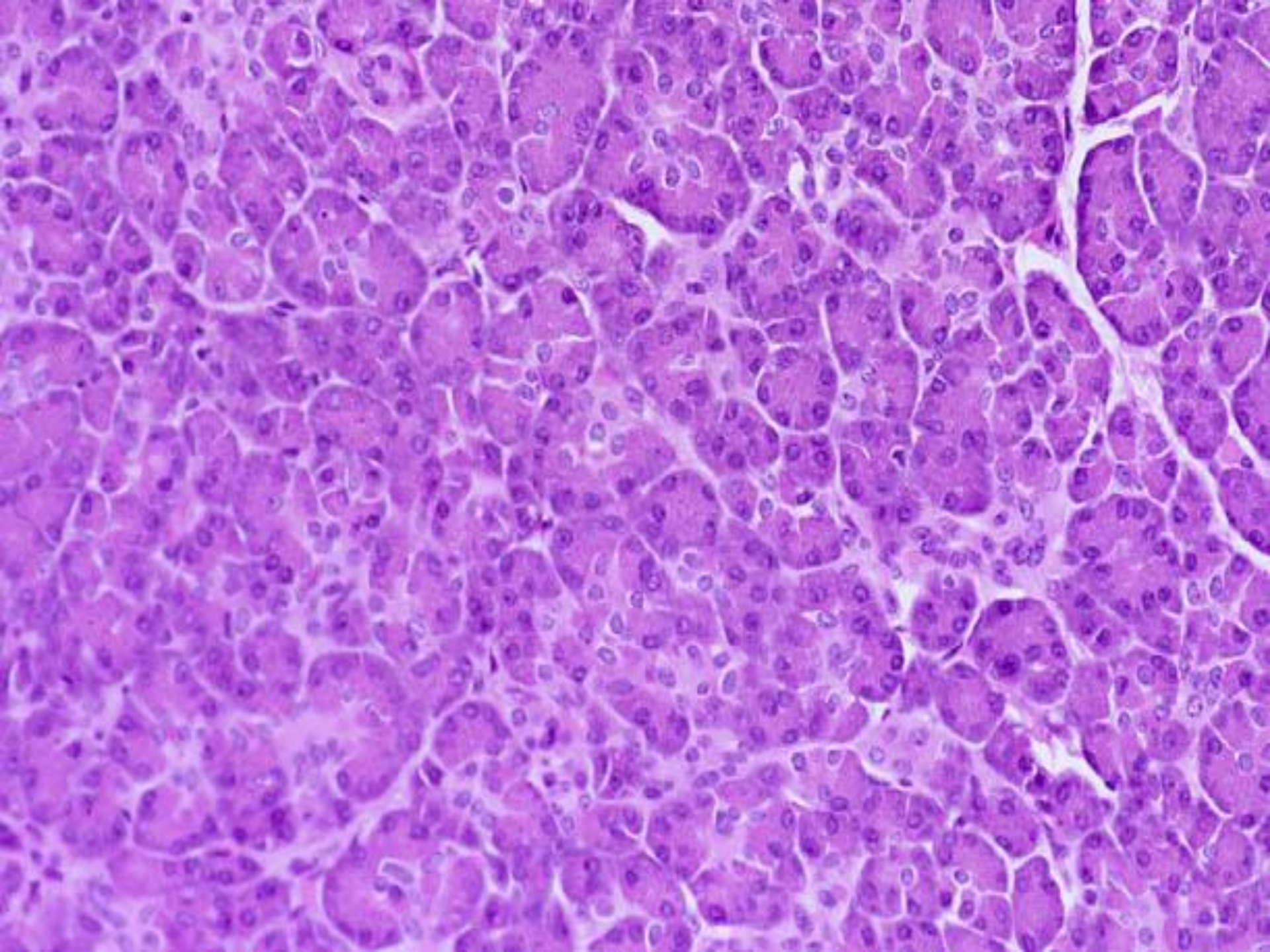
+22.50
F



-40







Pancreatic Enzymes

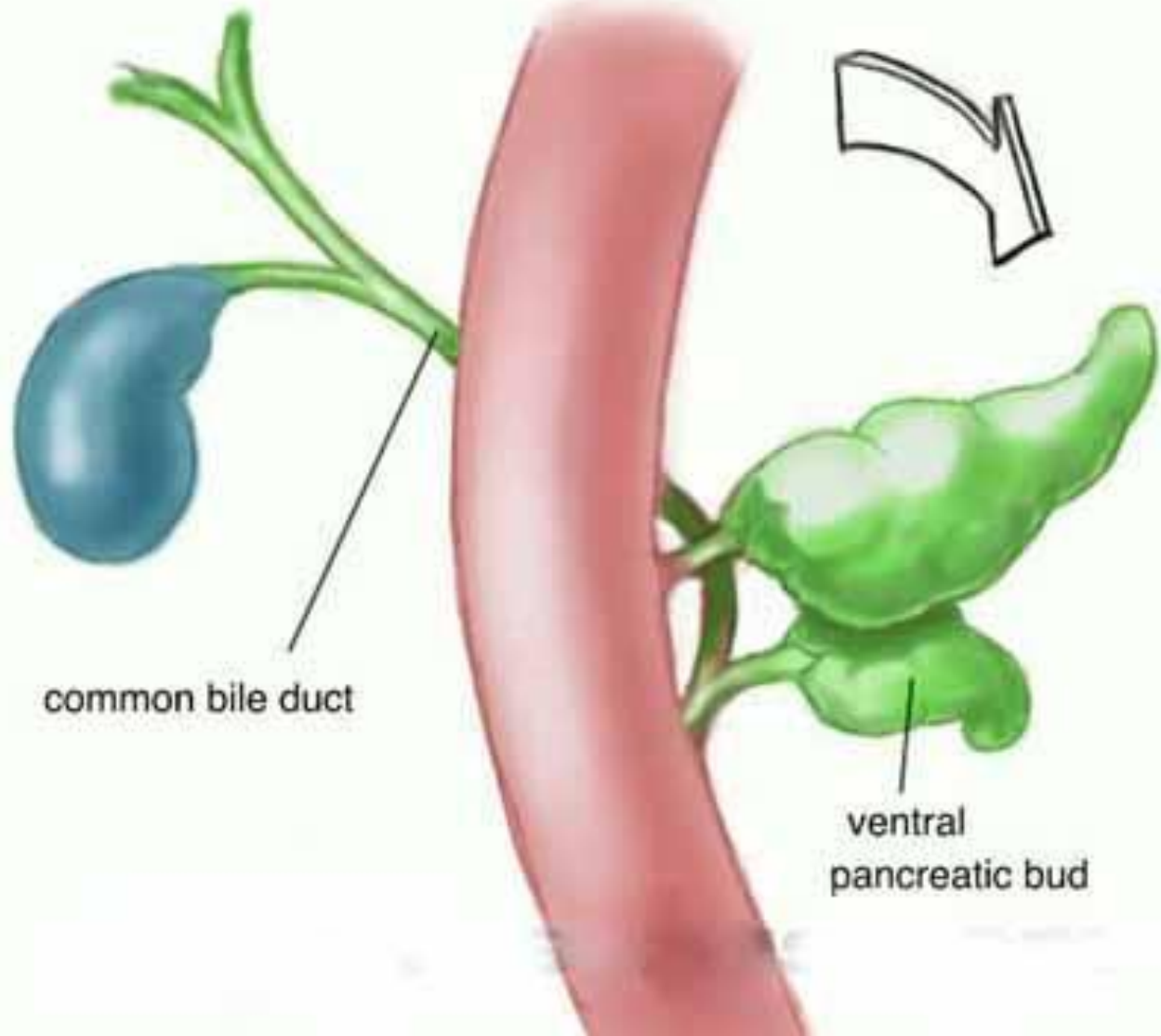
- Amylase
- Lipase
- DNA-ase
- RNA-ase
- Zymogens: Trypsinogen
Chymotrypsinogen,
Procarboxypeptidase A, B

PANCREAS DISEASES

- Congenital
- Inflammatory
 - Acute
 - Chronic
- Cysts
- Neoplasms

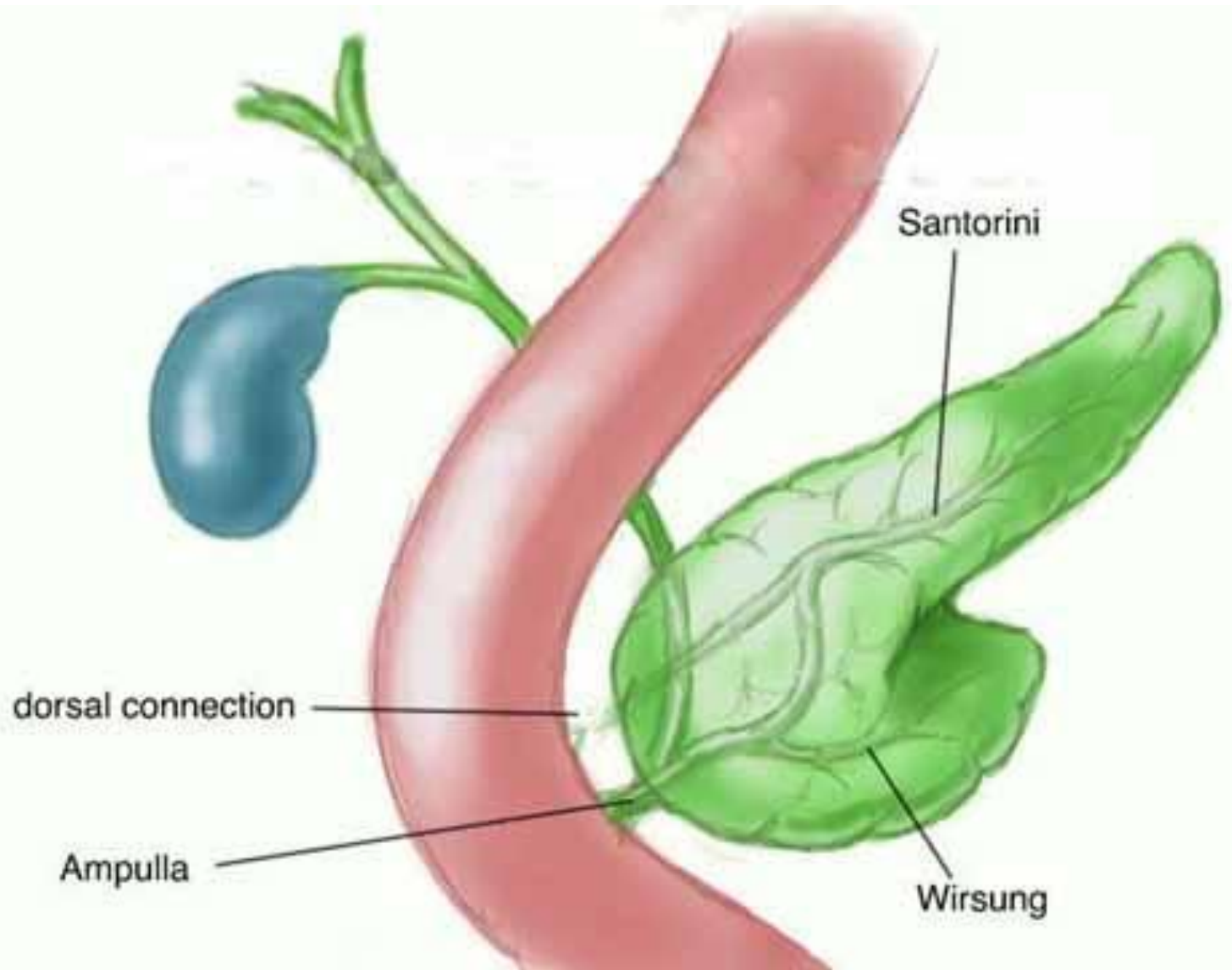
Congenital

- **Aggenesis** (very rare)
- **Pancreas Divisum** (**failure of 2 ducts to fuse**) (common)
- **Annular Pancreas** (**pancreas encircles duodenum**) (rare)
- **Ectopic Pancreas** (very common)



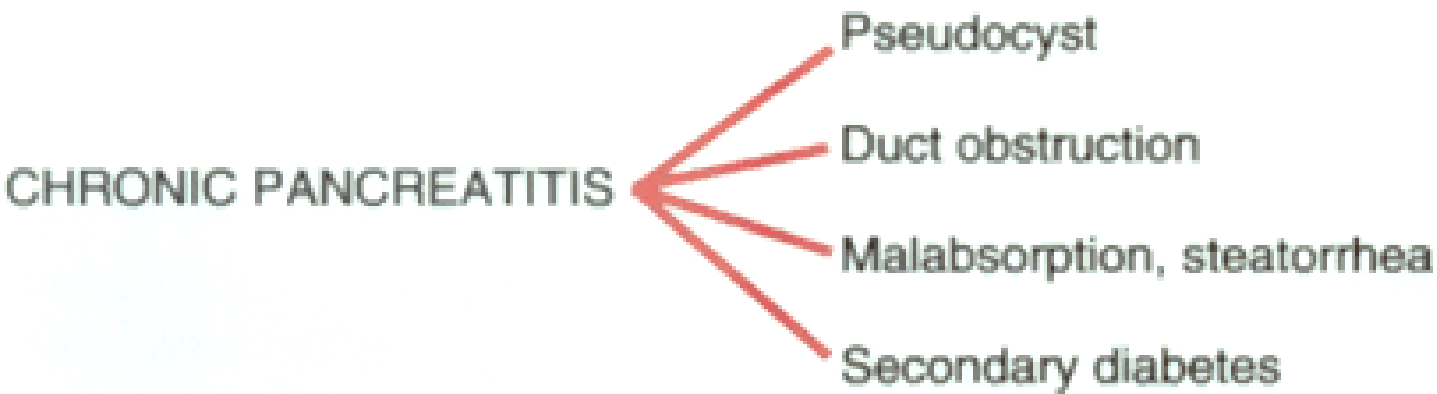
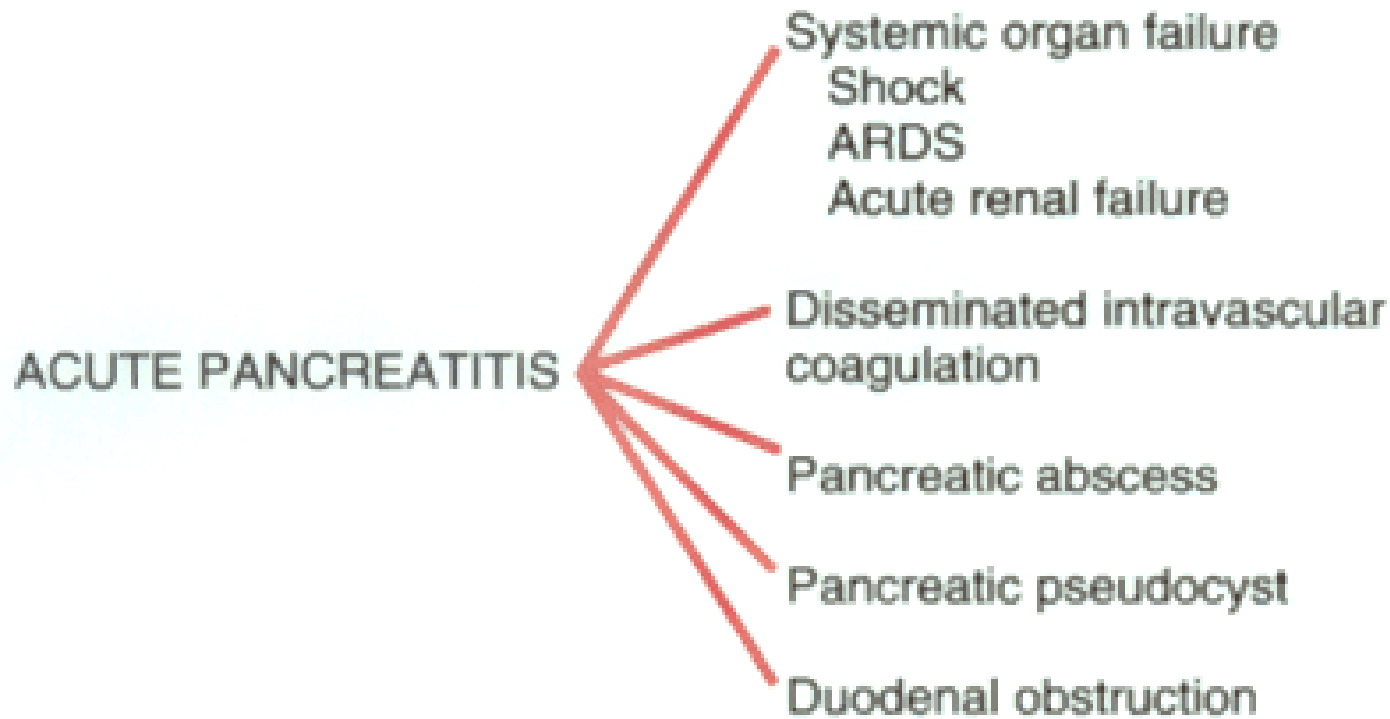
common bile duct

ventral
pancreatic bud



PANCREATITIS

- **ACUTE (VERY SERIOUS)**
- **CHRONIC (Calcifications, Pseudocyst)**



CONSEQUENCES of ACUTE and CHRONIC pancreatitis

ACUTE PANCREATITIS

- **ALCOHOLISM**
- **Bile reflux**
- Medications (thiazides)
- Hypertriglyceridemia, hypercalcemia
- Acute ischemia
- Trauma, blunt, iatrogenic
- Genes: PRSS1, SPINK1
- Idiopathic, 10-20%

CLINICAL FEATURES

- **ABDOMINAL PAIN**
- **EXTREME** emergency situation
- **HIGH** mortality

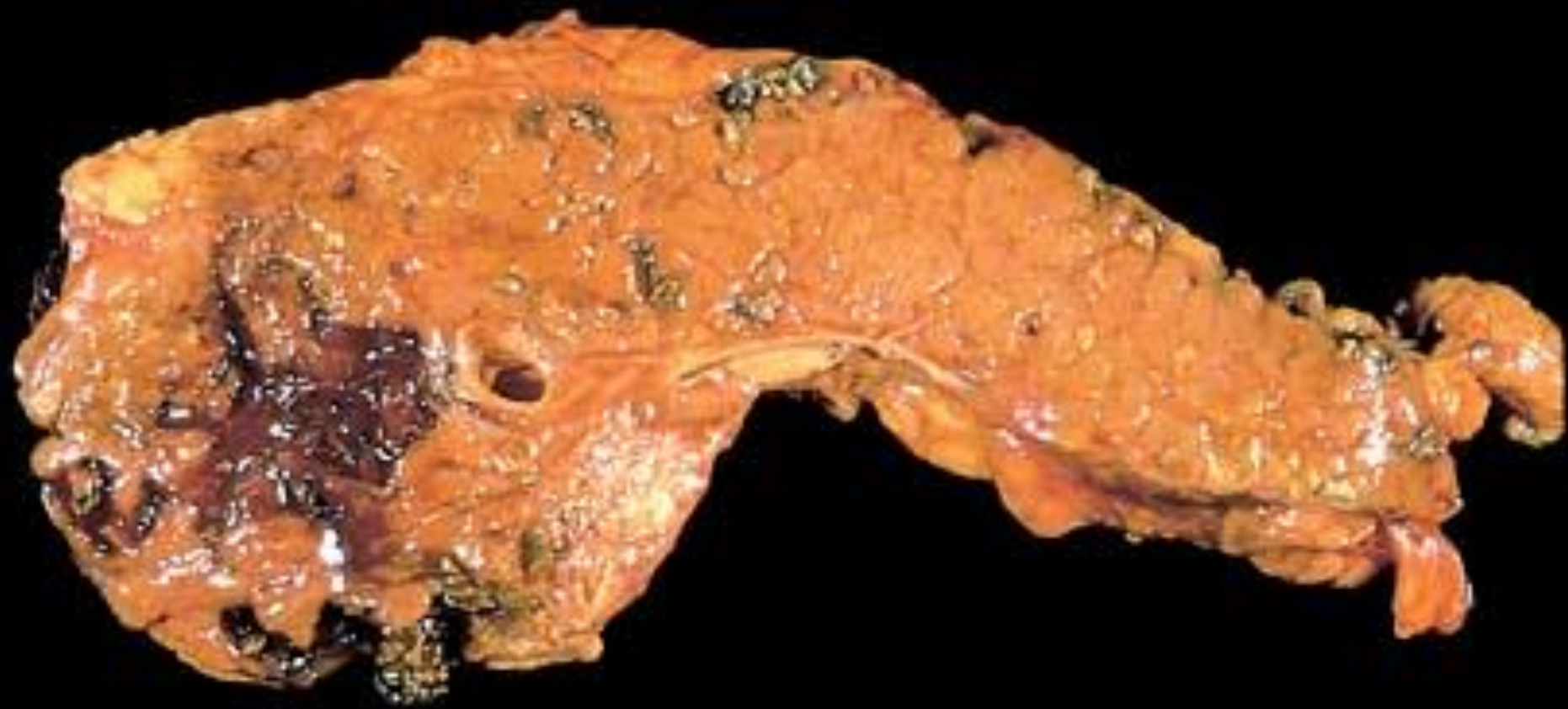
- ...but **MOST** important lab test is.....?????? →

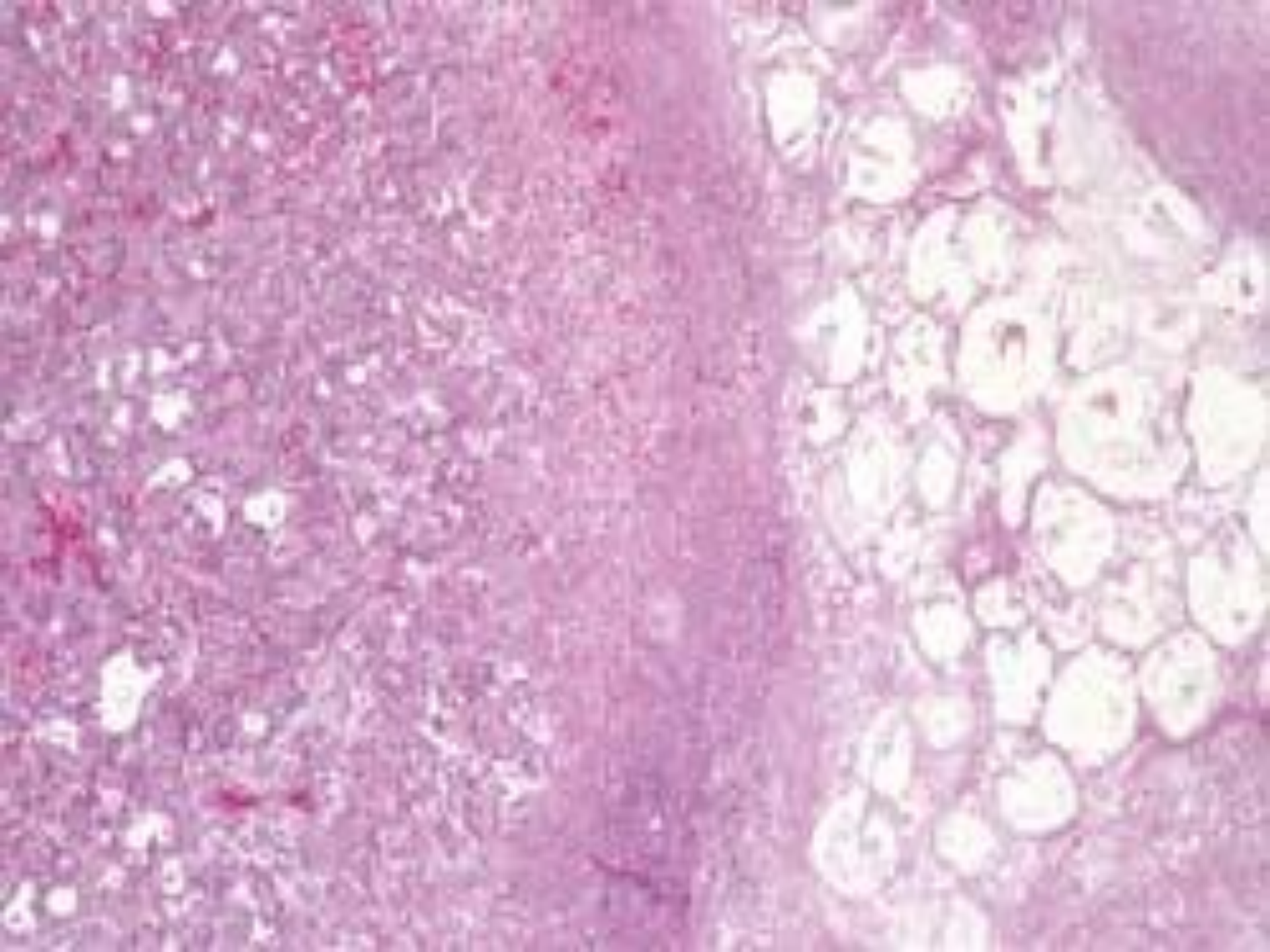
AMYLAASE

!!!!!!

MORPHOLOGY

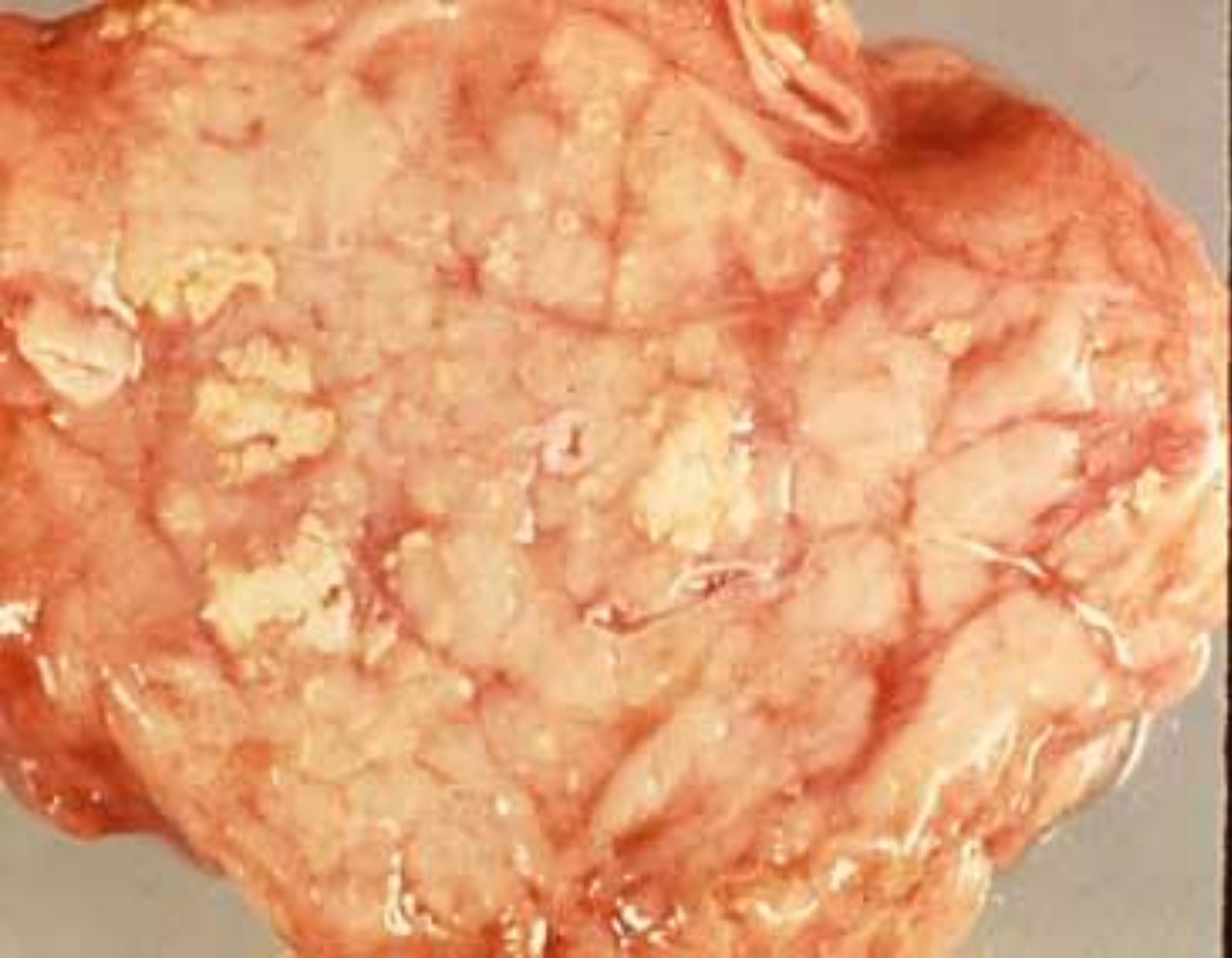
- EDEMA
- FAT NECROSIS
- ACUTE INFLAMMATORY INFILTRATE
- PANCREAS AUTODIGESTION
- BLOOD VESSEL DESTRUCTION
- “SAPONIFICATION”

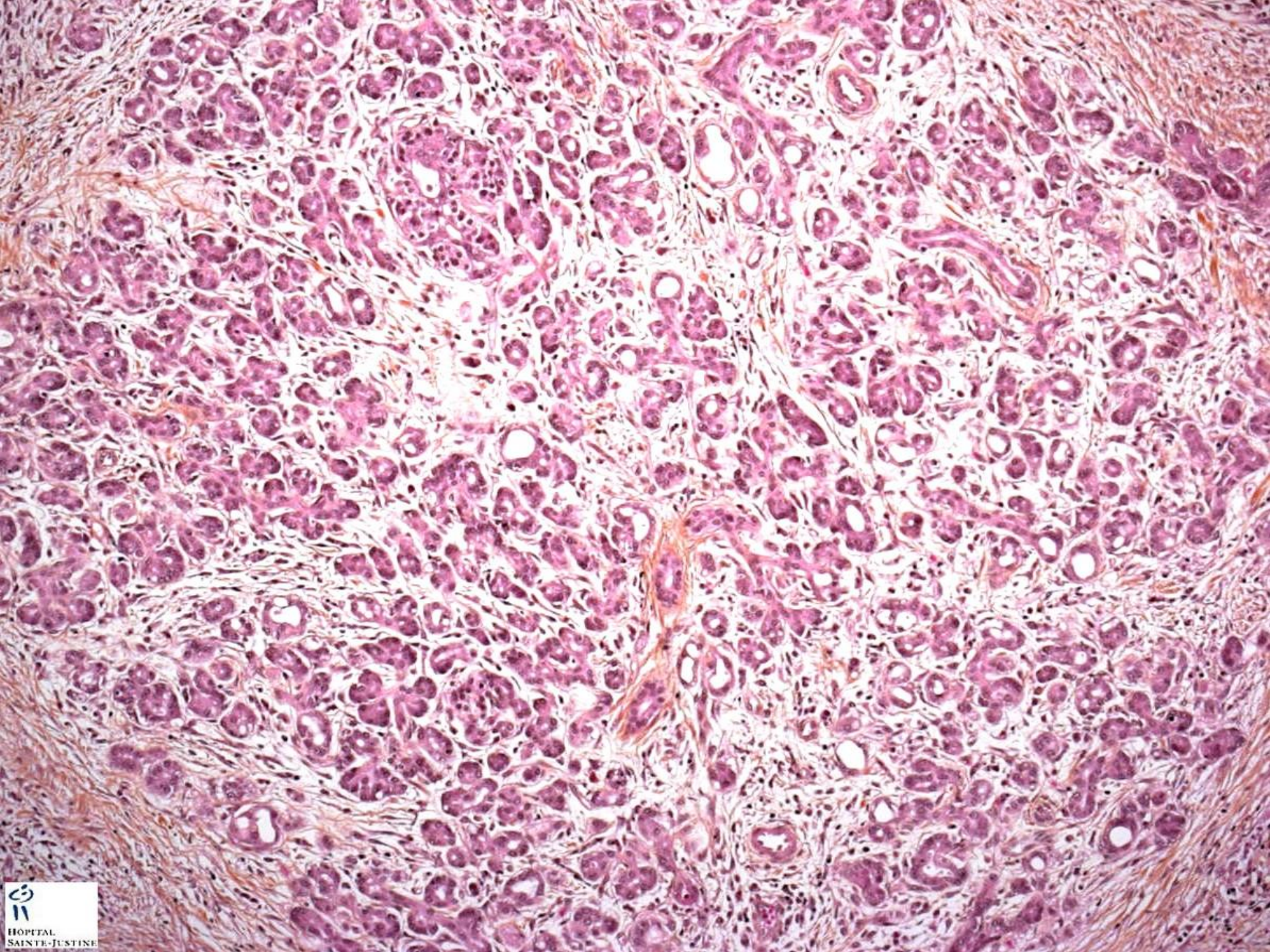


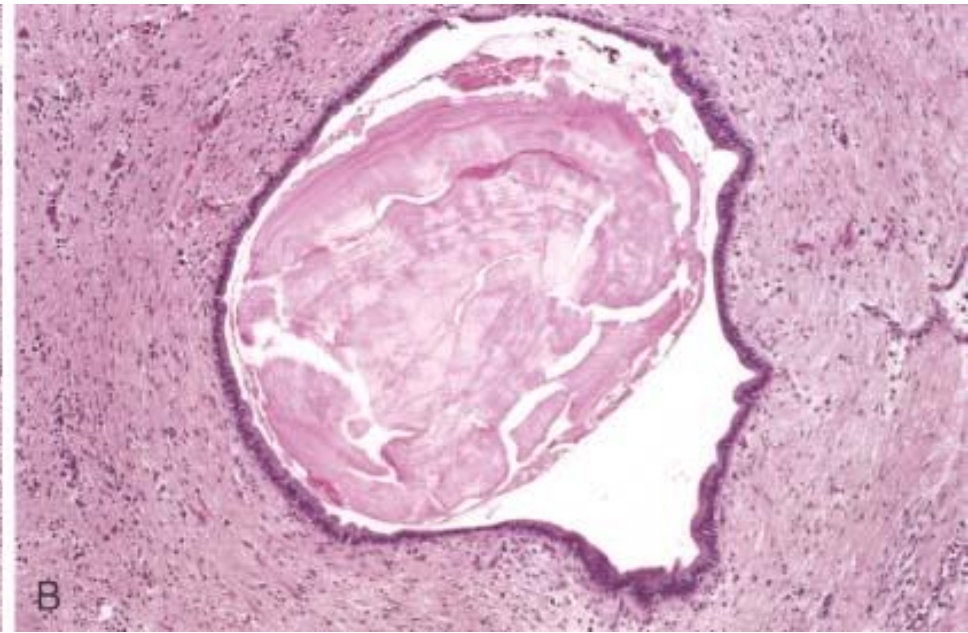
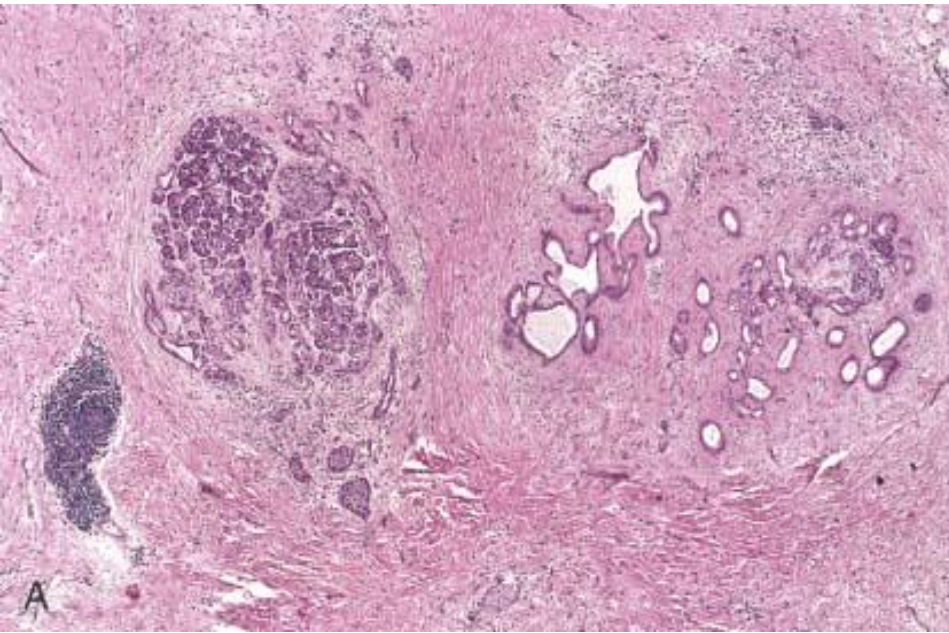


CHRONIC PANCREATITIS

- **Pancreatic duct obstruction, LONGSTANDING**
- **Tropical**
- **Hereditary (PRSS1, SPINK1 mutations)**
- **IDIOPATHIC (40%)**







CHRONIC PANCREATITIS

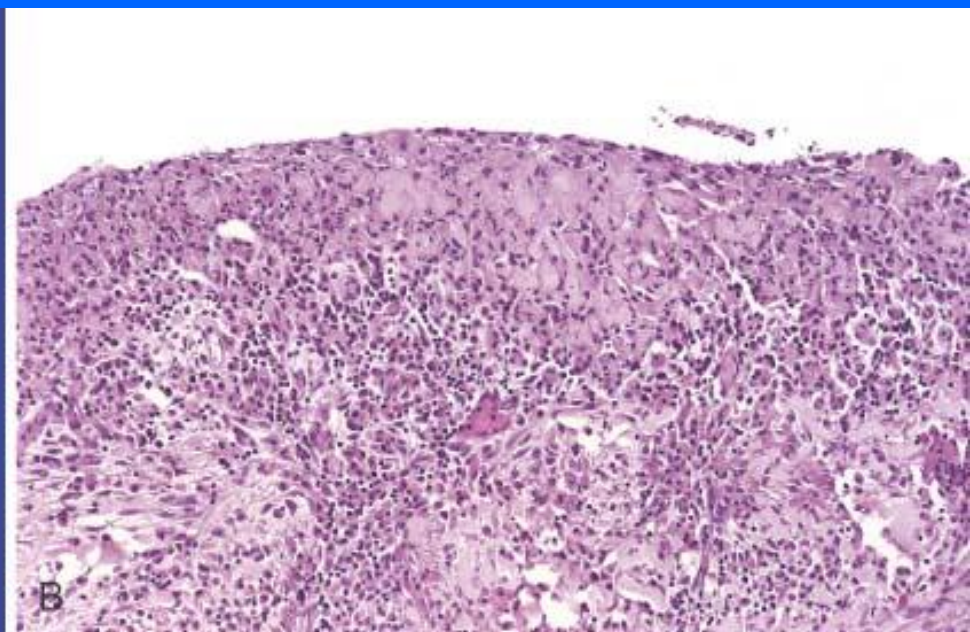
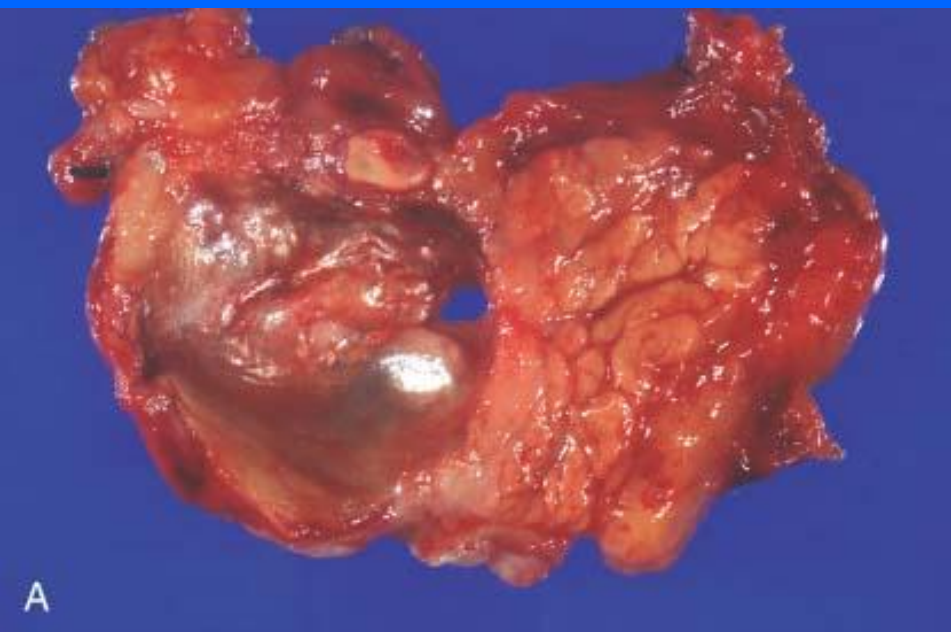
CLINICAL FEATURES

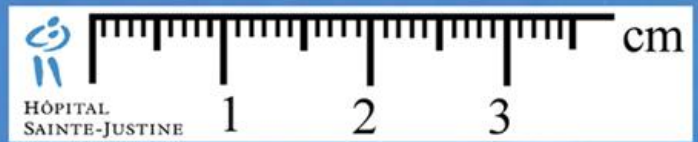
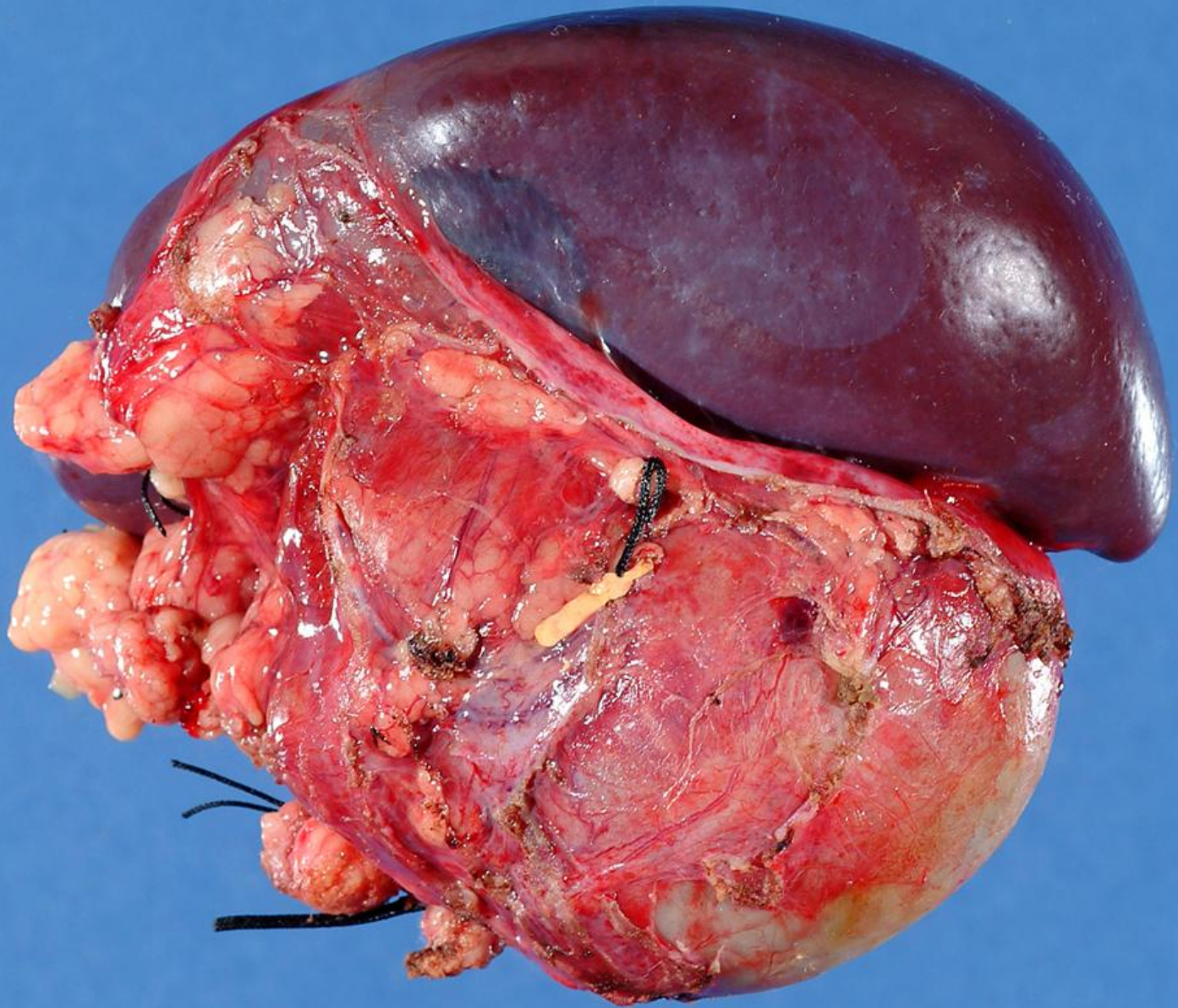
- Abdominal Pain
- Vague abdominal symptoms
- Nothing

- CT calcifications (why?), amylase elevated, chronic diarrhea if chronic pancreatic insufficiency develops, high likelihood of pseudocysts

PSEUDOCYSTS

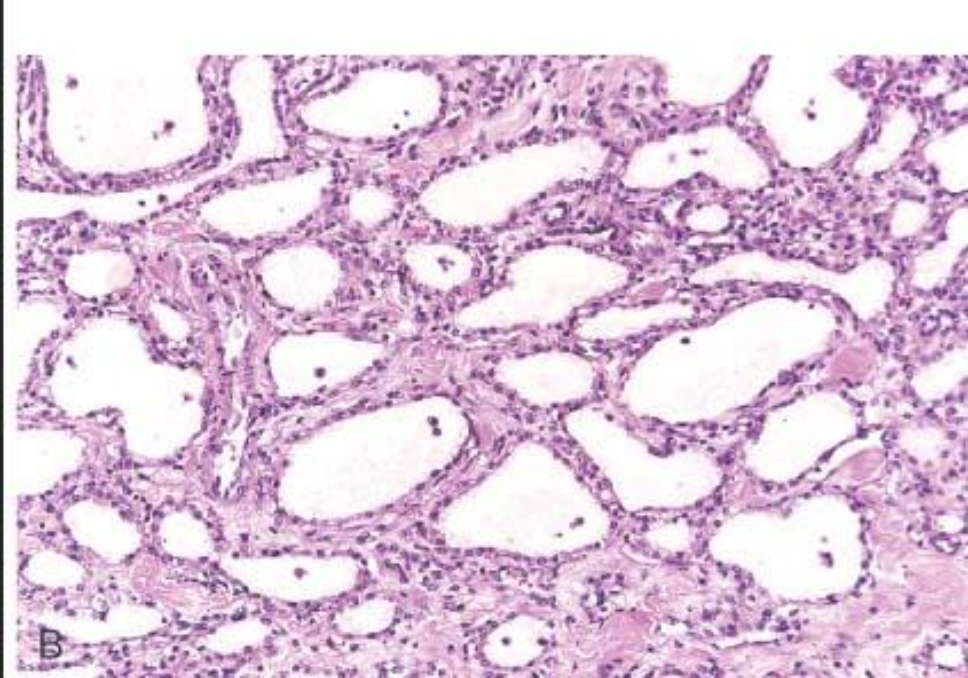
- Why “pseudo”?
- **STRONGLY** linked with pancreatitis
- Can be as big as a football and often are.
- Can cause obstruction
- Can get infected
- Do **NOT** become malignant



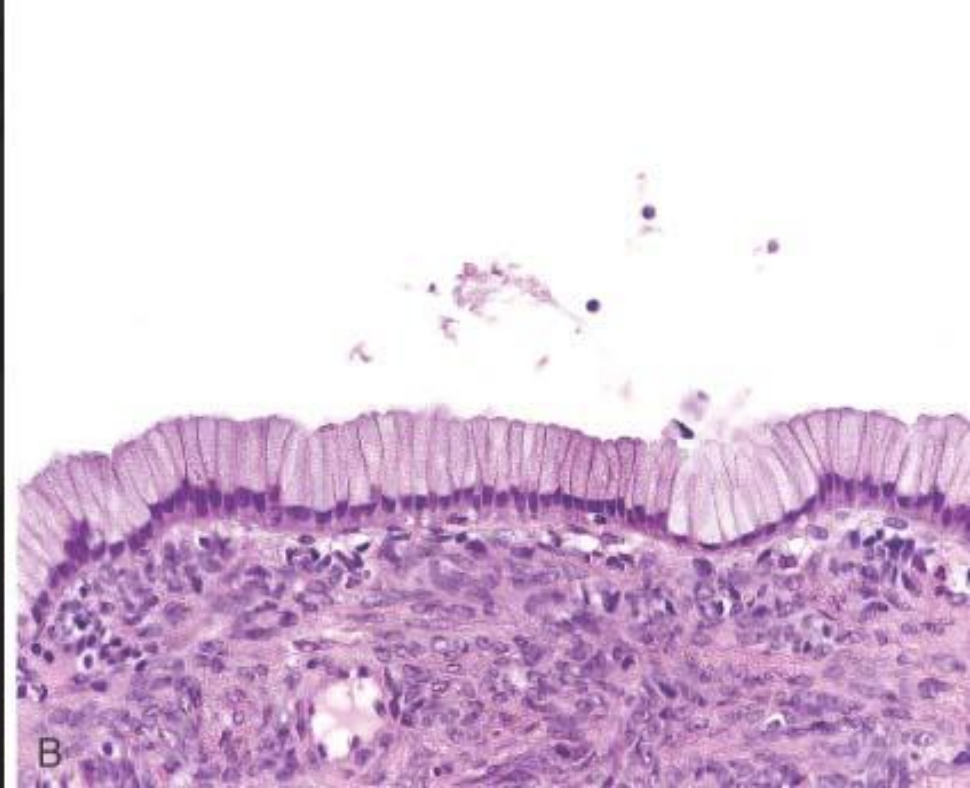
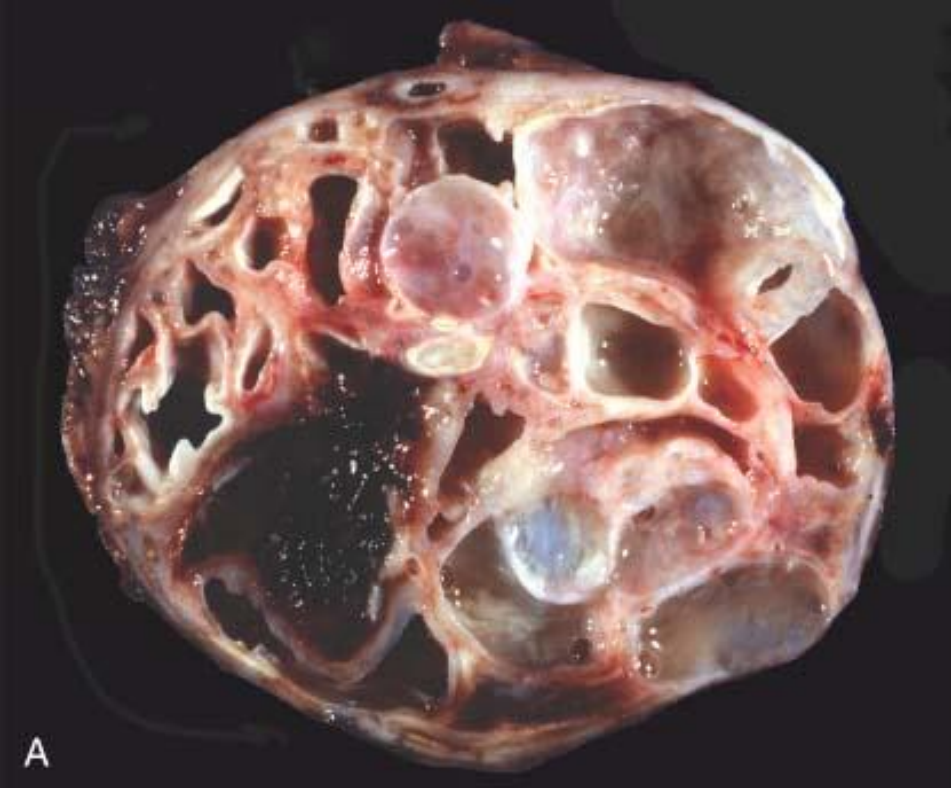


Pancreas Neoplasms

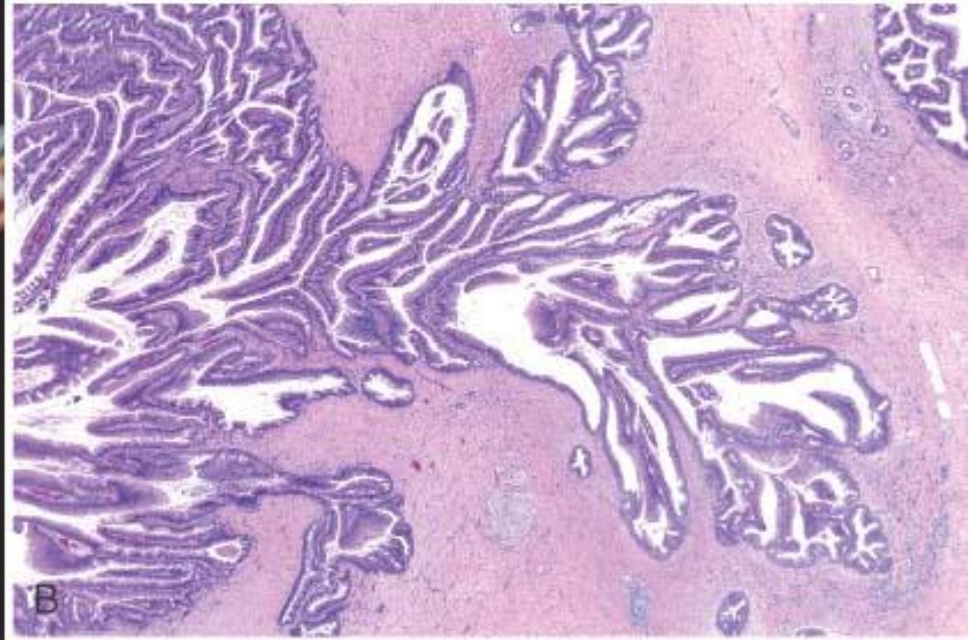
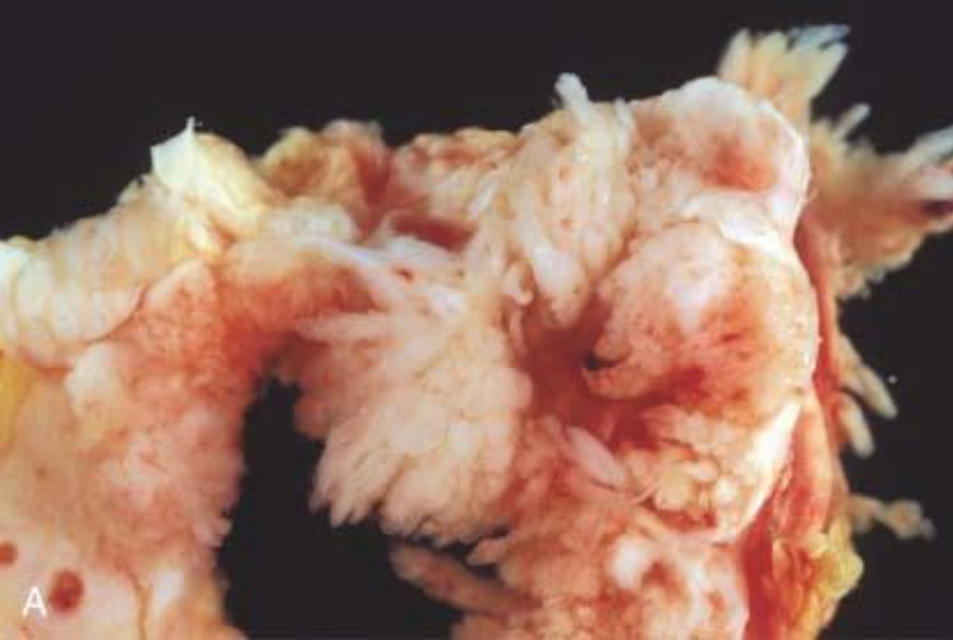
- **Serous**
- **Mucinous**
- **Cystic**
- **Microcystic**
- **Papillary**
- **Benign**
- **Malignant (dense sclerosis is the rule)**



SEROUS CYSTADENOMA

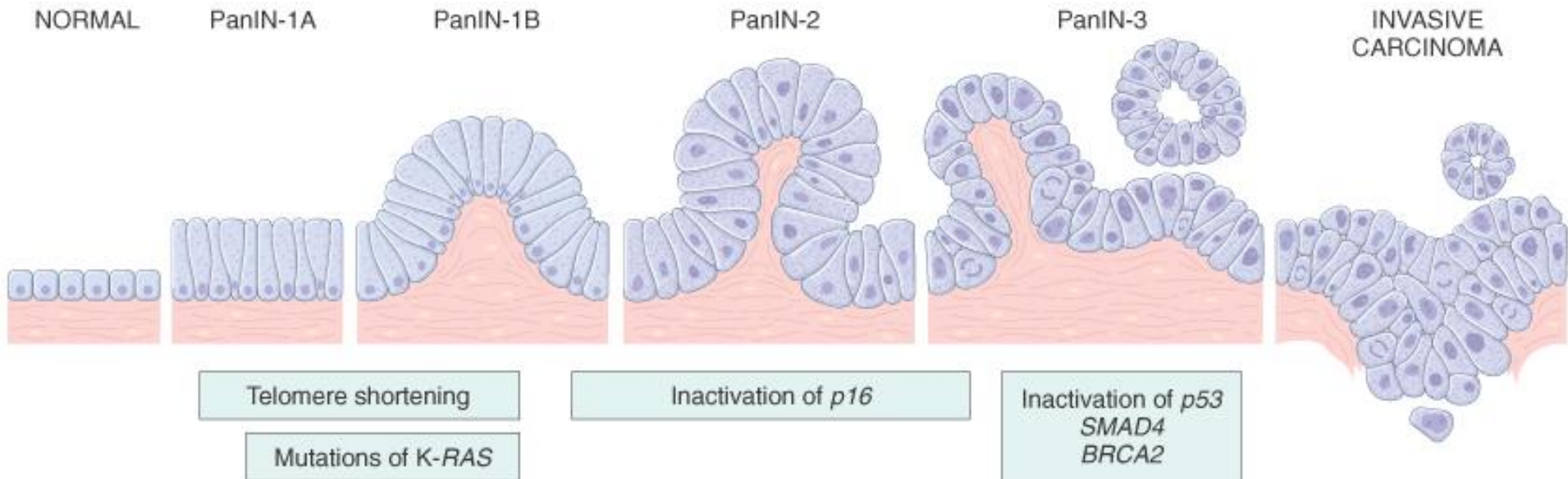


MUCINOUS CYSTADENOMA



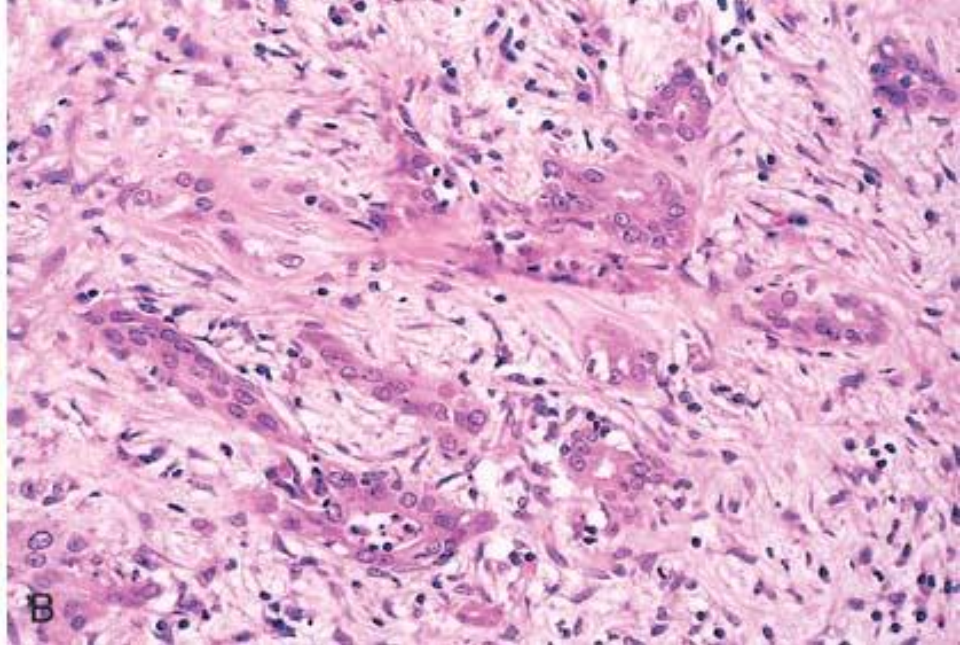
**INTRADUCTAL
PAPILLARY
MUCINOUS
“NEOPLASM”**

CARCINOGENESIS of PANCREATIC ADENOCARCINOMA



Pancreatic CA





Pancreatic Adenocarcinoma

FATE:

- Regional lymph nodes
- Liver
- Often L-2 spine
- Lungs

Grading (WMP), Staging, TNM

Final **TIP** of the day

- **Painless jaundice in an elderly person is CARCINOMA of the head of the pancreas until proven otherwise**