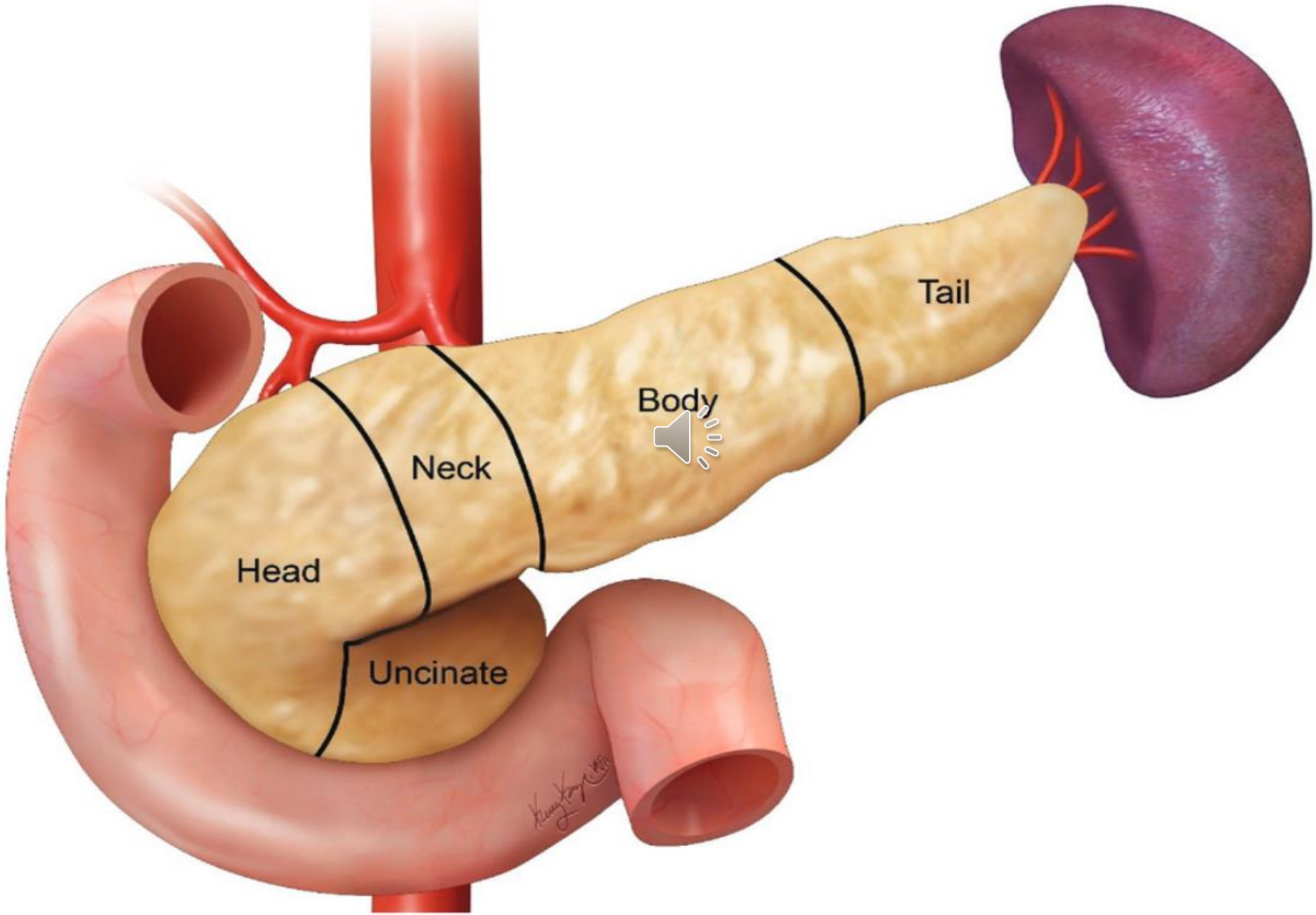
Classification of

Pancreatic cancer

Dr. Hadi Bagheri Hosseini

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Tail
Body
Neck
Head
Uncinate

Macroscopic type

- **Masked type**: No macroscopic evidence of tumor
- **Nodular type**: Tumor with a clearly defined border
- **Infiltrative type**: Tumor with a poorly defined border and diffuse infiltration into the surrounding tissue
- **Cystic type**: Cystic tumors, such as cystadenocarcinoma
- **Ductectatic type**: Tumor with pancreatic duct dilation as a dominant feature
- **Mixed type**: A mixture of two or more macroscopic types
- **Unclassified type**: Tumor that cannot be classified into any of the above types

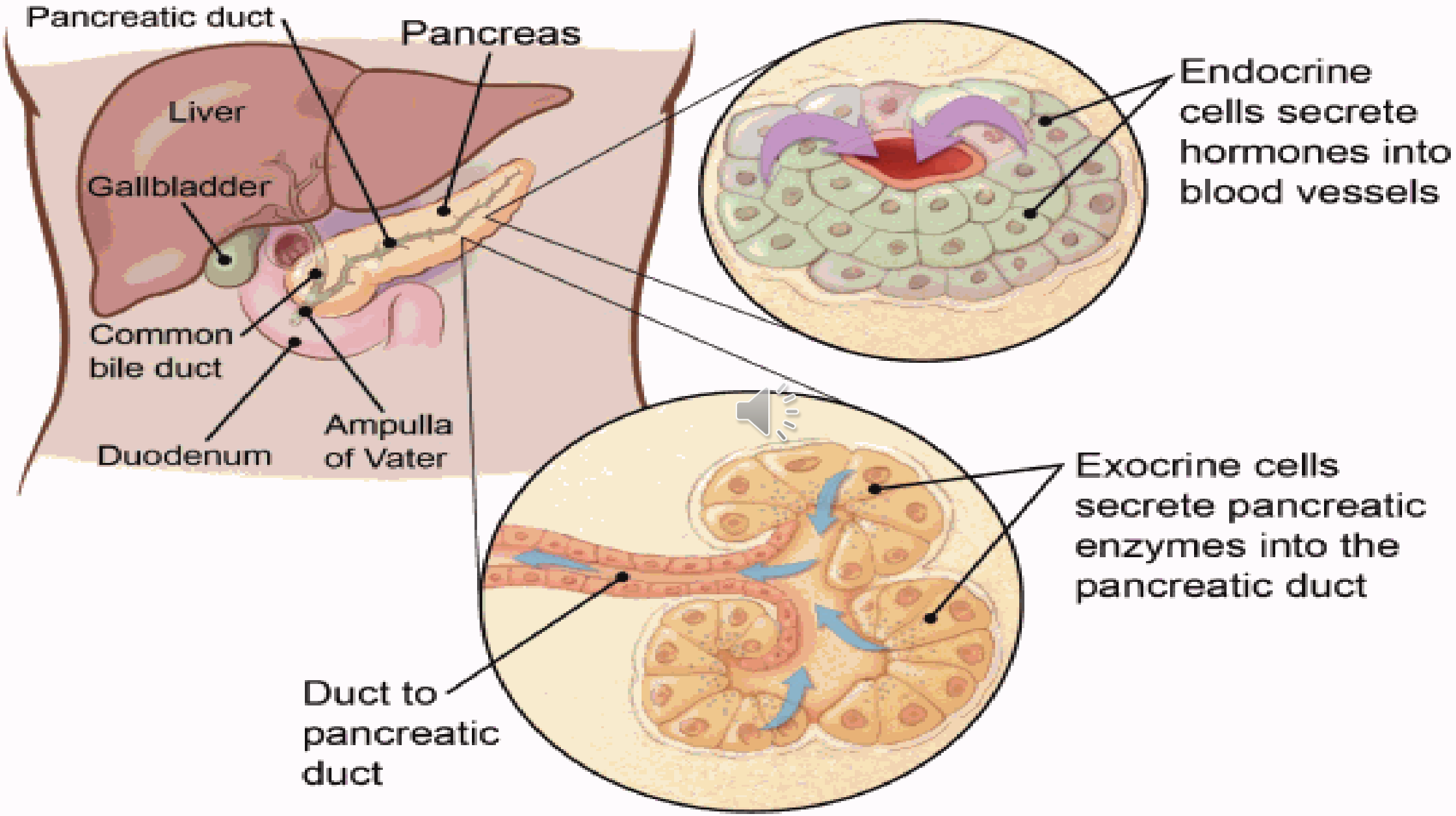
Journal of Hepato-Biliary-Pancreatic Sciences

ORIGINAL ARTICLE | Open Access

Japanese classification of pancreatic carcinoma by the Japan Pancreas Society: Eighth edition



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Pages 755-768

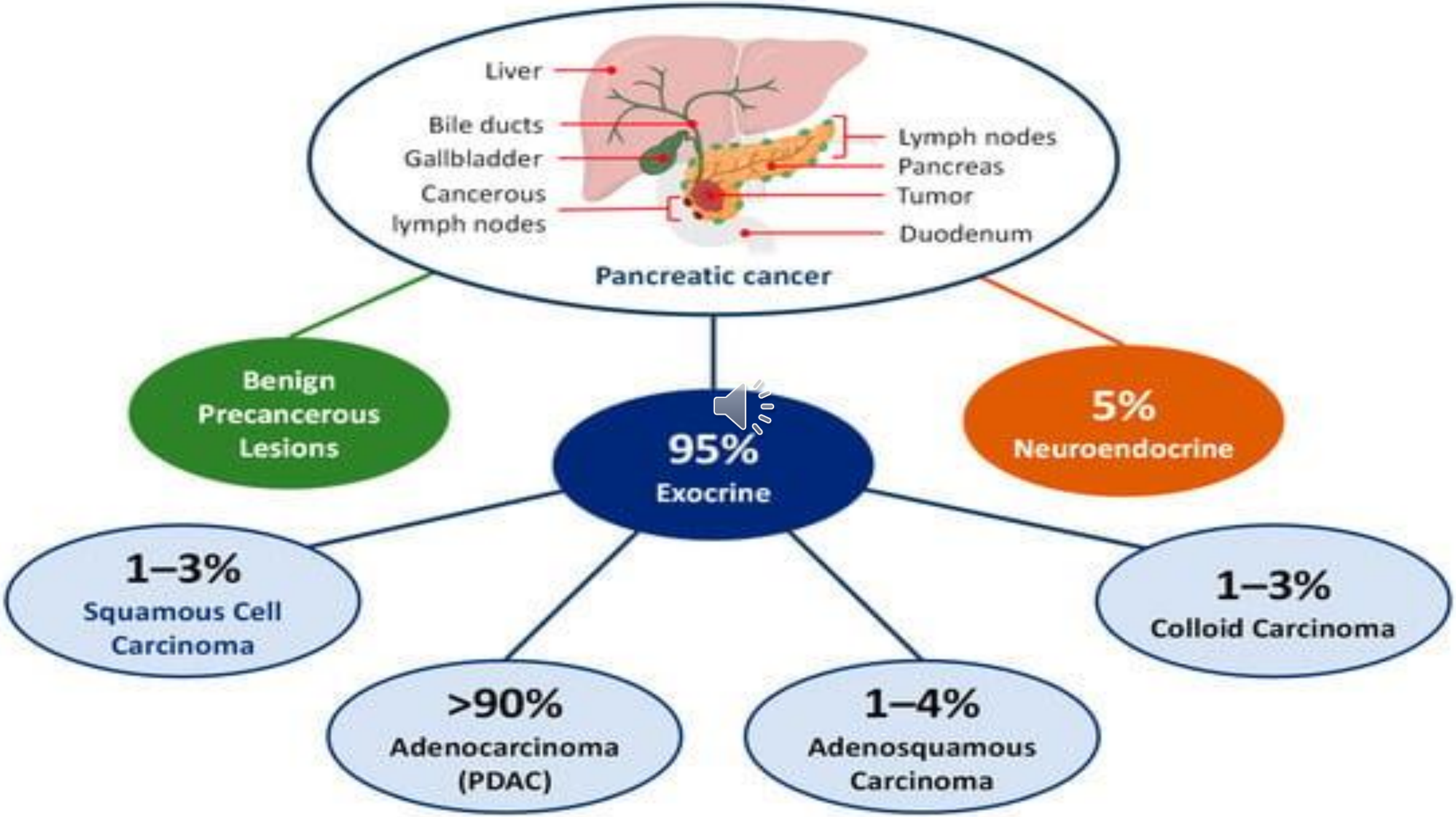

Pancreatic duct
Pancreas
Liver
Gallbladder
Common bile duct
Duodenum
Ampulla of Vater
Endocrine cells secrete hormones into blood vessels
Exocrine cells secrete pancreatic enzymes into the pancreatic duct
Duct to pancreatic duct

NETs producing:

- Insulin
- Gastrin
- Glucagon
- Somatostatin
- Vasoactive intestinal polypeptide (VIPomas)



Annual incidence of approximately 1 in 10 million


Liver
Bile ducts
Gallbladder
Cancerous lymph nodes
Lymph nodes
Pancreas
Tumor
Duodenum
Pancreatic cancer
Benign Precancerous Lesions
95% Exocrine
5% Neuroendocrine
1–3% Squamous Cell Carcinoma
>90% Adenocarcinoma (PDAC)
1–4% Adenosquamous Carcinoma
1–3% Colloid Carcinoma

Originates of pancreatic cancer

1- Normal cells:

- Ductal cells
- Acinar cells
- Islet cells

2- Primitive cells:

- Complex tumors with primitive or mixed cell types **(Pancreatoblastoma)**

Pancreatic neoplasms classification

- **Benign**
- **Premalignant**
- **Malignanat**
- **Metastatic**



Histologic variants of pancreatic neoplasms

Benign neoplasms (Adenoma)

- Serous cystadenoma (SCA)
- Intraductal papillary mucinous adenoma (IPMN)
- Intraductal tubulopapillary adenoma (ITPN)
- Mucinous cystic adenoma (MCN)
- Mature teratoma

Metastasis to pancreas

- Renal cell carcinoma
- Breast cancer
- Lung cancer
- Colorectal cancer
- Sarcoma
- Gastric cancer
- Hepatocellular cancer
- Papillary thyroid cancer
- Prostatic cancer
- Testicular seminoma
- Esophageal SCC



TYPES OF PANCREATIC CYSTS

- Inflammatory fluid collections
- Non-neoplastic pancreatic cysts
- Pancreatic cystic neoplasms (PCNs)

- Rarely NET

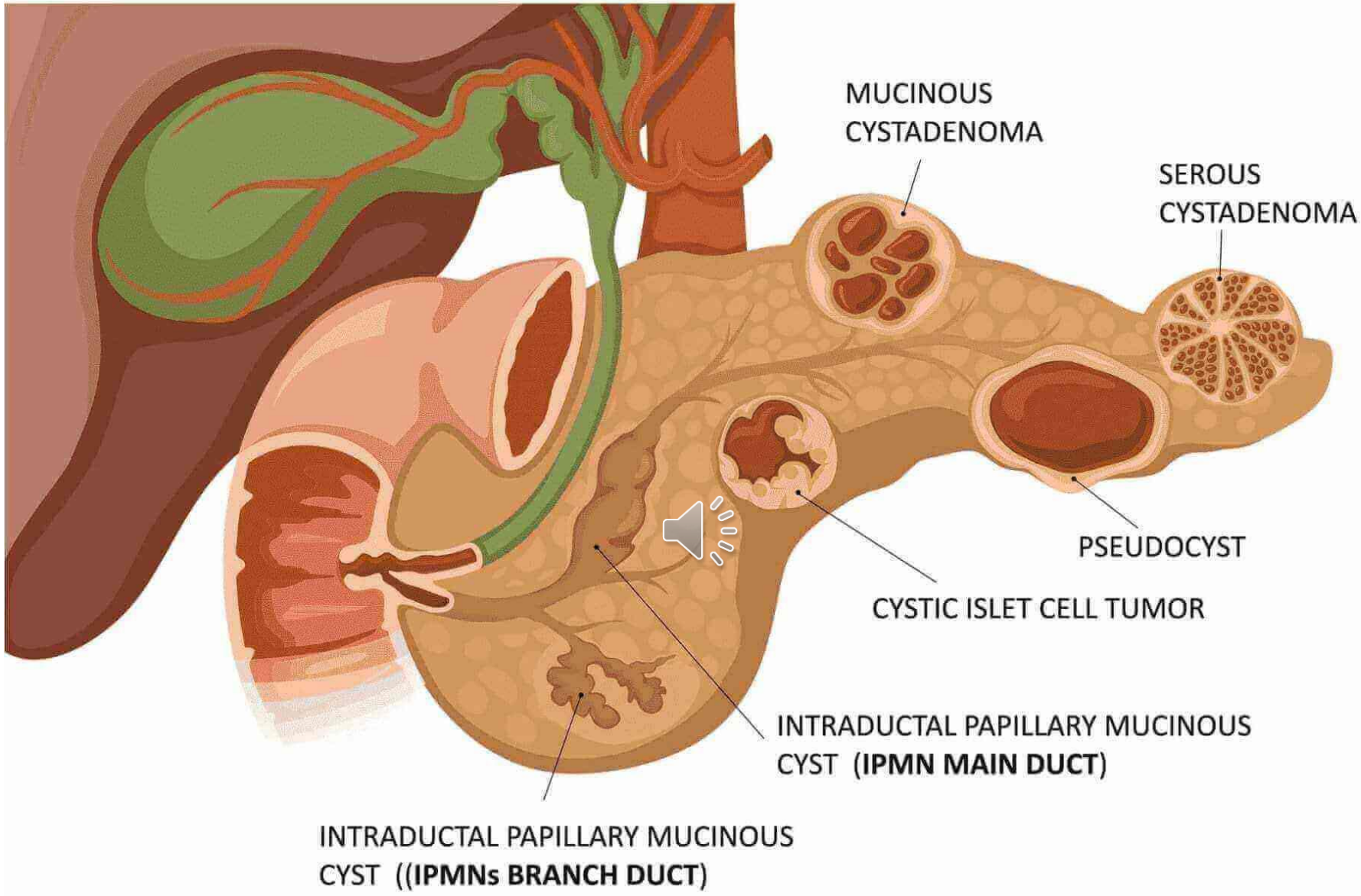


PANCREATIC CYSTIC NEOPLASMS

Pancreatic cystic neoplasms (PCNs),some have ***malignant potential***

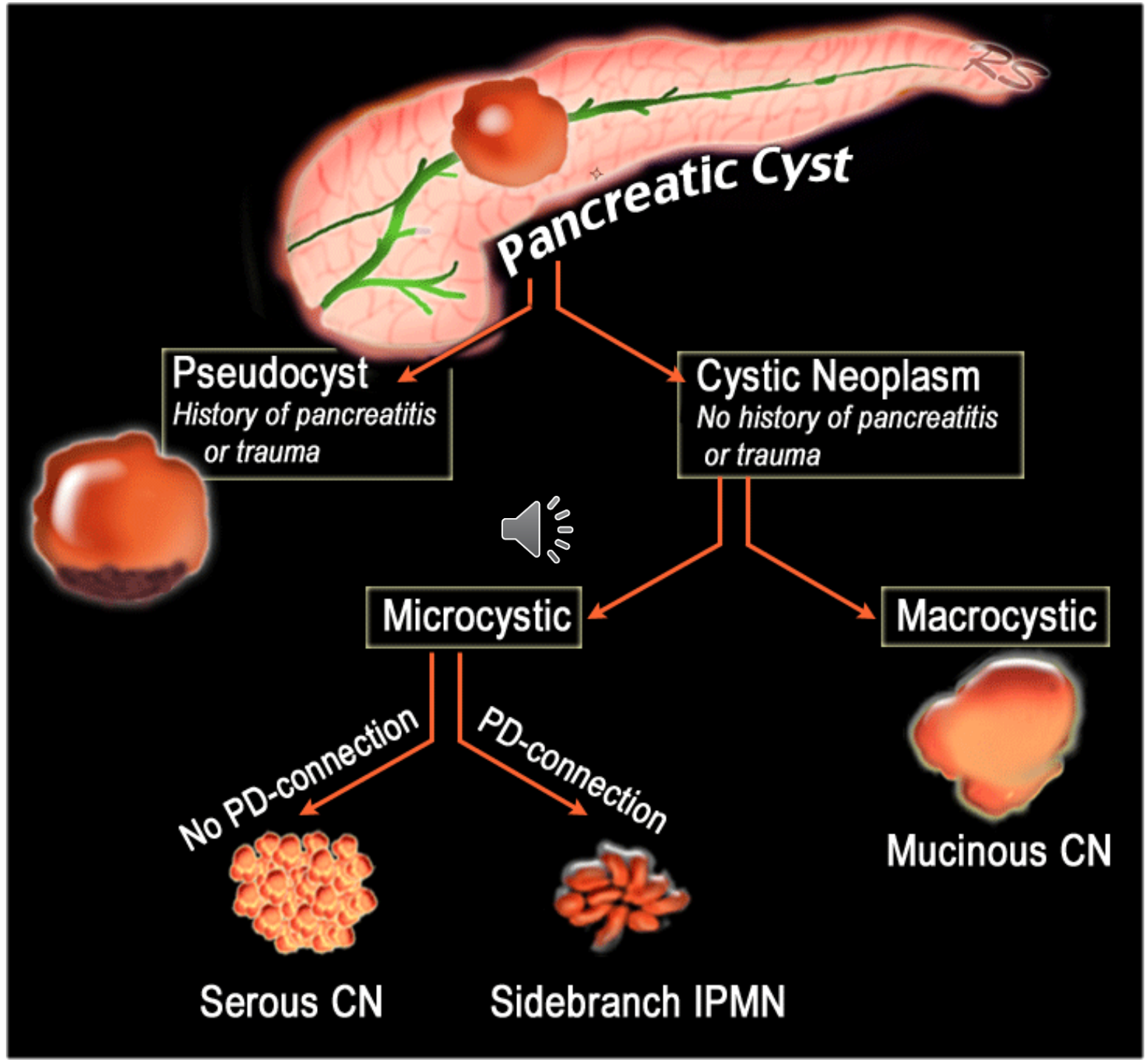
- PCNs are categorized using the WHO histological classification:

1. Serous neoplasms
2. Mucinous cystic neoplasms (MCNs)
3. Intraductal papillary mucinous neoplasms (IPMNs)
4. Intraductal oncocytic papillary neoplasms (IOPNs)
5. Intraductal tubulopapillary neoplasms (ITPNs)
6. Solid pseudopapillary neoplasms (SPNs)

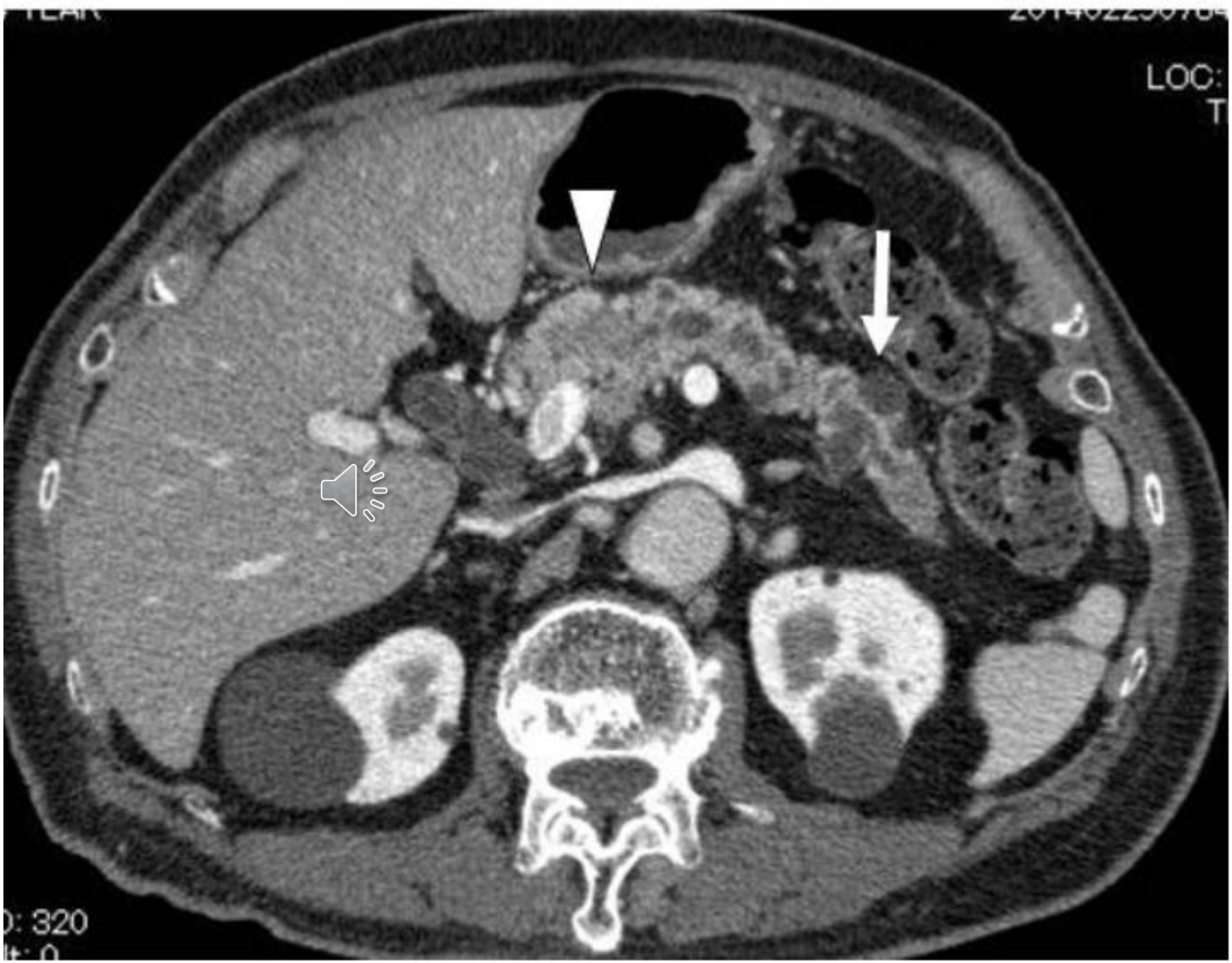


PANCREAS

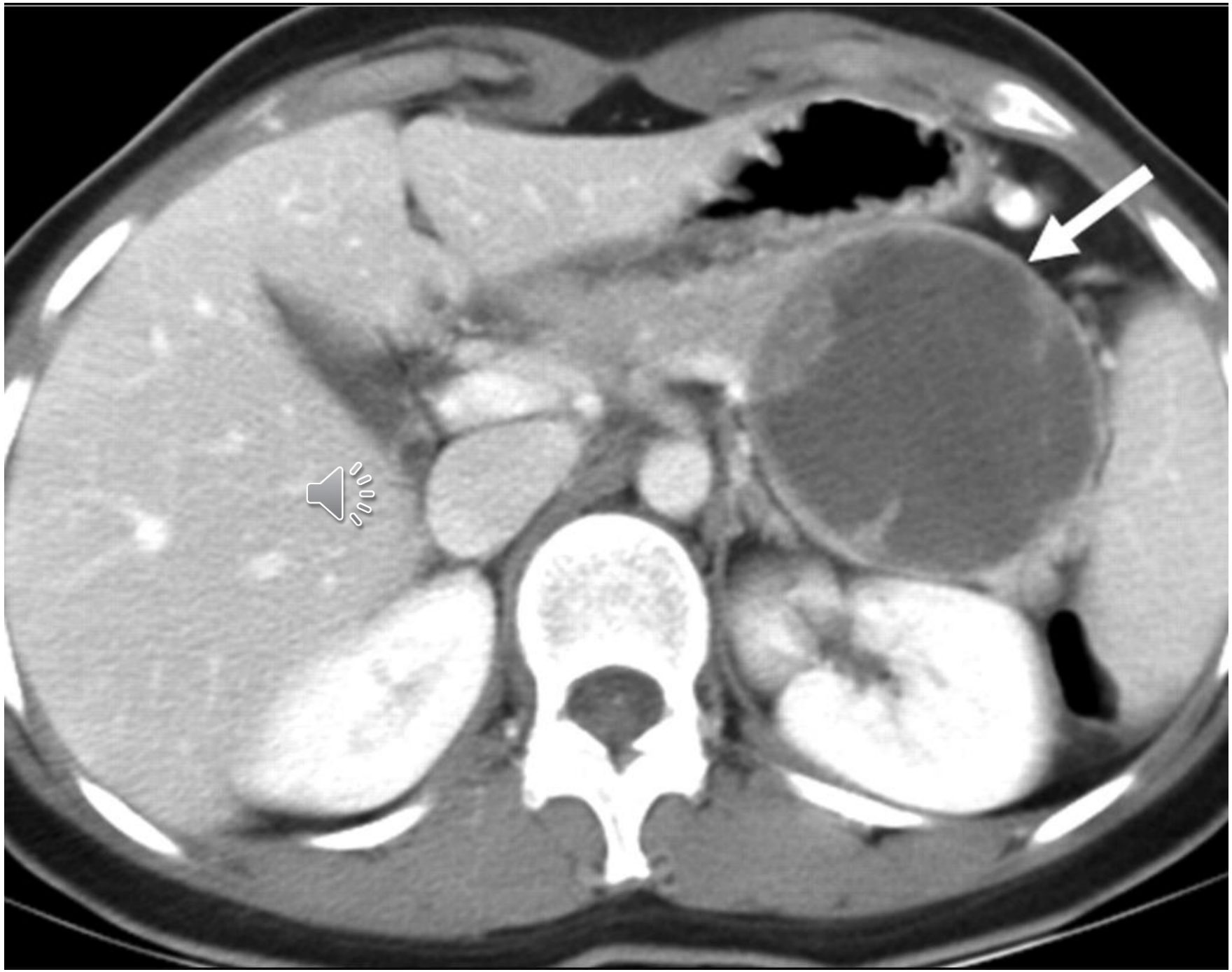
THE MAIN VARIANTS OF CYSTIC FORMATIONS


Pancreatic Cyst
Pseudocyst
History of pancreatitis or trauma
Cystic Neoplasm
No history of pancreatitis or trauma
Microcystic
Macrocystic
No PD-connection
PD-connection
Mucinous CN
Serous CN
Sidebranch IPMN

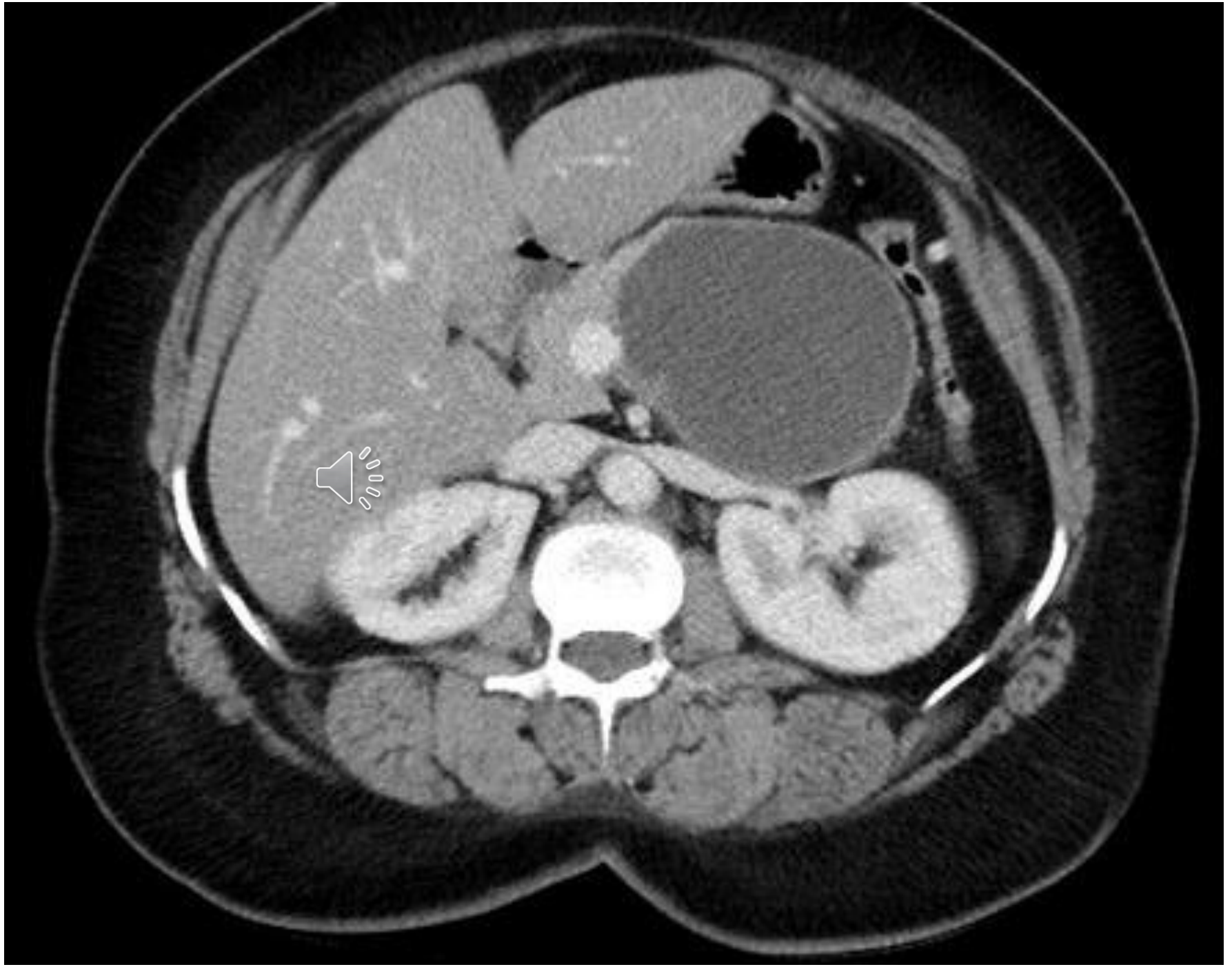
Pancreatic ductal adenocarcinoma concomitant (arrow head) with intraductal papillary mucinous neoplasm of the pancreas (arrow)



Solid pseudopapillary neoplasms (SPNs)



Mucinous cystic neoplasms (MCNs)



CYSTIC DEGENERATION IN SOLID PANCREATIC TUMORS

1. Endocrine tumors
2. Ductal carcinoma
3. Acinar cell carcinoma

- Can be develop to cystic formation

These lesions are managed similarly to the malignancies from which they arise

Histologic variants of pancreatic neoplasms

Malignant neoplasms

1- Neoplasms of ductal origin

- Pancreatic duct adenocarcinoma (PDAC)
- Adenosquamous carcinoma
- Osteoclastic giant cell carcinoma
- Colloid carcinoma
- Medullary carcinoma
- Carcinomas arising in tumoral intraepithelial neoplasms:

1. Intraductal papillary mucinous neoplasm (IPMN) **with associated invasive carcinoma**
2. Intraductal tubulopapillary neoplasm (ITPN) **with associated invasive carcinoma**
3. Mucinous cystic neoplasm (MCN) **with associated invasive carcinoma**

Histologic variants of pancreatic neoplasms

Malignant neoplasms

2- Neoplasms of non-ductal origin

- Acinar cell carcinoma (ACC)
- Pancreatoblastoma
- Pancreatic neuroendocrine neoplasm (PanNET)
- Solid pseudopapillary neoplasm (SPN)

Resectable and unresectable



Size and number of the tumors

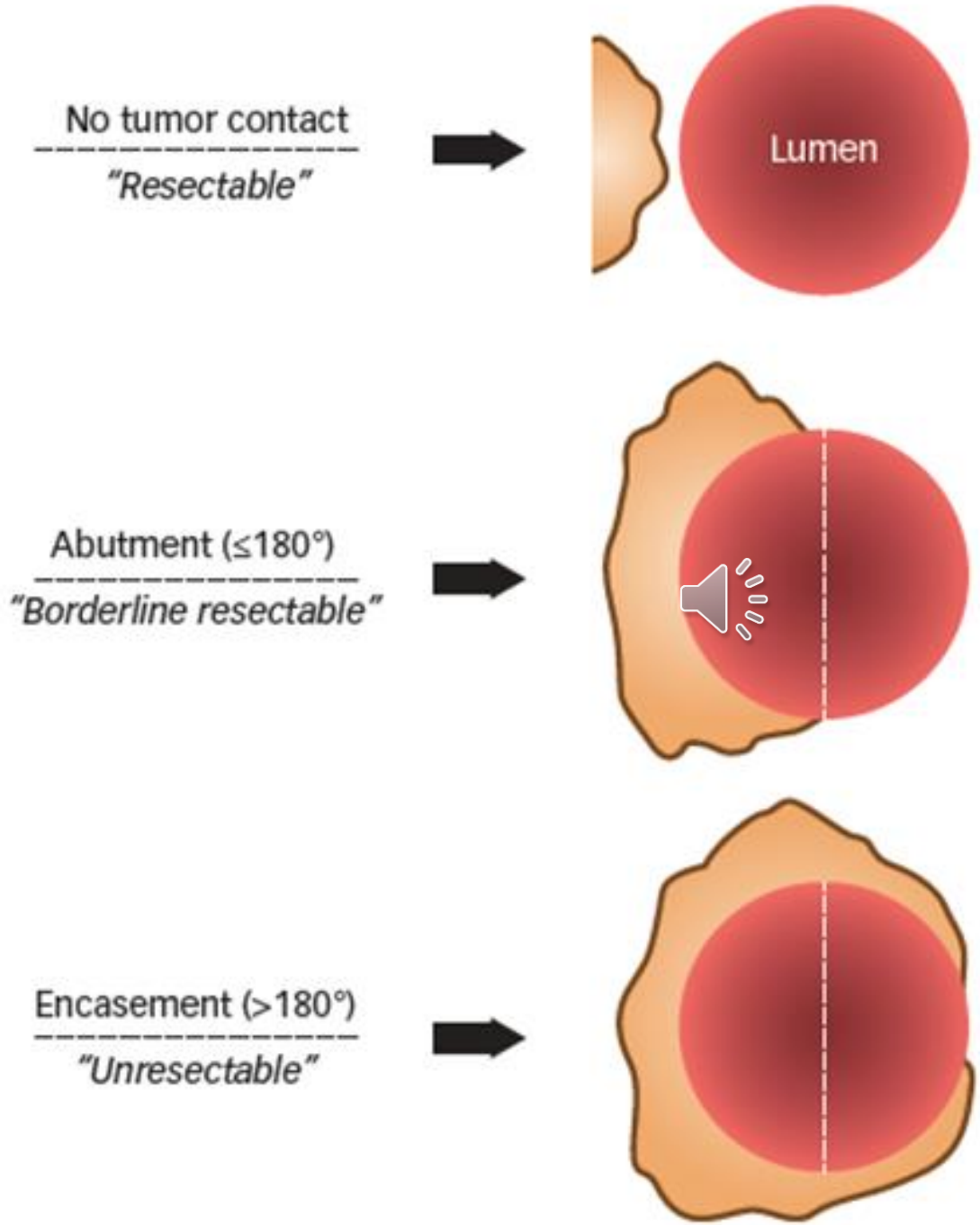


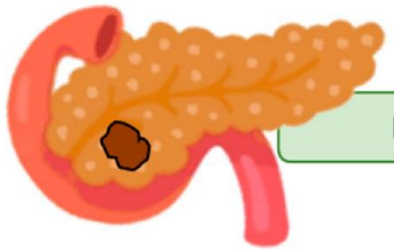
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The largest diameter (mm) of the primary tumor

- TS1: Tumor size of 20mm or less in the largest diameter
- TS2: Tumor size >20mm but not >40mm in the largest diameter
- TS3: Tumor size >40mm but not >60mm in the largest diameter
- TS4: Tumor size greater than 60mm

For multiple tumors, the number, location, and largest diameter of the tumors are recorded


No tumor contact
"Resectable"
Lumen
Abutment (≤180°)
"Borderline resectable"
Encasement (>180°)
"Unresectable"



Resectable

Surgery

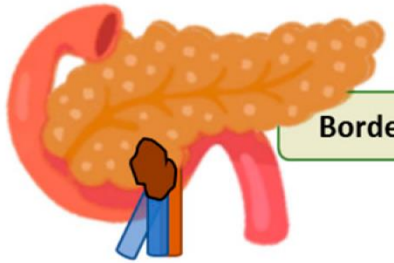
Stage 0

Neoadjuvant chemotherapy

Surgery

Adjuvant

Stage 1/2

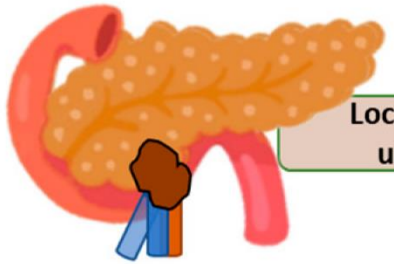


Borderline resectable

Neoadjuvant chemotherapy +/− chemoradiation

Resectable

Stage 2/3



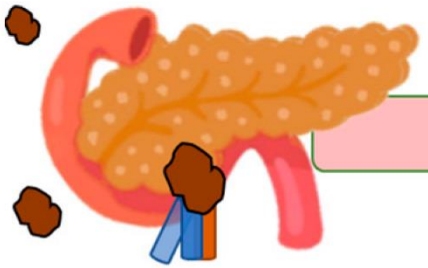
Locally advanced unresectable

Neoadjuvant chemotherapy +/− chemoradiation

Remains non-metastatic

Local therapies can be considered

Stage 3



Metastatic

FOLFIRINOX

gBRCA1/2 with disease control- can consider Olaparib maintenance

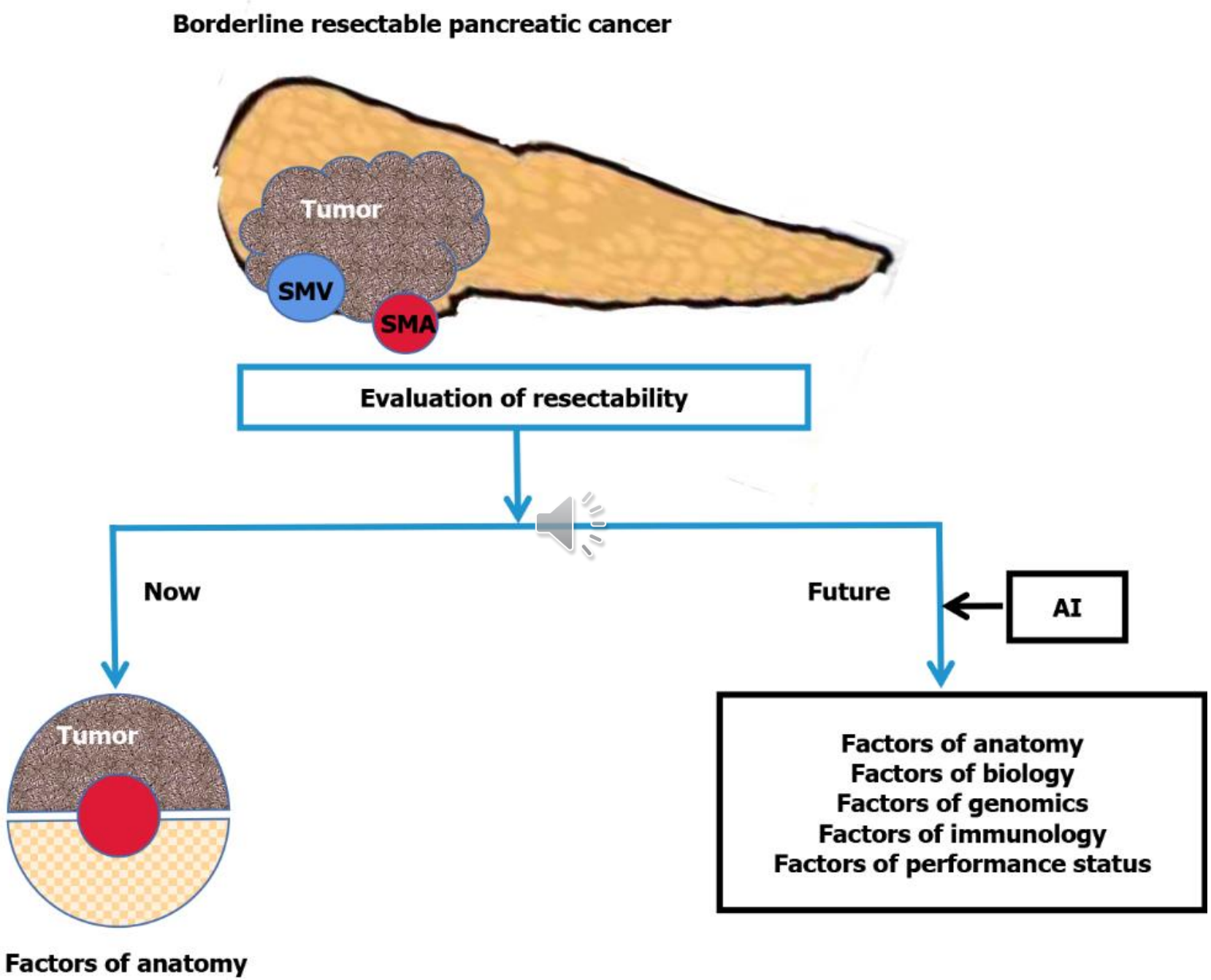
Gemcitabine/ nab-paclitaxel

Clinical trial encouraged at progression

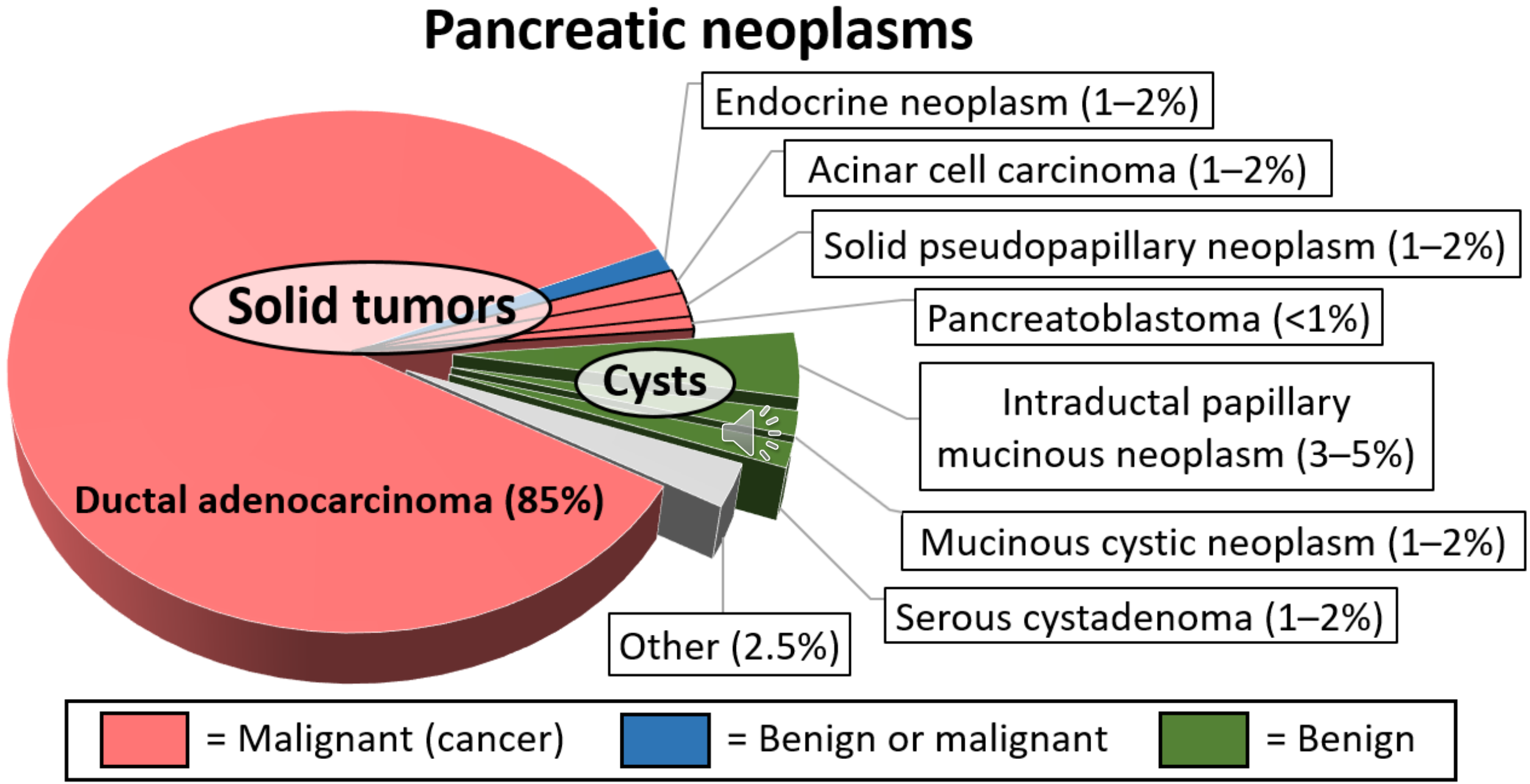
Stage 4

Unresectable :

- **Metastases**
- **Encasement or occlusion/thrombus of the superior mesenteric artery**
- **Unreconstructable SMV or SMV-portal vein confluence occlusion**
- **Direct involvement of the inferior vena cava, aorta, or celiac axis**(absence of a fat plane between the low-density tumor and these structures on computed tomography (CT) scan or EUS)
- **Ascites with positive cytology**



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https://upload.wikimedia.org/wikipedia/commons/9/95/Relative_incidence_of_pancreatic_neoplasms.png

