Lecture 13: pancreatic cancers

General characteristics:

🔵 7th M/C cause of cancer deaths
🔵 Age: Men → (65–69) / Women → (75–79)
🔵 Rare before age 45
🔵 in Western / industrial parts of the world
🔵 **>95%** of malignant neoplasms are **exocrine: Adenocarcinoma (M/C and worst)**
🔵 **Endocrine** in 5% only such as: **islet cells tumors**
🔵 Ductal Adenocarcinoma → pancreatic ca ← 85-90%
🔵 M:F (1.3:1)
🔵 Anatomic location: Head + uncinate process (2/3) > Body > Tail
🔴 (Note that **tail and body are worse** since they give late symptoms compared to head)

RF (Risk Factors):

① Smoking
② Alcohol
③ High BMI
④ DM
⑤ Chronic pancreatitis
⑥ High fasting plasma glucose
⑦ Lack of physical activity
⑧ Pancreatic cyst
⑨ Family Hx (only in 5–10%)
⑩ Inherited cancer syndromes

Classification:

① Benign (serous cystadenoma)
② Premalignant (intrapapillary mucinous neoplasm)
🔺 Note that: it has 3 types (**Main** (transform to malignant اذا اهملته) / **Ductal** / **Mixed**)
③ Malignant:

- Ductal adenocarcinoma and its subtypes
- IPMN with an associated invasive carcinoma
- MCN with an associated invasive carcinoma → Mucinous cystic neoplasm
- Solid pseudopapillary neoplasm
- Acinar cell carcinoma
- Pancreatoblastoma
- Serous cystadenocarcinoma

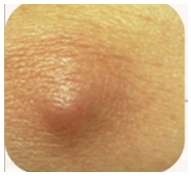
🔷 Note: **exocrine means** → relation to pancreatic ductal, acinar cells, stem cells including pancreatoblastoma

🔷 Note: **All have poor px**. **→ colloid (✓ Better px)** and **adenocarcinoma (× worse than all)** → type won't change the tx since **surgery is the only curable tx**.

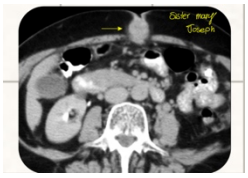
Clinical presentation: varies according to tumor **location**

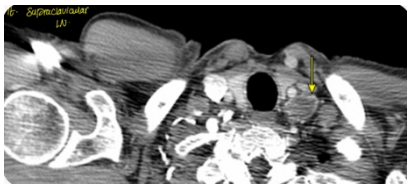
Depends on the location but the most common 3 symptoms:

1. **Epigastric pain**
2. **painless jaundice (not cholangitis)**
3. **wt loss**
4. other symptoms include:
    - (1) Anorexia
    - (2) pruritis
    - (3) Steatorrhea
    - (4) Dark urine
    - (5) thrombophebtitis→ with any tumor and most commonly gastrinoma
    - (6) Trousseau's syndrome (→ Due to hypercoagulable state of the cancer)
      → 💡 note: Rarely we would have Subcutaneous erythematous areas of nodular fat necrosis typically on the legs → called **pancreatic panniculitis**
    - (7) Hepatomegaly
    - (8) Ascites
    - (9) Courvoisier's Sign → you have jaundice and a gallbladder that is enlarged but is not painful

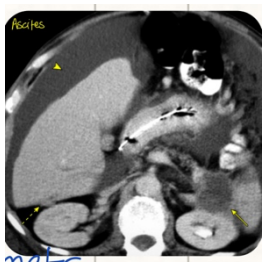


Symptoms of incurable disease:





1. Chronic ascites
2. Sister mary joseph
3. Virchow's node
4. palpable mass
5. Liver mets
    - 🔷 Note: Differential Dx is **large** in pancreatic ca

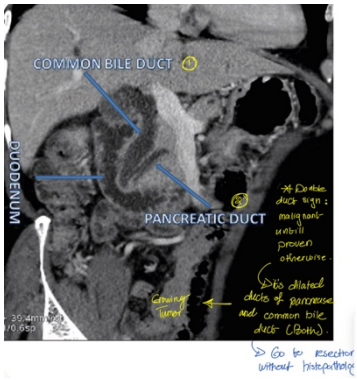


Mets → liver , peritoneum , lung , less commonly bone

Diagnostic approach:

🔷 (1) Initial testing:
A. Routine labs:
⬆ LFT / ⬆ conjugate bilirubin / ⬆ Alkaline phosphate / Mild Anemia → all these suggest biliary obstruction BUT are not dx

B. First line imaging: US detects Dilatation or masses / CT scan



(2) If initial imaging is **positive** →
A. Tumor markers (CA-19-9) not dx
B. pancreatic protocol CT (✓ thin cuts of CT)

C. ERCP when biliary **obs** is suspected, it can 🧿 visualize pancreatic and biliary **ducts** / collect brush cytology(حف الورم وباخذ منه خلايا) or forceps biopsy / placing biliary stents (for palliation) / accuracy <30%

D. MRI / MRCP → if it shows Double duct sign
→ (✓ Dilation of pancreatic and biliary duct) → this is malignant until proven otherwise

E. EUS = Most accurate for diagnosis (Accuracy is 70–90%)
→ you can use FNA = useful in **chronic pancreatitis** / **Autoimmune hepatitis** + **unclear imaging**

⭐ Note: when to take biopsy?
✓ **chronic pancreatitis** / **Autoimmune hepatitis** / **extreme young age** / **Long alcohol use** / **on image** →

① multifocal stricture (✓ Autoimmune) OR ② Diffused pancreatic ductal changes (✓ Chronic pancreatitis)

⭐ Note: if a patient has a resectable tumor with typical imaging → ❌ no need for bx.

Assessment of respectability:

- Only **15–20%** are Surgical Candidates
- In general: **you can't** operate if:

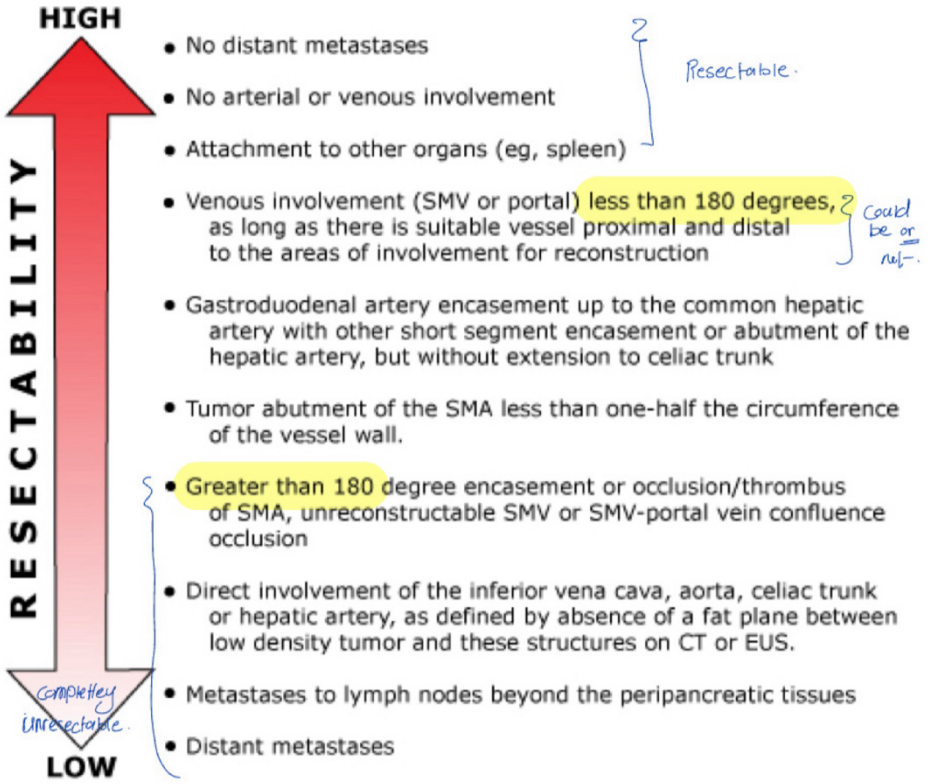
1. Distant mets
2. involvement of local BV

Surgical Management

1- Tumors in the **head of the pancreas**
Pancreaticoduodenectomy (Whipple procedure)
2- Tumors in the **body or tail**
Distal subtotal pancreatectomy, usually combined with splenectomy.
3- Tumors involving the **entire gland**
Total pancreatectomy, however, the metabolic consequences of total pancreatectomy, include permanent exocrine insufficiency and brittle diabetes

Most imp px factor lymph n if tumor is completely resectable

Continuum of resectability for pancreatic adenocarcinoma

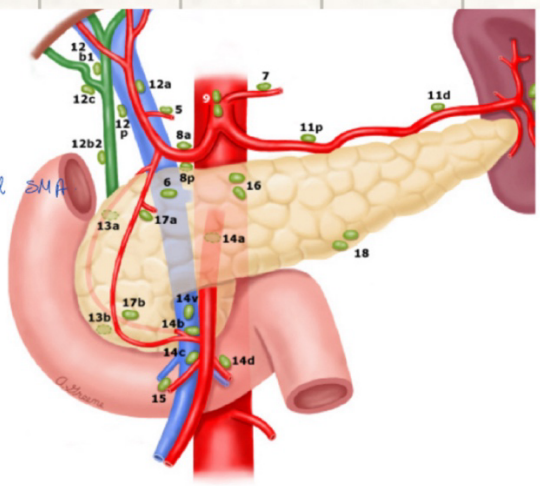


Conjugated Hyperbilirubinemia

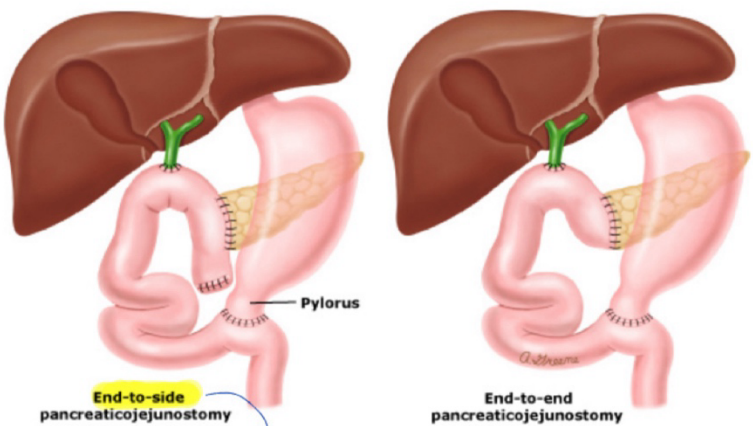
Intrahepatic cholestasis	Extrahepatic cholestasis (biliary obstruction)
Viral hepatitis/ Chronic hepatitis/ End-stage liver disease	Choledocholithiasis
Alcohol-associated hepatitis/ Non-alcohol-associated steatohepatitis	Intrinsic and extrinsic tumors (eg, cholangiocarcinoma, pancreatic cancer)
Primary biliary cholangitis/ Following organ transplantation	Primary sclerosing cholangitis
Drugs and toxins (eg, alkylated steroids, chlorpromazine, herbal medications [eg, Jamaican bush tea], arsenic)	AIDS cholangiopathy
Sepsis and hypoperfusion states/ Total parenteral nutrition	Acute and chronic pancreatitis
Infiltrative diseases (eg, amyloidosis, lymphoma, sarcoidosis)	Strictures after invasive procedures
Pregnancy	Certain parasitic infections (eg, *Ascaris lumbricoides*, liver flukes)
Postoperative cholestasis	**Defect of sinusoidal reuptake of conjugated bilirubin..** Rotor syndrome
Hepatic crisis in sickle cell disease	**Defect of canalicular organic anion transport** Dublin- Johnson syndrome

Prognosis: 10% → after 5 years / if T1 → 50%.

- The most important prognostic factor for completely resected patients is nodal status.
- Tumor stage is the most important prognostic factor (TNM) classification
  - why not to cut it? very difficult area under the SMV and SMA
- The status of the surgical margins (involved or uninvolved)
- Tumor differentiation
- The presence or absence of lymphatic invasion
- Both preoperative and postoperative serum CA 19-9 levels,
  - less drop pre and post → Bad px.
- Cigarette smoking
  - (more leak)

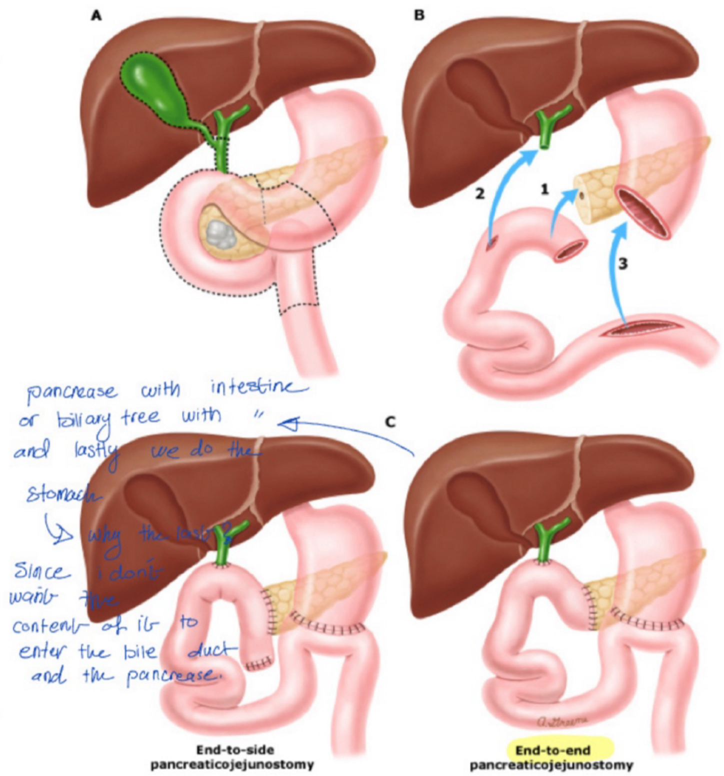


① we cut the stomach / Duodenum / part of Jejunum / head of pancrease with the tumor / Biliary tree + GB.



we kept the pylorus (pyloric preserving procedure).

*Both surgeries works the same, Go for what you're comfortable with.



pancrease with intestine or biliary tree with " and lastly we do the stomach

→ why the last? Since I don't want the content of it to enter the bile duct and the pancrease.

Preoperative Considerations

- **Staging Laparoscopy** → +ve bx = no surgery / -ve bx : surgery
- **Role Of Preoperative Biliary Drainage** → if high Jaundice you use a stent or PTC {Since high bilirubin means more complications} not always used since it could cause more complications.
- **Role Of Neoadjuvant Chemotherapy**
  → if locally advanced could reduce it ie make it resectable