

Pancreatic Pseudocyst

- A fluid collection contained within a well-defined capsule of fibrous or granulation tissue or a combination of both
- Does not possess an epithelial lining
- Persists > 4 weeks
- May develop in the setting of acute or chronic pancreatitis

Pancreatic Pseudocyst

- Most common cystic lesions of the pancreas, accounting for 75-80% of such masses
- Location
 - Lesser peritoneal sac in proximity to the pancreas
 - Large pseudocysts can extend into the paracolic gutters, pelvis, mediastinum, neck or scrotum
- May be loculated

Composition

- Thick fibrous capsule – not a true epithelial lining
- Pseudocyst fluid
 - Similar electrolyte concentrations to plasma
 - High concentration of amylase, lipase, and enterokinases such as trypsin

Pathophysiology

- Pancreatic ductal disruption 2° to
 1. Acute pancreatitis – Necrosis
 2. Chronic pancreatitis – Elevated pancreatic duct pressures from strictures or ductal calculi
 3. Trauma
 4. Ductal obstruction and pancreatic neoplasms

Pathophysiology

- Acute Pancreatitis
 - Pancreatic necrosis causes ductular disruption, resulting in leakage of pancreatic juice from inflamed area of gland, accumulates in space adjacent to pancreas
 - Inflammatory response induces formation of distinct cyst wall composed of granulation tissue, organizes with connective tissue and fibrosis

Pathophysiology

- Chronic Pancreatitis
 - Pancreatic duct chronically obstructed □ ongoing proximal pancreatic secretion leads to secular dilation of duct – true retention cyst
 - Formed micro cysts can eventually coalesce and lose epithelial lining as enlarge

Presentation

- Symptoms
 - Abdominal pain > 3 weeks (80 – 90%)
 - Nausea / vomiting
 - Early satiety
 - Bloating, indigestion
- Signs
 - Tenderness
 - Abdominal fullness

Diagnosis

- Clinically suspect a pseudocyst
 - Episode of pancreatitis fails to resolve
 - Amylase levels persistently high
 - Persistent abdominal pain
 - Epigastric mass palpated after pancreatitis

Diagnosis

- Labs
 - Persistently elevated serum amylase
- Plain X-ray
 - Not very useful
- Ultrasound
 - 75 -90% sensitive
- CT
 - Most accurate (sensitivity 90-100%)

Pseudocyst compressing the stomach wall posteriorly



Natural History of Pseudocyst

- ~50% resolve spontaneously
- Size
 - Nearly all <4cm resolve spontaneously
 - >6cm 60-80% persist, necessitate intervention
- Cause
 - Traumatic, chronic pancreatitis <10% resolve
- Multiple cysts – few spont resolve
- Duration - Less likely to resolve if persist > 6-8 weeks

Complications

- Infection
 - S/S – Fever, worsening abd pain, systemic signs of sepsis
 - CT – Thickening of fibrous wall or air within the cavity
- GI obstruction
- Perforation
- Hemorrhage
- Thrombosis – SV (most common)
- Pseudoaneurysm formation – Splenic artery (most common), GDA, PDA

Treatment

- Initial
 - Nutrition
- Antibiotics if infected

Intervention

- Indications for drainage
 - Presence of symptoms (> 6 wks)
 - Enlargement of pseudocyst (> 6 cm)
 - Complications
 - Suspicion of malignancy
- Intervention
 - Percutaneous drainage
 - Endoscopic drainage
 - Surgical drainage

Percutaneous Drainage

- Continuous drainage until output < 50 ml/day + amylase activity ↓
 - Failure rate 16%
 - Recurrence rates 7%
- Complications
 - Conversion into an infected pseudocyst (10%)
 - Catheter-site cellulitis
 - Damage to adjacent organs
 - Pancreatico-cutaneous fistula
 - GI hemorrhage

Endoscopic Management

- Indications
 - Mature cyst wall < 1 cm thick
 - Adherent to the duodenum or posterior gastric wall
 - Previous abd surgery or significant comorbidities
- Contraindications
 - Bleeding dyscrasias
 - Gastric varices
 - Acute inflammatory changes that may prevent cyst from adhering to the enteric wall
 - CT findings
 - Thick debris
 - Multiloculated pseudocysts

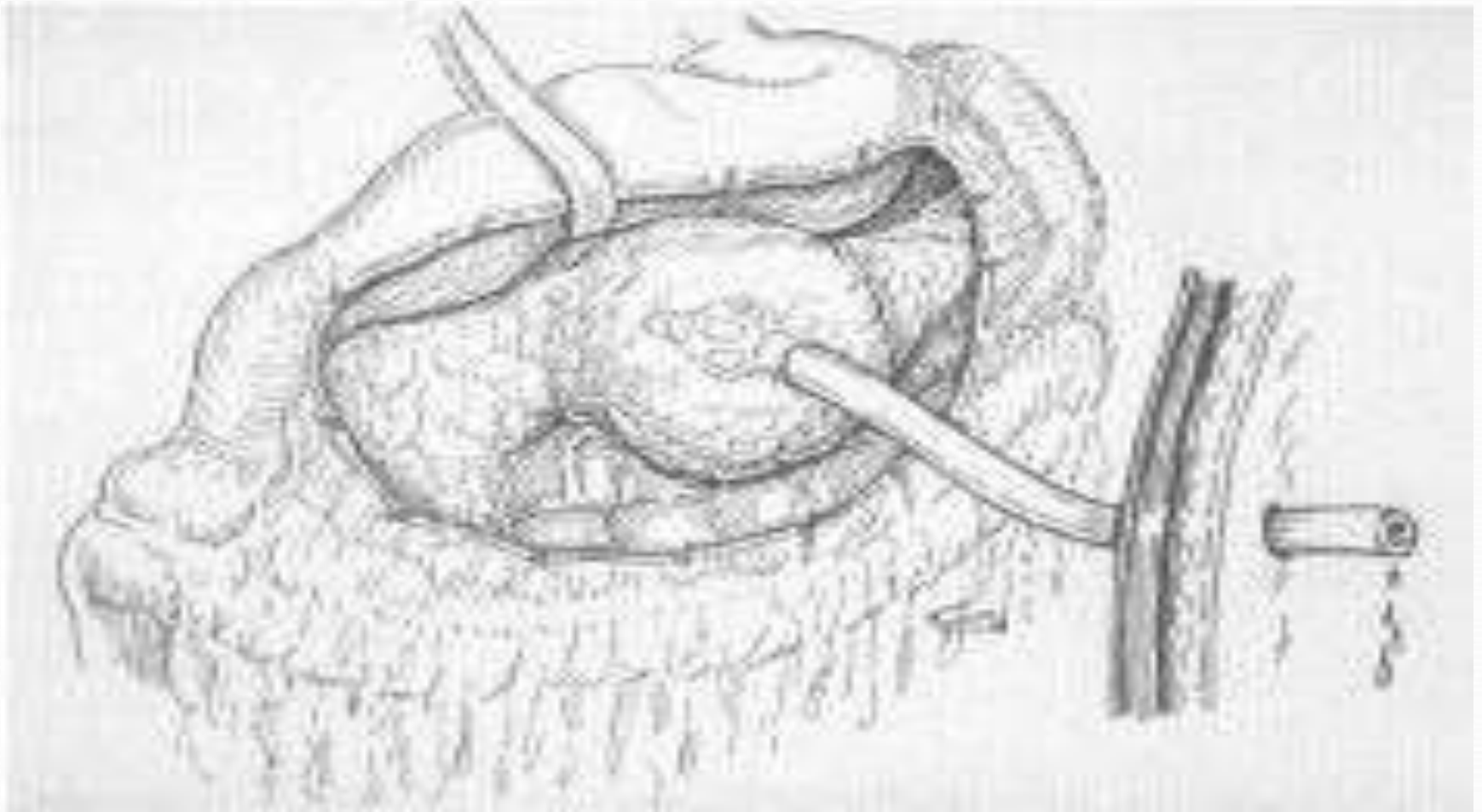
Endoscopic Drainage

- Transenteric drainage
 - Cystogastrostomy
 - Cystoduodenostomy
- Transpapillary drainage
 - 40-70% of pseudocysts communicate with pancreatic duct
 - ERCP with sphincterotomy, balloon dilatation of pancreatic duct strictures, and stent placement beyond strictures

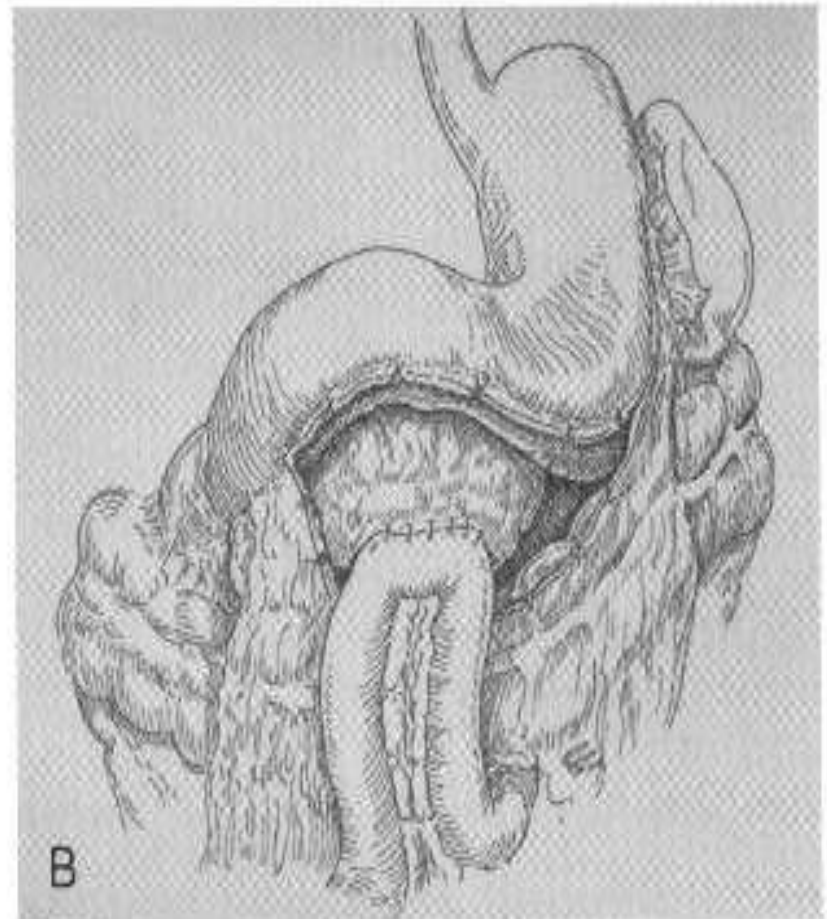
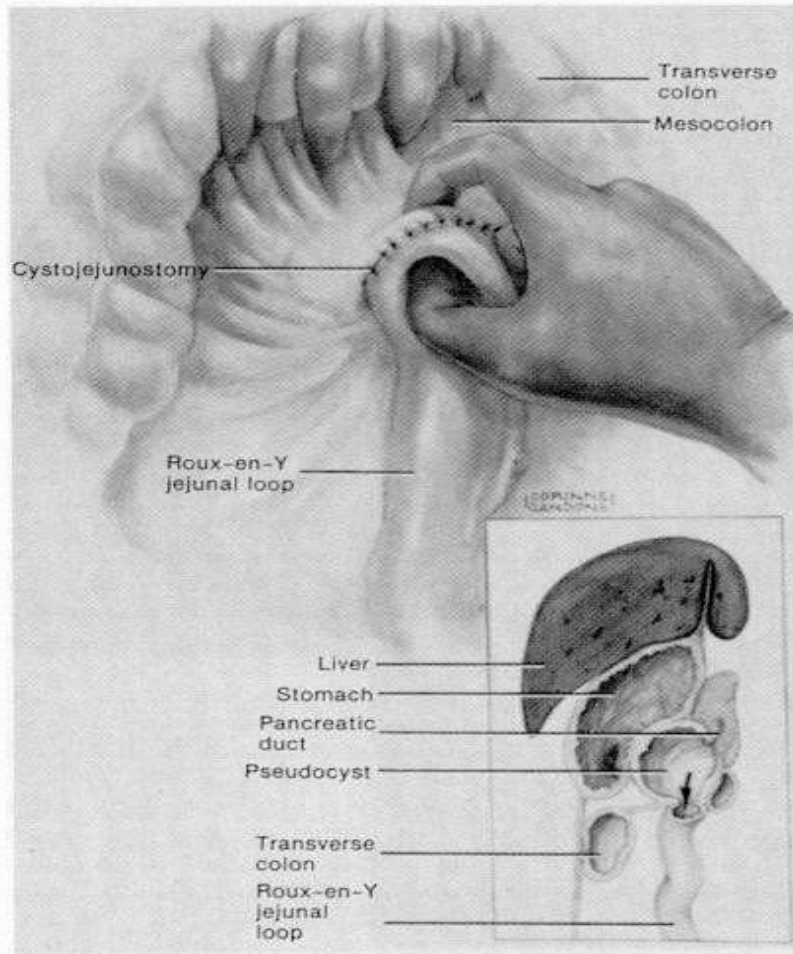
Surgical Options

- Internal drainage
 - Cystogastrostomy
 - Cystojejunostomy
 - Permanent resolution confirmed in b/w 91%–97% of patients*
 - Cystoduodenostomy
 - Can be complicated by duodenal fistula and bleeding at anastomotic site

External Drainage



Cysto-jejunostomy



Laparoscopic Management

- The interface b/w the cyst and the enteric lumen must be ≥ 5 cm for adequate drainage
- Approaches
 - Pancreatitis 2° to biliary etiology → extraluminal approach with concurrent laparoscopic cholecystectomy
 - Non-biliary origin → intraluminal (combined laparoscopic/endoscopic) approach.

Which is the preferred intervention?

- Surgical drainage is the traditional approach – gold standard.
- Percutaneous catheter drainage – high chance of persistent pancreatic fistula.
- Endoscopic drainage - less invasive, becoming more popular, technically demanding
- .Surgery necessary in complicated pseudocysts, failed nonsurgical, and multiple pseudocysts.