PANCREATIC PSEUDOCYST DRAINAGE:
ENDOSCOPIC APPROACHES & THE NURSING ROLE

PRESENTED BY:
Susan DePasquale, CGRN, MSN
Pancreatic Fluid Collection (PFC)

A result of pancreatic duct (PD) and side branch disruption, caused by:

• Pancreatitis
• Pancreas Trauma
• Surgical resection or injury during surgery

Can progress to a pseudocyst formation
Pseudocyst Formation –

- **Acute PFC** – usually peri-pancreatic, without debris, and can resolve without forming a pseudocyst;
- **Pseudocyst** –
  - **Acute** – 4 weeks to form after pancreatitis;
  - **Chronic** – associated with chronic pancreatitis due to downstream obstruction, fibrotic strictures and/or stones that lead to PD Blowout and fluid accumulation;
Planning An Intervention?

The endoscopist will want to determine several main influencing factors prior to PFC drainage:

• Is the PFC communicating with the pancreatic duct?
• Are there stones and strictures complicating access, i.e. chronic pseudocyst?
• How much is fluid and how much is solid debris?
• Is there necrotic, infected, debris?
MEET PANCREAS JOE

MY WORLD AND WELCOME TO IT!

BY DENNY HOLLAND & TONY TERESA
Endoscopic Therapy – fluid drainage techniques:

• **Transpapillary** – to correct ductal abnormalities using a modest-sized PD stent, i.e. 7 Fr. (depending on PD size);

• **Transmural** – a more aggressive approach with entry through gastric or duodenal wall, dilation of tract and large bore double pigtail stents (i.e. Solus, 10 Fr.);
Goal of Therapy –

To reduce the rate of PFC recurrence and to improve outcomes ~

Best Scenario = fluid with no necrosis and debris;
Scenario with ↑ complications = pancreatic necrosis with debris, difficult debridement and higher risk of infection;
Why drain a PFC?

- Is Not treated endoscopically just because it’s found on X-RAY;
- May resolve on its own;
- Treatment is symptom driven, i.e. recurring abdominal pain, weight loss, gastric outlet obstruction, obstructive jaundice and leakage (leading to pancreatic ascites and fistulae);
- Infection = absolute indication to treat;
Questions?
Infected Pseudocyst –

Differentiate between:

- **Abscess** – little to no debris, requiring modest sized catheters with irrigation;

  vs.

- **Pancreatic Necrosis** (sterile/infected) – will return to this definition later on (slide 21);
Pancreas Injury

Swollen, inflamed pancreas with areas of hemorrhage

Fractured pancreas

Large amount of pancreatic ascites and phlegmon

Cut-away enlargement of abdomen
Injury to Pancreatic Duct

Normal Anatomy

Immediate post-biopsy condition

Location of main pancreatic duct

Part of the pancreatic wall transected (biopsied)

Sharp cut off of the pancreatic duct

Developing condition after biopsy

Pancreatitis with initial necrosis (tissue death) and inflammation of surrounding structures

Eventual condition

Large abscess in the left upper quadrant with pseudocyst and infectious fluid surrounding the pancreas
Defining a “Pseudocyst” -

Interdisciplinary Approach:
• Patient History, i.e. acute/chronic pancreatitis;
• Radiology, i.e. Abominal CT, MRI, MRCP;
• Endoscopic survey, i.e. area of compression, GI bleeding can occur from a fistulized tract;
• ERCP/EUS, i.e. disconnected duct, leaks and parenchymal damage;
Defining a “Pseudocyst” -

**EUS** role is to:
- Define a true pseudocyst from a “masquerader”, i.e. cystic neoplasm;
- Locate a PFC in relation to surrounding vessels (doppler) and luminal structures;
- Investigate other underlying etiologies of the pseudocyst, i.e. cancer, through FNA of cyst contents and Biopsy of cyst wall;
- Assess for debris which alters management strategy;
**EUS-Guided Drainage: Is There Fluid To Drain?** –

1. If EUS endoscopist is convinced of PFC, then drainage would likely be attempted (if indicated by size/related symptoms);

2. If *necrotic debris* is detected, alternate pseudocyst drainage strategies would be considered based on best approach, considering:
   - patient condition
   - expert consultation on diagnostic (radiology and endoscopic) findings and associated risks of endoscopic or percutaneous therapy;
   - high risk (infectious) process may require immediate surgery;
EUS/ERCP Fluid Drainage Techniques –

Transpapillary or Transmurally or both, depending on:

- size of PFC;
- proximity to stomach or duodenum;
- communicating to PD;
- PD accessibility, i.e. obstructing stone may require ESWL;
- area of disruption, i.e. head, body, tail;
Transpapillary Drainage – for PFC communicating to the PD:

- **Restore ductal continuity**;
- With/without **sphincterotomy**;
- **Plastic Stent** inserted - proximal end toward tail (to directly enter PFC or bridge an area of leakage into the PD);
- **Chronic Pseudocyst** - bridge area of obstruction, i.e. stricture or stone, between leak and duodenum to ↓ recurrence of pseudocyst;
Transpapillary Stent Used?
Most Commonly:

- **Size:** 7 Fr.
- **Indication:** Chronic Pancreatitis to ↓ recurrence of pseudocyst;
- **Advantage:** avoidance of bleeding or perforation (transmurally);
- **Disadvantage:** may induce PD scarring where there was none prior to stent placement;
Transmural Drainage – NO STANDARD approach:

- **Puncture entry** (gastric or duodenal wall);
- **Cautery or Non-Cautery**, i.e. needle knife/cystotome or FNA/Needle Puncture;
- **EUS Guided** drainage – two methods, using linear array endoscope:
  - survey and marking of pseudocyst, i.e. contrast/wall biopsy → Duodenoscope replaces the EUS scope;
  - EUS/doppler and localization of pseudocyst;
- **Non-EUS Guided** drainage – window of entry based on CT and endoscopic survey with a defined area of extrinsic compression;
Transmural Stents –

- Large Bore -10 Fr., recommended;
- Double Pig Tail Stent = recommended for ↓ migration in or out of the PFC; and, to avoid the delayed bleeding complication of a straight stent impacting the cyst wall during contraction;
- Multiple stents are inserted through gastric or duodenal wall for optimal drainage;
- 360 ° Guidewire Looping;
- Cyst Tract is created using a Dilating balloon, i.e. 8 – 10 mm (or > 10 mm, depending on debris);
- Stents pre-marked or marked with an indelible marker;
Pancreatic Necrosis – non-viable parenchyma:

- Best detected on contrast enhanced CT (necrosis is revealed by ↓ enhancement);
- I.e. Walled-Off necrosis (WON) – localized;
- An important differentiation due to high infection complication rate post endotherapy;
- Serial CT/MRI – confirms solid debris before and after endoscopic fluid drainage, and reveals large filling defects due to necrotic solid material;
- Therapy – evacuate debris to prevent secondary infection (drainage appears chocolate, turbid);
- Technique – GI ENDO, IR, Combined GI/IR, Surgery
PFC Continuum

Liquid  Organized Pancreatic Necrosis  Solid

(some PFC’s will never completely liquefy)
An Evolving Interdisciplinary Approach ~

- EUS/ERCP Endoscopists – debridement and irrigation, i.e. nasobiliary, PEG/PEJ;
- IR – percutaneous drains;
- Radiology – serial CT/MRI to assess efficacy of therapy, i.e. pseudocyst resolution vs. recurring;
- Nutritional Support – enteral, parenteral, progress to oral intake;
- Community health care support (if remote to VMMC and specialized care);
An Evolving Interdisciplinary Approach ~

NURSING ROLE –
• Emotional Status- anxiety, pain, loss of appetite and depression (acute or chronic status);
• Antibiotic Therapy – anti-bacteria/-fungal (pre- and post-procedure, i.e. infected necrosis and drains);
• Pre-procedure Labs: LFT, Coagulopathy, Amylase, Lipase, CBC, Lytes;
• SBAR: Procedural and Discharge/Triage RN:
  ➢ VMMC IR/GI Dept for drain care, X-RAY, Labs, nutritional status and medical plan of care;
  ➢ Community health care contact (outside of VMMC);
An Evolving Interdisciplinary Approach ~

Challenges to Seamless Care –

- **Consultative Process:**
  - smaller community hospitals often fall back upon status quo methods that may diverge from VMMC’s plan of care;
  - nursing role may change based on lack of resources and updated protocol;
- **Evolving Protocol:** VMMC is developing its own internal protocol as a research and large referral center;
- **Patient Teaching:** A key link to continuity of care is the patient and family education;
- **Feedback Process:** i.e. hotline, triage RN, provider-to-provider;
- **QA:** data on successful vs. complication outcomes, i.e. what will constitute reliable data for referred patients?
References:


Thanks For Your Participation !