

DIVISION OF ACUTE CARE SURGERY  
**Geriatric EGS Patient Management Guidelines**

## **Diagnosis and Classification of Pancreatitis:**

### **Diagnosis (two of the following)<sup>1</sup>**

- Abdominal pain consistent with pancreatitis
  - Acute in onset, epigastric, radiating to the back
- Serum lipase or amylase 3 times greater than normal serum value
- Imaging findings of acute pancreatitis on CT, MRI or US

### **Classification of Severity**

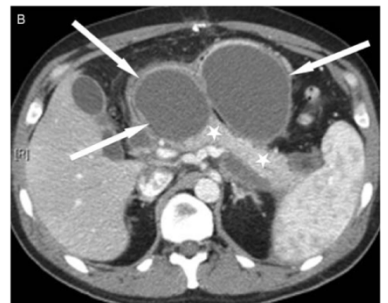
- Mild acute pancreatitis = no organ failure, no local or systemic complications
- Moderately severe acute pancreatitis = organ failure that resolves within 48h and/or local or systemic complications without persistent organ failure
- Severe acute pancreatitis = persistent organ failure >48h

*Severity of index episode does not necessarily correlate with development of symptomatic peri-pancreatic collections. The management of acute pancreatitis is primarily conservative on a medical service. This PMG will focus on peri-pancreatic fluid collections or physiologic insults such as significant hemorrhage or abdominal compartment syndrome related to pancreatitis that require intervention.*

### **Revised Atlanta Classification 2012 For Peripancreatic Collections<sup>5</sup>**

These classifications are derived from contrasted cross-sectional imaging and are typically what initiate consultations to sub-specialty services. For background the classifications with representative images are listed below:

- **Acute Peripancreatic Fluid Collection**
  - Homogenous
  - No defined wall
  - **<4 weeks from onset of symptoms**
  - Most remain sterile and self-resolve
- **Pancreatic pseudocyst**
  - Homogenous
  - **Well defined wall**
  - **>4 weeks from onset**
  - May require intervention based on patient symptoms (see below)



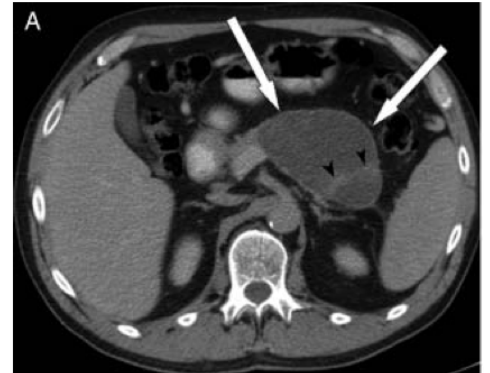
- **Acute Necrotic Collection (ANC)**

- Heterogenous
- Includes necrotic tissue not just simple pancreatic fluid
- No intervention required unless infected (see below)



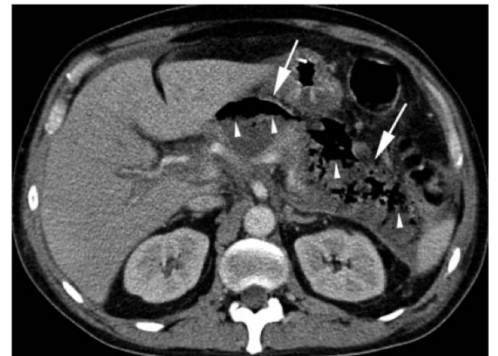
- **Walled Off Pancreatic Necrosis (WOPN)**

- Well-defined wall
- **>4 weeks, usually in setting of pts with ANC**
- May be sterile or infected (see below)
  - Drainage procedure followed by debridement



- **Infected Pancreatic Fluid Collection**

- **Gas** seen within either ANC or WOPN typically
- **Requires intervention for source control**



## Imaging Recommendations for Peri-Pancreatic Collections

- **CT Pancreas Protocol:** This is the optimal study for patients with symptomatic peri-pancreatic fluid collections. This can be ordered in Epic under CT Abdomen/Pelvis with IV Contrast. Select the button on the order page for Pancreas Protocol.
  - A non-contrasted scan is sub-optimal as delineation of their vascular anatomy and enhancement of the cyst wall is needed.
  - Evaluate for splenic artery pseudoaneurysm is necessary prior to cystgastrostomy and would require embolization by IR.
- **MRCP:** This is not typically needed as a first-line imaging study for pancreatitis other than those who present with biliary obstruction. Pancreatic duct stenting is not offered first-line, and typically only performed in cases of recurrent collections with suspicion of disrupted pancreatic duct. Please only order MRCP if recommended by a subspecialty team, particularly advanced GI.
  - If concerns regarding an acute pancreatic duct transection (e.g. traumatic), then ERC is more first-line and MRCP has a role in those patients.

## **Indications for Specialty Consultation for Pancreatitis**

(IR, Advanced GI, Emergency General Surgery)

- 1. Bowel ischemia or perforation (emergent EGS consultation)**
- 2. Abdominal Compartment syndrome (emergent EGS consultation)**
  - a. Definition of Abdominal Compartment Syndrome<sup>2</sup>
    - i. Paralyzed Bladder Pressure >20mmHg
    - ii. New organ failure
- 3. Uncontrolled Hemorrhage**
  - a. Concurrent STAT IR and EGS consultation
  - b. STAT GI consultation if endoluminal GI bleeding
- 4. Uncontrolled Sepsis from Super-Infected Pancreatic Collection**
  - a. Consultations to IR, advanced GI initially.
  - b. EGS should be consulted in addition to these other teams if patient in severe septic shock in need of emergent source control.
    - i. Emergent surgical debridement of acute necrotizing pancreatitis (e.g. pancreatic necrosectomy) associated with **high morbidity (34-95%) and mortality (11-39%)**<sup>3</sup> and is no longer recommended as first-line treatment, but can be utilized in scenarios in which there are no other options to access infected pancreatic collections.<sup>3,4</sup>
- 5. Gastric Outlet Obstruction** (recurrent vomiting or intolerance of oral intake with CT imaging findings of a peripancreatic collection with anatomic compression of the stomach).
  - a. Can be addressed by either IR or Advanced GI as first-line depending on patient's anatomy, surgical intervention is last resort
- 6. Biliary Obstruction** (Elevated total and/or direct bilirubin secondary to compression of the peripancreatic collection on the bile duct)
  - a. Typically addressed by advanced GI and/or IR for ERCP/PTC drainage

## Management Options for Pancreatic Collections

### Cystgastrostomy:

- Patients who are candidates for cystgastrostomy must be at least 4-6 weeks from their index episode to allow for stent placement.
- For pseudocysts within the lesser sac, cystgastrostomy can be curative. For WOPN, many of these patients need serial endoscopic necrosectomy/debridements. Advanced GI should be consulted.

### IR drainage:

- The same general guideline applies to IR drainage of peripancreatic fluid collections. The outcomes are best when the collection has matured e.g. **at least 4-6 weeks** from index event **or with evidence of matured wall on imaging**. In the event of super-infected peripancreatic collections, this may be an indication for earlier drainage although with less durable outcomes if lack of maturity of the collection wall, and this decision should be deferred to the IR attending.
- **If the patient has uncontrolled infection and clinical signs of sepsis requiring source control, IR and EGS attendings on call should directly discuss risks/benefits of percutaneous vs surgical source control.**
- Given the potential later need for VARD (see below), we recommend that **all IR drains placed in peripancreatic fluid collections are done through a trans-retroperitoneal approach** when possible anatomically.
- **Please avoid trans-pleural trajectories** as this can create a pancreatigo-pleural fistula which is highly morbid.

### Video-Assisted Retroperitoneal Debridement (VARD):

This is a hybrid approach to pancreatic necrosectomy particularly for WOPN or infected WOPN in patients who are not candidates for cystgastrostomy with trans-gastric necrosectomy by advanced GI. This is supported by clinical trials comparing to up-front surgical necrosectomy with significantly improved outcomes as described above.<sup>3</sup>

1. IR consultation for **trans-retroperitoneal drain placement, start with the largest safest drain possible, up to 18F.**
2. Repeat imaging in 4-6 weeks following drain placement to evaluate residual collection
3. If collection remains, **inpatient or outpatient referral to EGS** to evaluate for VARD
4. If residual collection and ongoing symptoms, VARD can be offered dependent on patient's risk factors for general anesthesia.
5. This procedure is performed by passing an optical trocar along the drain tract, **which is why it is ideal to have a trans-retroperitoneal tract, to avoid injury to intra-peritoneal structures as well as increasing the risk of a trans-peritoneal approach which has worse outcomes.**
6. If a patient has undergone trans-peritoneal drainage but there remains a collection that could be accessed via a trans-retroperitoneal approach, recommend placing an image guided trans-retroperitoneal drain prior to attempted VARD.

### Surgical Necrosectomy/Cyst-Gastrostomy or Pancreatic Duct Decompression Procedures

These are not first-line, and typically reserved for either emergent cases of uncontrolled sepsis or bleeding. Pancreatic duct decompression procedures are reserved for cases of chronic pancreatitis and not performed in the acute period. These procedures are typically performed by Surgical Oncology. If you encounter a patient you think would be a candidate for one of these

procedures (Puestow, Beger, Frey), please refer them to Surgical Oncology Pancreas Providers (Drs. Padmanabhan, Idrees, or Tan).

## **Transition of Acute Pancreatitis Patients with Pancreatic Collections from Inpatient to Outpatient Setting**

**EGS:** For patients seen by the EGS service while inpatient, we will arrange for follow-up 4-6 weeks for repeat imaging especially for patients we are considering for VARD with drain in place.

**GI:** Patients with cystgastrostomy should follow-up after hospital discharge with an advanced GI provider with repeat imaging to evaluate for need for repeat trans-gastric necrosectomy

**IR:** Patients not seen by EGS in-hospital but with drains in peripancreatic fluid collections should be evaluated by IR with repeat imaging and if persistent collection/WOPN, should be referred to EGS clinic for VARD.

## **References:**

<sup>1</sup> Banks PA, Bollen TL, Dervenis C, et al. Classification of acute pancreatitis--2012: revision of the Atlanta classification and definitions by international consensus. *Gut*. 2013;62(1):102-111. doi:10.1136/gutjnl-2012-302779

<sup>2</sup> Cheatham ML, De Waele J, Kirkpatrick A, et al. Criteria for a diagnosis of abdominal compartment syndrome. *Can J Surg*. 2009;52(4):315-316.

<sup>3</sup> van Santvoort HC, Besselink MG, Bakker OJ, et al. A step-up approach or open necrosectomy for necrotizing pancreatitis. *N Engl J Med*. 2010;362(16):1491-1502. doi:10.1056/NEJMoa0908821

<sup>4</sup> van Brunschot S, Hollemans RA, Bakker OJ, et al. Minimally invasive and endoscopic versus open necrosectomy for necrotising pancreatitis: a pooled analysis of individual data for 1980 patients. *Gut*. 2018;67(4):697-706. doi:10.1136/gutjnl-2016-313341

<sup>5</sup><https://radiopaedia.org/articles/acute-necrotic-collection>