Management of Necrotizing Pancreatitis

The Emoroid Digest
@EmoryGastroHep
Reviewed by: Andrew Yu

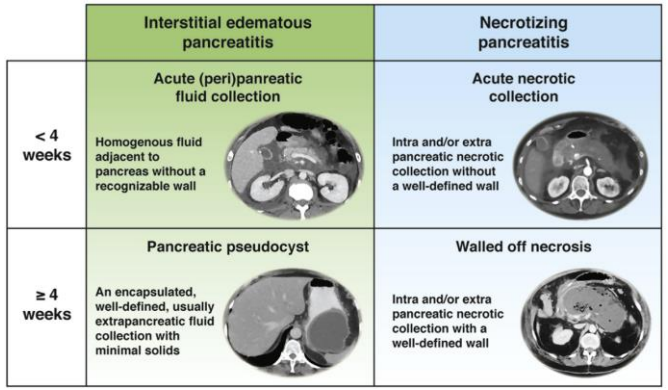
Severe Pancreatitis

- Using the Revised Atlanta Criteria (RAC), defined as persistent organ failure with local complications
- Develops in 20% of acute pancreatitis
- 38% of severe pancreatitis develop organ failure in 1st week
- 42% mortality in 1st week
- 5-10% of AP -> Pancreatic necrosis

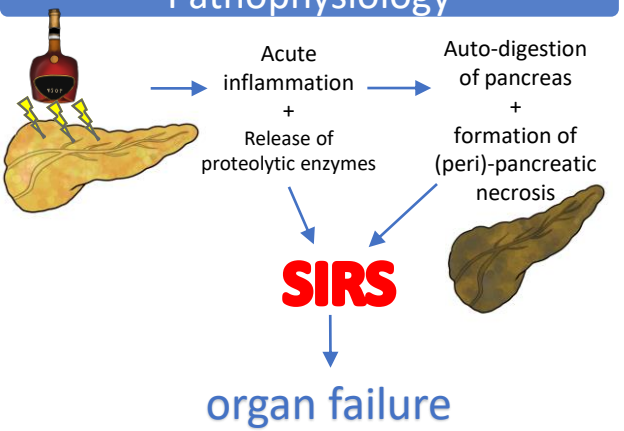
RAC	Mild	Moderately severe	Severe
Organ failure	No	Resolving < 48 hrs (transient OF)	Persistent > 48hrs
Local or systemic complications	No	Without persistent OF	Single or multiple OF
Mortality	0.1%	2.1%	52.2%

Diagnosis of Pancreatic Necrosis

- Contrast enhanced CT, best at >72 hrs
- 4 types of local complications
- Most necrotic collections need >4 weeks for wall to mature but ~43% can develop demarcation in < 3 weeks



Pathophysiology



Management

- Early management with fluid resuscitation (LR), pain control, and total enteric feeding
- Multidisciplinary approach with GI, surgery, IR, critical care, ID, and nutrition

Deterioration <10-14 days is typically due to SIRS from sterile necrosis, while >14 days is more likely from infected necrosis

Management (cont.)

Infected Necrosis

Background

- Infected necrosis -> 30% mortality
- No role for prophylactic antibiotics
- Typically a late complication, >2 weeks after disease onset, d/t gut translocation

When to suspect?

- Presence of gas on CT (but occurs only in ~1/2 of infected necrosis)
- Fevers, bacteremia, worsening leukocytosis
- Clinical deterioration in absence of other explanations

FNA of fluid collection?

- Request if presence of clinical deterioration and if CT inconclusive for infected necrosis
- False negative in 12-25% of cases
- Aids with de-escalating empiric broad-spectrum abx to targeted therapy
- <1% chance of introducing infection

Abx Therapy

- Initiate IV antibiotics that penetrate necrotic pancreatic tissue (carbapenems, quinolones, flagyl, 3rd gen cephalosporin)
- With source control, a 5-7 day course of abx is sufficient

Indication for Intervention?

1. Clinical suspicion of, or documented necrotizing pancreatitis with clinical deterioration (preferably when necrosis has walled-off, >4 wks)
2. Ongoing organ failure, in absence of infected necrotizing pancreatitis
3. In sterile necrotizing pancreatitis, if a) gastric, intestinal, or biliary obstruction via mass effect, b) persistent symptoms, c) disconnected pancreatic duct

Timing of Intervention?

- Should be avoided in early, acute period (1st two weeks), which is associated with greater morbidity and mortality
- Delaying intervention for 3-4 weeks to allow liquefaction and encapsulation of necrotic collection is best
- Exceptions include abdominal compartment syndrome, perforation of hollow viscus, severe hemorrhage, and ischemic bowel

Citation:
Trikudanathan G et al. Current Concepts in Severe Acute and Necrotizing Pancreatitis: An Evidence-Based Approach. Gastroenterology. 2019 May. PMID: 30776347.
Wolbrink DRJ et al. Management of infected pancreatic necrosis in the intensive care unit: a narrative review. Clin Microbiol Infect. 2020 Jan. PMID: 31238118.
Illustrations by @physiciandoodles

Management (*Interventions*)

Percutaneous Catheter Drainage

- Placement of single or multiple catheters, serially upsized, irrigated, and repositioned
- Provides source control in patients too sick for endoscopic transmural drainage
  - Consider in <2-4 weeks without mature walled off collection who are failing conservative management
- Suitable strategy when necrosis extends into paracolic gutters or pelvic space
- Can be done alone, or in combo with other interventions
- ↑ risk of pancreaticocutaneous fistula formation

Endoscopic Transluminal Drainage/Necrosectomy

- EUS to visualize and puncture collections & placement of stent transgastrically or transduodenally
- Types of stents:
  - Plastic double pigtail stent
  - Self-expandable metal stent
  - Lumen apposing metal stents (appears superior)
- If necessary, followed with mechanical debridement with endoscopic necrosectomy

Surgical Approaches

- Consider operative debridement in infected or sterile pancreatic necrosis with persistent organ dysfunction
- Minimally invasive options: Video-assisted retroperitoneal debridement (VARD), laparoscopic and open transgastric debridement
- Other: open operative debridement (in cases not amenable to endoscopic or minimally invasive options)
- VARD best for central distribution of necrosis extending into L paracolic gutter; Transgastric debridement best for centrally located necrosis

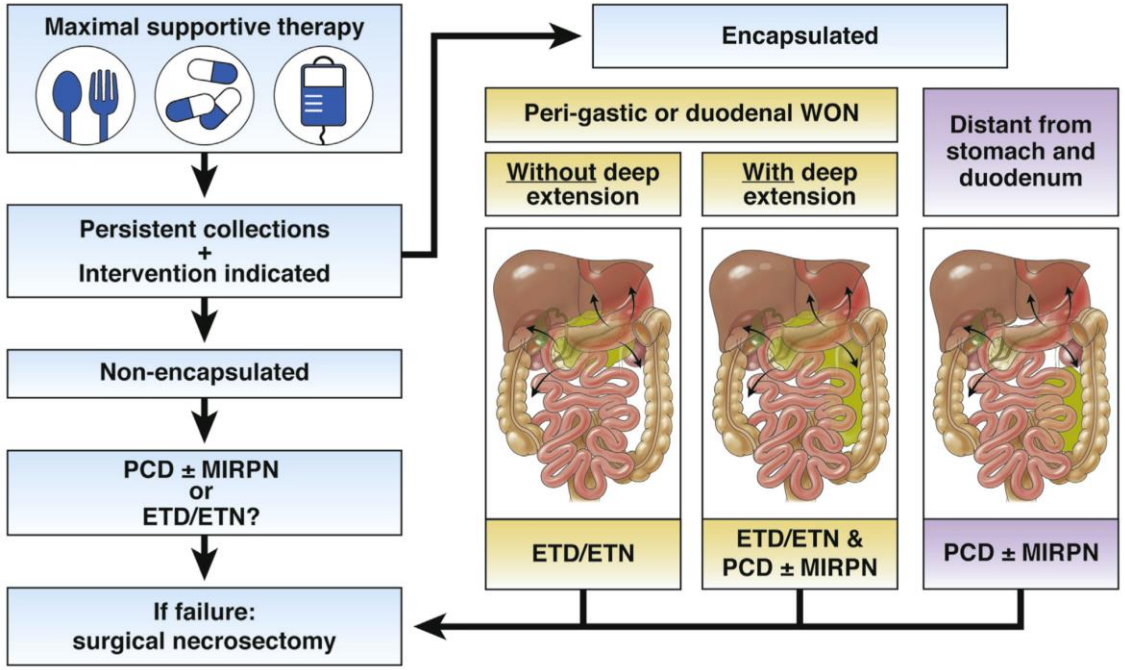


Figure 3. Strategy for interventions in necrotizing pancreatitis. MIRPN, minimally invasive retroperitoneal necrosectomy.

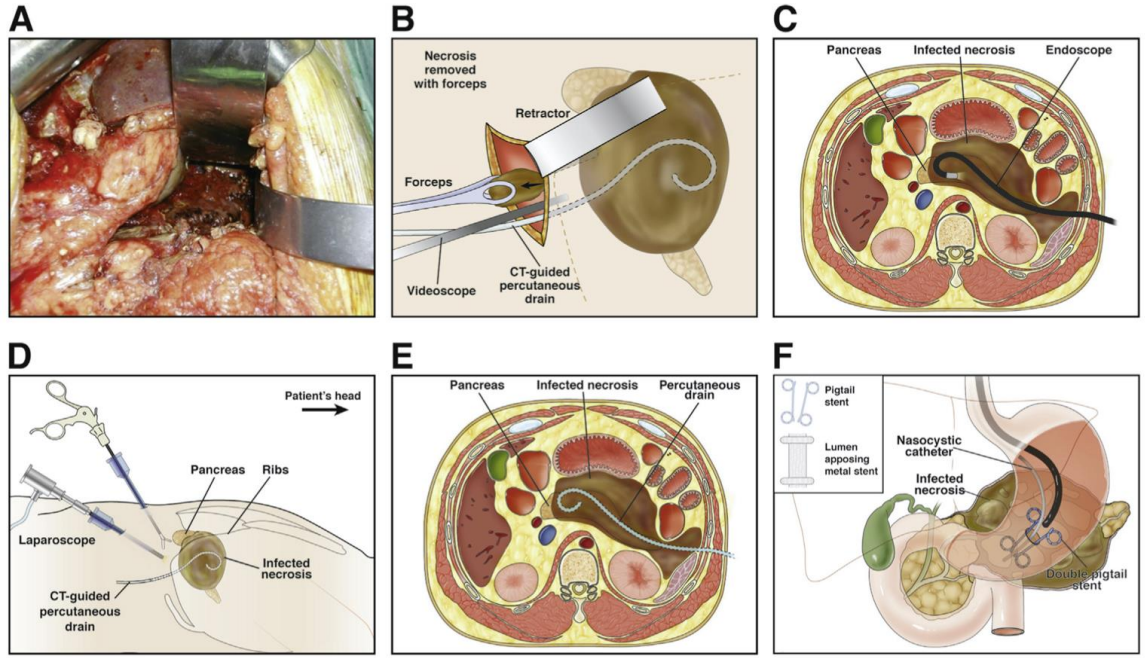
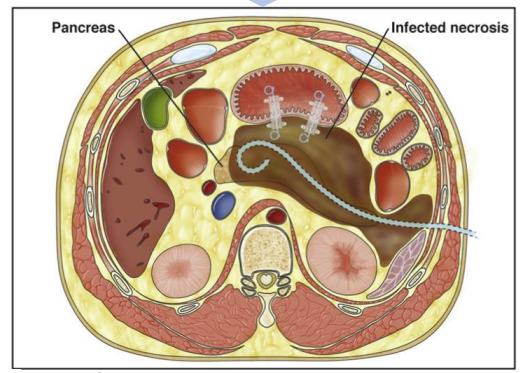


Figure 2. Interventions for necrotizing pancreatitis. Open surgical necrosectomy: (*A*) VARD; (*B*) sinus tract endoscopy (STE); (*C*) laparoscopic necrosectomy; (*D*) PCD; (*E*) endoscopic transluminal necrosectomy.

"Step-up" Therapy

- Percutaneous drainage, followed by endoscopic drainage/debridement or VARD if necrosis does not resolve



Ex. of PCD + step up endoscopic drainage

Complications of Severe Pancreatitis

1) Pancreatic Fistula
2) Disconnected Pancreatic Duct Syndrome
3) Exocrine and Endocrine Pancreatic Insufficiency
4) Splanchnic Vein Thrombosis
5) Pseudoaneurysm

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