Acute Pancreatitis Updates: Everything You Know is Wrong

(Almost)

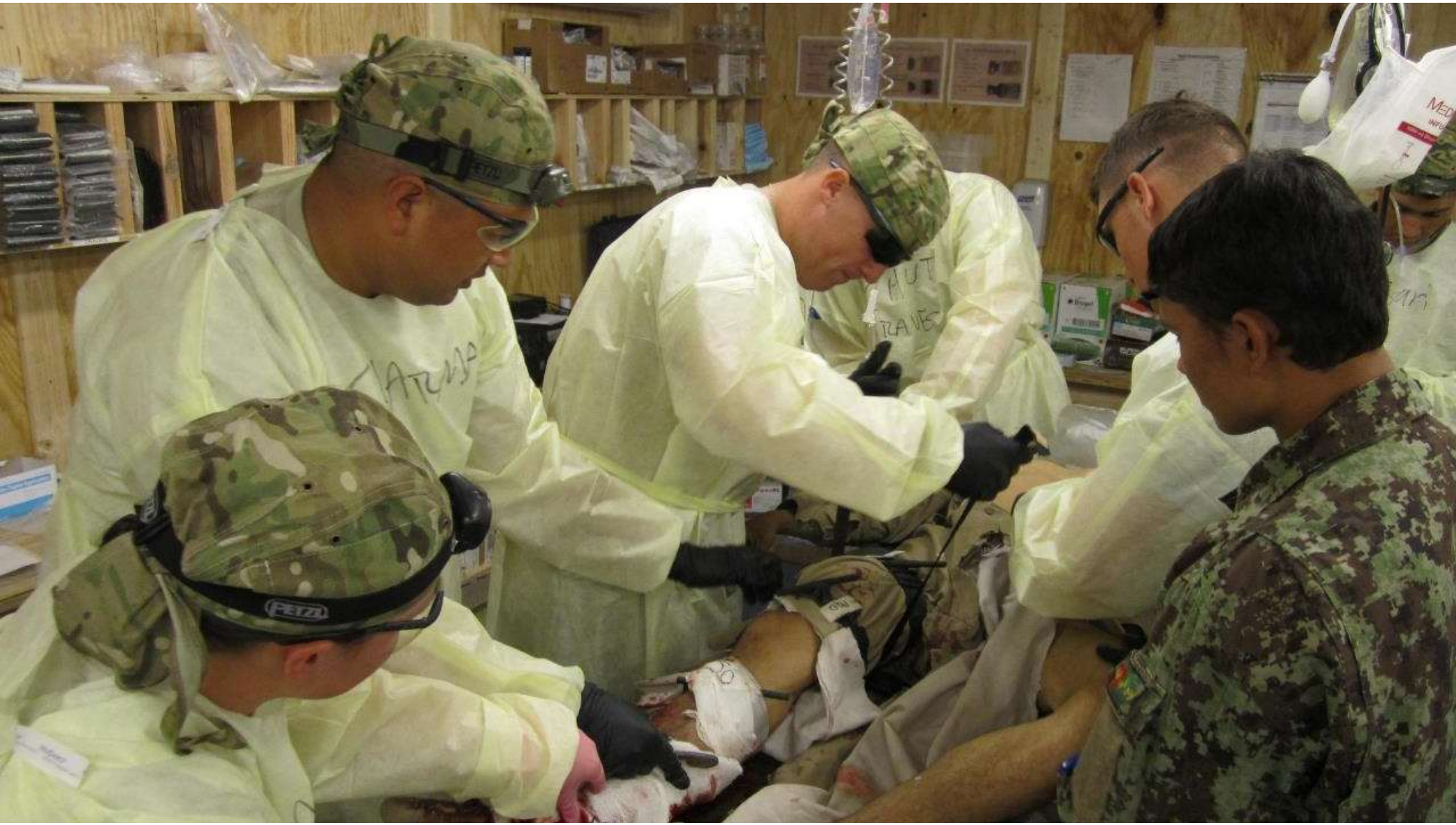
AAPA 2024

Michael A. Sharma, MPAS, PA-C
Emergency Medicine, UT Southwestern Medical Center, Dallas, TX
Adjunct Professor, Mercy College of Ohio, Toledo, OH
michael.sharma@gmail.com | @michaelsharmapa | 2view.fireside.fm

Disclosures

- I have no relevant relationships with ineligible companies to disclose within the past 24 months.


INTERSERVICE PHYSICIAN ASSISTANT PROGRAM
FORT SAM HOUSTON, TEXAS
PA
Primum Non Nocere
INTEGRITY PERSISTENCE ATTITUDE PROFESSIONALISM
ARMY NAVY AIR FORCE COAST GUARD


PETZL


Parkland
UT Southwestern
Medical Center
The
2 View
EM PA & NP Podcast
EM:RAP
Emergency Medicine:
Reviews and Perspectives
TOTAL
EM

Learning Objectives

- At the conclusion of this session, participants should be able to:
  - Recall the pathophysiology of acute pancreatitis, including common risk factors/triggers
  - Select the IV fluid and dosing strategy associated with best outcomes in acute pancreatitis
  - Describe the utility of different imaging modalities in acute pancreatitis at different times in the patient's presentation
  - Risk stratify patients for likelihood of severe or fatal pancreatitis utilizing modern methods of risk stratification

Clinical Review & Education

JAMA | Review

Acute Pancreatitis
A Review

Michael A. Mederos, MD; Howard A. Reber, MD; Mark D. Girgis, MD

IMPORTANCE In the United States, acute pancreatitis is one of the leading causes of hospital admission from gastrointestinal diseases, with approximately 300 000 emergency department visits each year. Outcomes from acute pancreatitis are influenced by risk stratification, fluid and nutritional management, and follow-up care and risk-reduction strategies, which are the subject of this review.

OBSERVATIONS MEDLINE was searched via PubMed as was the Cochrane databases for English-language studies published between January 2009 and August 2020 for current

Multimedia

Related article page 391

Supplemental content

CME Quiz at jamacmelookup.com

JAMA. 2021;325(4):382-390. doi:10.1001/jama.2020.20317

Are We Doing Acute Pancreatitis Right?

Dr. Howard Reber
Distinguished Professor of
Surgery Emeritus, UCLA

"I think the idea that, in the emergency room, if one makes the diagnosis of **acute pancreatitis,**

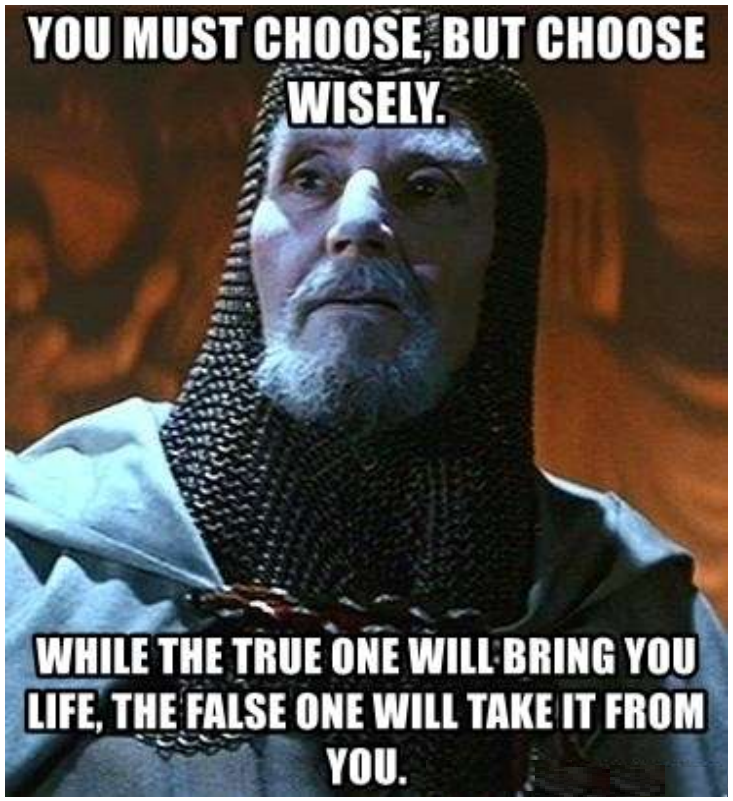
and gets the sense the patient has **mild disease**, that it is reasonable, that it is **safe to let them go home**…

I think that's wrong."

(JAMA Clinical Reviews Podcast, published 1/26/2021)

Are We Doing Acute Pancreatitis Right?

- Mortality estimates?
- Most common etiology?
- Most common symptom?
- Diagnostic criteria?
- Most important tests?
- Most important imaging?
- Most important treatment?
- Progostic criteria?
- Most important precaution?



Question 1

According to data published in 2015-2016, what percentage of patients die from severe acute pancreatitis?

A. 2%

B. 12%

C. 20%

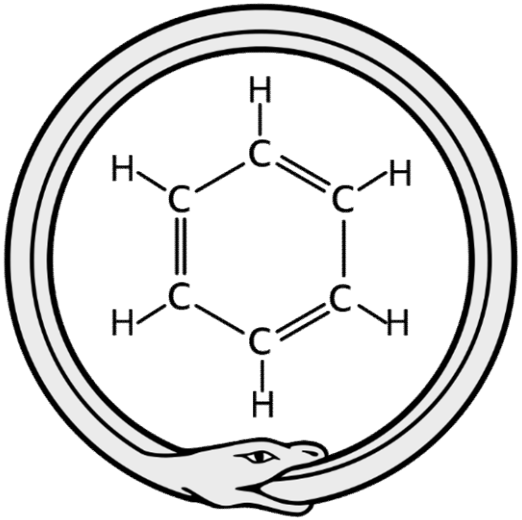
D. 40%

Background

- One of the most common GI conditions that requires admission
- 300,000 pts/year visit the ED
- 80% of these patients do not develop severe disease

Pathophysiology

- The pancreas is basically eating itself
- Pancreas damaged → trypsin is produced
- Trypsin → activation of other digestive enzymes
- Kinin system activated → vasodilation, **inflammation**, and swelling



Question 2

What is the most common etiology of acute pancreatitis?

A. Hypertriglyceridemia

B. Gallstone impaction

C. Alcohol use disorder

D. Procedural complication

Risk Factors – An Acronym

- Gallstones
- Ethanol
- Trauma
- Steroids
- Mumps
- Autoimmune / anatomy
- Scorpion stings
- Hypertriglyceridemia / hypercalcemia
- ERCP & EUS
- Drugs

Question 3

What is the most common symptom of acute pancreatitis?

A. Abdominal pain

B. Vomiting

C. Diarrhea

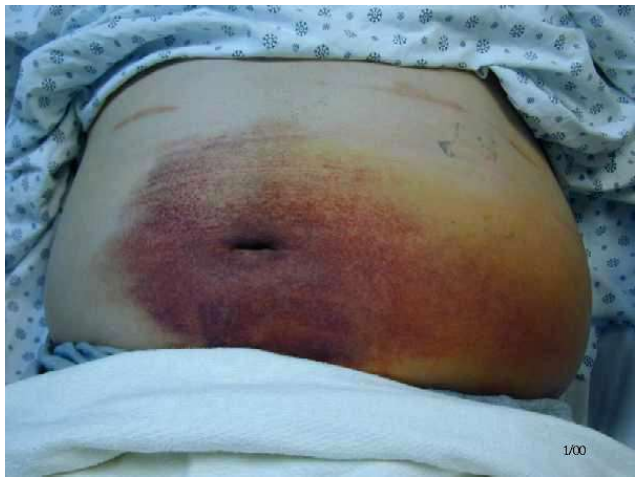
D. Shortness of breath

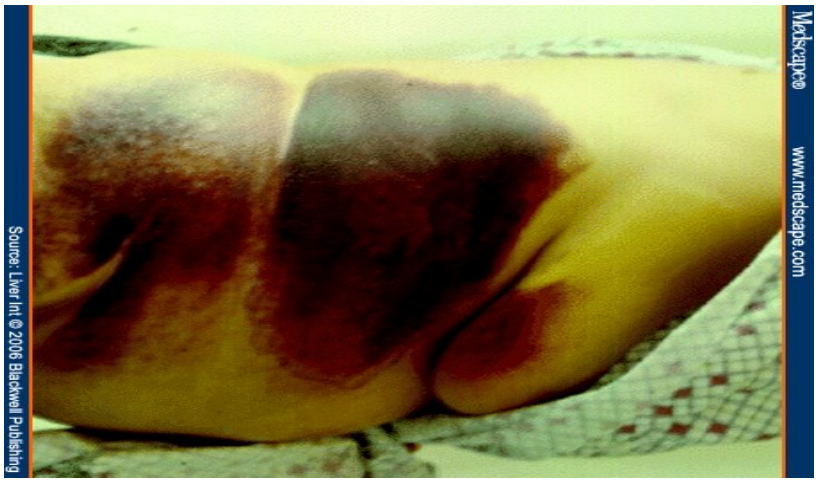
Presentation

- Abdominal pain
  - Constant (not colicky)
  - Usually epigastric – a patient solely with lower abdominal pain is unlikely to have acute pancreatitis
  - Often radiating to the back
  - Provoked by PO intake and lying supine
- Nausea & vomiting
- SIRS criteria, to include a mild fever

Presentation

- Hemorrhagic pancreatitis
  - Cullen's sign – periumbilical ecchymosis
  - Grey-Turner's sign – flank ecchymosis





Question 4

Which of the following is the most specific lab test for acute pancreatitis?

A. Amylase

B. Lipase

C. Alkaline phosphatase

D. Bilirubin

Diagnostics

- Workup should include CBC, CMP, lipase
  - Lipase & amylase >3x the upper lab limit of normal is concerning for pancreatitis
  - Amylase is not specific and does not add dx certainty – stop ordering it
- Consider triglyceride level if etiology still unclear

WBC	4.0 - 12.4 K/cmm	9.35
RBC	3.86 - 5.04 M/cmm	3.62 (L)
Hemoglobin	11.6 - 15.2 gm/dl	Hemoglobin not reportable due to presence of lipemia

If the lab can't run tests because the blood is lipemic, your patient probably has hypertriglyceridemic pancreatitis.

The Internet Book of Critical Care, by @pulmcrit

Question 5

An imaging modality that should be considered in the first 24 hours of all episodes of acute pancreatitis is

A. ultrasound.

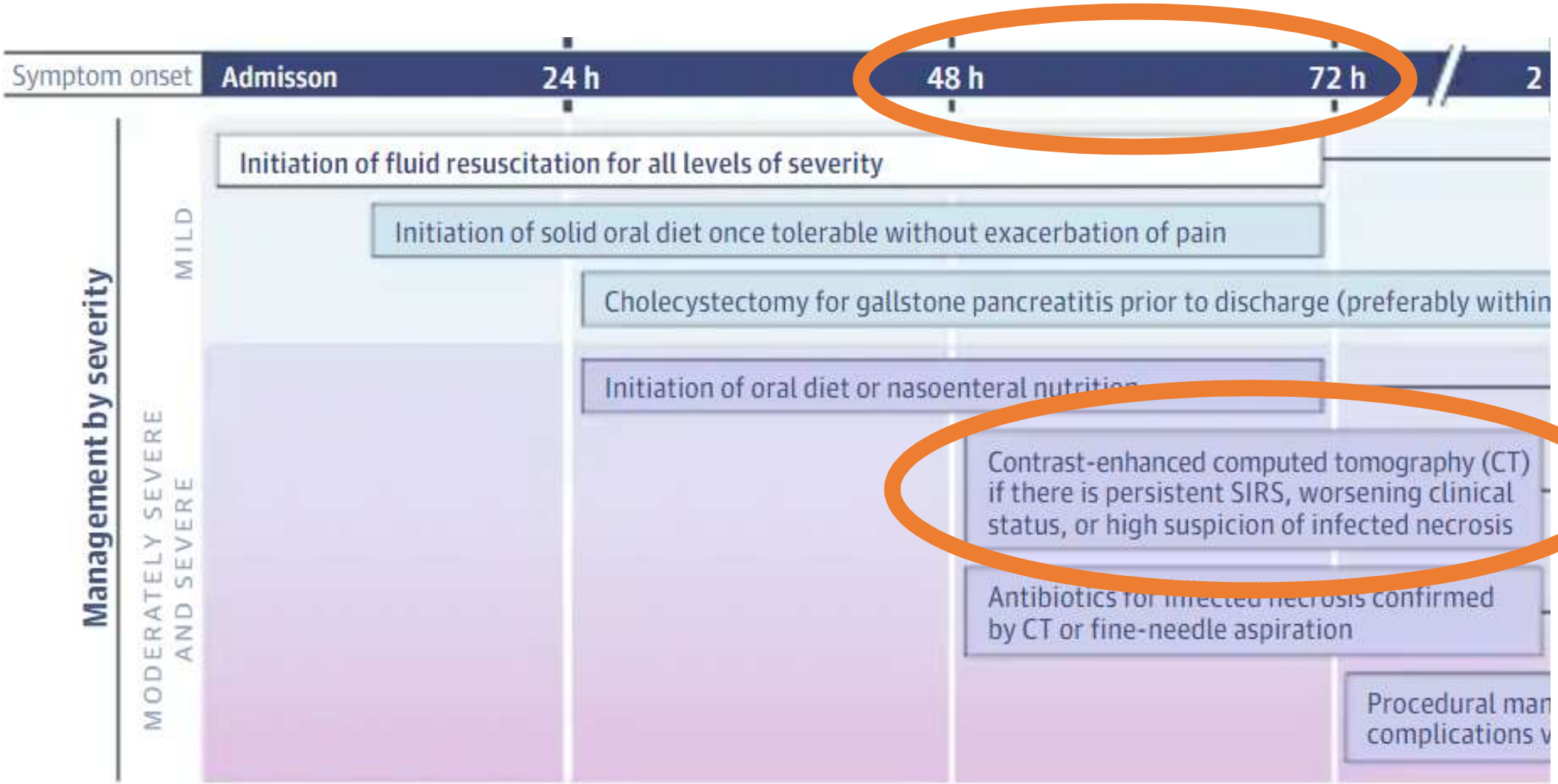
B. magnetic resonance imaging.

C. plain radiography.

D. computed tomography.

Imaging

- Ultrasound
- Plain radiographs
  - Consider chest x-ray – pneumonia, pleural effusion
- CT
  - When diagnosis is unclear
  - When symptoms are refractory to the initial resuscitation (sepsis? perforation?)
  - When presentation to the ED is delayed
  - After the patient has been admitted


Symptom onset
Admisson
24 h
48 h
72 h
2
Management by severity
MILD
MODERATELY SEVERE AND SEVERE
Initiation of fluid resuscitation for all levels of severity
Initiation of solid oral diet once tolerable without exacerbation of pain
Cholecystectomy for gallstone pancreatitis prior to discharge (preferably within
Initiation of oral diet or nasoenteral nutrition
Contrast-enhanced computed tomography (CT) if there is persistent SIRS, worsening clinical status, or high suspicion of infected necrosis
Antibiotics for infected necrosis confirmed by CT or fine-needle aspiration
Procedural man
complications v

Question 6

Which of the following is a widely accepted diagnostic criteria for acute pancreatitis?

A. Ranson criteria

B. BISAP scoring

C. Modified Dallas scale

D. Revised Atlanta classification

Diagnostic Criteria

- To meet revised Atlanta classification, 2 of the following 3 are required
  - Lipase or amylase >3x the upper limit of lab normal
  - Abdominal pain typical of pancreatitis
  - Imaging findings suggestive of pancreatitis

Question 7

Which of the following would be most important in the management of most patients with acute pancreatitis?

A. Normal saline

B. Antibiotics

C. Analgesia

D. Pressors

Treatment

- Analgesia – IV
  - Consider weight-based strategy of opioid dosing – 0.1 mg/kg up to 10mg
  - Appropriately dosed ketamine may provide more satisfactory analgesia
- Fluid resuscitation
  - Volume depletion from decreased PO intake and vomiting
  - But also volume depletion from third-spacing from inflammation
  - > BUN associated with > odds ratio (OR) for mortality by **2.2-4.6**
  - **Start fluids early**

Treatment

- More about fluids
  - Lactated Ringer's solution is recommended by most guidelines
    - Possible anti-inflammatory effect, decreased OR of SIRS
    - Low/moderate quality evidence
  - Goal should be to return to normovolemia[1]
    - Previous teaching of large-volume infusion can → complications
    - Also consider typical risk factors for volume overload – pre-existing cardiac or renal disease
- Consider **pressors** if pt's blood pressure not responding appropriately

1. de-Madaria E, Buxbaum JL, Maisonneuve P, et al. Aggressive or Moderate Fluid Resuscitation in Acute Pancreatitis. *N Engl J Med*. 2022;387(11):989-1000. https://pubmed.ncbi.nlm.nih.gov/36103415/

Are We Doing Acute Pancreatitis Right?

Dr. Howard Reber
Distinguished Professor of
Surgery Emeritus, UCLA

"I think the idea that, in the emergency room, if one makes the diagnosis of **acute pancreatitis,**

and gets the sense the patient has **mild disease**, that it is reasonable, that it is **safe to let them go home**…

I think that's wrong."

(JAMA Clinical Reviews Podcast, published 1/26/2021)

Question 8

Which of the following is a prognostic system for acute pancreatitis that can be completely assessed in the emergency department?

A. Ranson criteria

B. BISAP scoring

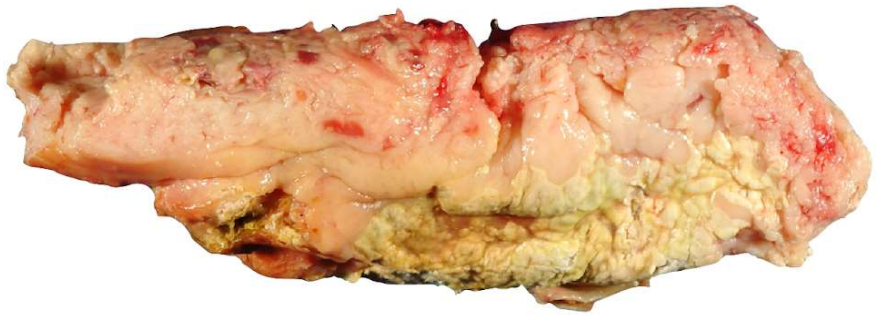
C. Modified San Francisco rule

D. Revised Atlanta classification

Risk Stratification & Disposition

Ranson Criteria
At Admission
Age > 55 years
WBCs > 16,000/mm^3
Glucose > 200 mg/dL
LDH > 350 IU/L
AST > 250 SF units
48 hours After Admission
Hematocrit fall > 10%
BUN rise > 5 mg/dL
Calcium < 8 mg/dL
PaO_2 < 60 mm Hg
Base deficit > 4 mEq/L
Fluid sequestration > 6 L

Score	Associated Mortality Rate
0–2	1%
3–4	15%
5–6	40%
> 7	100%



Risk Stratification & Disposition

- Bedside Index for Severity in Acute Pancreatitis (2008)

Parameters	Score 0	Score 1
Blood urea nitrogen	<25 mg/dl	>25 mg/dl
Impaired mental status	Absent	Present
SIRS	Absent	Present
Age	<60 years	>60 years
Pleural effusion	Absent	Present

- BISAP ≤ 2 → mortality risk ≤ 2%
- Or just go with SIRS?

Question 9

According to the revised Atlanta classification, which of the following events occurring for over 48 hours would classify someone as having severe acute pancreatitis?

A. Persistent vomiting

B. Kidney injury

C. Abdominal pain

D. Diarrhea

Question 10

If a patient is discharged home after a diagnosis of acute pancreatitis, they should be advised to do which of the following over the next 24 hours?

A. Abtain completely from oral intake

B. Restrict themselves to clear liquids

C. Drink liquids but avoid solid foods

D. Eat food and drink as tolerated

Treatment

- Antibiotics
  - Only if there is a clear bacterial complication like cholangitis
  - Prophylactic antibiotics not indicated
  - This is primarily an *inflammatory* condition

Risk Stratification & Disposition

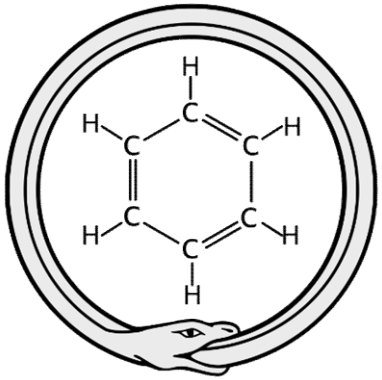
- Consider admission if:
  - Uncontrolled pain or vomiting
  - High-risk criteria for mortality by scoring system
  - Gallstone pancreatitis
  - First-time pancreatitis
  - Barriers to follow-up or returning

Risk Stratification & Disposition

- Clear return precautions if discharging
  - Pain medications
  - Anti-emetics
  - Follow up with PCP, GI, ETOH cessation

References

- de-Madaria E, Buxbaum JL, Maisonneuve P, et al. Aggressive or Moderate Fluid Resuscitation in Acute Pancreatitis. *N Engl J Med*. 2022;387(11):989-1000. https://pubmed.ncbi.nlm.nih.gov/36103415/
- Friedman, LS. Acute pancreatitis. In: Papadakis MA, McPhee SJ, Rabow MW, McQuaid KR, Gandhi M, eds. *Current Medical Diagnosis & Treatment 2024*. McGraw-Hill Education; 2024. Accessed May 09, 2024.
- Mederos MA, Reber HA, Girgis, MD. Acute pancreatitis: a review. *JAMA*. 2021; 325(4):382-390. Accessed February 15, 2022. https://pubmed.ncbi.nlm.nih.gov/33496779/
- Soskin, P. Pancreas. In: Hockberger RS, Gausche-Hill M, Erickson TB, Wilcox SR, eds. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. Tenth edition. Elsevier; 2023. Accessed May 9, 2024.



Questions?

(Before some final slides)

Parameters	Score 0	Score 1
Blood urea nitrogen	<25 mg/dl	>25 mg/dl
Impaired mental status	Absent	Present
SIRS	Absent	Present
Age	<60 years	>60 years
Pleural effusion	Absent	Present

www.totalem.org

2view.fireside.fm

Let’s Do Acute Pancreatitis Right

- Most common symptom – **abdominal pain**
- Most common etiology – **gallstones, but it depends**
- Most important test – **lipase**
- Most important imaging – **US in the ED; CT sometimes/later**
- Most important tx – **analgesia; LR but don’t overdo it**
- Risk stratification from the ED – **BISAP criteria or SIRS**
- Most important precaution – **enteral nutrition, good f/u**

AAPA 2024

Michael A. Sharma, MPAS, PA-C
Emergency Medicine, UT Southwestern Medical Center, Dallas, TX
Adjunct Professor, Mercy College of Ohio, Toledo, OH
michael.sharma@gmail.com | @michaelsharmapa | 2view.fireside.fm