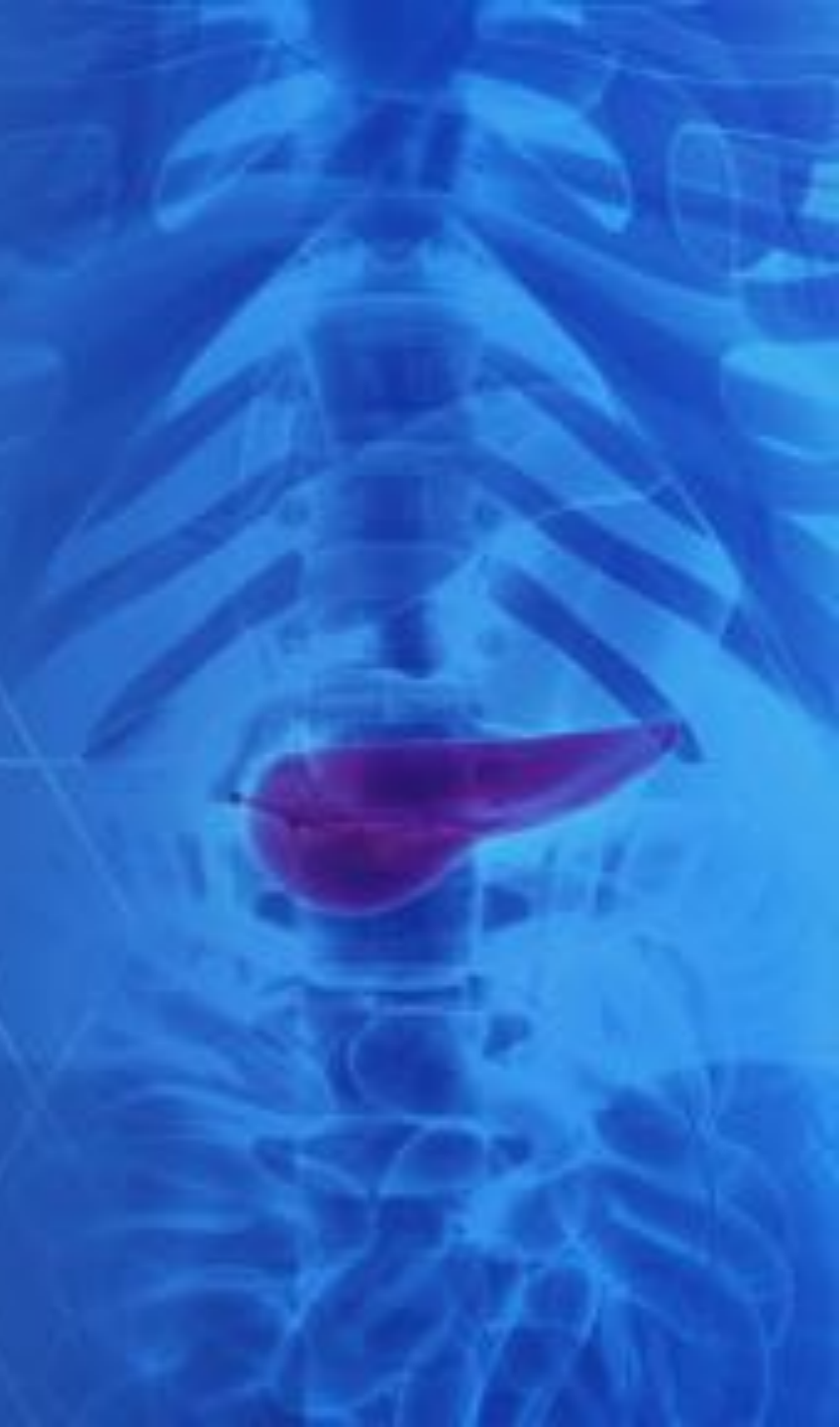
2018 CAPER

Collaborative Alliance for Pancreatic Education and Research

PANCREAS ACADEMY



Rehoboth McKinley Christian Health Care Services

CAPER Collaborative Alliance for Pancreatic Education and Research

Jointly provided by the New Mexico Medical Society (NMMS) through the joint providership of Rehoboth McKinley Christian Health Care Services (RMCHCS) and the Collaborative Alliance for Pancreatic Education and Research.

2018 CAPER
PANCREAS ACADEMY

ACUTE PANCREATITIS (AP)

Presentation | Diagnosis | Severity

Peter J Lee MBChB

NO CONFLICTS OF INTEREST

ACCURATE DIAGNOSIS

CAUSES OF ↑ENZYMES

ETIOLOGY

MILD
MODERATE
SEVERE

COURSE

WHAT

IS ACUTE PANCREATITIS?

Inflammation of the pancreas

10-15%

GLAND NECROSIS

5-10%

1-2%

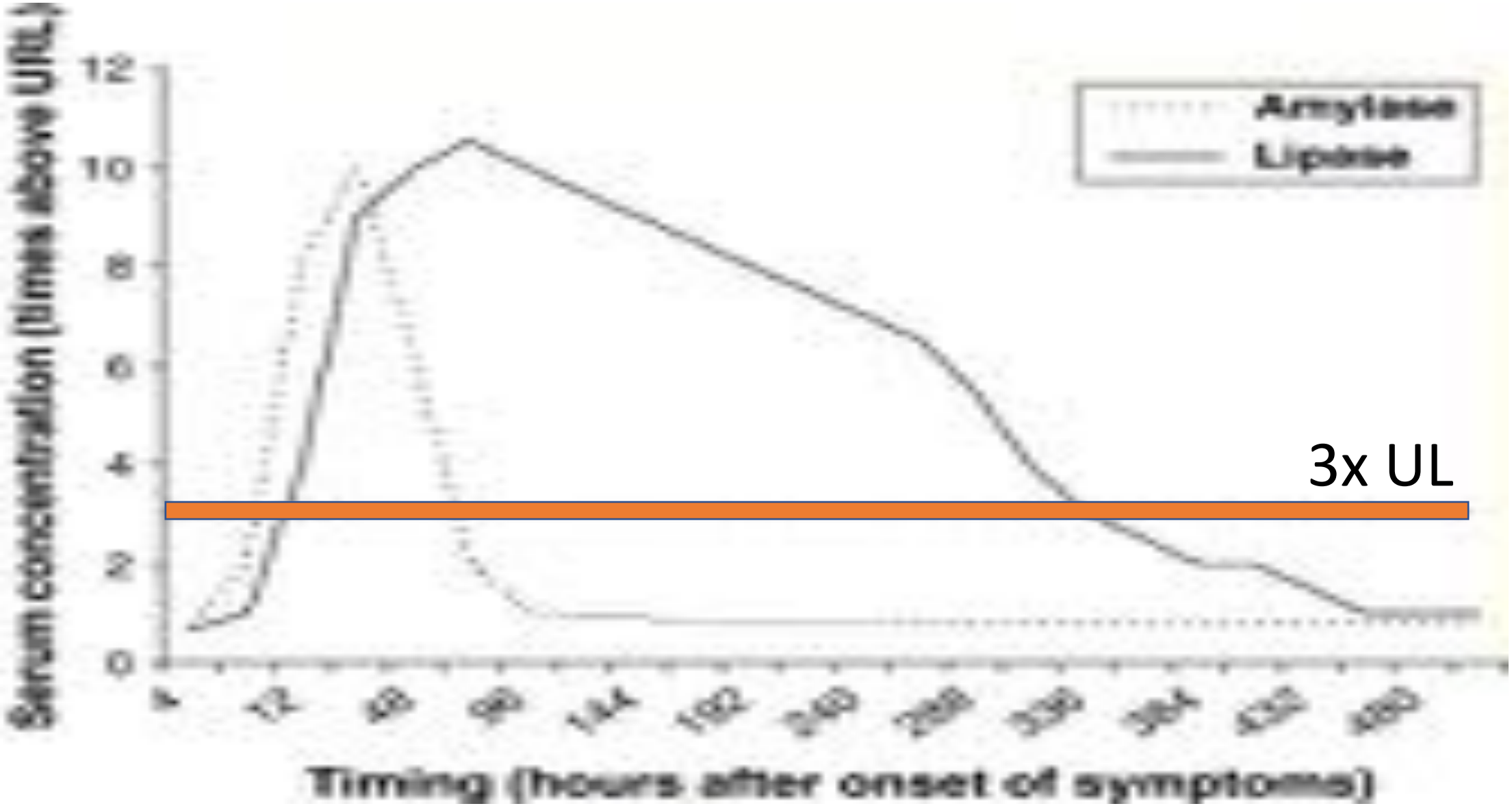
DIAGNOSTIC CRITERIA

3x UL AMYLASE
LIPASE

IMAGING EVIDENCE

AMYLASE & LIPASE ELEVATION TIME COURSE

It is helpful to know the time course of pancreatic enzymes

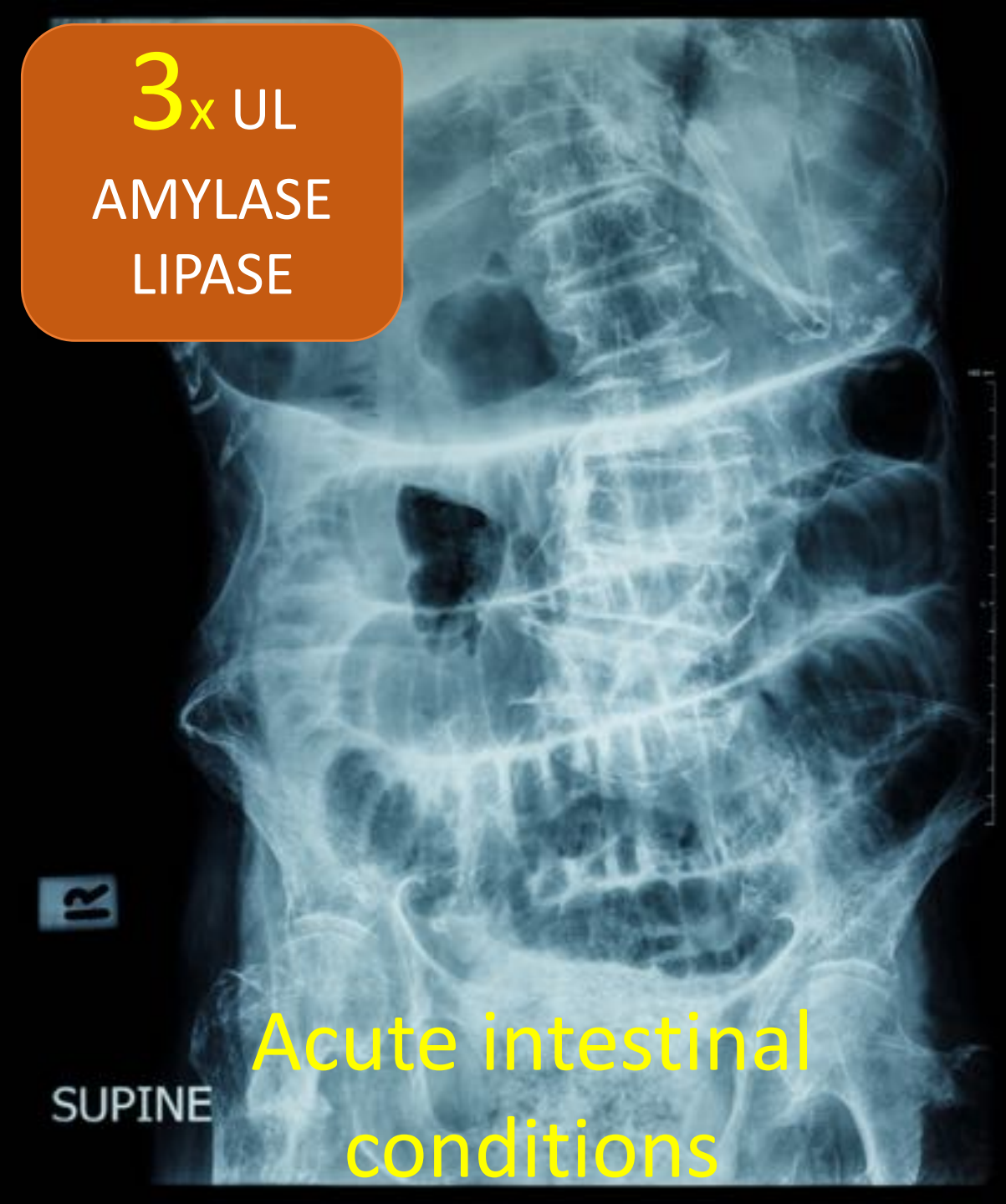

Serum concentration (Units Above UL)
12
10
8
6
4
2
0
Amylase
Lipase
3x UL
Timing (hours after onset of symptoms)

LIMITATIONS OF AMYLASE LIPASE

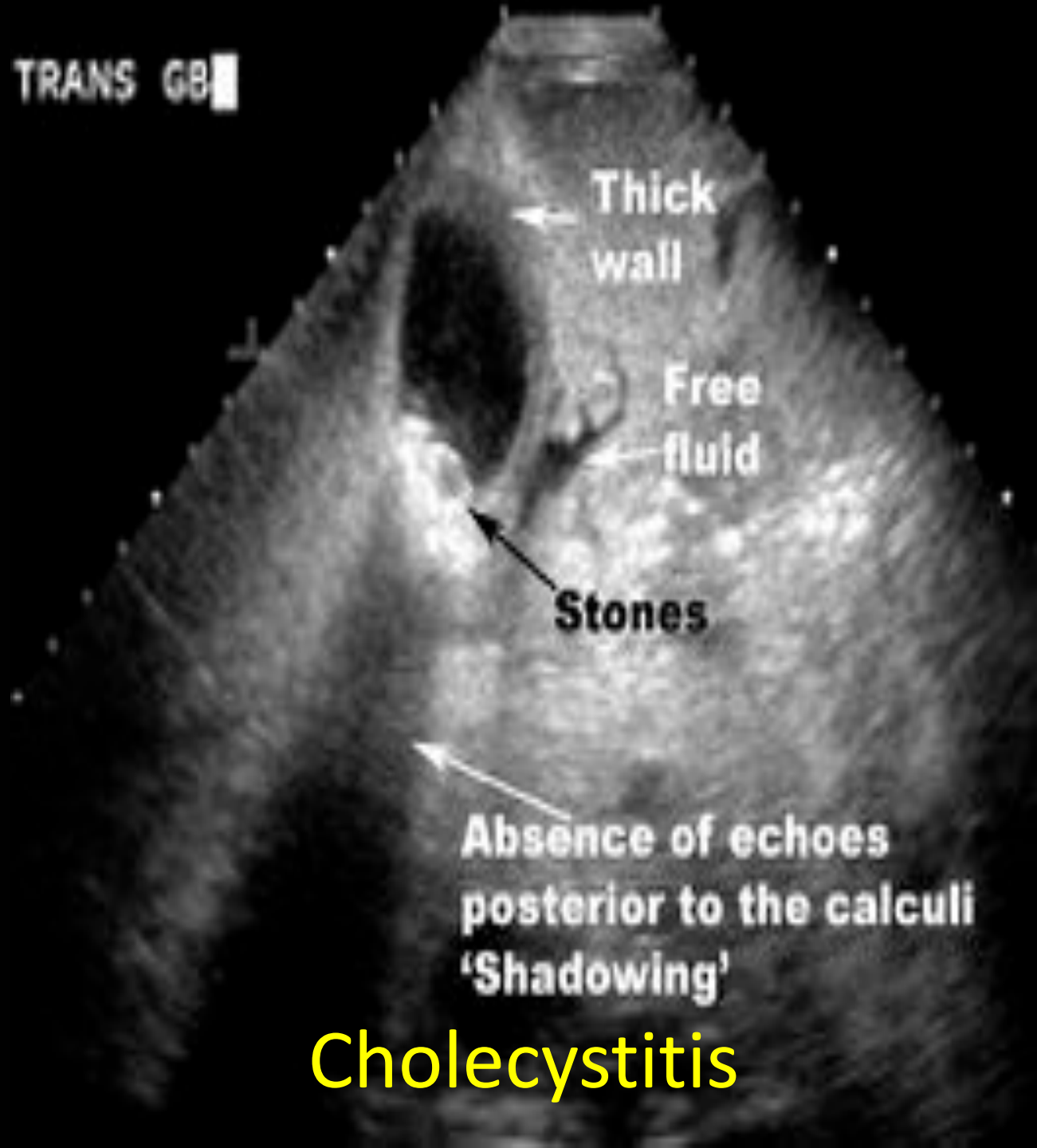
Amylase may not be elevated in hypertriglyceridemia or alcoholic pancreatitis

Other non-pancreatic conditions can lead to elevations

3x UL
AMYLASE
LIPASE



Acute intestinal conditions



Cholecystitis

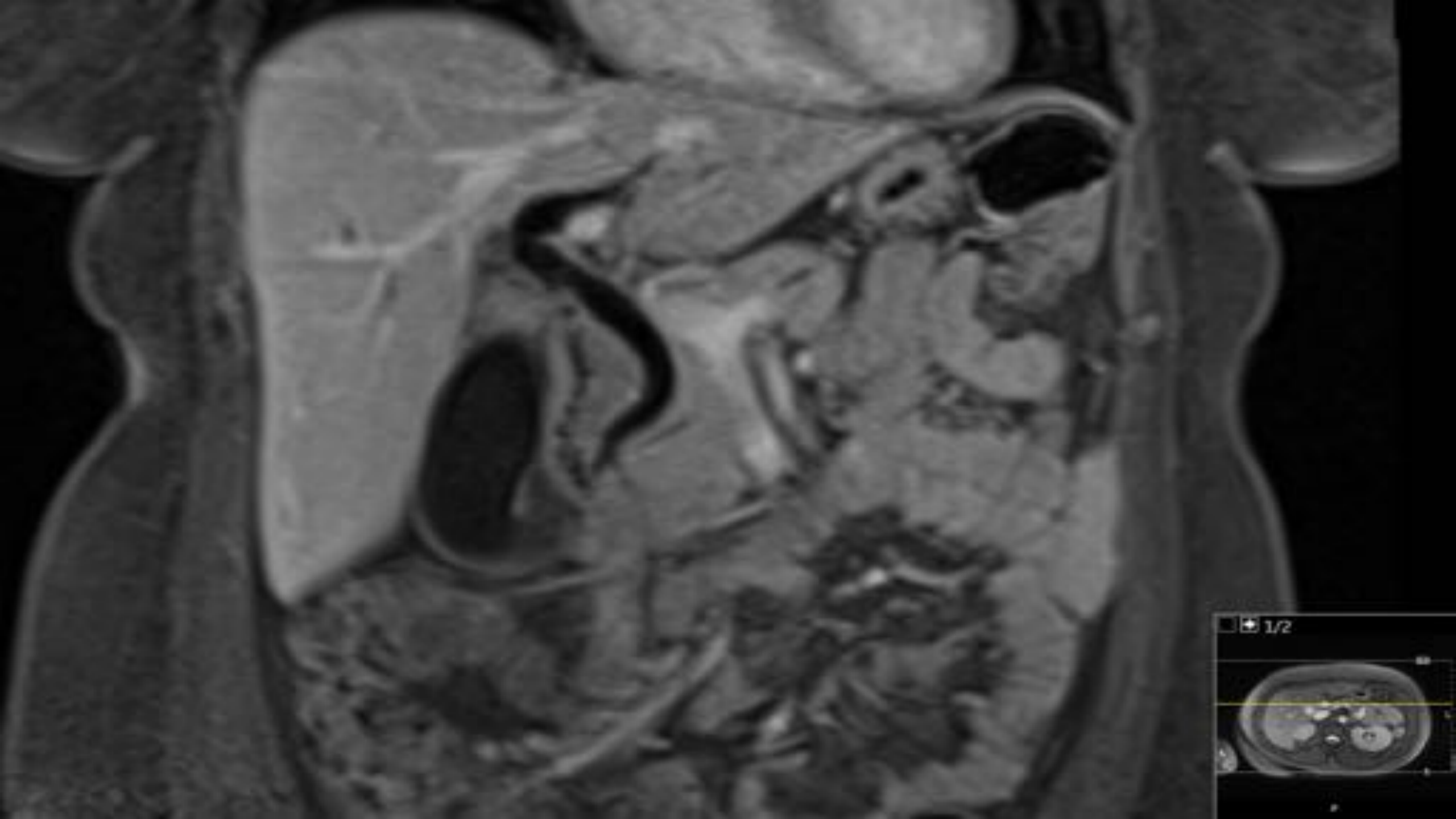
EXAMPLE CASE

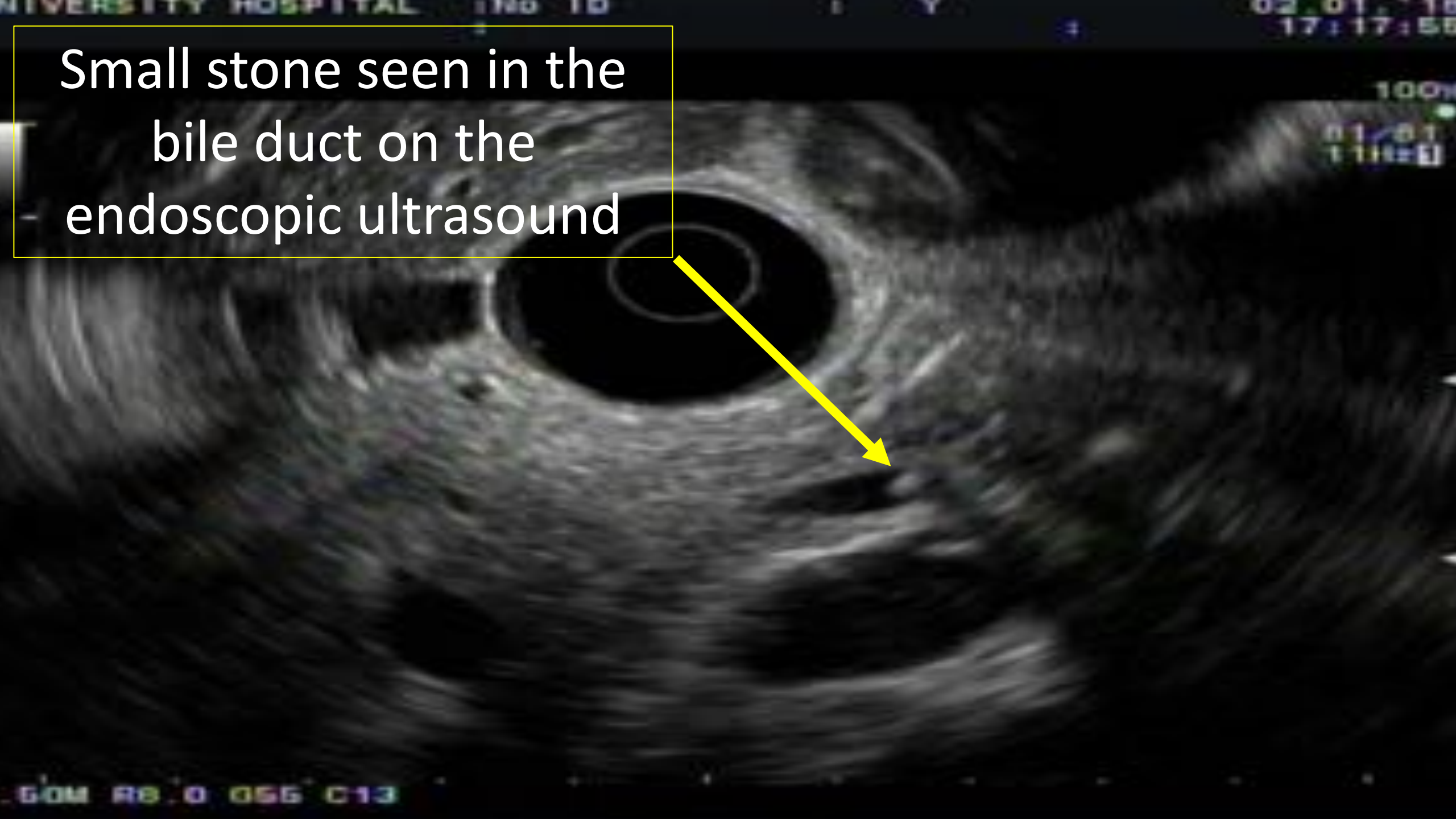
25 years old female

Acute RUQ pain radiating to the back

Bilirubin 6.4; ALP 213; lipase 260

US : CBD 8.7mm; intrahepatic duct dilation


1/2


Small stone seen in the bile duct on the endoscopic ultrasound

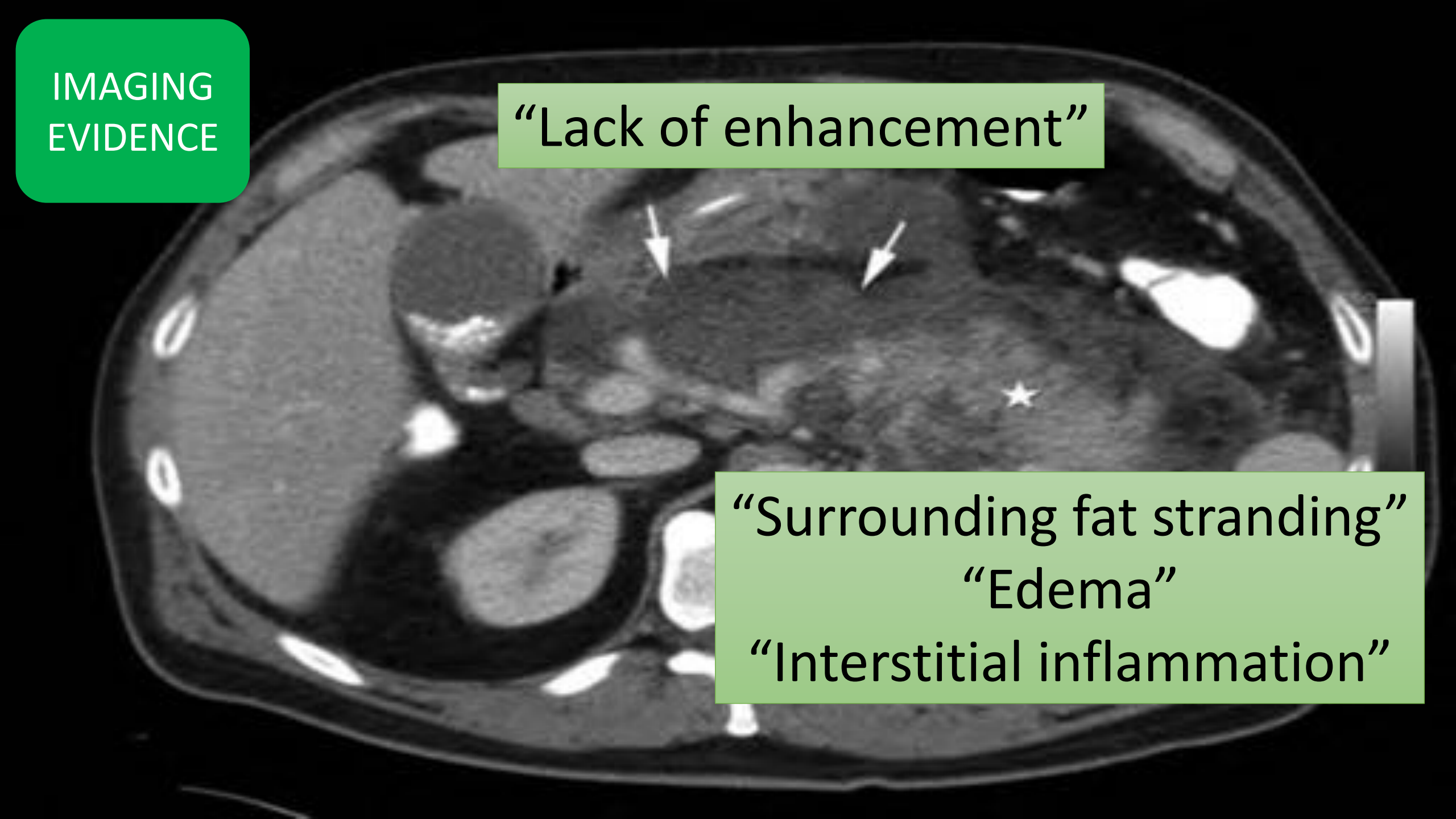

STONE

IMAGING EVIDENCE

"Surrounding fat stranding"
"Edema"
"Interstitial inflammation"


IMAGING EVIDENCE
“Lack of enhancement”

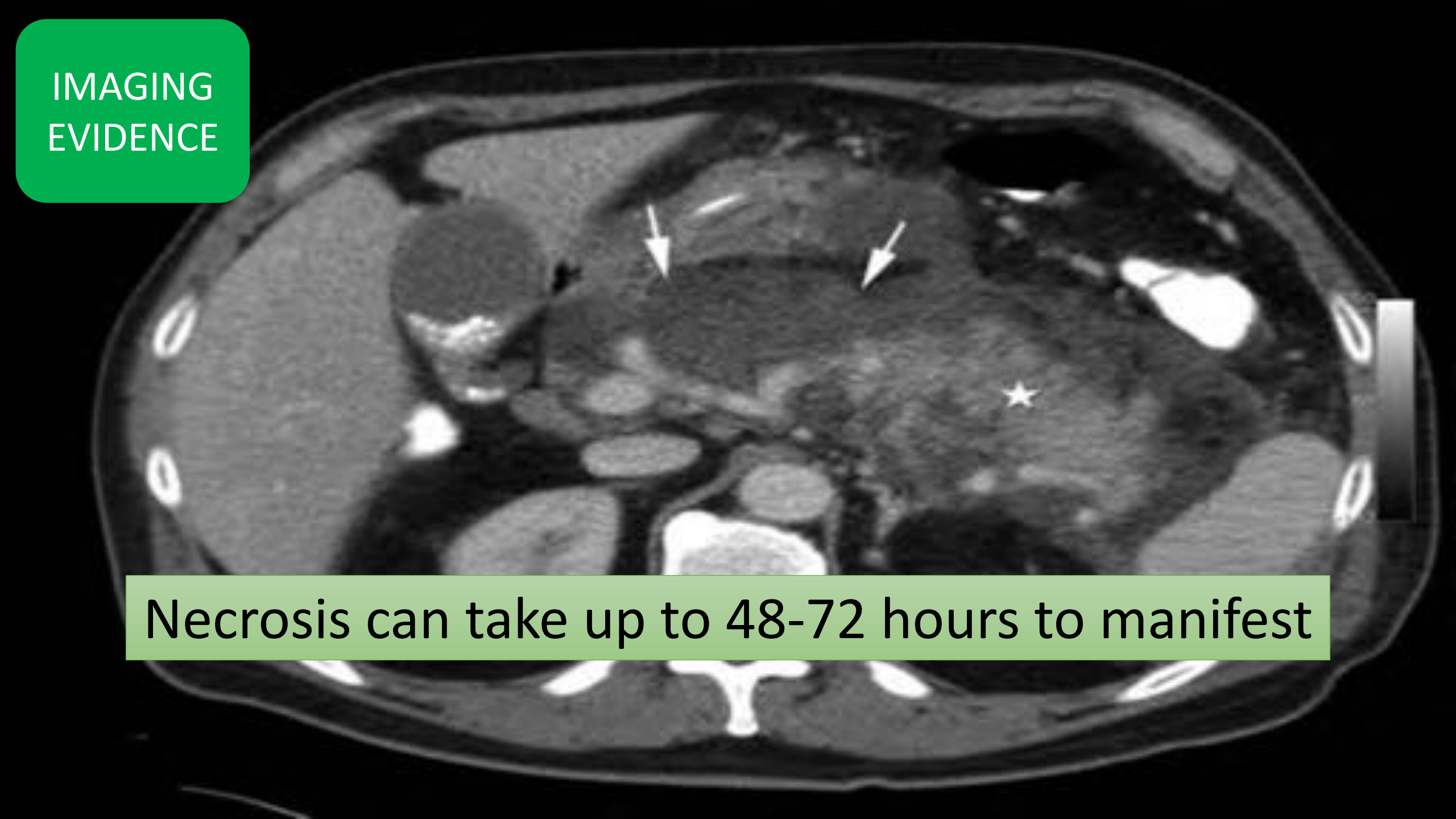
IMAGING EVIDENCE



"Lack of enhancement"

"Surrounding fat stranding"
"Edema"
"Interstitial inflammation"

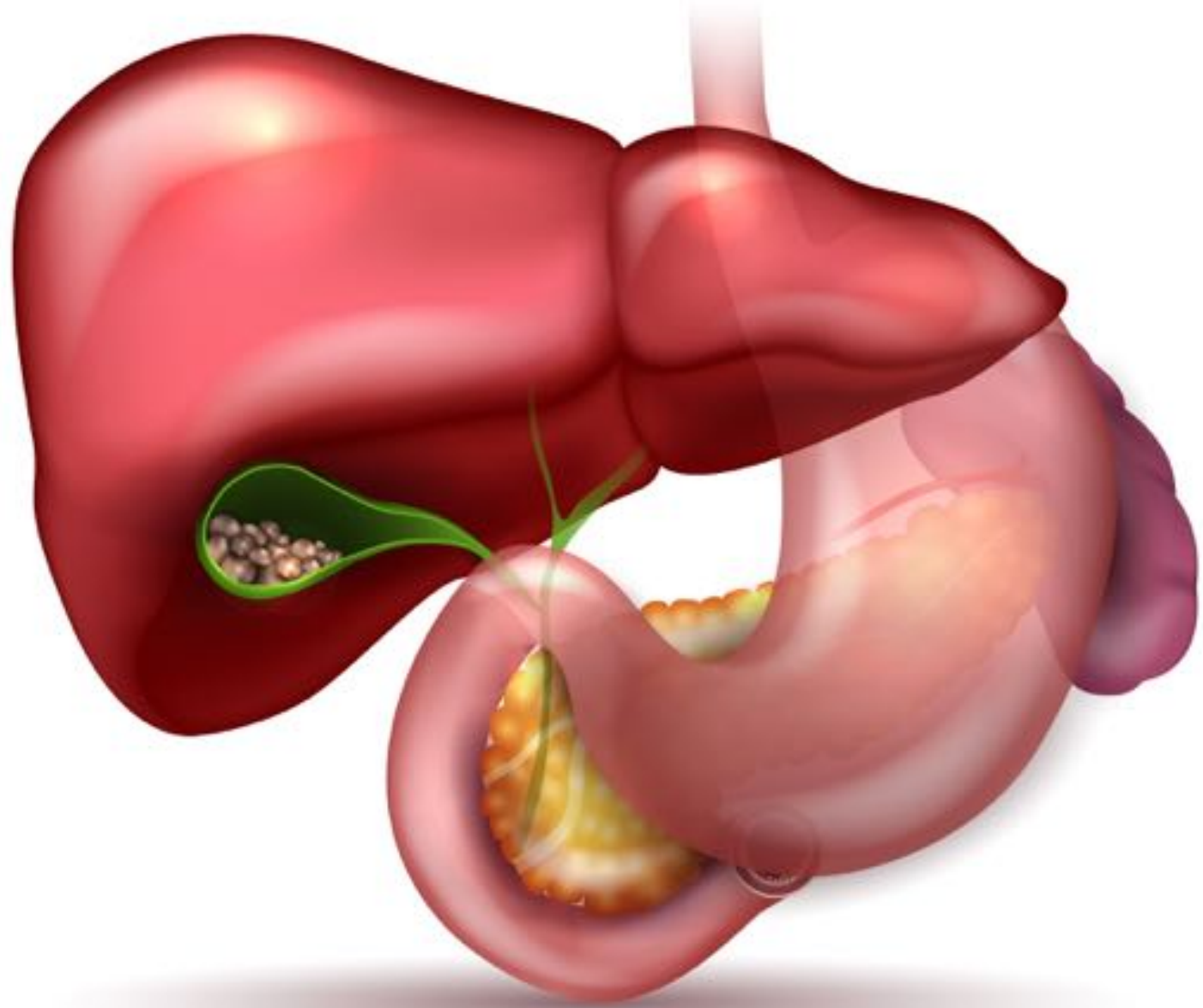
IMAGING EVIDENCE



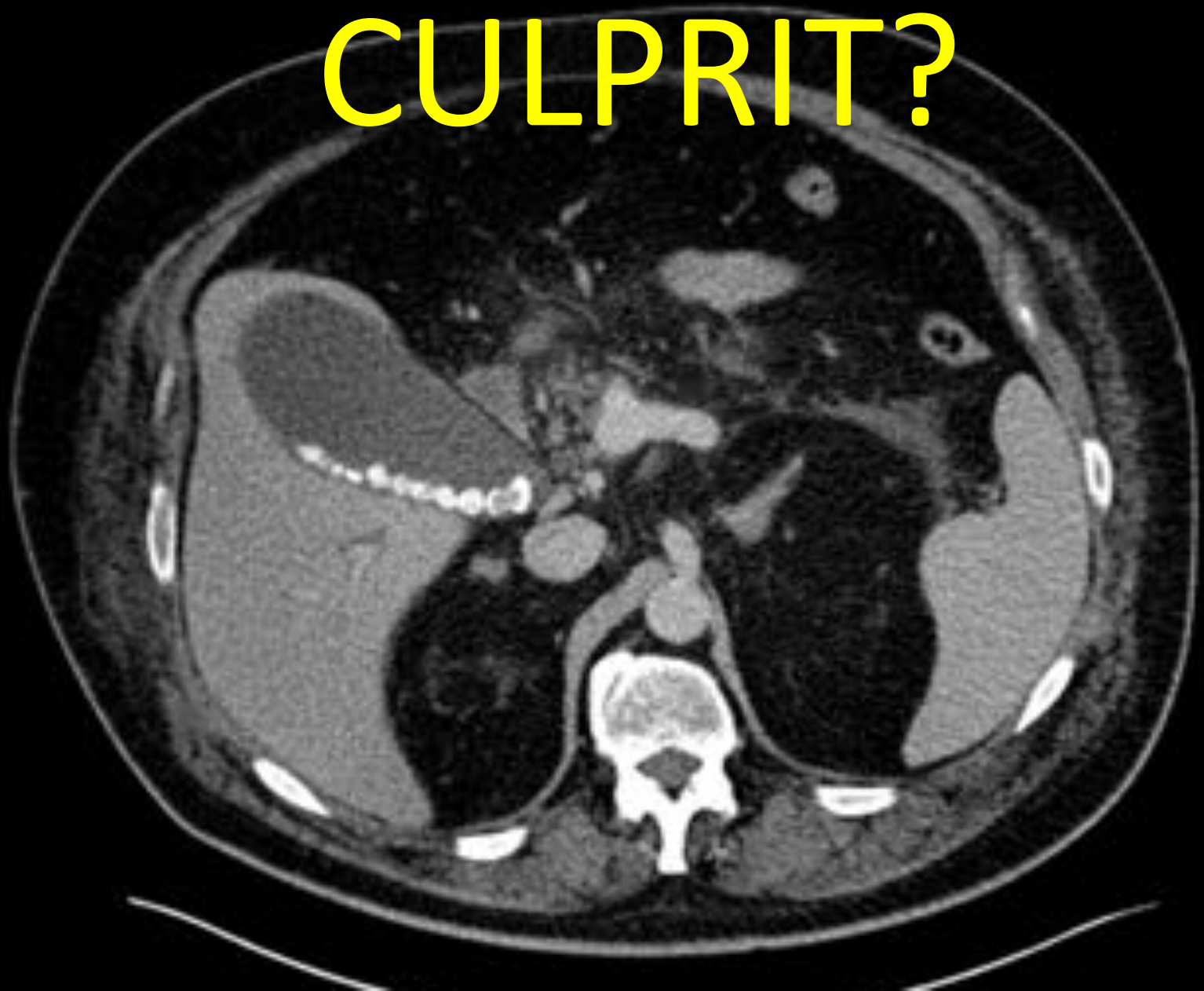
Necrosis can take up to 48-72 hours to manifest

ETIOLOGY


TENNESSEE
WHISKEY
TENNESSEE
WHISKEY



HOW DO YOU ASCERTAIN GALLSTONE AS THE CULPRIT?



ALT >150 IU/L

IS SPECIFIC FOR GALLSTONE PANCREATITIS

HOW MUCH DOES IT TAKE TO CAUSE PANCREATITIS?

5 standard drinks/day for at least 5 years

ERCP

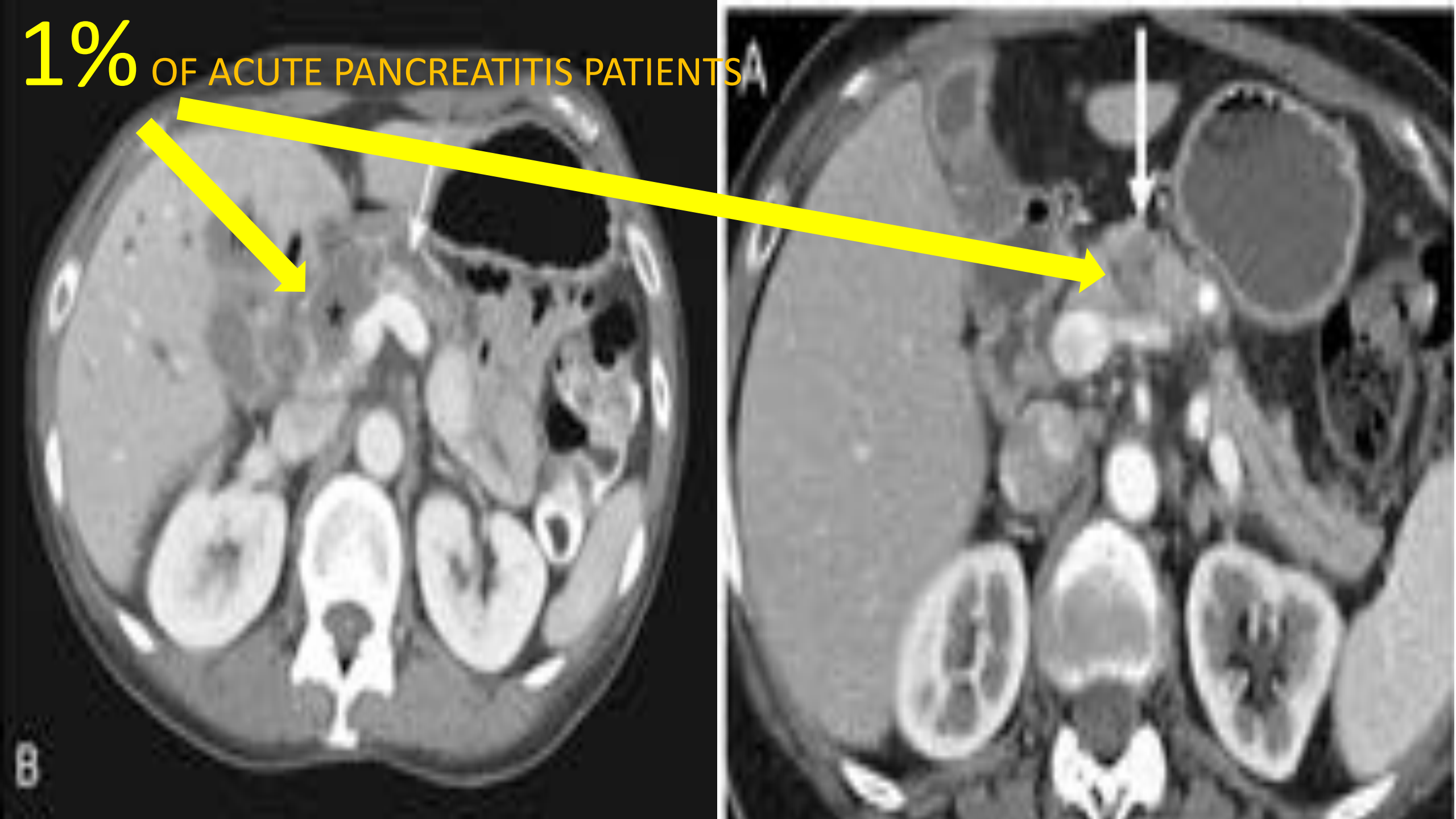
↑ Calcium

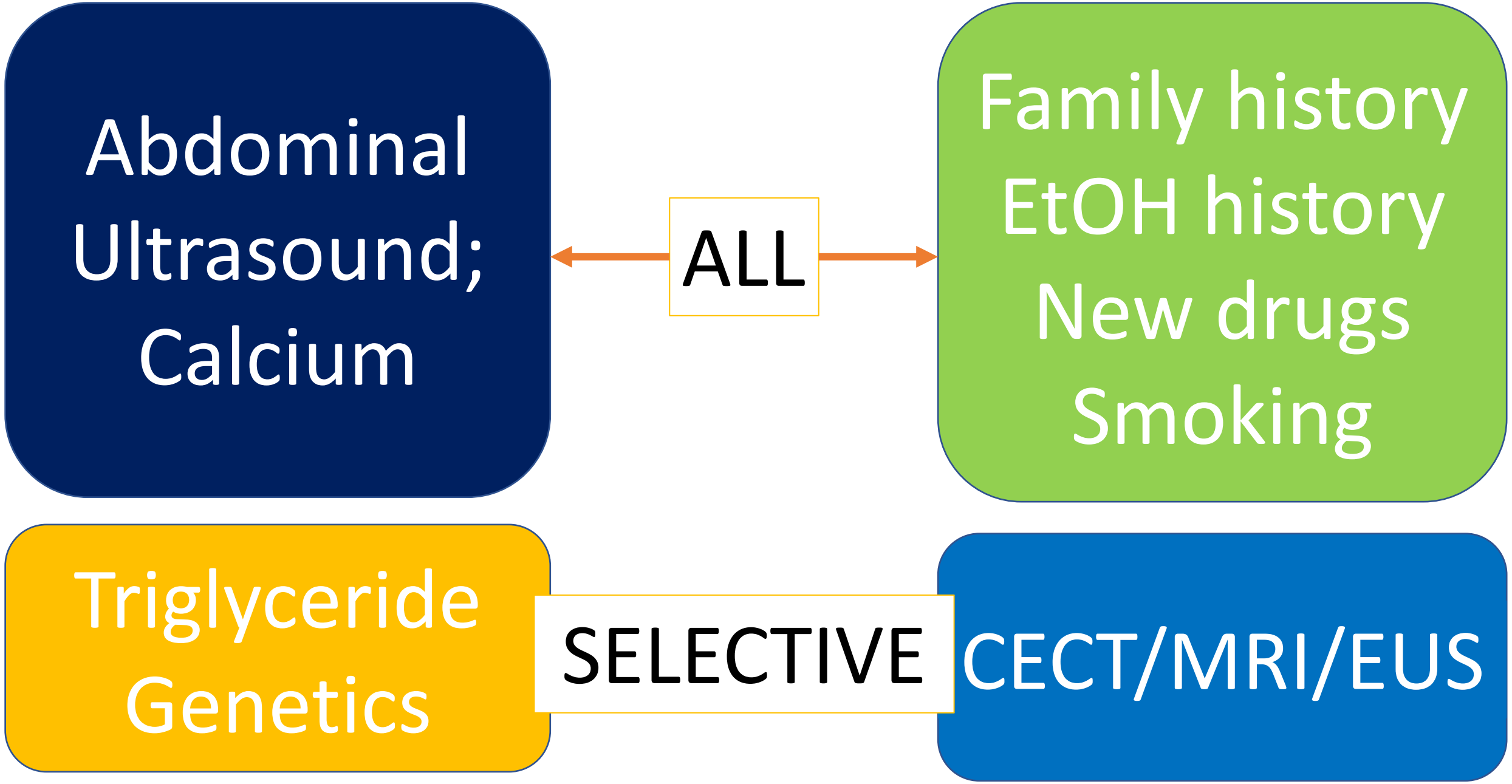
Neoplasm

Triglycerides

Genetic

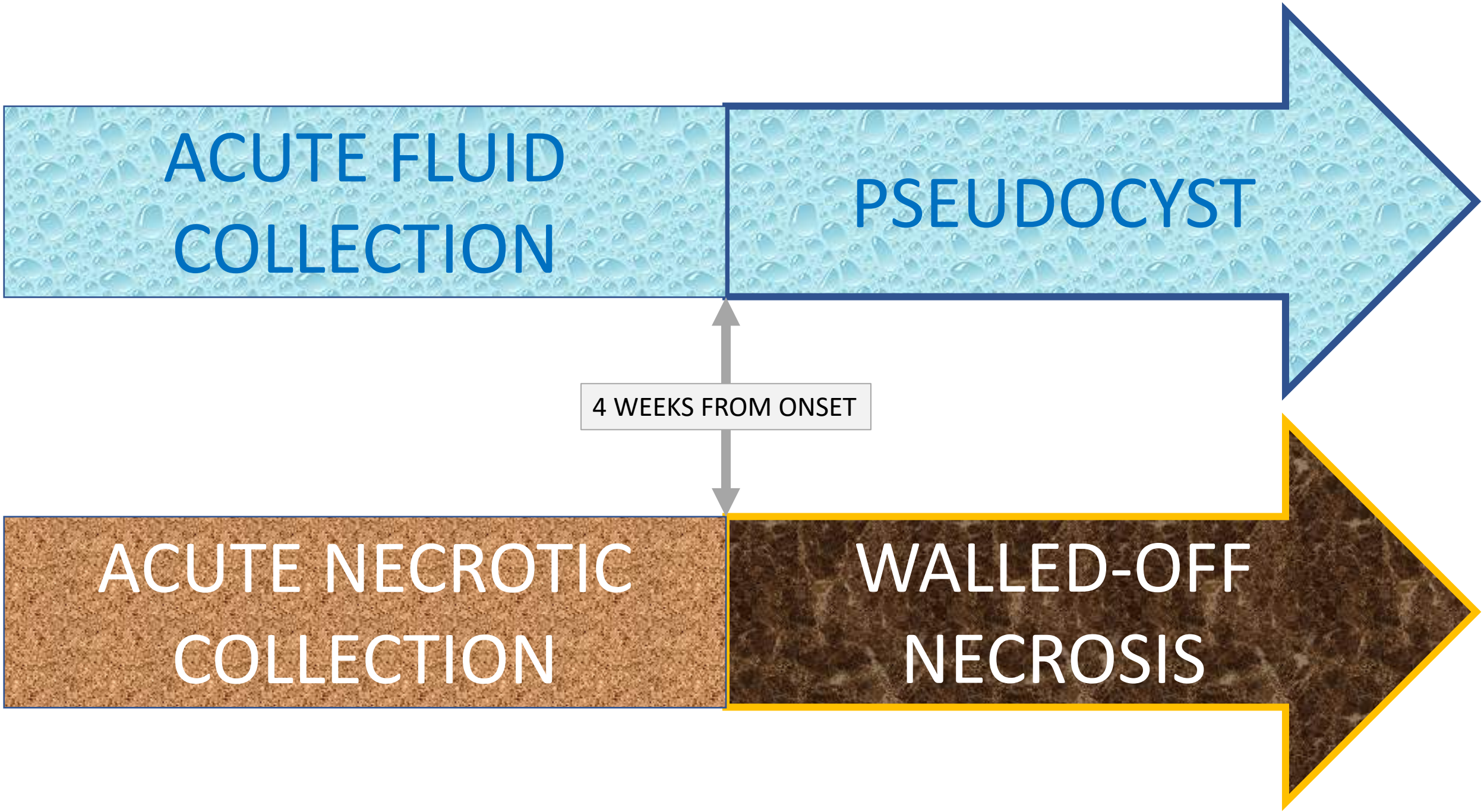
Drugs
Postoperative
Trauma
Infectious

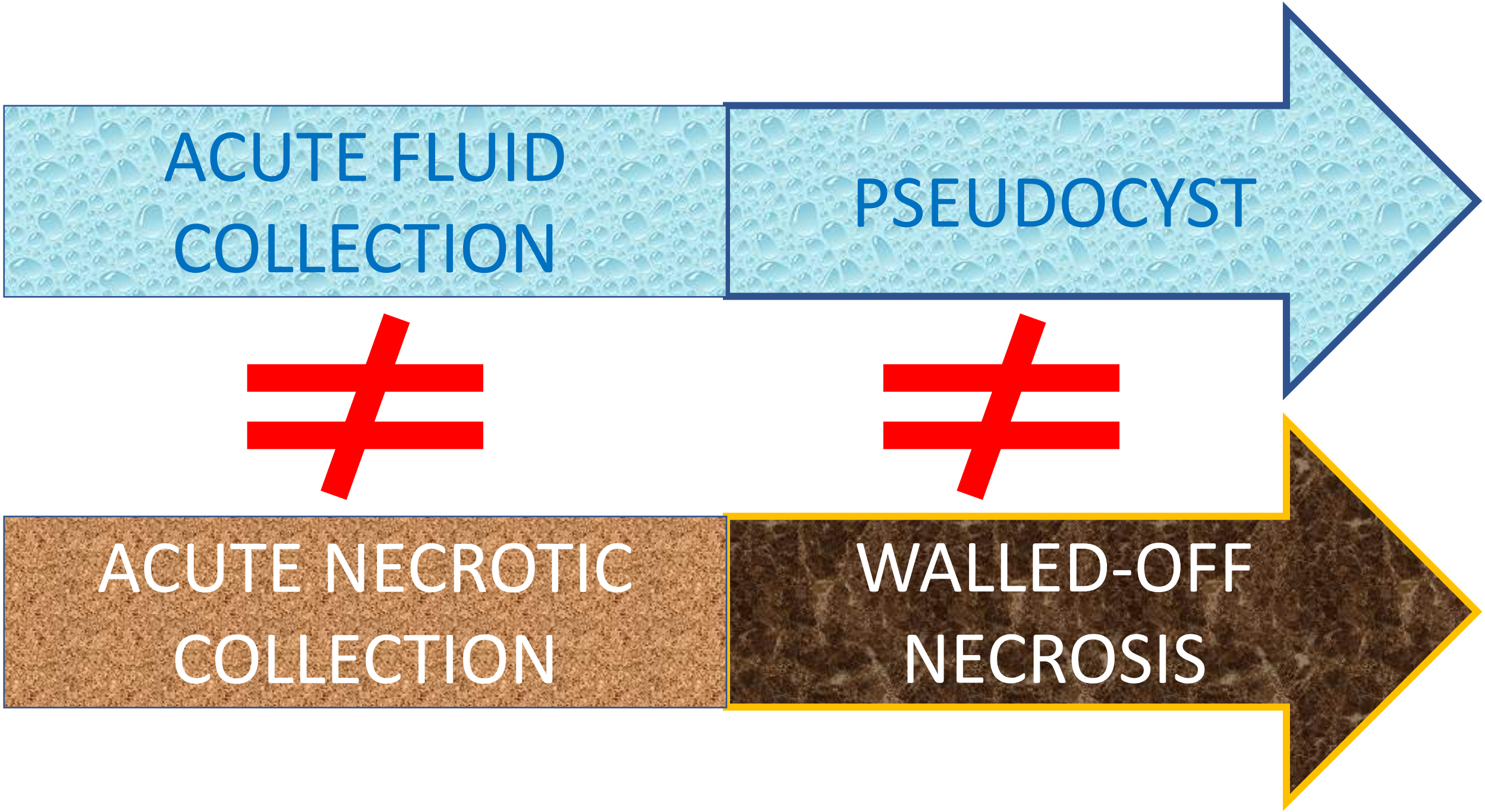

1% OF ACUTE PANCREATITIS PATIENTS
B
A


Abdominal Ultrasound; Calcium
ALL
Family history
EtOH history
New drugs
Smoking
Triglyceride Genetics
SELECTIVE
CECT/MRI/EUS

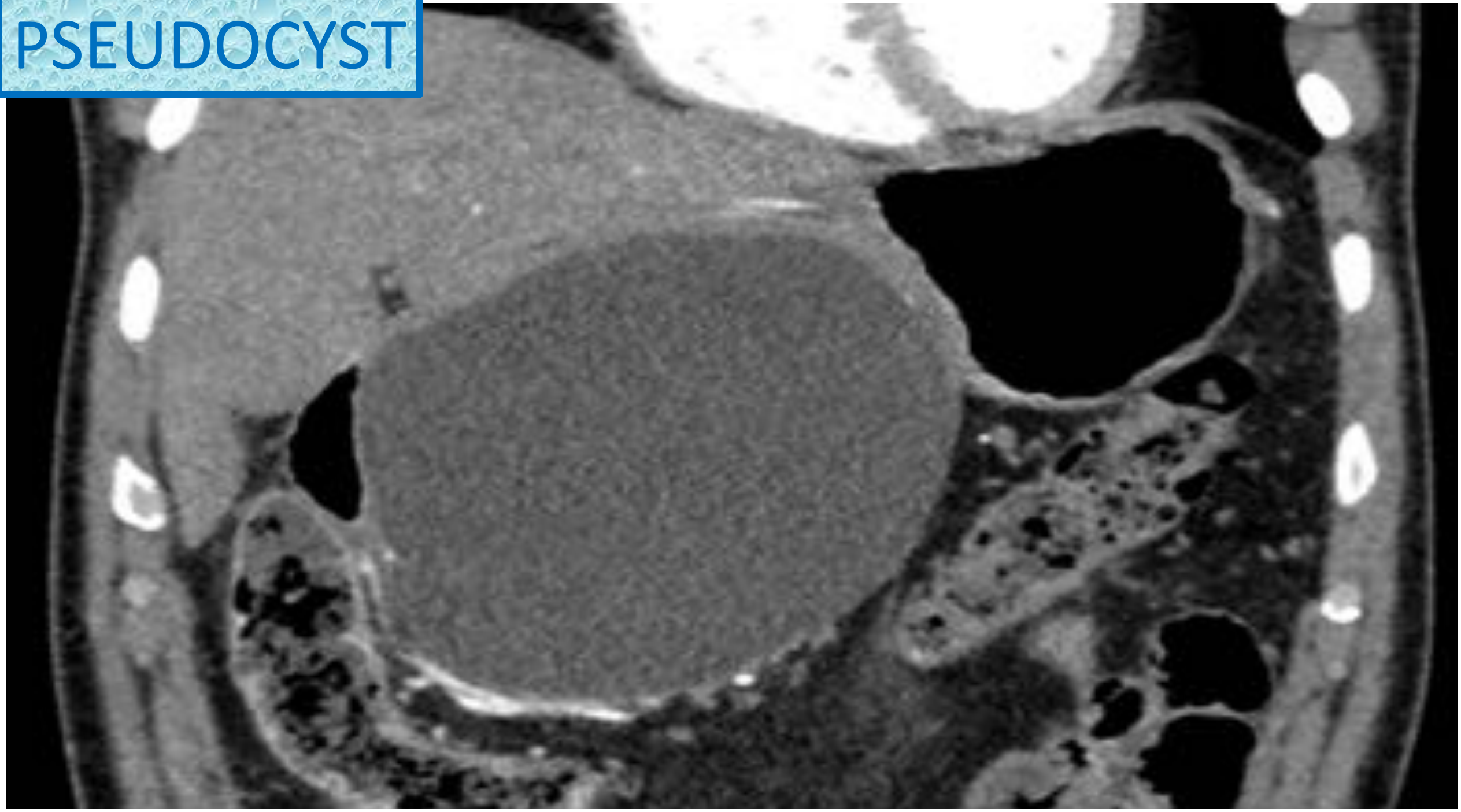
SEVERITY

LOCAL COMPLICATIONS
ORGAN FAILURE

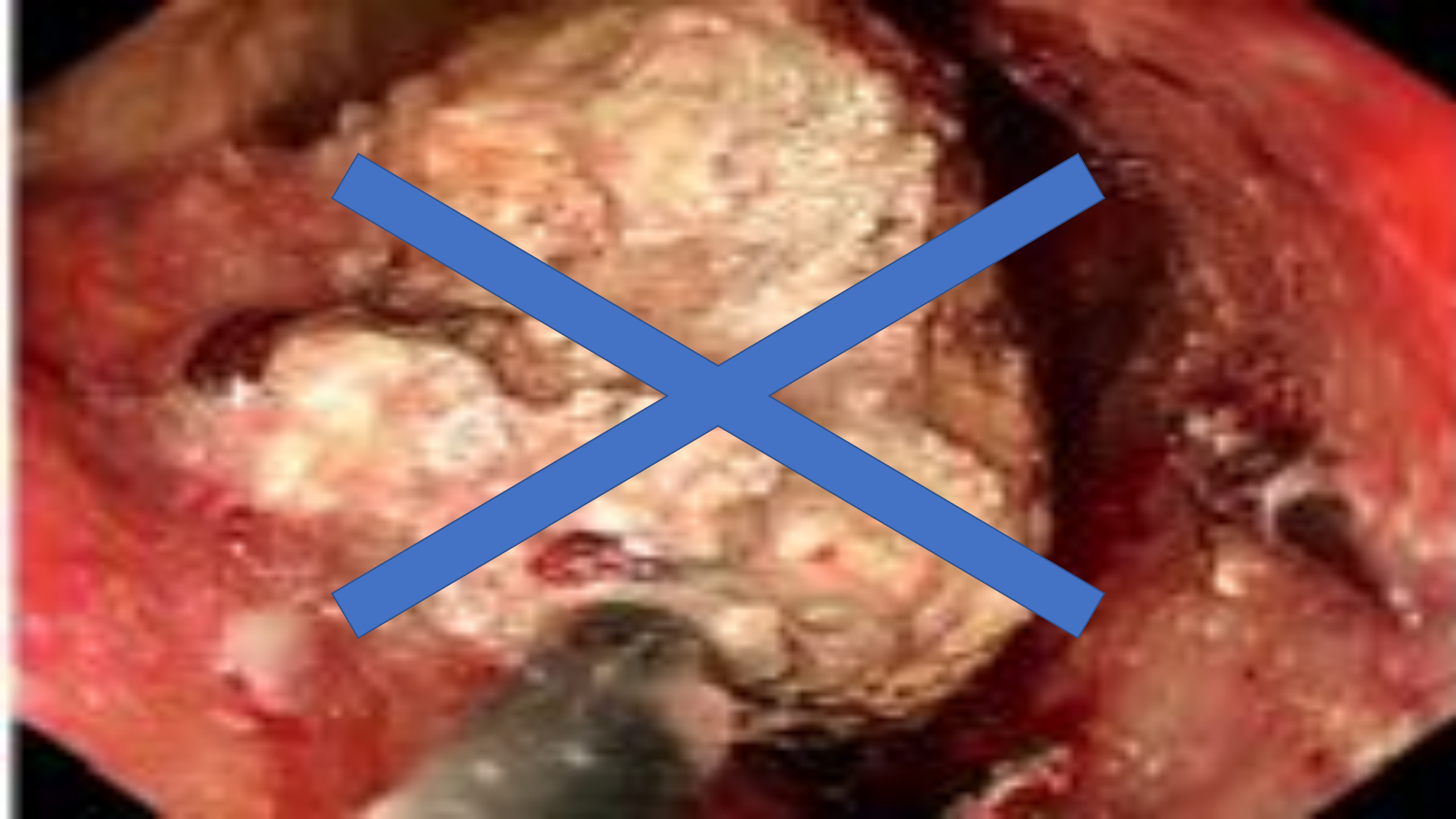

ACUTE FLUID COLLECTION
PSEUDOCYST
4 WEEKS FROM ONSET
ACUTE NECROTIC COLLECTION
WALLED-OFF NECROSIS


ACUTE FLUID COLLECTION
PSEUDOCYST
≠
≠
ACUTE NECROTIC COLLECTION
WALLED-OFF NECROSIS

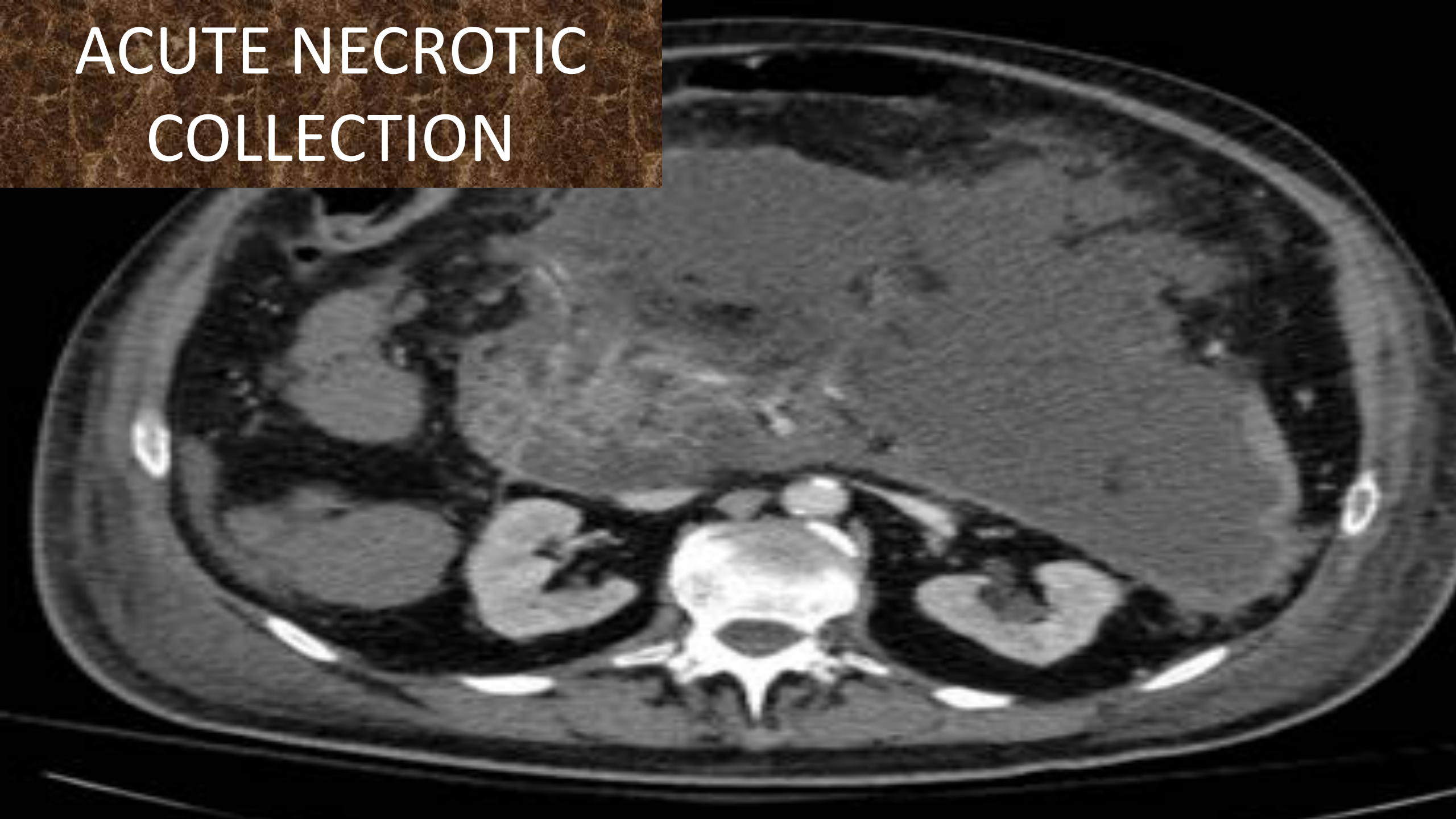
PSEUDOCYST

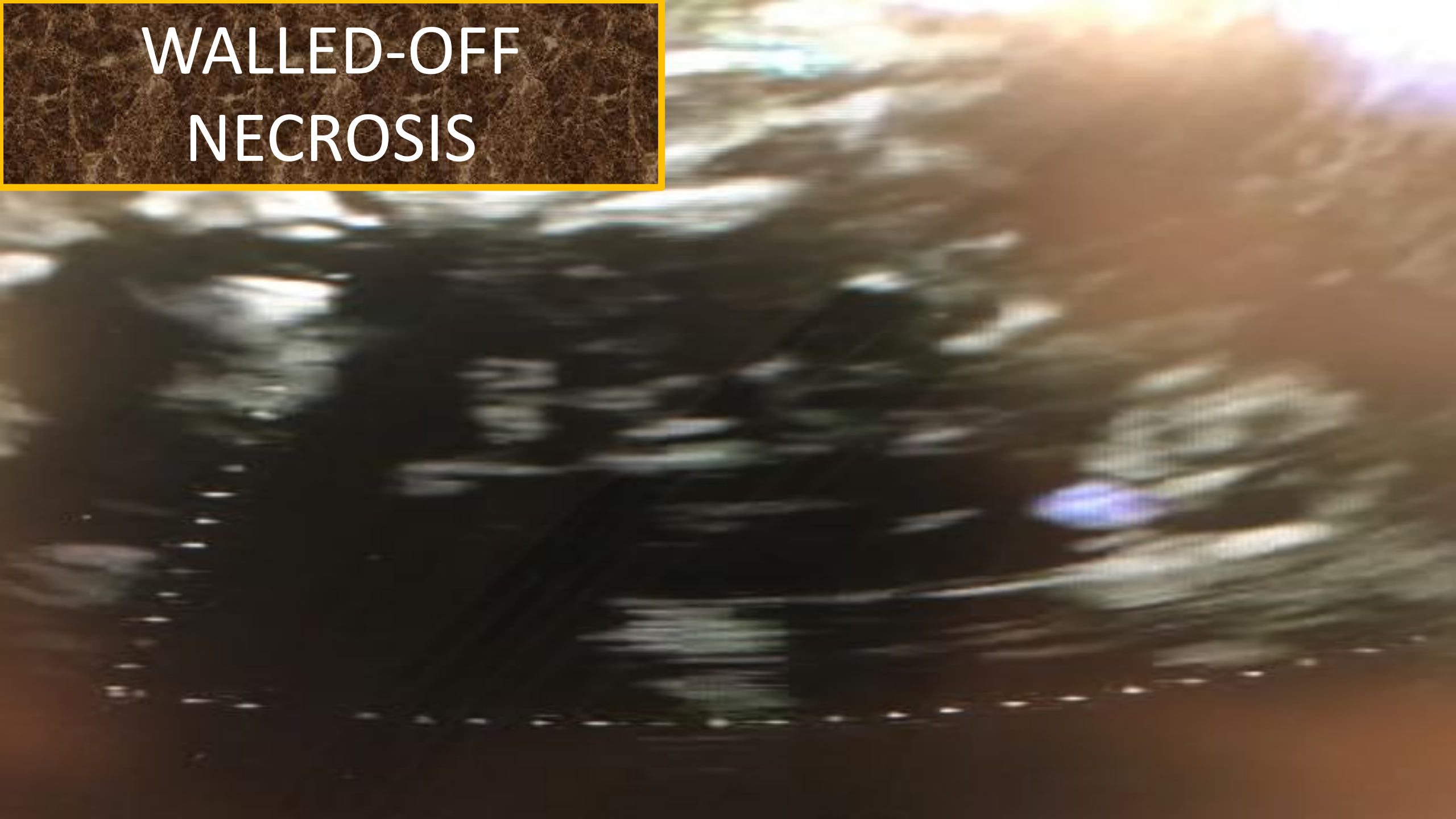


PSEUDOCYST



ACUTE NECROTIC COLLECTION




WALLED-OFF
NECROSIS

ORFAN FAILURE= Modified Marshall Score of 2 or more

Table 1 Modified Marshall scoring system for organ dysfunction

	Score				
Organ system	**0**	**1**	**2**	**3**	**4**
Respiratory (PaO_2/FiO_2)	>400	301–400	201–300	101–200	≤101
Renal*					
(serum creatinine, μmol/l)	≤134	134–169	170–310	311–439	>439
(serum creatinine, mg/dl)	<1.4	1.4–1.8	1.9–3.6	3.6–4.9	>4.9
Cardiovascular (systolic blood pressure, mm Hg)†	>90	<90, fluid responsive	<90, not fluid responsive	<90, pH<7.3	<90, pH<7.2

For non-ventilated patients, the FiO_2 can be estimated from below:

Supplemental oxygen (l/min)	**FiO_2 (%)**
Room air	21
2	25
4	30
6–8	40
9–10	50

A score of 2 or more in any system defines the presence of organ failure.

*A score for patients with pre-existing chronic renal failure depends on the extent of further deterioration of baseline renal function. No formal correction exists for a baseline serum creatinine ≥134 μmol/l or ≥1.4 mg/dl.

†Off inotropic support.

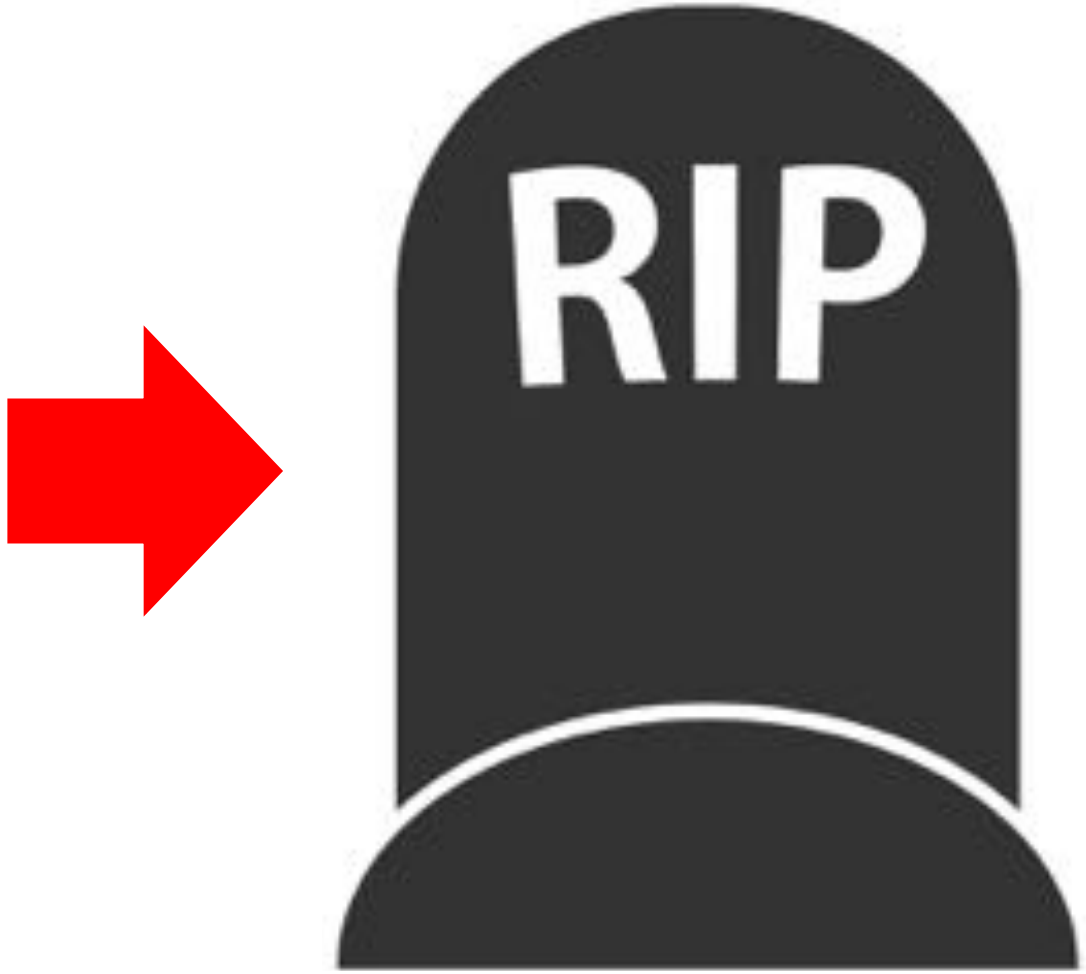
Lets talk about severity

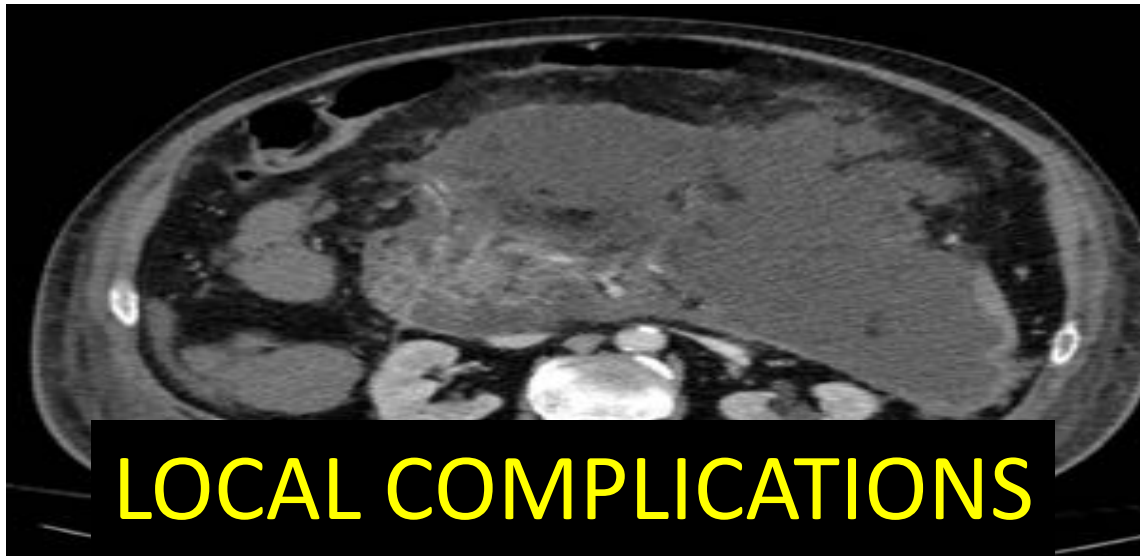
What does “increased severity” mean?

PERSISTENT

ORGAN

FAILURE

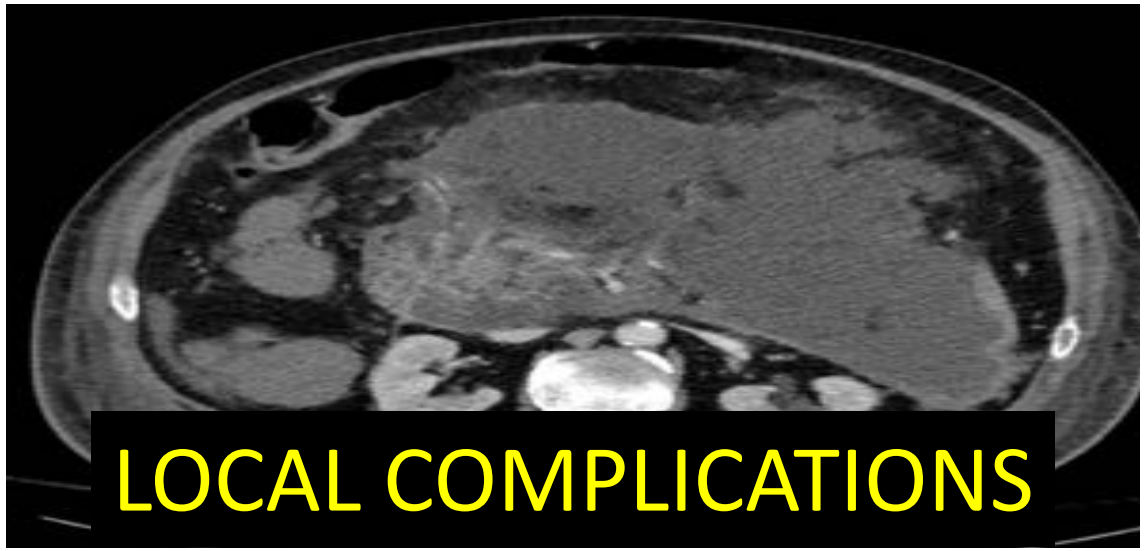




AND/OR

TRANSIENT

ORGAN FAILURE



WITHOUT

PERSISTENT

ORGAN FAILURE

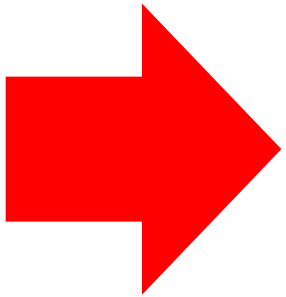


Table 5. Comparison between no organ failure and any organ failure groups of nontransfer patients

	No organ failure (*n*=46)	Any organ failure (*n*=48)	*P* value
Mean duration of hospitalization[a]	26±4 days	33±6 days	0.09
% Need for ICU	56.5	65.4	0.06
Mean duration of ICU stay[a]	5.5±2 days	14±3 days	**0.03**
% Mortality	0	38.5	**<0.01**

ICU, intensive care unit.
Bold type indicates statistical significance.
[a]Mean±standard error.

REVISED ATLANTA CLASSIFICATION

	Mild	Moderate	Severe
Organ Failure	No	Transient	Persistent
		and/or	
Local Complications	No	Yes	+/-
		and/or	
Comorbid Condition Flare	No	Yes	+/-

↑↑↑ AMYLASE OR LIPASE ≠ ↑ SEVERITY

GASTROENTEROLOGY 2012;142:1476–1482

CLINICAL—PANCREAS

Comparison of Existing Clinical Scoring Systems to Predict Persistent Organ Failure in Patients With Acute Pancreatitis

RAWAD MOUNZER,* CHRISTOPHER J. LANGMEAD,‡ BECHIEN U. WU,§ ANNA C. EVANS,* FARAZ BISHEHSARI,* VENKATA MUDDANA,* VIKESH K. SINGH,§ ADAM SLIVKA,* DAVID C. WHITCOMB,* DHIRAJ YADAV,* PETER A. BANKS,§ and GEORGIOS I. PAPACHRISTOU*,‖

9 scoring systems: which one?

Severity of inflammation

SIRS
CRP
WBC

Volume depletion/ vascular leak

BUN
Hematocrit
Creatinine

Biomarkers

IL-2 receptor
IL-6, 10
TNF-α
E-selectin
Angiopoetin-2
MCP-1

Extent of damage

CT severity index (CTSI)
Modified CTSI

BUN >25

IMPAIRED MENTAL STATUS

SIRS

AGE >60

PLEURAL EFFUSION

Table 3 Subgroup analysis of the validation cohort excluding cases with evidence of organ failure within first 24 h of hospitalisation

	n = 16503	
BISAP score	**Number of cases**	**Observed mortality**
0	4796	0.1%
1	7287	0.4%
2	3307	1.6%
3	916	3.6%
4	176	7.4%
5	21	9.5%

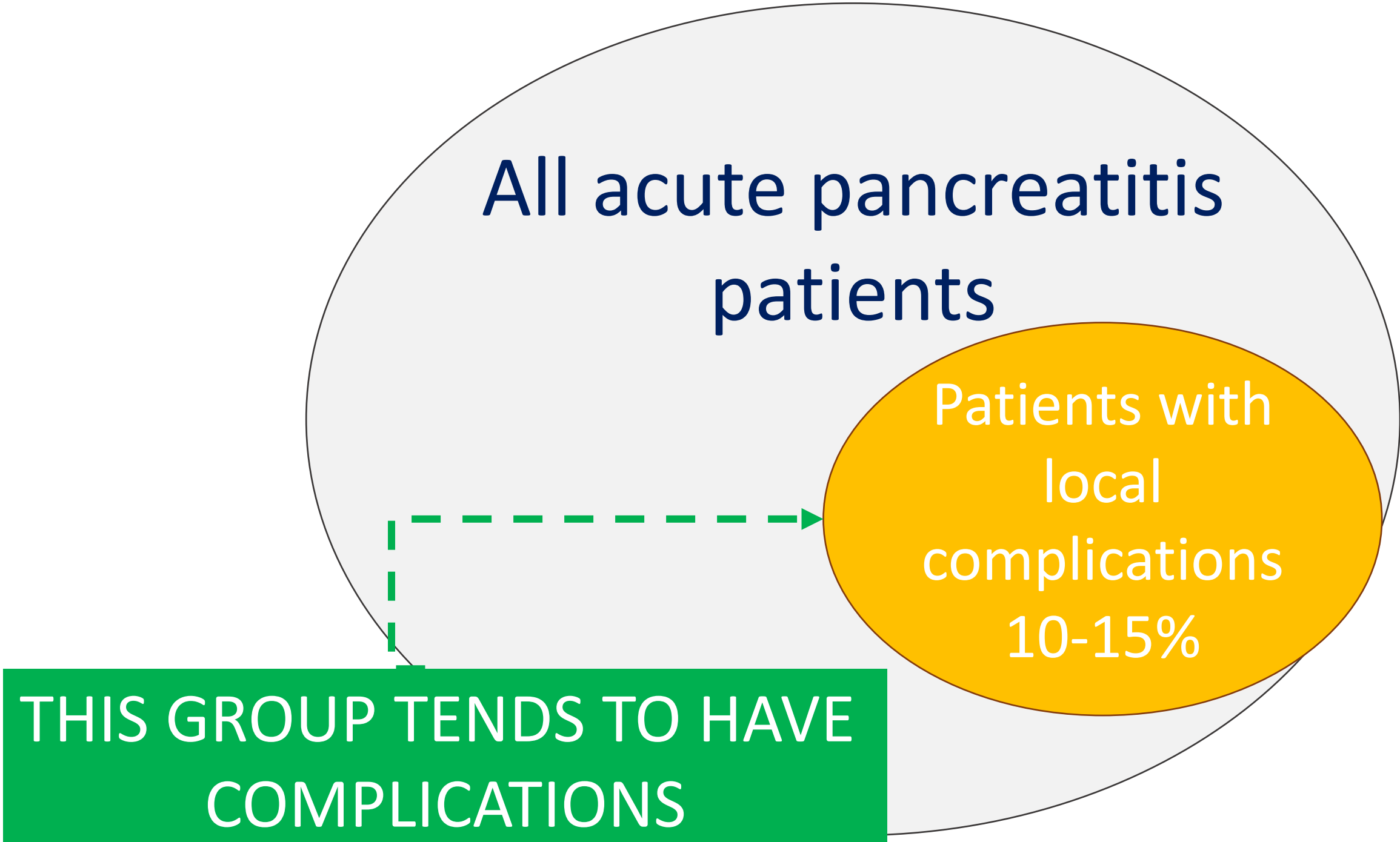
Overall and pairwise χ^2 $p<0.001$.
BISAP, blood urea nitrogen, impaired mental status, systemic inflammatory response syndrome, age and pleural effusion.

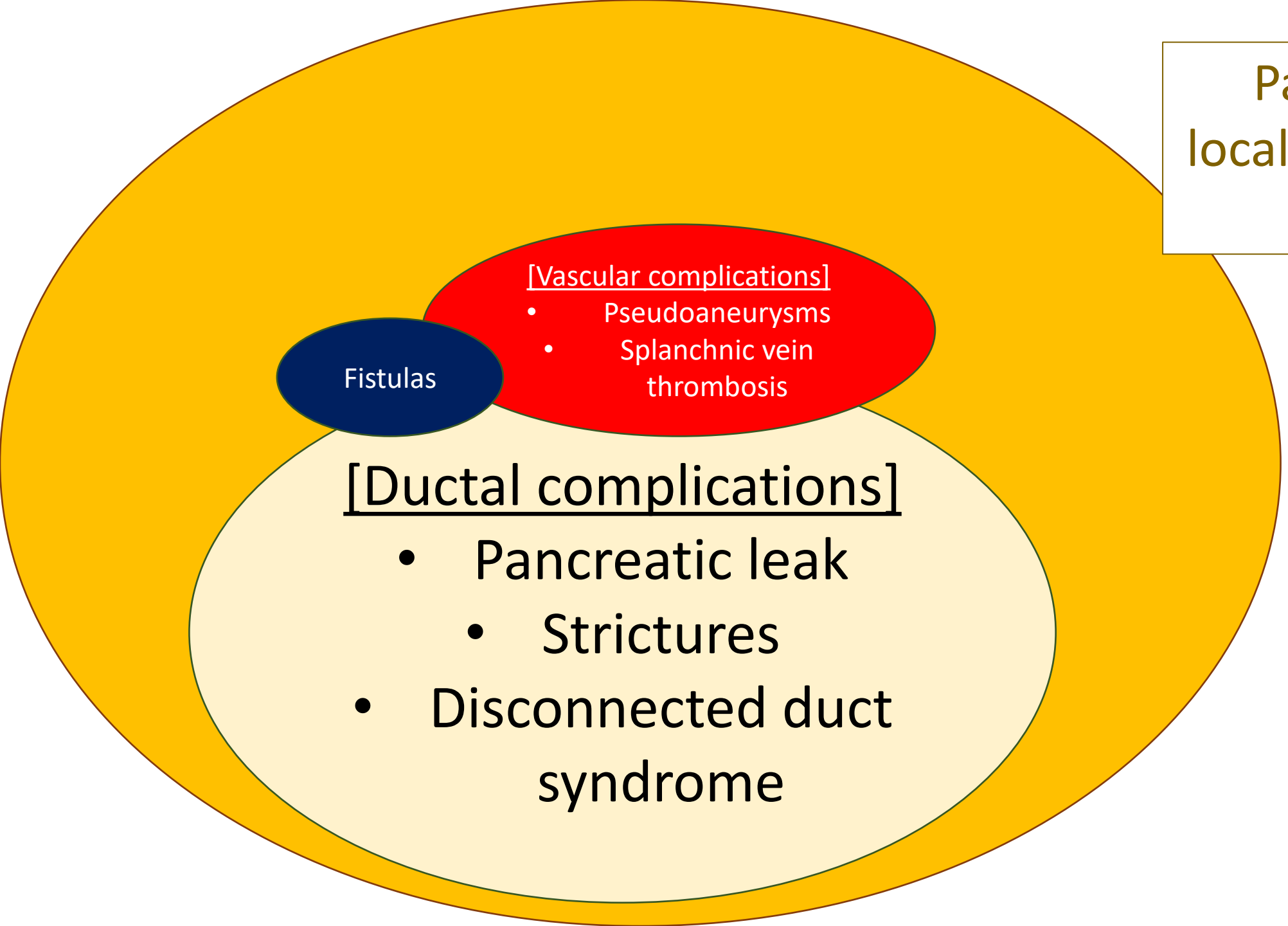
COURSE & COMPLICATIONS

COURSE & COMPLICATIONS

EARLY PHASE <1 week: Inflammation

LATE PHASE >1 week: Local complication


All acute pancreatitis patients
Patients with local complications 10-15%
THIS GROUP TENDS TO HAVE COMPLICATIONS


Patients with local complications 10-15%
[Vascular complications]
• Pseudoaneurysms
• Splanchnic vein thrombosis
Fistulas
[Ductal complications]
• Pancreatic leak
• Strictures
• Disconnected duct syndrome

New pancreatic duct dilation

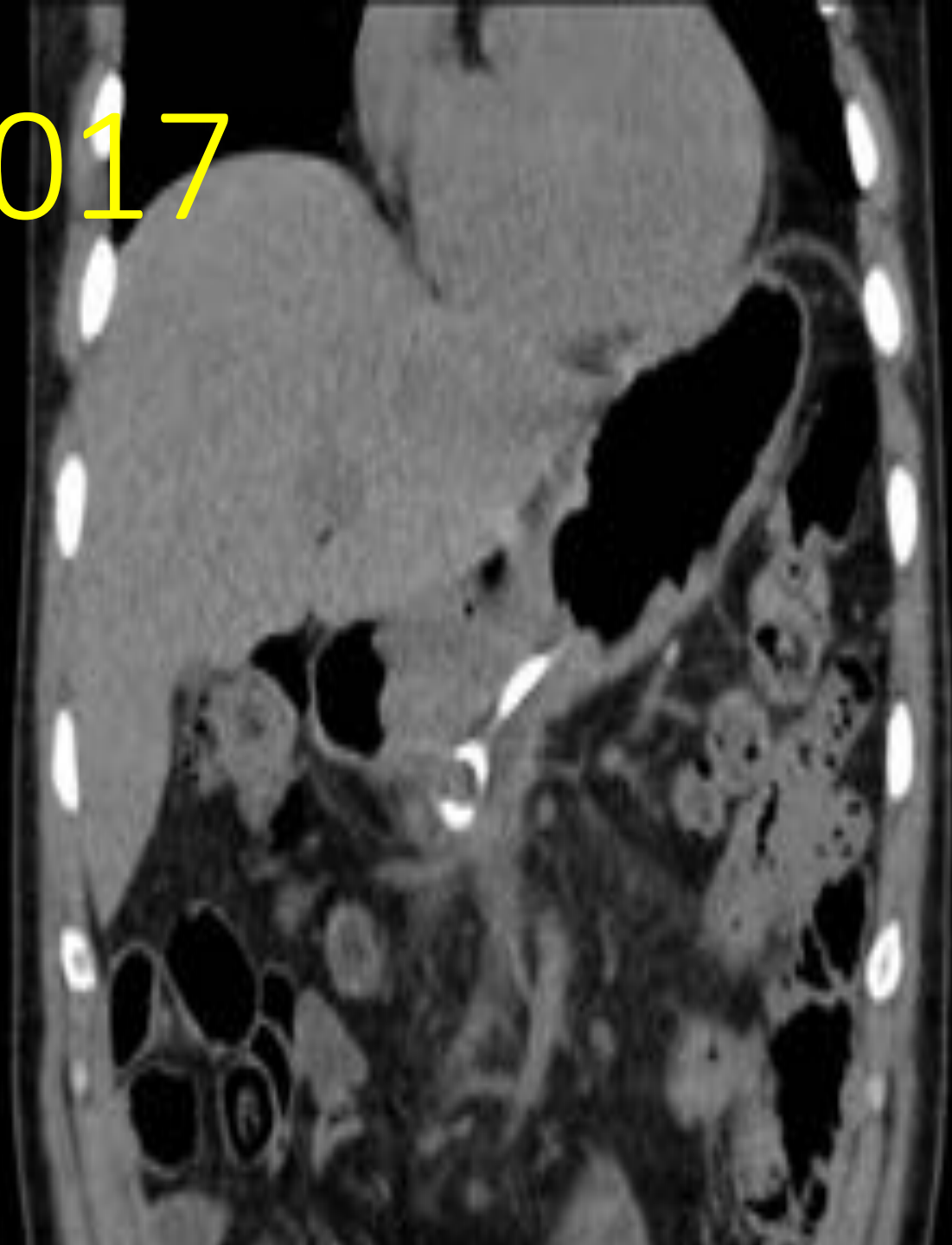
Recurring fluid collection after drainage

“Pseudocyst” with hemorrhagic debris

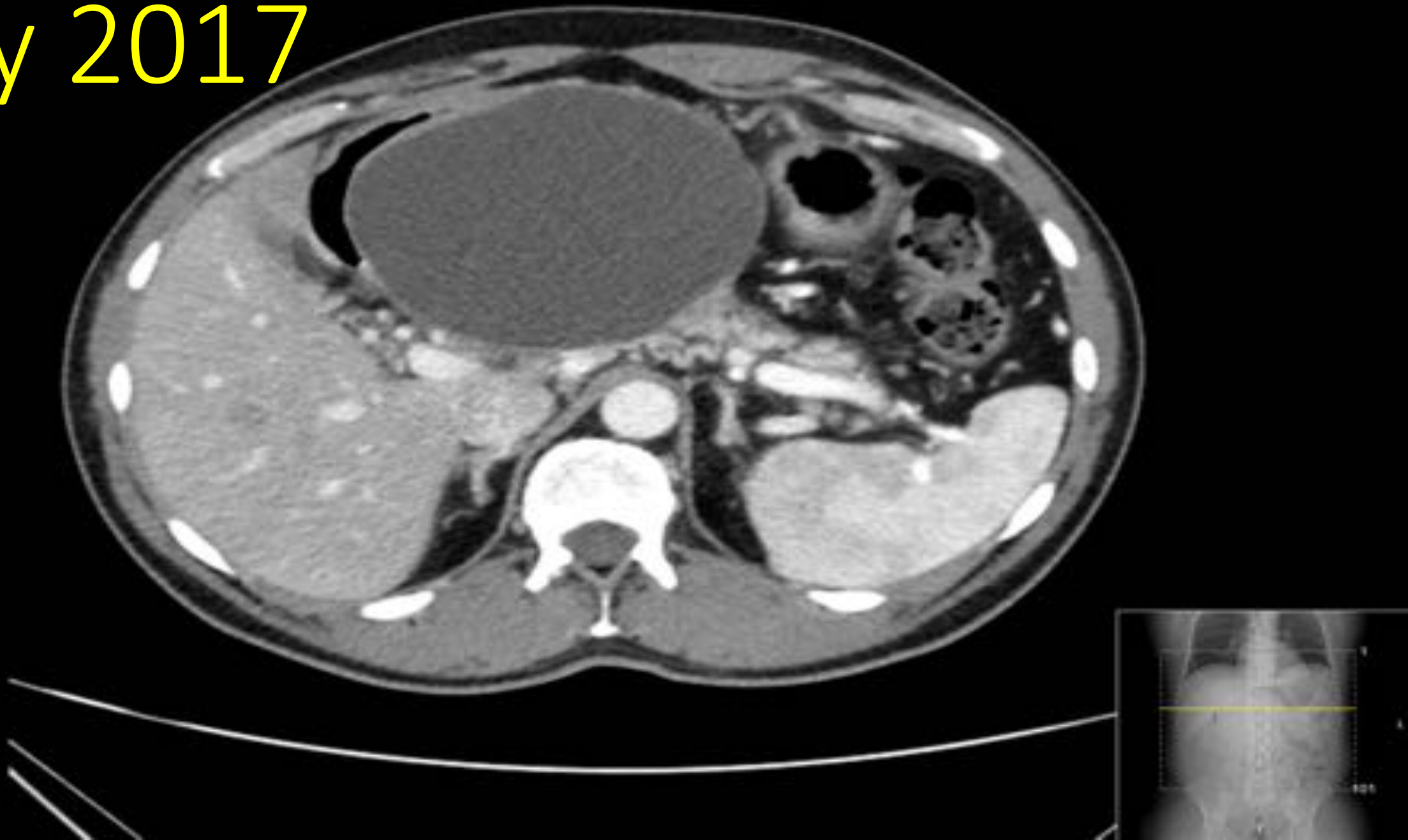
Acute abdominal pain with a drop in H&H

February 2017

March 2017

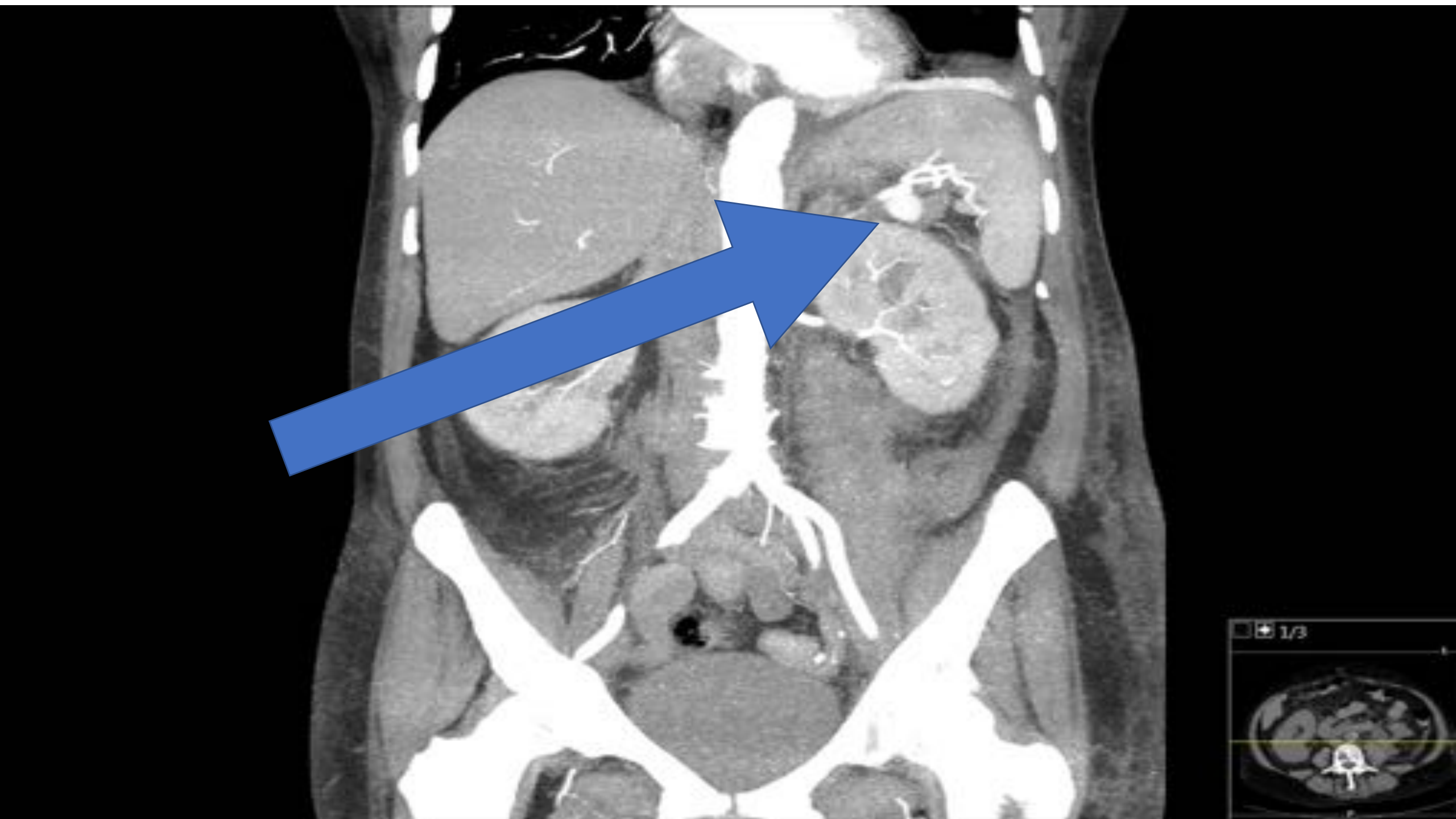


May 2017




May 2017

55 years old
EtOH pancreatitis, sentinel episode 2 years ago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