Emergency Surgery Course

Graz, March 13-14 2017

ACUTE PANCREATITIS

Carlos Mesquita – Coimbra

ACUTE PANCREATITIS

ESSENTIALS (1)

AP occurs when digestive enzymes become activated while still in the pancreas, causing inflammation

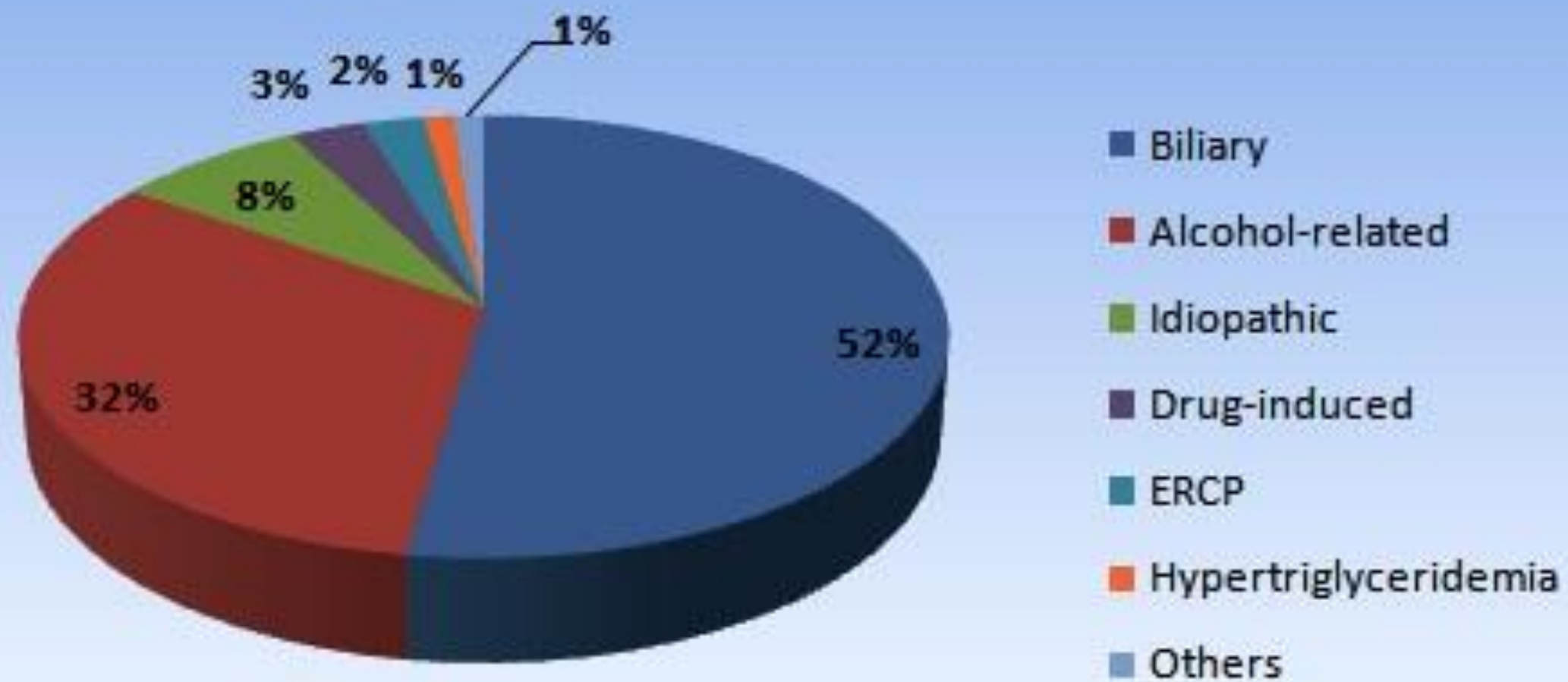
- repeated bouts of AP can lead to chronic pancreatitis

Common disease: 50 (15-85) pts/year/100,000 ♂/ ♀ = 2/1

Evolving, dynamic condition, two subtypes:

- **interstitial oedematous, uncomplicated (90-95%)**
  - SIRS or organ failure indicate potentially severe disease
  - severity may change during the course of the disease
- **necrotising, within and/or peripancreatic (05-10%)**
  - early recognition / prediction critical for outcome

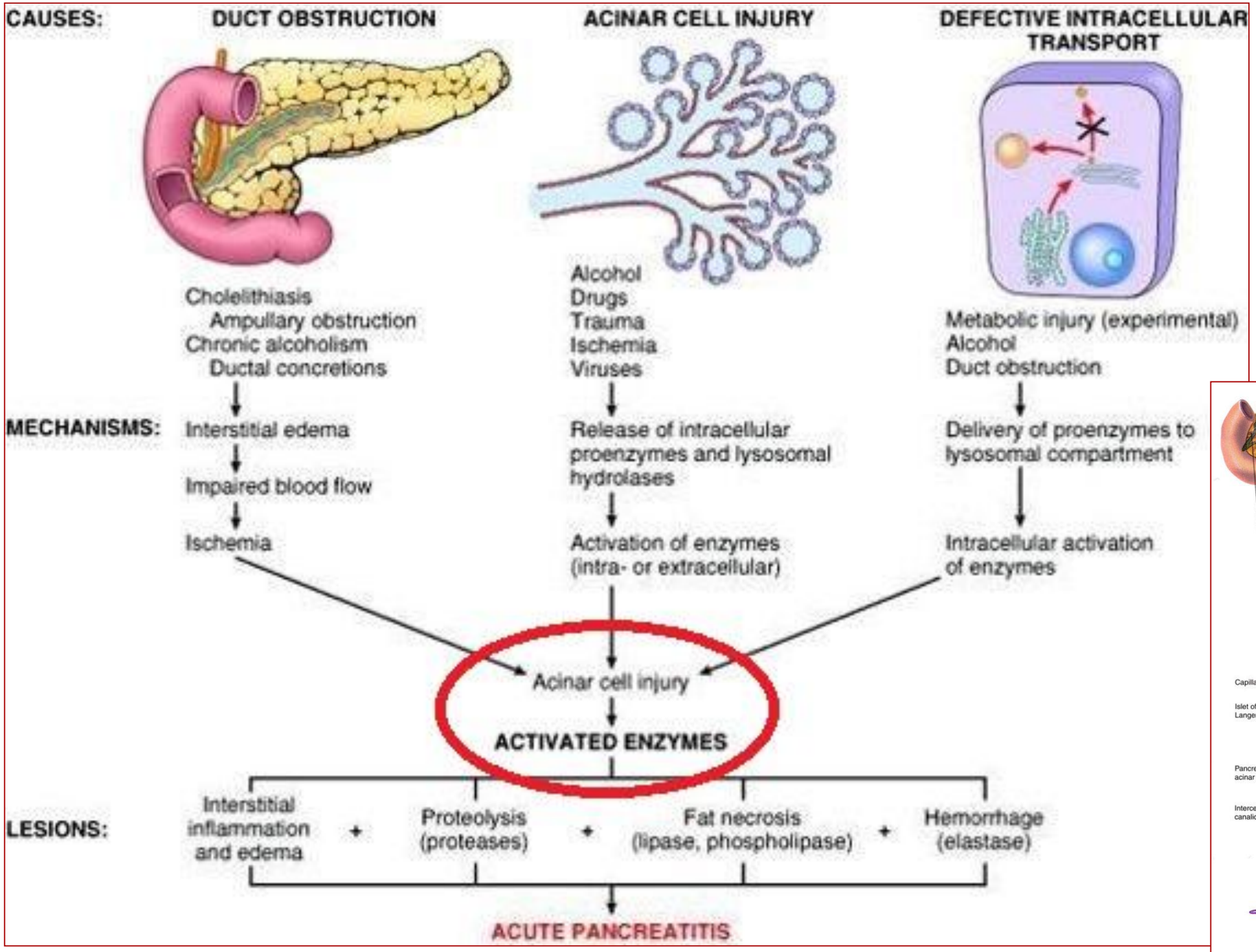
ACUTE PANCREATITIS

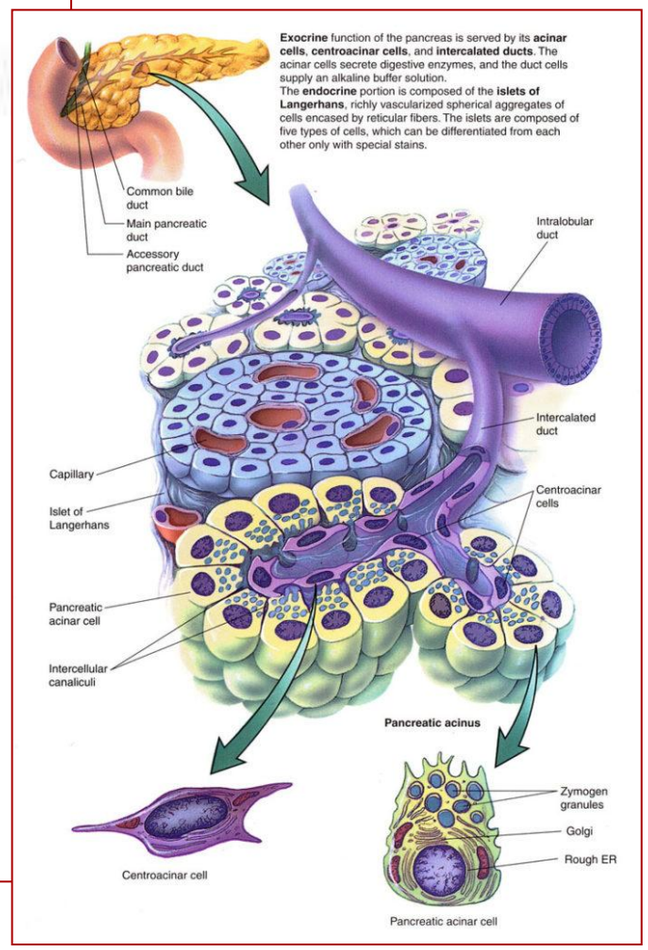


- Cigarette smoking
- Cystic fibrosis
- Family history
- Hyperparathyroidism
- Infections
- Pancreatic cancer

- De Campos T, Furbetta PR. Pancreatite Aguda, Atheneu, São Paulo. 2013

ACUTE PANCREATITIS





ESSENTIALS (2)

Management depending on severity

- treatment of mild / moderately severe AP relatively straightforward
- treatment of severe AP involving intensive care
  - surgery (open or minimally invasive) indicated in selected cases

- mild AP: patient improves rapidly during the early phase / no systemic complications / no organ failure
- moderately severe AP: local or systemic complications / no persistent organ failure
- severe AP: persistent organ failure / local complications / high morbidity and mortality

Banks PA et al. Acute Pancreatitis Classification Working Group. Gut. 2012

ACUTE PANCREATITIS

ESSENTIALS (3)

Predict SEVERITY

- difficult and multifactorial
- SCORING SYSTEMS may help to
  - identify patients in danger
  - assess systemic complications
  - standardize treatment

EXISTING SCORING SYSTEMS ► SIMILAR PREDICTIVE ACCURACY

Carnovale A et al. JOP. 2005

Skipworth JR et al. Practitioner. 2010

Banks PA et al. Acute Pancreatitis Classification Working Group. Gut. 2012

Cho JH et al. WJG. 2015

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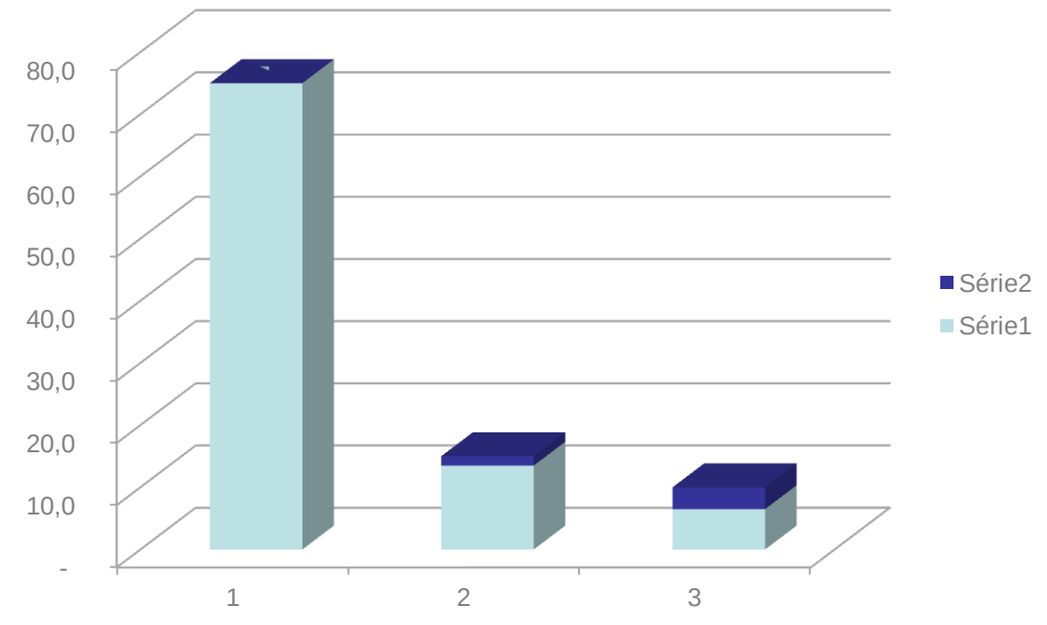
ESSENTIALS (4)



Mortality:

- **overall** **<05%**
- **necrotising (<10%)** **>30%**

- **early deaths (first 2 weeks, 50%) result primarily from MOF**
- **late deaths (50%) occur mainly from infected necrosis**
- **high age, alcohol and diabetes associated with mortality**
- **female gender, employment and co-living, better survival**

Carnovale A et al. JOP. 2005

Skipworth JR et al. Practitioner. 2010

Nøjgaard C. Dan Med Bull. 2010

Banks PA et al. Acute Pancreatitis Classification Working Group. Gut. 2012

ACUTE PANCREATITIS

SIGNS AND SYMPTOMS

Unwell

Upper abdominal pain / may radiate to the back

- sudden in onset, dull, boring, steady and gradually more severe
- worse after eating / recent alcohol binge or fatty meal

Anorexia / nausea / vomiting

Fever

Dyspnea

Tachycardia / Hemodynamic instability

Extremity muscular spasms / hypocalcemia

Skipworth JR et al. Practitioner. 2010

Tang JCF at al. Medscape. Updated. 2017

ACUTE PANCREATITIS

PHYSICAL FINDINGS

Jaundice (28%)

Diminished / absent bowel sounds

Exquisite abdominal tenderness / muscular guarding / distention

Uncommon findings, in severe AP:

- Cullen sign – discoloration around the umbilicus (peritoneal blood)
- Grey-Turner sign – discoloration along the flanks (retroperitoneal blood)
- Erythematous skin nodules, on extensor skin surfaces
- Polyarthritis

Skipworth JR et al. Practitioner. 2010

Tang JCF at al. Medscape. Updated. 2017

ACUTE PANCREATITIS

INVESTIGATIONS

Blood tests

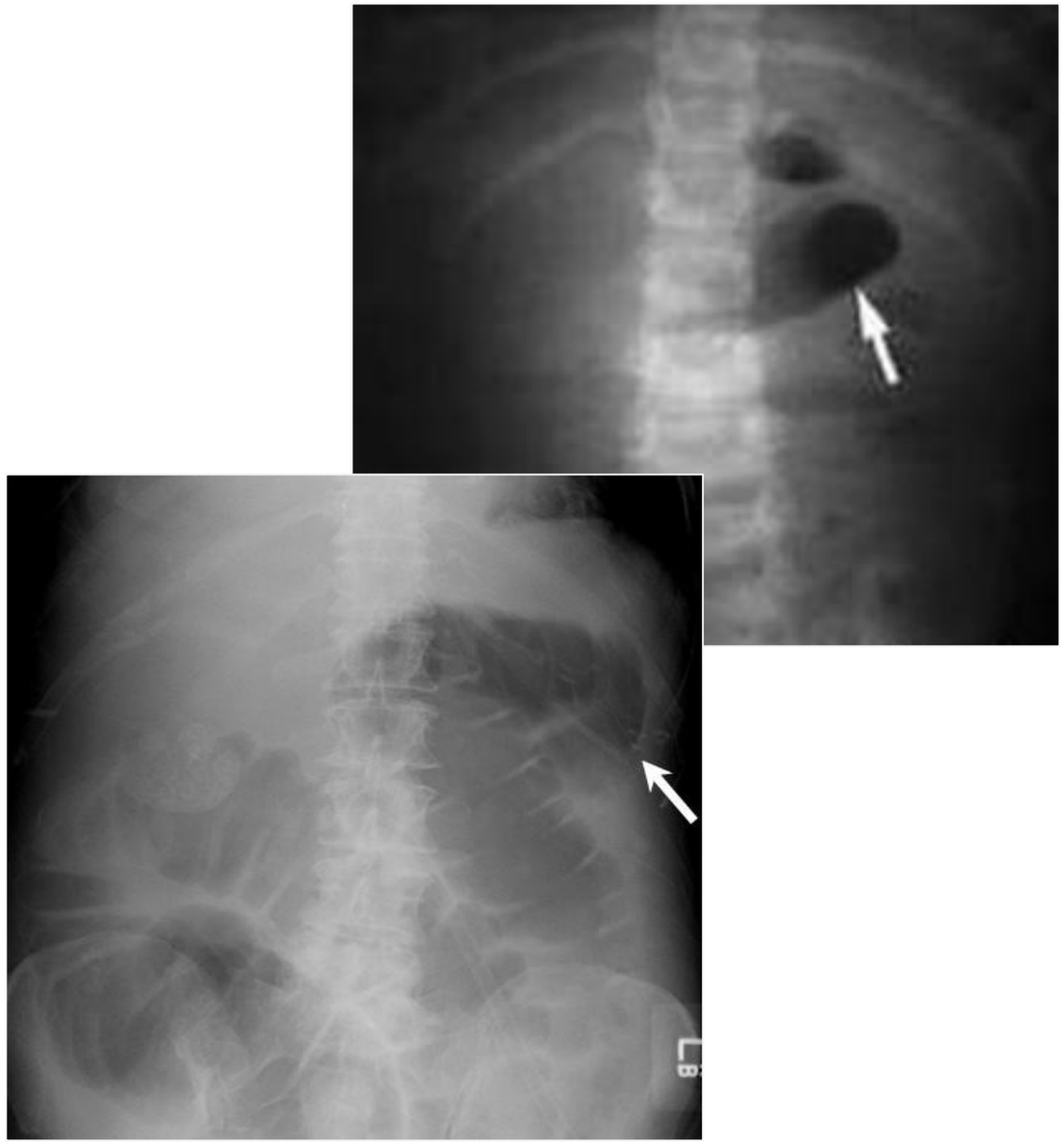
- **amilase / lipase > 3x**

Urine tests

- amylase / creatinine ratio (uAm/uCr)

Imaging

- Abdominal X-ray
  - sentinel loop
  - colon cut-off sign
- **US**
  - **same day**
- **CT**
  - **day 2-3 (unless doubt)**
- **MRI**
  - **equivalent to CT**



Banks PA et al. Acute Pancreatitis Classification Working Group. Gut. 2012

ACUTE PANCREATITIS

DIAGNOSIS

2 of the following 3 criteria:

- **acute onset of a persistent, severe, epigastric pain often radiating to the back**
- **amilase / lipase > 3x**
- **characteristic imaging features on US, CT or MRI**
  - **imaging required**
    1. **if the first two criteria are not met**
    2. **for the detection of complications**
    3. **to help guide treatment**

Banks PA et al. Acute Pancreatitis Classification Working Group. Gut. 2012
Datir A et al. https://radiopaedia.org

ACUTE PANCREATITIS

Distinction has to be made between collections composed of fluid alone vs those arising from necrosis, with a solid component (may also contain varying amounts of fluid):

- **acute peripancreatic fluid collection (APFC)**
  - occurring in interstitial oedematous pancreatitis
- **acute necrotic collection (ANC)**
  - ocurring in the early phase and before demarcation
- **pancreatic pseudocyst**
  - delayed (usually >4 weeks) complication of interstitial oedematous pancreatitis / well defined wall / contains essentially no solid material
- **walled-off necrosis (WON)**
  - surrounded by a radiologically identifiable capsule (which rarely develops before 4 weeks have elapsed from onset of pancreatitis)

Interstitial edematous pancreatitis

Classification of acute pancreatitis—2012: revision of the Atlanta classification and definitions by international consensus

Peter A Banks,[1] Thomas L Bollen,[2] Christos Dervenis,[3] Hein G Gooszen,[4] Colin D Johnson,[5] Michael G Sarr,[6] Gregory G Tsiotos,[7] Santhi Swaroop Vege,[8] Acute Pancreatitis Classification Working Group

Gut 2013;**62**:102–111. doi:10.1136/gutjnl-2012-302779

Peripancreatic necrosis

Peripancreatic necrosis

Acute peripancreatic fluid collection

Pancreatic necrosis

Pancreatic necrosis

Acute necrotic collection

ACUTE PANCREATITIS

MANAGEMENT (1)

Admit – HDU / ICU depending on severity
Discuss with team / perfusion monitoring / IAP monitoring / ABG / control sepsis

- **Fluid resuscitation**
- **Anticholinergics**
  - **antispasmodic / antisecretory actions**
  - **no appreciable benefit demonstrated**
- **Nasogastric tube**
  - **patient vomiting**
  - **signs of obstruction on the abdominal radiograph**
- **Nutritional support**
  - **early enteral feeding beyond the ligament of Treitz**
- **Antibiotics, in case infected necrosis**

Munoz A, Katerndahl DA. Am Fam Physician. 2000
Tang JCF at al. Medscape. Updated. 2017

ACUTE PANCREATITIS

ANTIBIOTICS

Infected necrosis should be considered in patients with pancreatic or extrapancreatic necrosis who deteriorate or fail to improve after 7–10 days of hospitalization

- **empiric use of antibiotics, imipenem class (strong recommendation, low quality of evidence)**
  - **not to be given routinely for fever, especially early in the presentation / prophylaxis not recommended**
- **CT-guided fine needle aspiration (FNA) for Gram stain and culture to guide use of antibiotics**

MANAGEMENT (2)

Great tendency to late surgery (after 2 weeks or more)

- additional immune stress in an initial stage can have a bad impact
- reduces risks of
  - bleeding
  - removal of small tissue viable
  - endocrine and exocrine insufficiency

Early operation for

- bowel complications
- necrosis / perforation
- bleeding / fail in embolisation

Bakker et al. Curr Gastroenterol Rep. 2009
Gurusamy KS et al. Cochrane DSR. 2013
Tang JCF at al. Medscape. Updated. 2017

ACUTE PANCREATITIS

MANAGEMENT (3)

Surgical procedures: when an anatomic complication amenable to a mechanical solution is present

- **cholecystectomy (early / delayed) for gallstone pancreatitis**
- **image-guided percutaneous drainage of fluid collections**
- **ERCP for stent or tube placements**
- **pancreatectomy (distal or Whipple) in refractory cases**
- **necrosectomy for infected necrosis**
- **percutaneous / surgical drainage of pancreatic abscesses**
- **percutaneous / endoscopic / surgical management for symptomatic pseudocysts or WON**

Bakker et al. Curr Gastroenterol Rep, 2009

Gurusamy KS et al. Cochrane DSR. 2013

Tang JCF at al. Medscape. Updated. 2017

CONCLUSION

Confirm the diagnosis / Assess severity / Look for the cause

No specific treatment / Gallbladder stays at the hospital

Enteral nutrition

Control infection / prevent organ failure (IAP monitoring)

- Antibiotherapy is controversial

ERCP in cholangitis

Surgical treatment: late is better

Step-up approach

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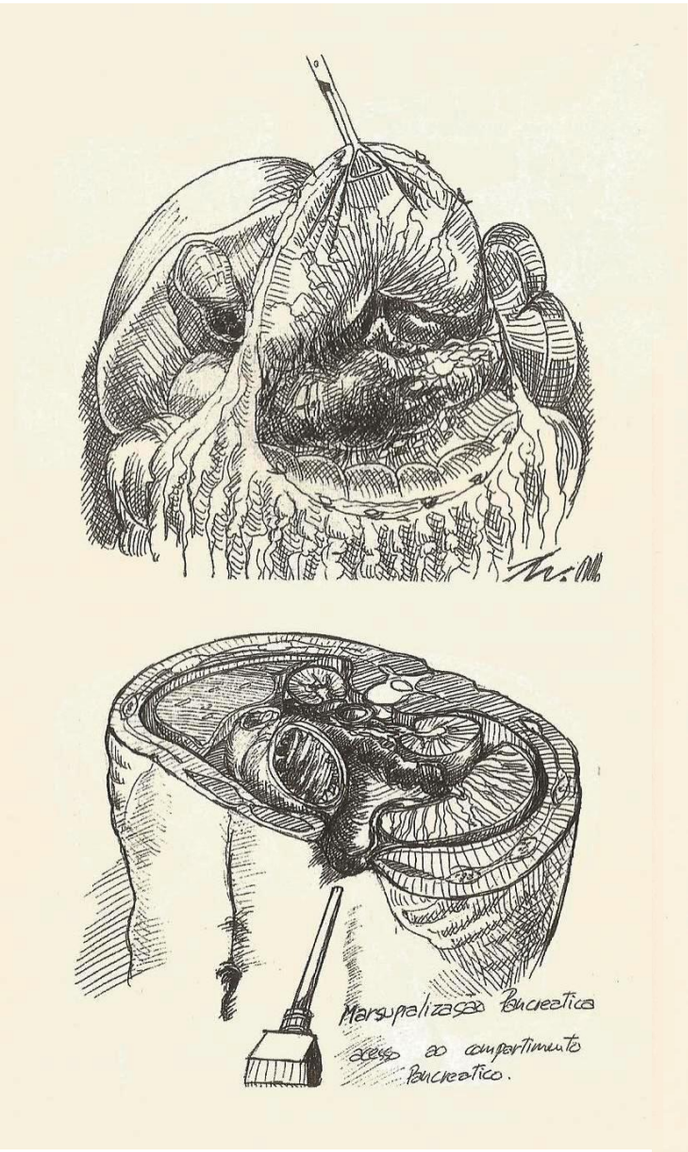

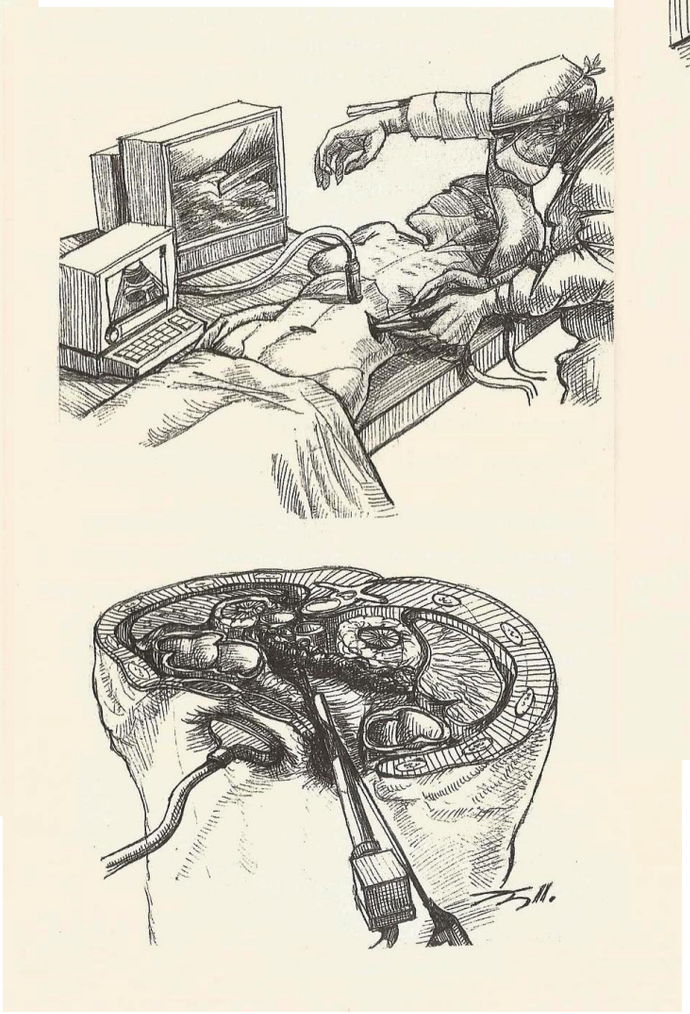

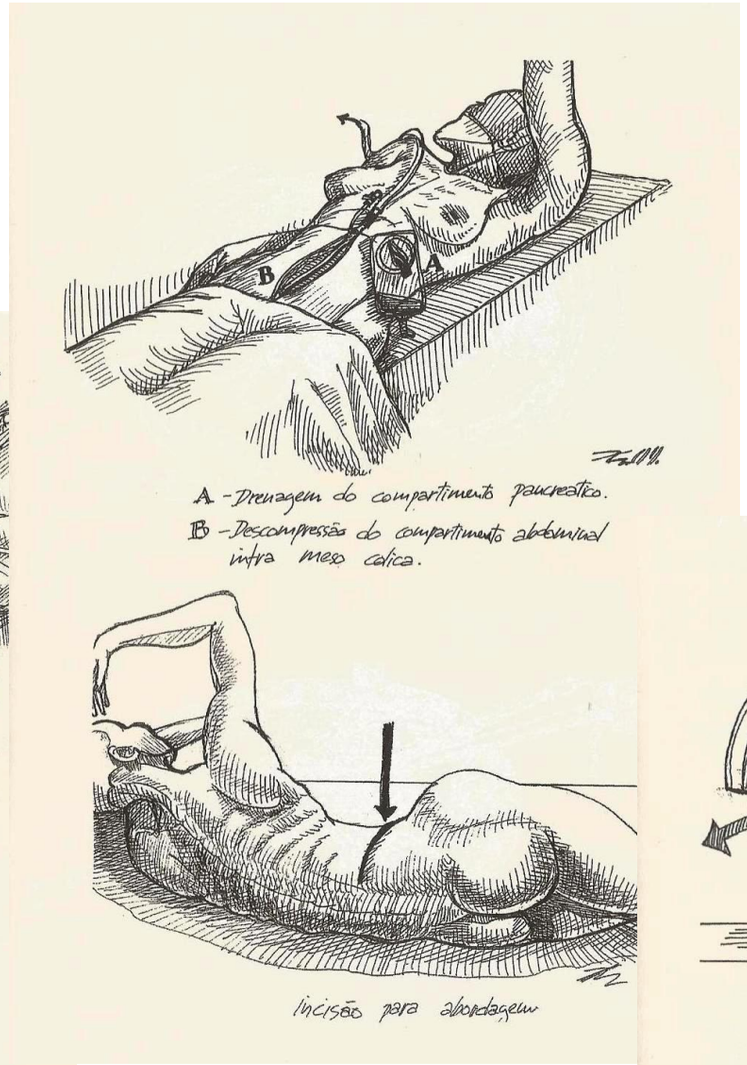

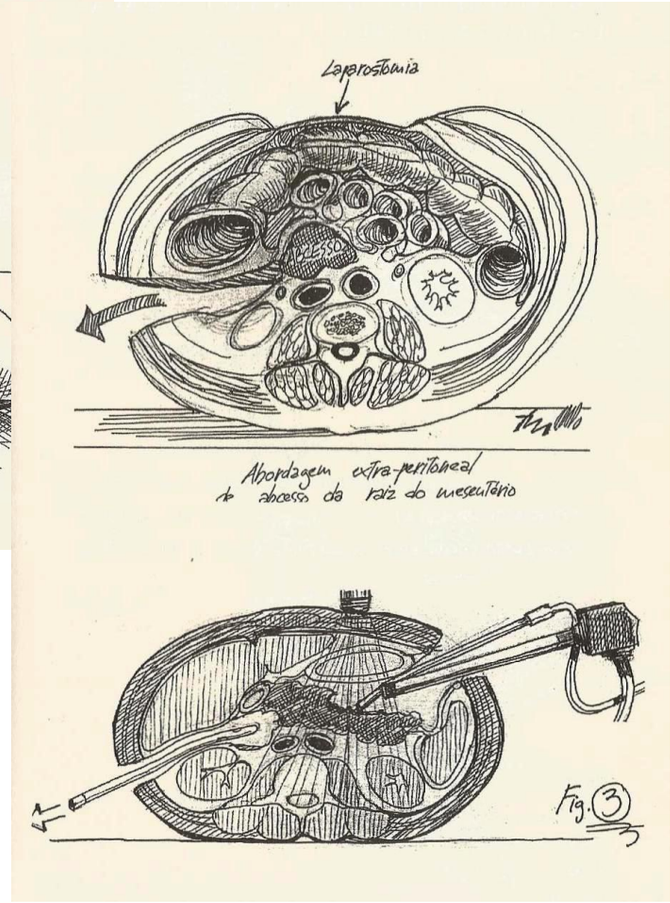

Francisco D'Oliveira Martins – Cadernos de um Cirurgião