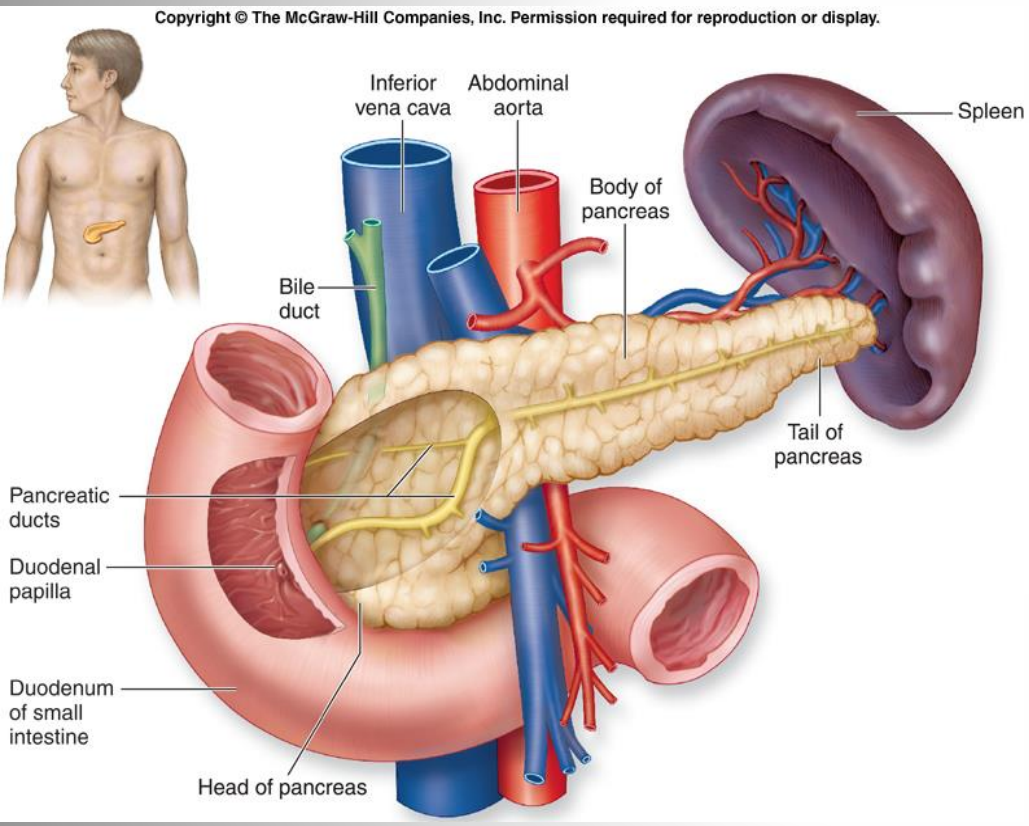
Acute & Chronic

Pancreatitis

Anatomy



Retroperitoneal Organ

Weighs 75 To 100 G

15 To 20 Cm Long

Head

Neck

Body

Tail

What is Pancreatitis?

- **Inflammation or infection of the pancreas**
  - Normally digestive enzymes secreted by the pancreas are not active until they reach the SI.
  - When the pancreas is inflamed, the enzymes damages the tissue that produce them. attack and

2 types:

1. Acute Pancreatitis

2. Chronic Pancreatitis

Acute Pancreatitis

Definition and Incidence

- Inflammatory disease with little or no fibrosis.
- Initiated by several factors:

90% of acute pancreatitis is secondary to acute cholelithiasis or ETOH abuse

- Develop additional complications

300,000 cases occur in the united states each year leading to over 3000 deaths.

Etiology: (GET SMASHED)

G: Gallstone

E: Ethanol

T: Trauma

S: Steroid

M: Mump

A: Autoimmune

S: Scorpion bits

H: Hyperlipidemia

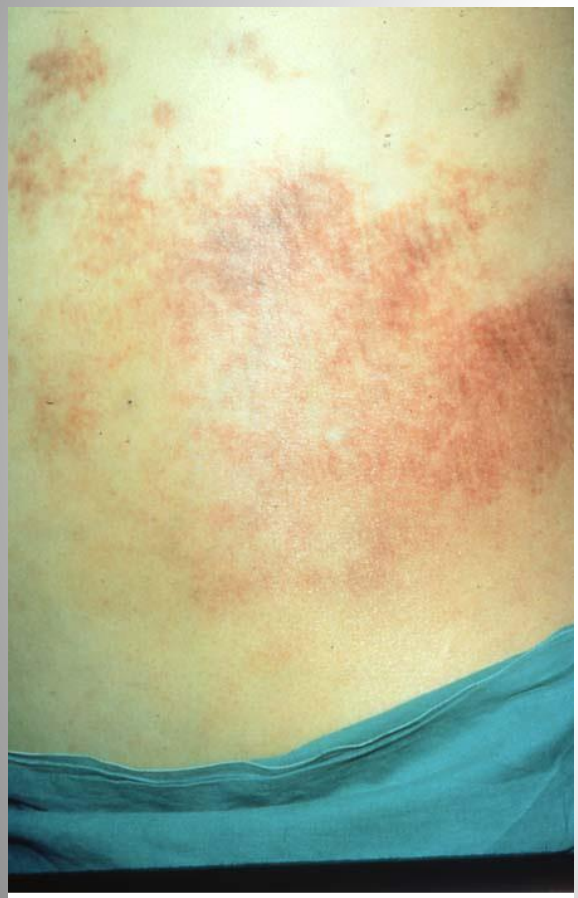
E: ERCP

D: Drugs

Clinical Presentation

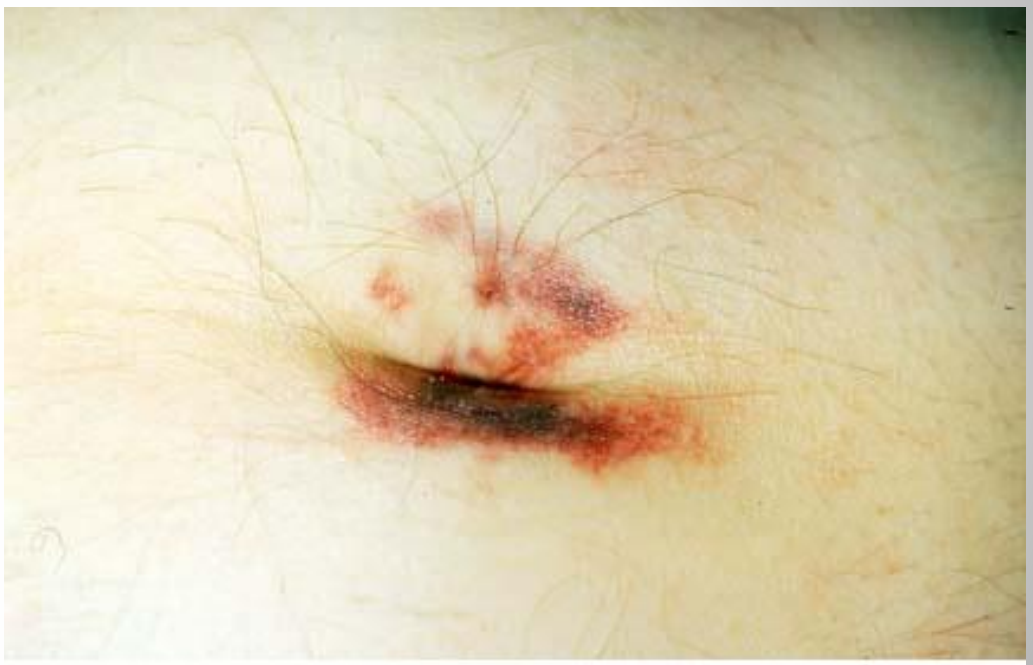
- **Abdominal pain**
  - Epigastric
  - Radiates to the back
  - Worse in supine position
- **Nausea and vomiting**
- **Garding**
- **Tachycardia, Tachypnea, Hypotension, Hyperthermia**
- **Elevated Hematocrit & Pre renal azotemia**
- **Cullen's sign**
- **Grey Turner's sign**

Grey Turner sign



Source: Lichtman MA, Shafer MS, Felgar RE, Wang N:
Lichtman's Atlas of Hematology: http://www.accessmedicine.com

Cullen's sign



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Diagnosis: Biochemical

- **serum amylase**
  - Nonspecific
  - Returns to normal in 3-5 days
  - Normal amylase does not exclude pancreatitis
  - Level of elevation does not predict disease severity
- **Urinary amylase**
- **P-amylase**
- **Serum Lipase**

- **CBC**
  - Increased Hb
  - Thrombocytosis
  - Leukocytosis

- **Liver Function Test**
  - Serum Bilirubin elevated
  - Alkaline Phosphatase elevated
  - Aspartate Aminotransferase elevated

Assessment of Severity

- **Criteria**
- Bisap
- 2.APACHE-2

- **Biochemical Markers**

- **Computed Tomography Scan**

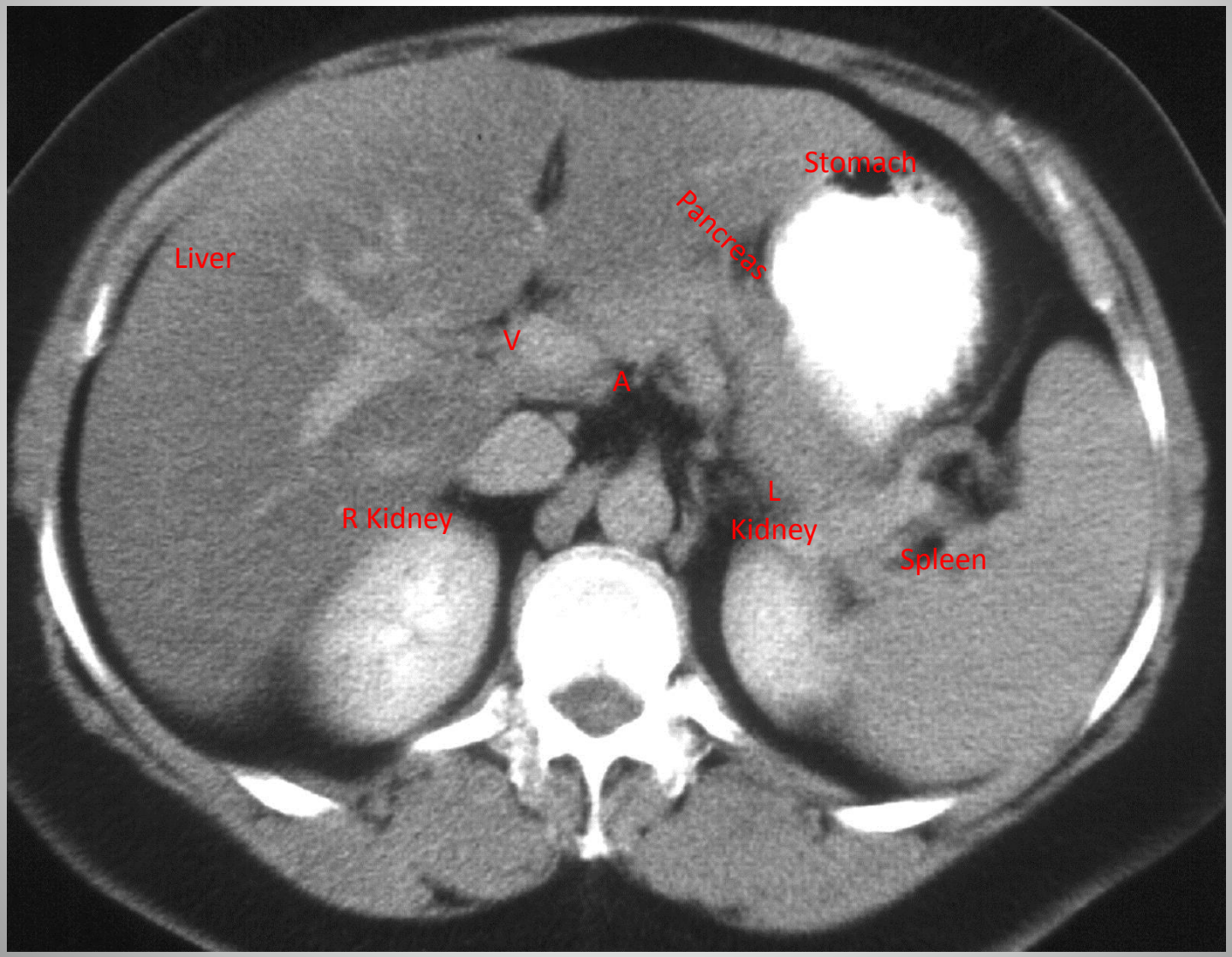
تشخیص افتراقی

- سوراخ شدگی احشاء
- انسداد روده
- کوله سیستیت حاد
- MI
- دایییسکشن ائورت
- پنومونی
- DKA
- . . .

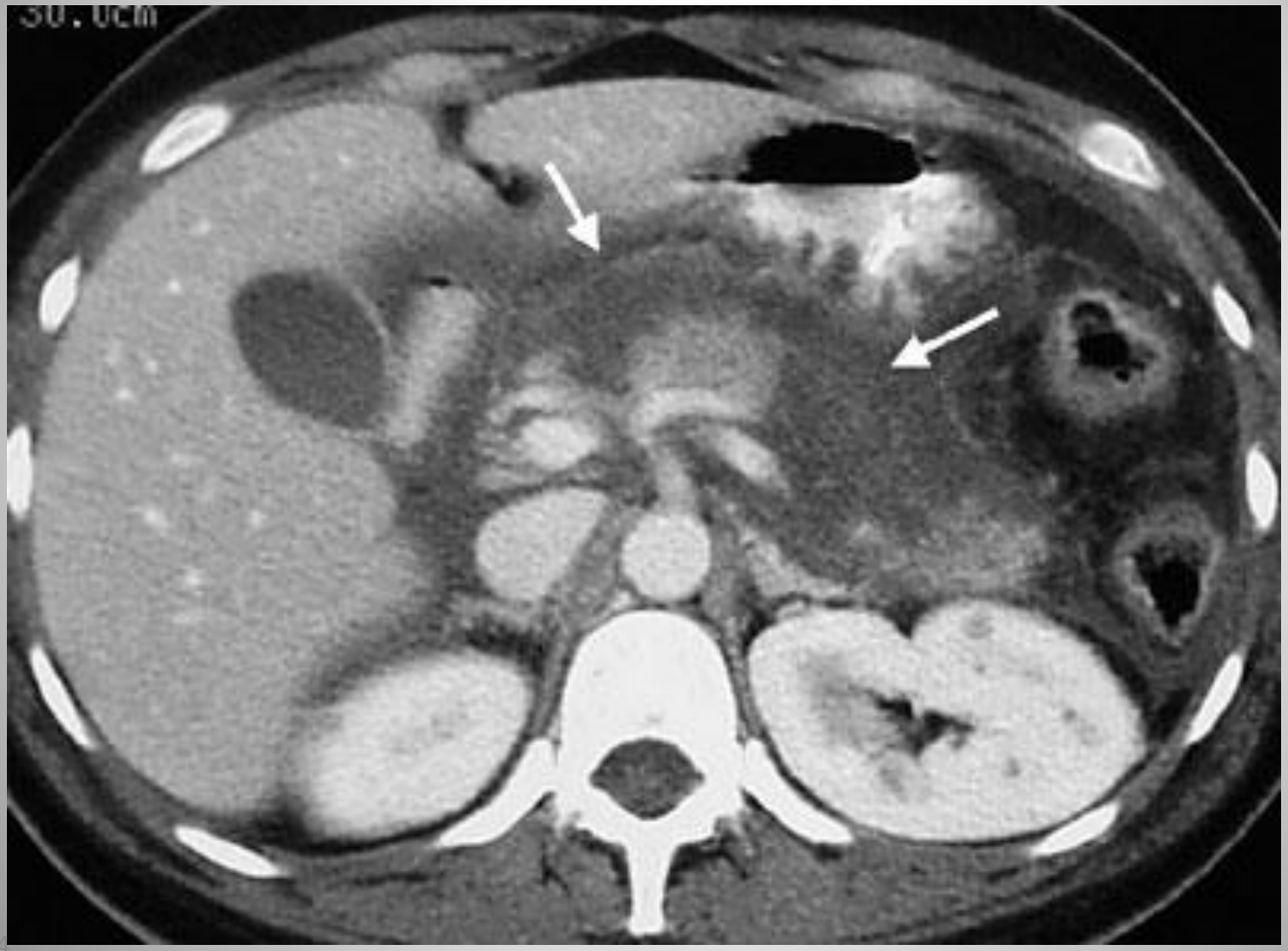
شدت پانکراتیت

- نشانگرهای شدت بیماری در هنگام پذیرش
- SIRS مثبت
- APA CHEH
- هماتوکریت بالای 44
- BUN>22
- امتیاز BI SAP
- نارسائی ارگان ها (شامل قلب – ریه و کلیه)

CT scans of normal kidneys and pancreas



Pancreatic Necrosis



Treatmaent of Mild Pancreatitis

- Pancreatic rest (NPO)
- Supportive care
  - fluid resuscitation – watch BP and urine output
  - Pain Control
  - NG tubes and H_2 blockers or PPIs are usually not helpful
- Refeeding (usually 3 to 7 days) If:
  - Bowel Sounds Present
  - Patient Is Hungry
  - Nearly Pain-free (Off IV Narcotics)
  - Amylase & Lipase Not Very Useful

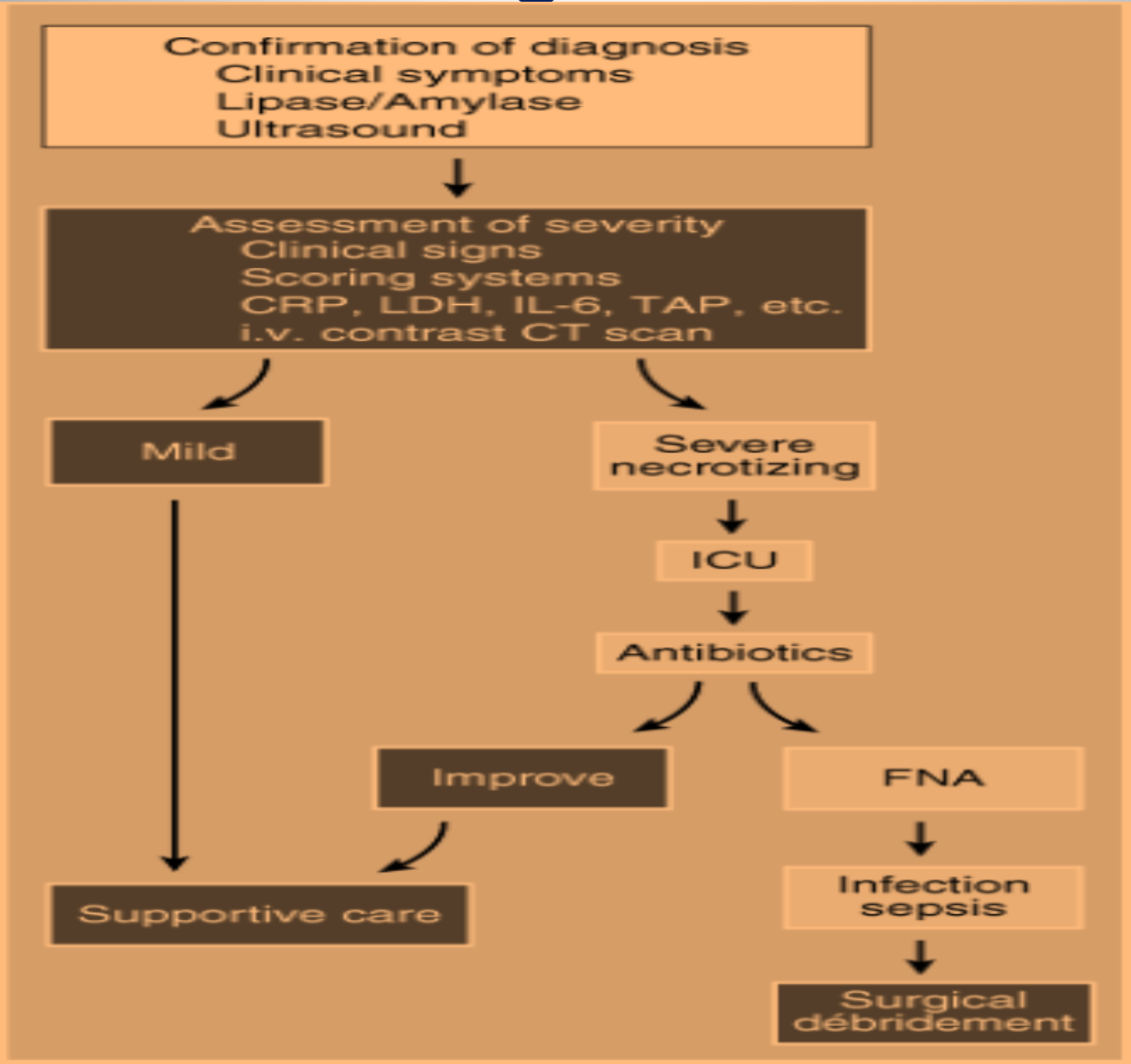
Treatment of Severe Pancreatitis

- Pancreatic Rest & Supportive Care
  - Fluid Resuscitation – may require 5-10 liters/day
  - Careful Pulmonary & Renal Monitoring – ICU
  - Maintain Hematocrit Of 26-30%
  - Pain Control – PCA pump
  - Correct Electrolyte Derangements (K^{+}, Ca^{++}, Mg^{++})
- Contrasted CT scan at 48-72 hours
- Prophylactic antibiotics if present
- Nutritional support
  - May be NPO for weeks
  - TPN

Complications

- **Local**
  - Phlegmon, Abscess, Pseudocyst, Ascites
  - Involvement of adjacent organs, with hemorrhage, thrombosis, bowel infarction, obstructive jaundice, fistula formation, or mechanical obstruction
- **Systemic**
  - A. Pulmonary: pleural effusions, atelectasis, hypoxemia, ARDS.
  - B. Cardiovascular: myocardial depression, hemorrhage, hypovolemia.
  - C.Metabolic:Hypocalcemia,hyperglycemia,Hyperlipidemia,coagulopathy
  - D. GI Hemorrhage
  - E. Renal
  - F. Hematologic
  - G. CNS
  - H. Fat necrosis

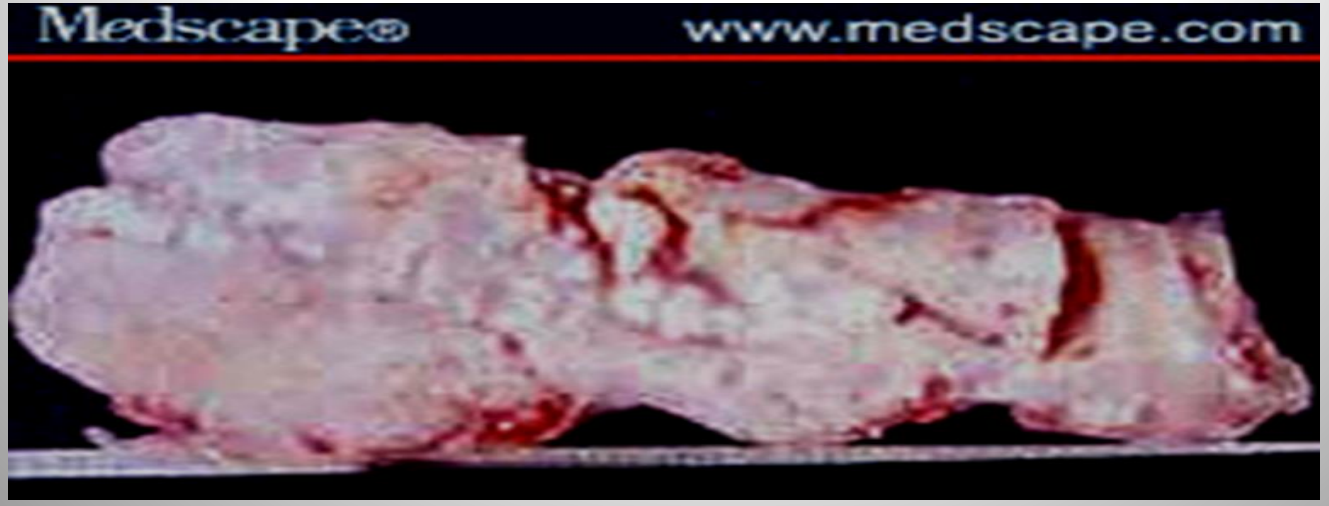
Management


Confirmation of diagnosis
Clinical symptoms
Lipase/Amylase
Ultrasound
Assessment of severity
Clinical signs
Scoring systems
CRP, LDH, IL-6, TAP, etc.
i.v. contrast CT scan
Mild
Severe necrotizing
ICU
Antibiotics
Improve
FNA
Supportive care
Infection sepsis
Surgical débridement

Chronic Pancreatitis

Definition and Prevalence

- **Defined as chronic inflammatory condition that causes irreversible damage to pancreatic structure and function.**
- **Incurable**
- **5 To 27 Persons Per 100,000**



Etiology

- **Alcohol, 70%**
- **Idiopathic (including tropical), 20%**
- **Other, 10%**
  - Hereditary
  - Hyperparathyroidism
  - Hypertriglyceridemia
  - Autoimmune pancreatitis
  - Obstruction
  - Trauma
  - Pancreas divisum

Classification:

1. calcific pancreatitis
2. obstraction pancreatitis
3. inflammatory pancreatitis
4. auto immune pancreatitis
5. asymptomic fibrosis
6. tropical pancreatitis
7. hereditary pancreatitis
8. idiopathic pancreatitis

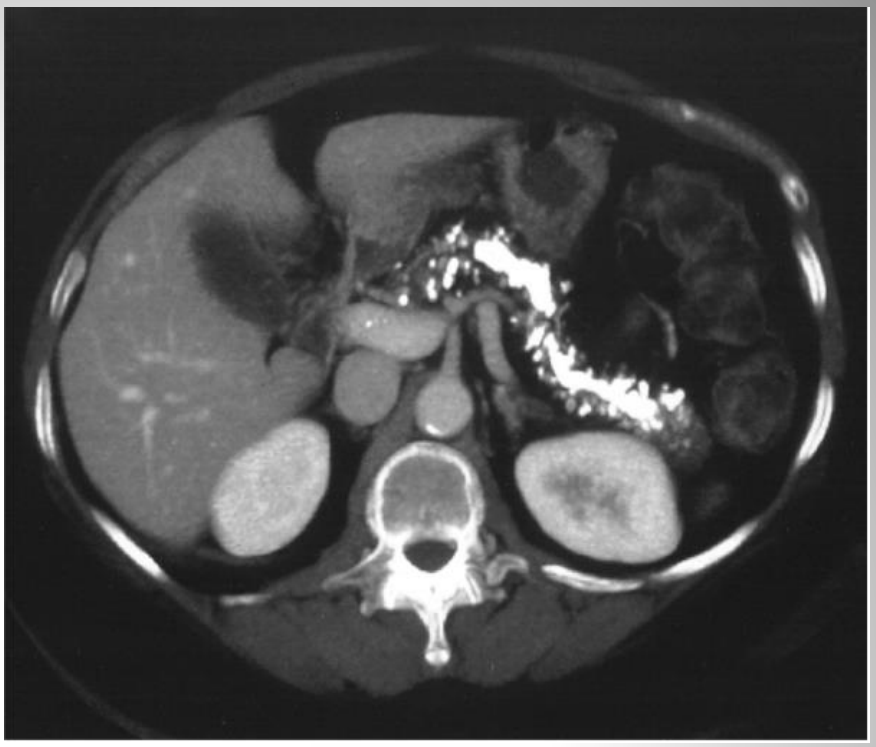
Signs and Symptoms

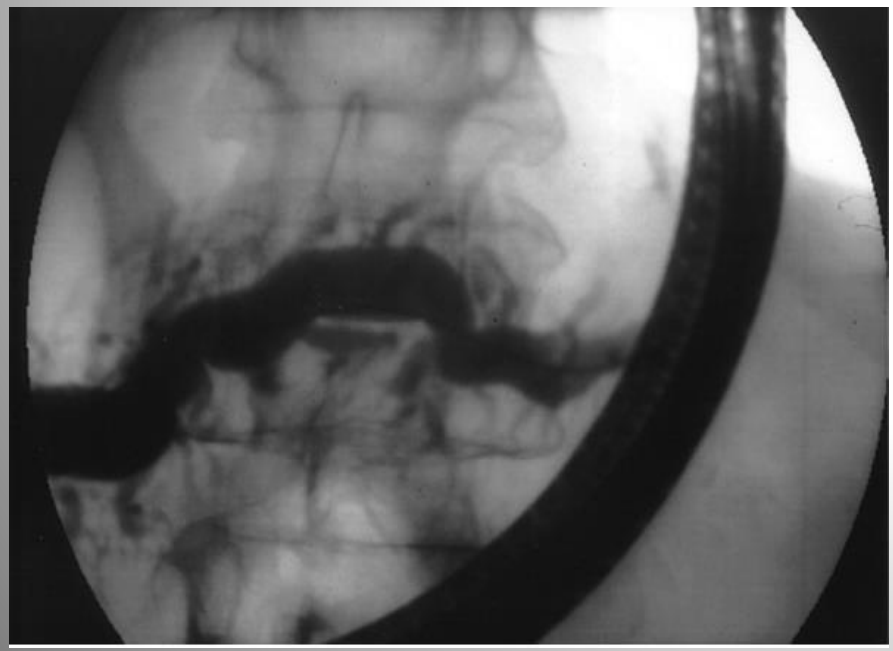
- Steady And Boring Pain
- Not Colicky
- Nausea Or Vomiting
- Anorexia Is The Most Common
- Malabsorption And Weight Loss
- Apancreatic Diabetes

Laboratory Studies

Tests for Chronic Pancreatitis
I. Measurement of pancreatic products in blood
A. Enzymes
B. Pancreatic polypeptide
II. Measurement of pancreatic exocrine secretion
A. Direct measurements
1. Enzymes
2. Bicarbonate
B. Indirect measurement
1. Bentiromide test
2. Schilling test
3. Fecal fat, chymotrypsin, or elastase concentration
4. [^{14}C]-olein absorption
III. Imaging techniques
A. Plain film radiography of abdomen
B. Ultrasonography
C. Computed tomography
D. Endoscopic retrograde cholangiopancreatography
E. Magnetic resonance cholangiopancreatography

Pancreatic calcifications. CT scan showing multiple, calcified, intraductal stones in a patient with hereditary chronic pancreatitis

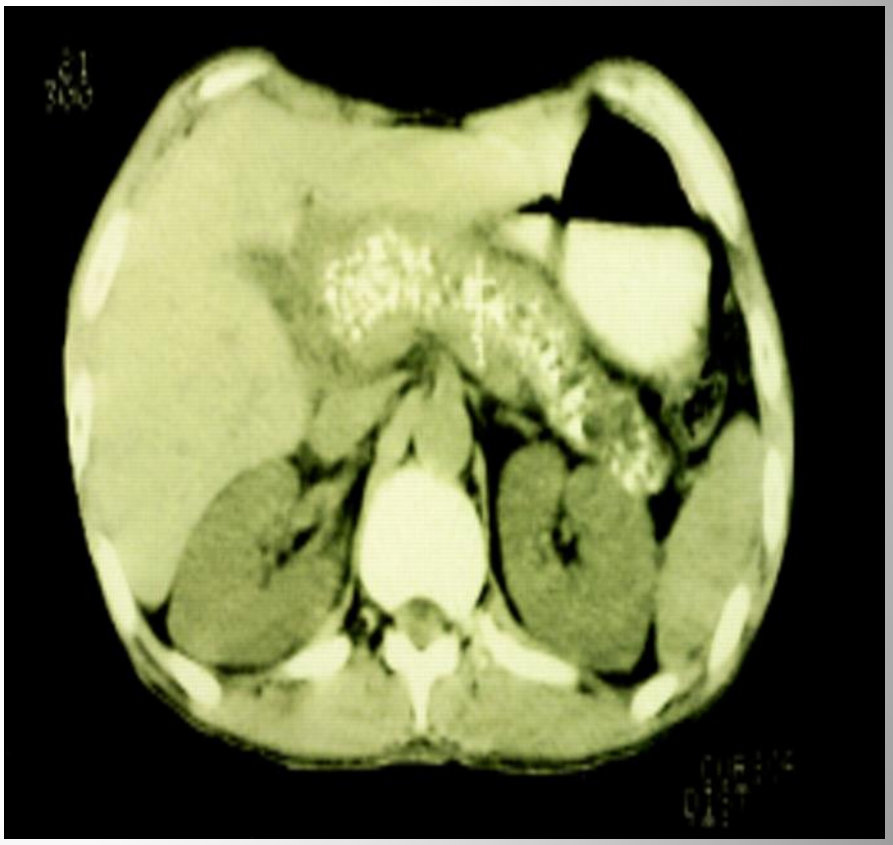




Endoscopic retrograde cholangiopancreatography in chronic pancreatitis. The pancreatic duct and its side branches are irregularly dilated

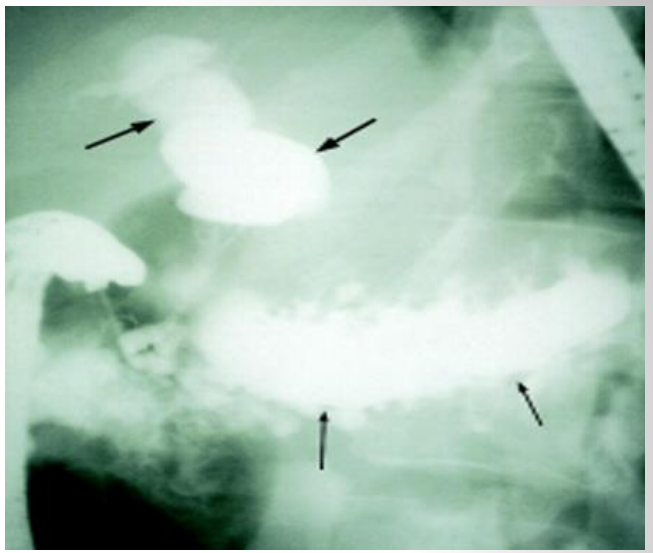
CT features

- **The cardinal CT features of CP are pancreatic atrophy, calcifications, and main pancreatic duct dilation .**



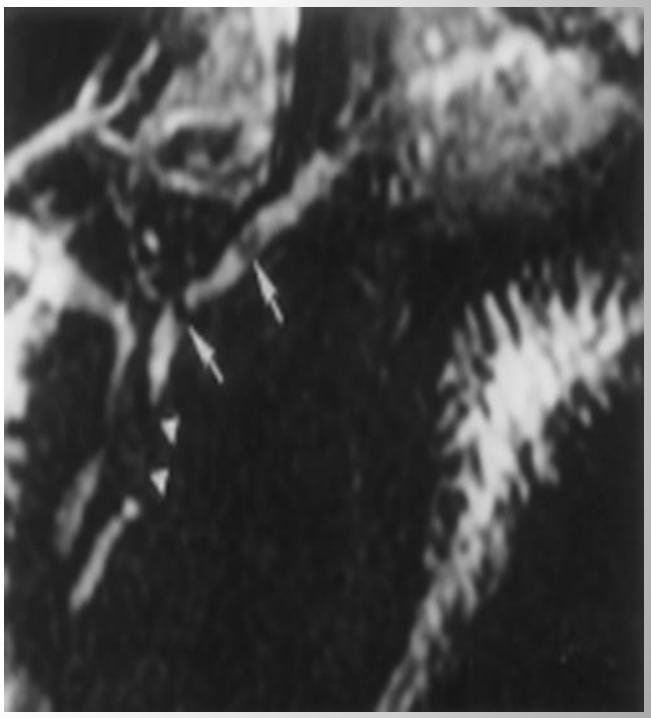
ERCP

- **ERCP is a highly sensitive radiographic test for CP.**



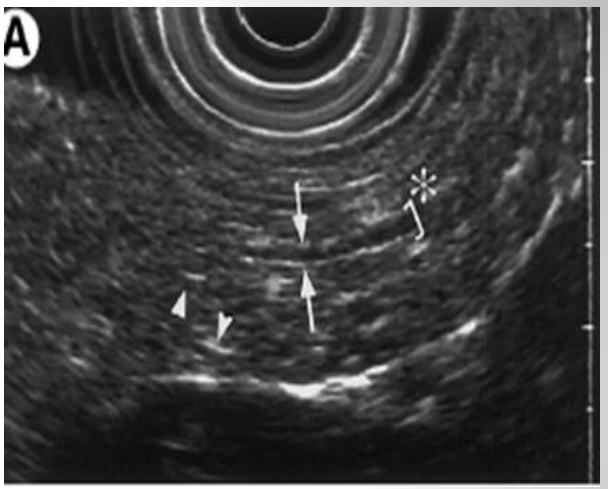
MRCP

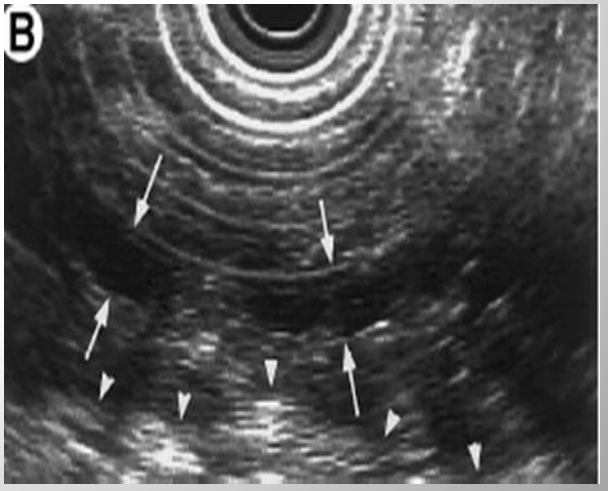
- **MRCP allows a noninvasive alternative to ERCP for imaging the pancreatic duct.**



EUS

EUS is a minimally invasive test that allows simultaneous assessment of ductal and parenchymal structure.





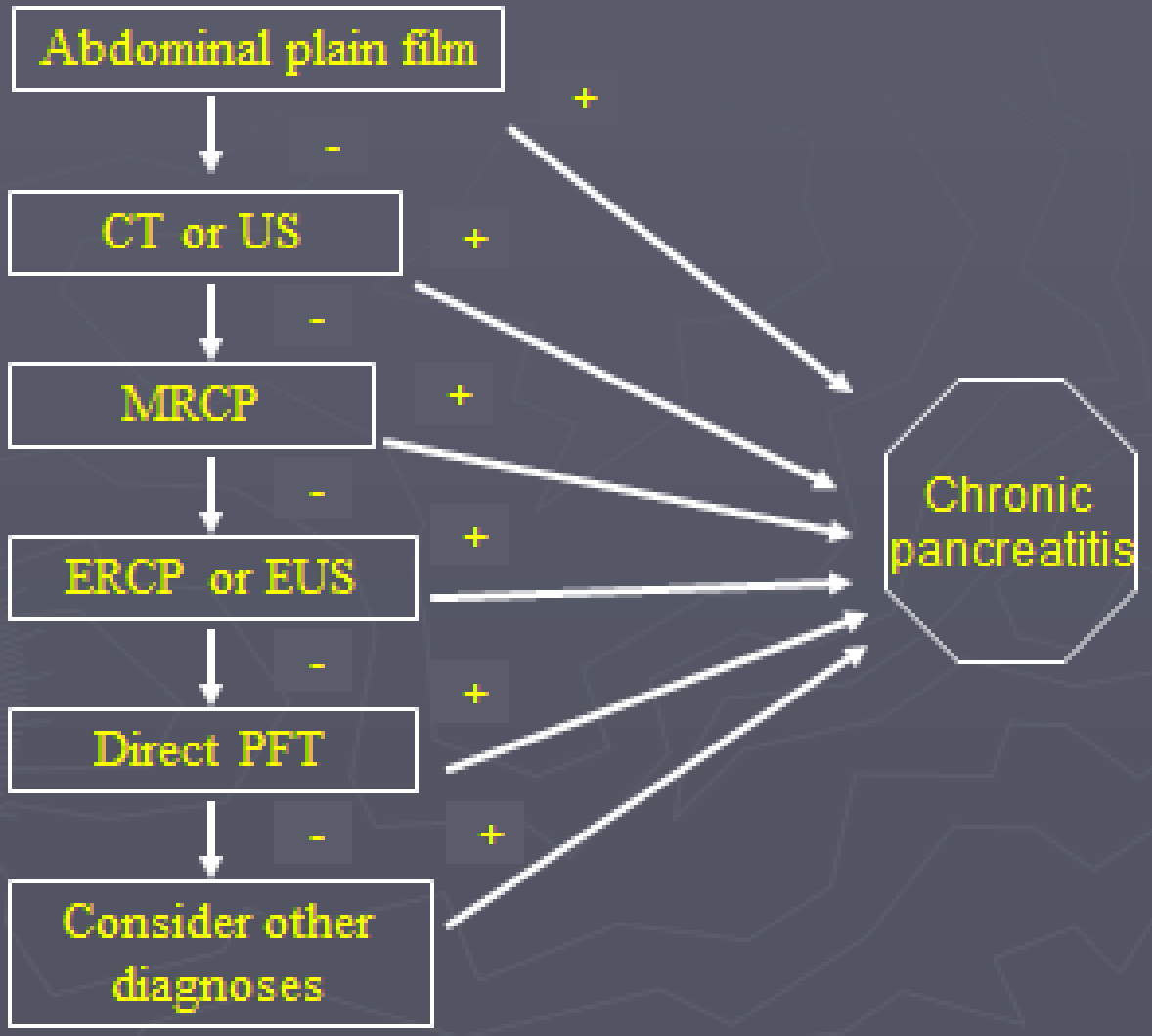
Treatment

- Analgesia
- Enzyme Therapy
- Antisecretory Therapy
- Neurolytic Therapy
- Endoscopic Management
- Surgical Therapy

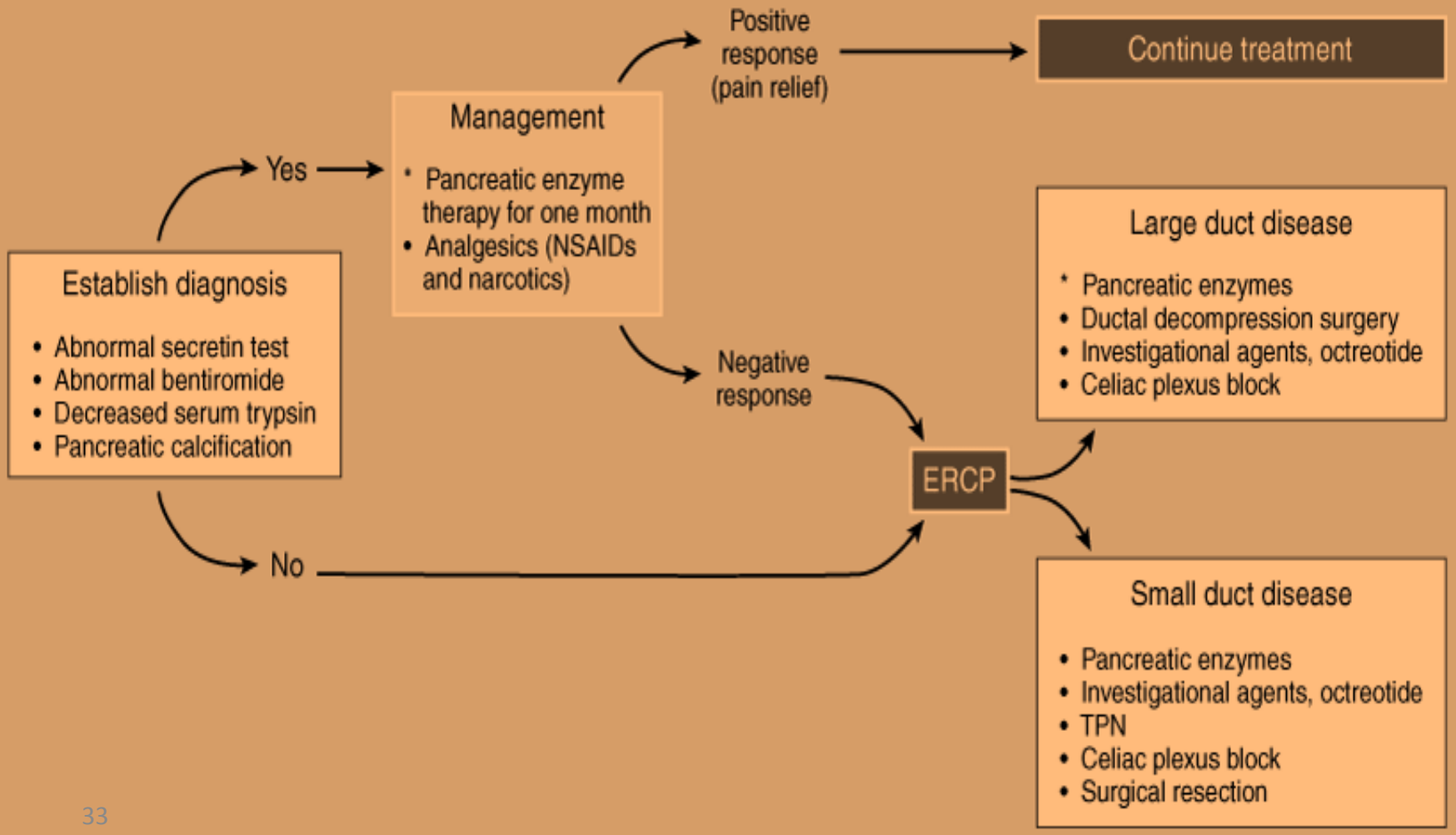
Complications

- Pseudocyst
- Pancreatic Ascites
- Pancreatic-Enteric Fistula
- Head-of-Pancreas Mass
- Splenic and Portal Vein Thrombosis

The Cleveland Clinic Foundation Approach to Diagnosis of Chronic Pancreatitis



Management


Establish diagnosis
• Abnormal secretin test
• Abnormal bentiromide
• Decreased serum trypsin
• Pancreatic calcification
Yes
No
Management
• Pancreatic enzyme therapy for one month
• Analgesics (NSAIDs and narcotics)
Positive response (pain relief)
Continue treatment
Negative response
ERCP
Large duct disease
• Pancreatic enzymes
• Ductal decompression surgery
• Investigational agents, octreotide
• Celiac plexus block
Small duct disease
• Pancreatic enzymes
• Investigational agents, octreotide
• TPN
• Celiac plexus block
• Surgical resection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