Acute Pancreatitis

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Chief Complaint

Previously healthy, 55 year old man, ½ day severe abdominal pain, vomiting, diaphoresis.
Past Medical History

Peptic Ulcer Disease
Gastroesophageal Reflux
Medications

None
Family History

Positive for cardiovascular disease
Negative for pancreatitis or gallbladder disease
Social History

Wife and teenage daughter
Alcohol: 1 beer per day
Smoking: Never
Occupation: Unknown
Ultrasound: Cholelithiasis
Lab Tests

↑ Amylase
↑ Lipase
↑ Total Bilirubin
↑ Liver Function Tests

Diagnosis: Acute Pancreatitis
Causes of Pancreatitis

- Alcohol Abuse
- Choledocholithiasis
- Trauma (Most common cause in children)
- Pancreas Divisum
Causes of Pancreatitis

- Hypertriglyceridemia
- Hypercalcemia
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Infection
- Drugs
- Penetration of duodenal ulcer
- Pancreatic cancer
Imaging Modalities

- Radiograph
- Ultrasound
- Computed Tomography (CT)
- Endoscopic Retrograde Cholangiopancreatography (ERCP)
- Magnetic Resonance Cholangiopancreatography (MRCP)
- Magnetic Resonance Imaging (MRI)
- Angiography (or CT Angiography)
Abdominal CT is currently the imaging test of choice for acute pancreatitis
Acute Pancreatitis on CT

- Focal or diffuse enlargement, edema
- Peripancreatic inflammation
  (fat stranding, thickening of fascial planes, inflammation of surrounding tissues)
Complications of Pancreatitis on CT

- Sterile Fluid
  - Free Fluid
  - Organized fluid collections
  - Pseudocyst (nonepithelialized wall)
- Necrosis (heterogeneous enhancement with contrast)
- Infection
  - Abscess
  - Infected Necrosis
  - Infected peritoneal fluid
- Vascular
Indications for CT
(Balthazar, et al and Freeny)

- Confirmatory
- If suspect severe pancreatitis
- Clinical evidence of complications or sudden deterioration
- Unresponsive to 72 hours conservative therapy
- Follow-up in severe pancreatitis
Purpose of CT

• Prognosis
• CT staging
• Assess complications
• Guide biopsy or aspiration
CT Staging:
Balthazar’s grading system

• A: Normal on CT
• B: Focal or diffuse enlargement
• C: Peripancreatic inflammation
• D: A single fluid collection
• E: Two or more fluid collections OR gas
CT Staging:
CT Severity Index (CTSI)

Start with:
• 0 to 4 points for Balthazar A to E

Then add:
• 2 points for 30% gland necrosis
• 4 points for 30% to 50% gland necrosis
• 6 points for greater than 50% gland necrosis
Cross Sectional Anatomy

CT: Normal Pancreas
CT: Normal Pancreas
MRI: Normal Pancreas
Our Patient

7/09: Necrotizing Pancreatitis
Our Patient
7/09: Necrotizing Pancreatitis
Our Patient

7/09: Perihepatic/splenic Fluid
Our Patient

7/09: Fluid along perirenal fascia
Our Patient
7/09: Gallstone?
Our Patient shows acute pancreatitis

Lets review some different patients with typical findings of pancreatitis on CT
A different patient with Acute Pancreatitis
Patient 1: Acute Pancreatitis
Patient 2: Acute Pancreatitis
Focal Pancreatitis vs. Mass
Differential Diagnosis: Pancreatic Mass

- Neoplasm
  - Benign
  - Primary Malignant
  - Metastasis
- Focal pancreatitis
- Pseudocyst
- Lymph nodes
Patient 3: Pseudocyst
Patient 4: Pseudocyst
Patient 5: Pseudocyst
Patient 6: Pseudocyst
Patient 6 with Drain
Differential Diagnosis: Cystic Mass

- Pseudocyst
- Abscess
- True cyst
- Benign neoplasm
- Malignant primary neoplasm
- Liver metastasis
Patient 7: Necrosis
Patient 8: Necrosis
Patient 9: Necrosis
Differential Diagnosis: Heterogeneous Enhancement

- Necrosis
  - Sterile
  - Infected
- Edema from Acute Pancreatitis
Patient 10: Vascular Complications
Gastroduodenal pseudoaneurysm
Back to our patient
7/13: IV contrast (-)
Our Patient
7/13 IV Contrast(-)
Our Patient

7/16: Aspiration of Fluid I
Our Patient

7/16: Aspiration Fluid I
Our Patient

7/23: Aspiration Fluid II
Our Patient
7/23: Aspiration Fluid II
Our Patient

7/23: Cross-Table Lateral for Free Air
7/31: Too unstable for CT: Portable Ultrasound

- Limited portable study
- Unable to visualize pancreas parenchyma
- Ascites
8/2 (early am):
Develops wide complex tachycardia → Passes away.
References


• Beth Isreal Deaconess Medical Center PACS System


• http://www.med.wayne.edu/diagRadiology/TeachingFile.html
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