

Emergency Surgery Board
Department of General Surgery
Rambam Health Care Campus

Surgical Complications of Peptic Ulcer Disease
Case Presentation and Review of the Literature



Case Presentation

- 40y male
- Chief complaint – Severe abdominal pain
- PMH – Unremarkable
 - Ethanol use – Social
 - Tobacco use – 15 year/pack
- PSH – Unremarkable
- Family history – Unremarkable
- Social – South American, occasional jobs
- Medications – None
- Allergies – None

Case Presentation

- Complaints – Diffuse abdominal pain
 - 1 week started as epigastric pain and now is diffused
 - Consistent increase in pain intensity (9/10)
 - The patient denies having fever, nausea, emesis, diarrhea, dysuria
- No history of PUD nor Cholelithiasis
- Never had a gastroscopy nor colonoscopy performed
- Denies weight loss

Physical Examination


- General – Pt. looks in pain, lies still in bed
- HEENT - WNL
- Resp. – WNL
- CV – Hemodynamically stable, no tachycardia
- Abd. – Rigid and diffusely tender, Right quadrants peritonitis
- PR - WNL
- Ext. – WNL
- Peripheral Pulses – WNL
- Neuro. – WNL


Differential Diagnosis?


- Peptic Ulcer Disease
- Cholecystitis
- Pancreatitis
- Perforation/Penetration of a peptic ulcer
- Periappendicular abscess


Laboratory Results

CBC –

 WBC – 25,200, Stab 9%

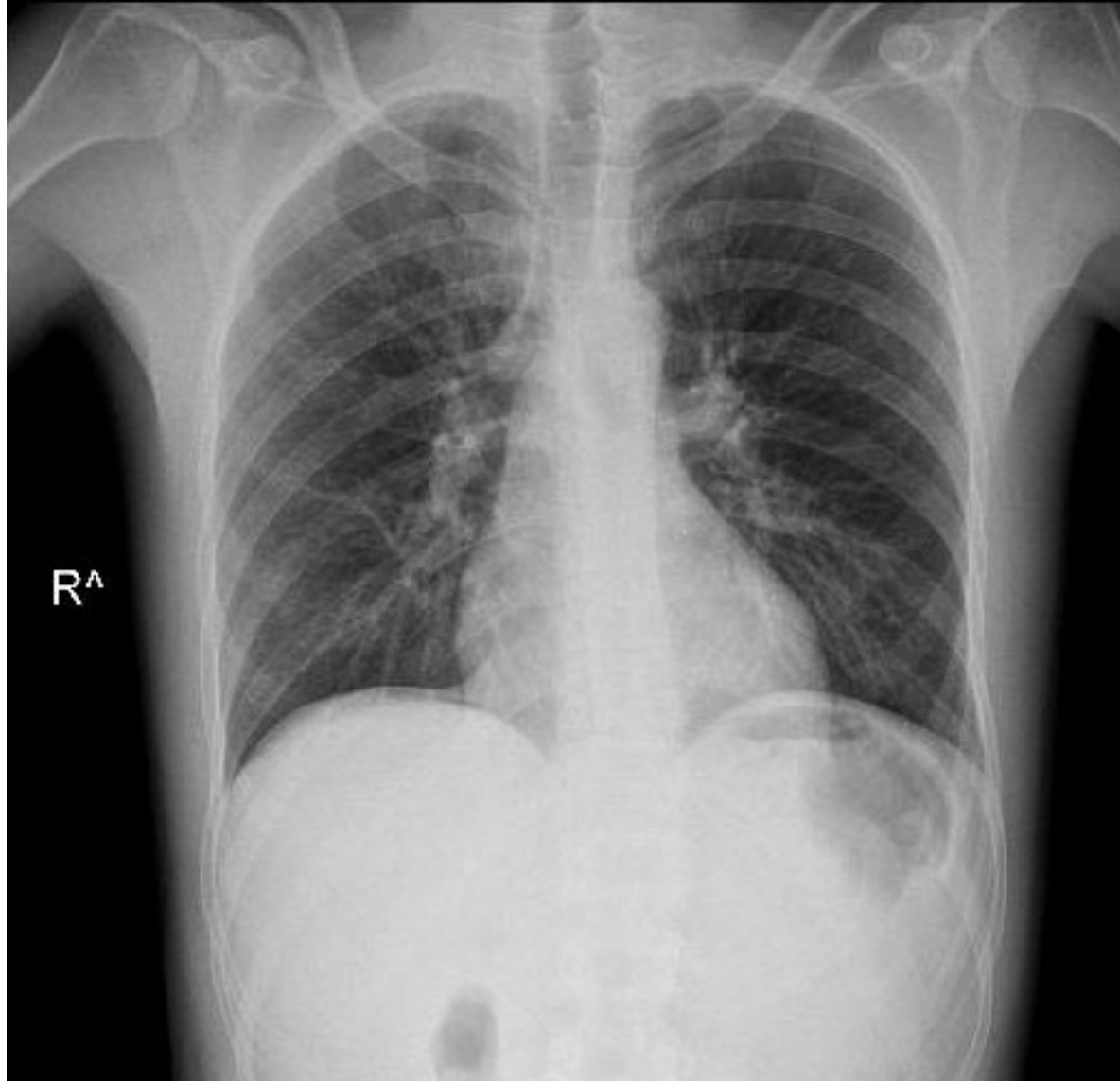
 Hb – 15.2

 Hct – 45%

 Chem. – Glu 157, K 3.0, Na 140, BUN 9, Cr 0.6,
BilT/D 0.6/0.2, AST 13, Amy 68

 VBG – pH 7.48, Lact 1.3, PCO² 26, BE -2.3

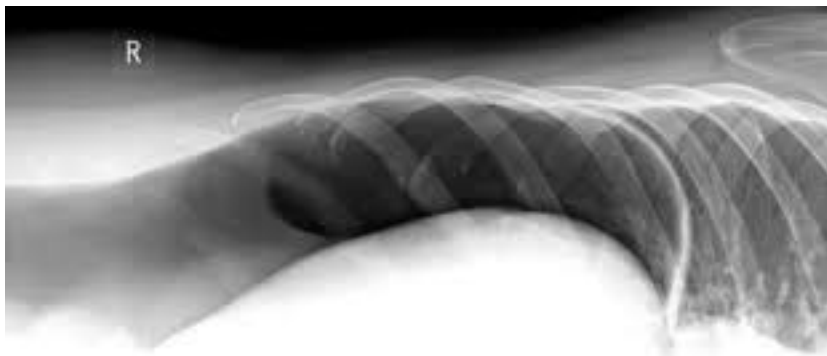
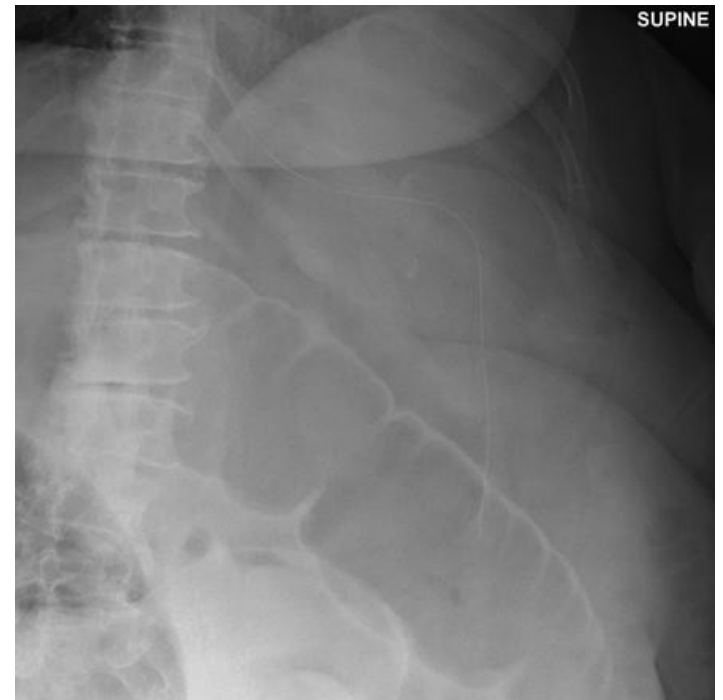
Chest X-Ray



Abdominal X-Ray



Detection of Free Air



Yield of CXR in detecting free air

- ¹146 patients with perforated peptic ulcer
 - 85.5% detected free air
- ²42 patients with perforated peptic ulcer
 - 35.7% detected free air

¹Grassi R et al. Gastro-duodenal perforations: conventional plain film, US and CT findings in 166 consecutive patients. Eur J Radiol. 2004 Apr;50(1):30-6.

²Ben-Ishay et al. Perforated peptic ulcer determinants of outcome and mortality. J Emerg Trauma Shock 2012

Differential Diagnosis?

- Peptic Ulcer Disease
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Next step?

- Abdominal US
- CT of the abdomen and pelvis
- Operating room
- Discharge home
- Admit for observation

Patient management

- NG tube
- Foley Catheter
- Fluids
- Antibiotics (Ceftriaxone + Metronidazole)
- Abdominal US

Abdominal US

- Free Fluid in the abdomen
- No appendicular structure was identified
- Hyperemic small bowel loops in RLQ with thickened bowel wall

Next Step?

- CT of the abdomen and pelvis
- Operating room
- Discharge home
- Admit for observation

CT of the abdomen and pelvis



CT of the abdomen and pelvis



CT of the abdomen and pelvis



Next Step?

- Operating room
- Discharge home
- Admit for observation

Operative Approach

🌿 Laparoscopic vs. Open

🌿 Laparoscopic¹

- 🌿 Shorter operating time
- 🌿 Less postoperative pain
- 🌿 Reduced chest complications
- 🌿 Shorter postoperative hospital stay
- 🌿 Earlier return to normal daily activities

¹Lagoo SA, Pappas TN. Laparoscopic repair for perforated peptic ulcer. Ann Surg. 2002 Mar;235(3):320-1.

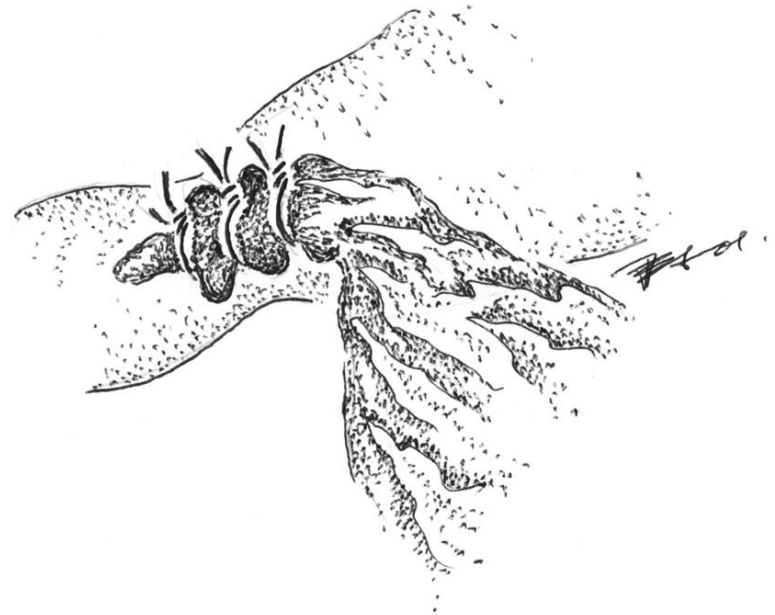
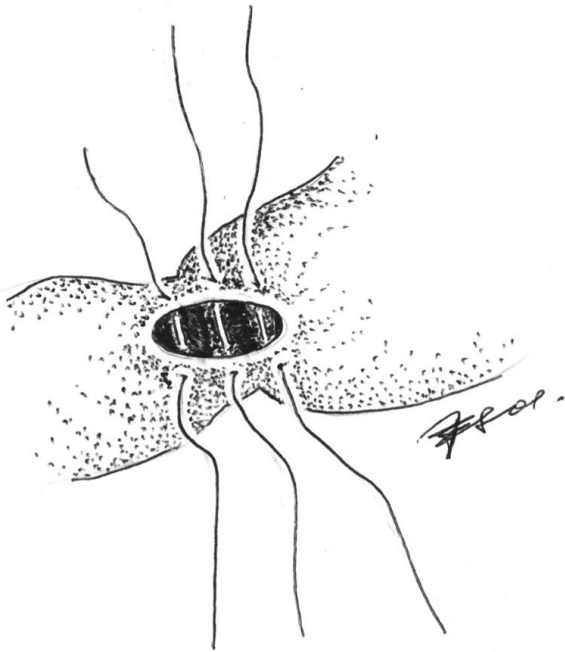
Operative Findings

- Large amount of sero-sanguinous fluid in the abdomen
- No signs of long standing peritonitis
- Post-pyloric, 0.5cm perforation in the anterior wall of the first part of the duodenum

Surgical Management?

- Drainage
- Omentopexy (Graham Patch)
- Over sewing
- Antrectomy

Omentopexy (Graham Patch)



Drain Placement?

- ¹Routine placement is associated with:
 - Significant morbidity and infection
 - No changes in incidence of postoperative intra-abdominal abscesses

¹Pai D, Sharma A, Kanungo R, Jagdish S, Gupta A. Role of abdominal drains in perforated duodenal ulcer patients: a prospective controlled study. Aust N Z J Surg. Mar 1999;69(3):210-3

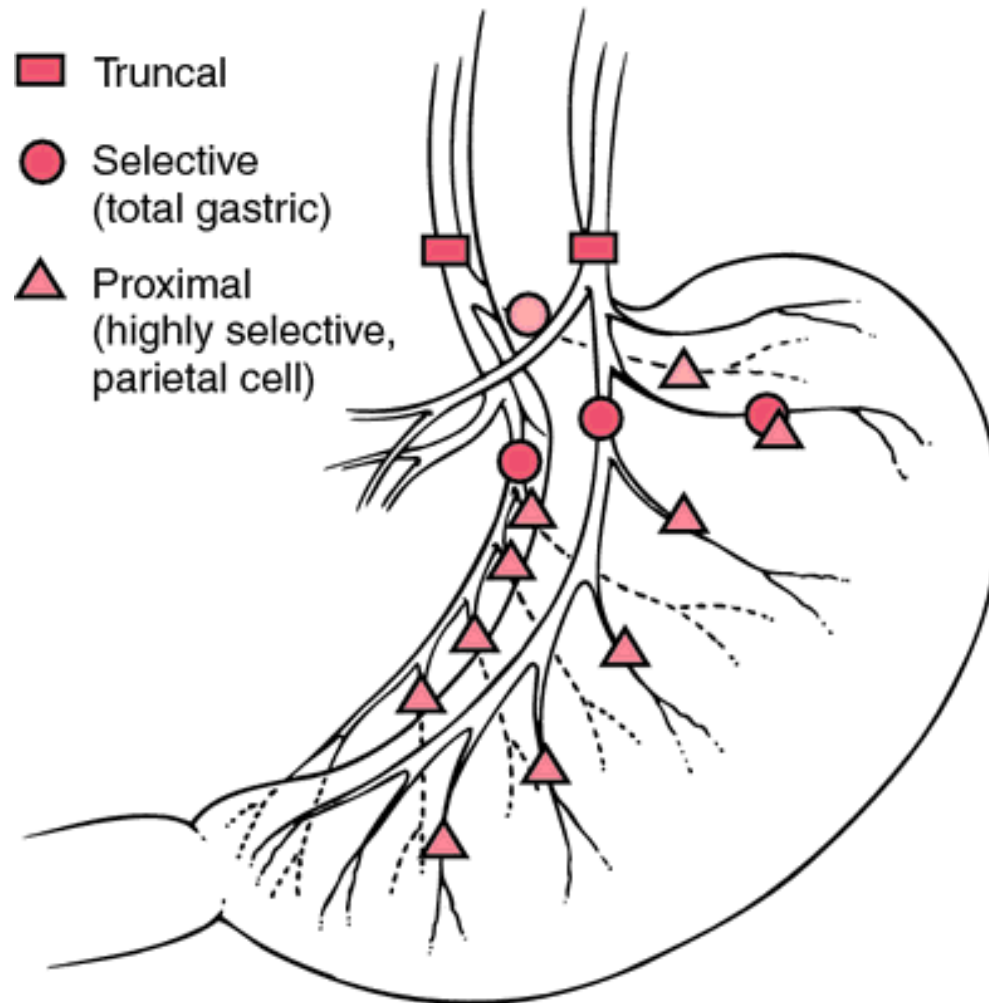
Surgical Management?

- Over Sewing – Ineffective
- Antrectomy – Rarely needed

Definitive Acid-Reducing Procedure

- PPIs replaced acid reducing procedures
- The procedure should be considered in patients that can not use PPI or need a life long therapy with NSAIDs
- Low compliance with HP therapy or PPIs

Definitive Acid-Reducing Procedure



Post-operative Abx treatment

- Continue for 24 hours if treatment was obtained within 12 hours¹
- If operative signs of diffuse peritonitis are present and no normalization of WBC continue for 4-7 days¹

¹Solomkin JS, Mazuski JE, Bradley JS, Rodvold KA, Goldstein EJ, Baron EJ, et al. Diagnosis and management of complicated intra-abdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America. Clin Infect Dis. Jan 15 2010;50(2):133-64

Post-operative empiric HP treatment

- Eradication reduces recurrence, morbidity and mortality^{1,2}
- Empiric treatment vs. testing for HP
 - Incidence of HP in perforated PUD – 60-73%³⁻⁴

¹Kate V, Ananthkrishnan N, Badrinath S. Effect of Helicobacter pylori eradication on the ulcer recurrence rate after simple closure of perforated duodenal ulcer: retrospective and prospective randomized controlled studies. Br J Surg. Aug 2001;88(8):1054-8.

²Ng EK, Lam YH, Sung JJ, Yung MY, To KF, Chan AC. Eradication of Helicobacter pylori prevents recurrence of ulcer after simple closure of duodenal ulcer perforation: randomized controlled trial. Ann Surg. Feb 2000;231(2):153-8.

³Gisbert JP, Legido J, García-Sanz I, Pajares JM. Helicobacter pylori and perforated peptic ulcer prevalence of the infection and role of non-steroidal anti-inflammatory drugs. Dig Liver Dis. 2004 Feb;36(2):116-20.

⁴Gisbert JP, Pajares JM. Helicobacter pylori infection and perforated peptic ulcer prevalence of the infection and role of antimicrobial treatment. Helicobacter. 2003 Jun;8(3):159-67. Review.