Perforated Duodenal Ulcer

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Classic Patient

• 50-70 years of age
• Chronically ill
• Infected with *H. pylori* (almost always)
• Takes NSAIDs or other ulcerogenic medications (20-50% of the time)

Classic Presentation

• Phase 1 (onset - two hours)
  o Sudden onset severe epigastric abdominal pain +/- immediate collapse or syncope
  o Pain sometimes radiates to the shoulder(s)
  o Tachycardia, weak pulses, low temperature
• Phase 2 (two - twelve hours)
  o Generalized abdominal pain that may be lower in intensity and is exacerbated by movement
  o “Board-like” rigidity of abdomen and guarding (reflecting peritonitis) +/- absent bowel sounds
• Phase 3 (after twelve hours)
  o Increased abdominal distention
  o Fever and hypotension
  o May have decreased abdominal tenderness and rigidity

Evaluation and Diagnostics

• Labs: CBC, BMP, LFTs, Amylase, Lipase
• Upright CXR and abdominal films: free air is diagnostic in this setting, 80-90% of patients will have it
• Abdominal CT w/ oral gastrografin: look for free air, fluid or evidence of extravasation of contrast

Initial Management

• Fluid resuscitation
• Nasogastric tube (to decompress the GI tract and limit additional acidic peritoneal soilage)
• Foley catheter (to monitor urine output and help direct fluid resuscitation)
• Broad-spectrum IV antibiotics
• Opiates for pain as needed

Conservative Management

• Only reasonable in the small minority of patients with the following characteristics:
  o Stable
  o Absence of peritonitis
  o Self-sealed perforation (radiologically documented by upper GI series with gastrografin)
• Consists of the following components:
  o IV fluids
  o NG tube suction
  o NPO
  o IV antibiotics
  o IV PPIs
Surgical Management

- **Simple Closure with Omental (Graham) Patch** – *the standard of care for most patients*
  - Make upper midline incision
  - Clear peritoneal cavity of purulent and bilious fluid
  - Explore to determine the site of perforation (usually *proximal anterior* duodenum)
  - Place three sutures – one superior, one inferior and one through center of perforation; leave them open
  - Lay some omentum over the perforation, wrap the open sutures around the omentum, then tie the sutures
  - Irrigate the abdomen thoroughly with warm saline
  - Close the midline incision or leave it open with subcutaneous tissue packed with saline-soaked gauze

- **Parietal Cell Vagotomy** – *added on for patients that are H. pylori negative or require continued NSAID use*
  - Divide branches of the vagus nerve supplying the acid-producing portion of the stomach (body, fundus)
    - Divide down to roughly 7 cm proximal to the pylorus
    - Divide up to roughly 5 cm proximal to the GE junction on the esophagus
  - Preserve vagal innervation of the antrum and pylorus
Postoperative Management

- Bowel rest for the first day, but advance to solid foods as tolerated by the patient
- Eradication of *H. pylori* using 7-14 days of “Triple Therapy”
  - PPI
  - Clarithromycin
  - Amoxicillin or metronidazole

Post-Operative Complications

- Wound infection (6%)
- Wound dehiscence (2%)
- Leak or fistula (1%)