GASTRIC OUTLET OBSTRUCTION SECONDARY TO PUD

FLAME LECTURE: 81

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LEARNING OBJECTIVES

- To understand epidemiology and etiology of gastric outlet obstruction (GOO) secondary to peptic ulcer disease (PUD)
- To understand the clinical manifestations, diagnosis, and treatment options for GOO.
- Prerequisites:
  - NONE
- See also – for closely related topics
  - FLAME LECTURE 74: Causes of peptic ulcer disease
  - FLAME LECTURE 77: Clinical Presentation and physical exam findings in peptic ulcer disease- gastric vs. duodenal ulcers
  - FLAME LECTURE 78: Diagnosing peptic ulcer disease
  - FLAME LECTURE 79: Management and treatment of peptic ulcer disease

EPIDEMIOLOGY

- Gastric outlet obstruction is characterized by epigastric abdominal pain and postprandial vomiting due to mechanical obstruction
- PUD has historically been the most common benign cause of GOO previously accounting for 80% of cases, while malignancy accounted for for 10-20 % of cases
  - However, with the discovery of H. *pylori* and the introduction of PPIs, incidence of PUD, and thus GOO, has declined substantially
  - In recent decades, malignancy accounts for 50-80% of cases of GOO
- Need for surgery also declining because of advancements in endoscopic methods to treat GOO
  - Dilation and stenting

ETIOLOGY

- Obstruction is now the least common complication of PUD, occurring in approximately 2% of cases
- Male: female ratio is 3:1
- Both acute and chronic PUD can lead to GOO
- Principal sites of involvement are the pyloric channel and duodenal bulb
- Acute peptic ulcers can cause obstruction via inflammation-induced edema and tissue deformation
- Chronic peptic ulcer disease leads to scarring and tissue remodeling as part of the healing process

CLINICAL MANIFESTATIONS

The most common clinical features of GOO include:

- Nausea and/or vomiting
- Epigastric pain
- Early satiety
- Abdominal distension
- Weight loss

DIAGNOSIS

- Based on clinical features, physical exam → confirmed by radiologic evaluation, followed by endoscopy
- **Laboratory findings** — Normal or non-specifically abnormal
  - Electrolyte abnormalities (hypokalemia or hypochloremic metabolic alkalosis) due to recurrent vomiting
  - Anemia may be present on CBC
- **Radiologic tests**
  - *Plain films* — May reveal an enlarged gastric bubble, dilated proximal duodenum, paucity of air in small bowel

Decubitus abdominal x-ray. Note large gastric air bubble and the solid particulate matter in a dilated stomach

DIAGNOSIS (CONT'D)

- *Contrast studies* — Water-soluble contrast or barium studies useful if partial obstruction expected. Failure of any contrast to pass into the small bowel suggests complete GOO
- *CT scan* — gastric distention with retained material within gastric lumen and associated air-fluid levels. Symmetric, edematous pyloric-duodenal mural thickening with interrupted mucosal enhancement or ulcer outpouching also seen
- *Endoscopy* — Often needed to establish diagnosis, identify a specific cause, and permit therapeutic procedures
  - NG tube suction recommended before endoscopy to minimize risk of aspiration due to retained fluid

TREATMENT

- A trial of medical + endoscopic therapy is initial treatment of choice prior to surgical intervention
- ***Medical therapy*** — NG tube suction, acid suppression with IV proton pump inhibitors, and parenteral nutritional supplementation
  - Optimal duration is 3-7 days with periodic reevaluation
  - Failure to tolerate a trial of liquids or failure of contrast to pass into the distal duodenum post-medical therapy usually necessitates either endoscopic or surgical intervention

TREATMENT

- ***Endoscopic therapy*** — If the pyloric channel can be identified and a balloon (usually a large diameter through-the-scope [TTS] balloon) can be passed, dilation is an appropriate option
  - In addition, before surgery is contemplated, biopsies should be obtained to rule out malignancy
  - A good long-term response following dilation is often achieved when H. pylori is cured or NSAID use is discontinued
- ***Surgery*** — Indicated if the pylorus is obstructed and cannot be safely dilated, or if the obstruction persists or recurs despite medical and endoscopic management

REFERENCES

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3. Tonolini M, Ierardi AM, Bracchi E, Magistrelli P, Vella A, Carrafiello G. Non-perforated peptic ulcer disease: multidetector CT findings, complications, and differential diagnosis. Insights into Imaging. 2017;(5):455.
4. Zare E, Raeisi H, Honarvar B, Lankarani KB. Long-term Results of Endoscopic Balloon Dilatation for Gastric Outlet Obstruction Caused by Peptic Ulcer Disease. Middle East Journal of Digestive Diseases. 2019;11(4):219.