Gastric Ulcers
Classification and Management

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Patient History

- 54 year-old Jamaican man with no PMHx c/o acute onset sharp epigastric pain
- Intermittent pain x 1 year
- anorexia and vomiting x 2 weeks
- 20 lbs weight loss
Physical Exam

T 98.6     BP 158/107     HR 98     RR 19

Gen cachectic, lying still in pain

Abd tense, nondistended, diffusely tender
Dramatic Reenactment

PAIN

Smart... AND Handsome!!!

* Dramatic Reenactment
Labs

WBC 10.4  HGB 16.6  HCT 49.1  PLT 211

Na 134  Cl  92  BUN 22
Glu 213
K  4.7  CO2 24  Cr  1.18

Prot 7.7  Alb 4.4  Lactate 6.1

VBG 7.29 / 63 / 37 / 58 / 25 / +3.7
Imaging
Preoperative Resuscitation

- 3L Lactated Ringer’s
- IV Antibiotics
- PPI drip
- Nasogastric tube and urinary catheter
- Blood cultures sent
Operation

- Exploratory laparotomy - midline incision
- Findings:
  - Hemorrhagic ascites, cultured
  - Fibrin deposition
  - Adhesions, interloop abscesses
  - 1.5 cm perforated ulcer on anterior body of stomach
- Biopsy and omental patch
- Open abdomen
- Transferred to ICU
## Postoperative Course

<table>
<thead>
<tr>
<th>POD 1</th>
<th>Clearance of lactate</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD 2</td>
<td>Abdomen closed</td>
</tr>
<tr>
<td>POD 5</td>
<td>Esophagram negative, clears</td>
</tr>
<tr>
<td>POD 6</td>
<td>Regular diet</td>
</tr>
<tr>
<td>POD 7</td>
<td>Discharged with quadruple</td>
</tr>
<tr>
<td>therapy</td>
<td></td>
</tr>
<tr>
<td>POD 14</td>
<td>Seen in clinic, doing well</td>
</tr>
<tr>
<td>POD 21</td>
<td>Seen in GI clinic, scheduled</td>
</tr>
<tr>
<td></td>
<td>for EGD</td>
</tr>
</tbody>
</table>
Pathology and Cultures

Path: Negative for carcinoma

H. Pylori Ab IgG: positive

Abd fluid cx: peptoniphilius asaccarolyticus & streptococcus viridans
... Questions?
Agenda

Etiology
Presentation and diagnosis
Conservative management
Classification
Refractory treatment (briefly)
Complicated disease
Open abdomen in sepsis
Gastric Ulcer Disease

Incidence (Peptic) 0.1-0.3% = 300,000

⅓ are gastric ulcers = 100,000

H. Pylori, NSAIDs

Smoking, Steroids, ZES
Clinical Presentation (uncomplicated)

Epigastric pain comes/goes with food

anorexia, weight loss
1. R/O malignancy - bi opsy 4 quadrants (2-4%)
2. H. Pylori
Table 4. *Helicobacter pylori* Infection Treatment Regimens

<table>
<thead>
<tr>
<th>Antisecretory Agent (1)</th>
<th>Antibiotics (2)</th>
<th>Bismuth Salt (1)</th>
<th>Combination Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esomeprazole 20-40 mg po daily or Lansoprazole 30 mg po bid or</td>
<td>Clarithromycin 500 mg bid + amoxicillin 1 g bid or</td>
<td>None</td>
<td>Prevpac: Lansoprazole 30 mg + clarithromycin 500 mg + amoxicillin 1 g po bid</td>
</tr>
<tr>
<td>Omeprazole 20 mg po bid or</td>
<td>metronidazole 500 mg bid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pantoprazole 40 mg po bid or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rabeprazole 20 mg po bid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TRIPLE THERAPY REGIMEN</strong></td>
<td></td>
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</tr>
</tbody>
</table>

| Quinolone (2)                                                                           |                                                                                |                  |                                                                       |
| Metronidazole 250 mg qid + tetracycline 500 mg po qid                                   | Bismuth subsalicylate 525 mg po qid                                          | Helidac Therapy Kit: Bismuth subsalicylate 262.4 mg (2 tab) + metronidazole 250 mg (1 tab) + tetracycline 500 mg (1 tab) po qid + a PPI or H₂RA |
| 1 of 5 PPIs above or                                                                   |                                                                                |                  |                                                                       |
| Cimetidine 300 mg po qid (800 mg qhs) or                                              |                                                                                |                  |                                                                       |
| Famotidine 20 mg po bid (40 mg qhs) or                                                 |                                                                                |                  |                                                                       |
| Nizatidine 150 mg po bid (300 mg qhs) or                                               |                                                                                |                  |                                                                       |
| Ranitidine 150 mg po bid (300 mg qhs) or                                               |                                                                                |                  |                                                                       |
|                                                                                       | **QUADRUPLE THERAPY REGIMEN**                                                 |                  |                                                                       |

bid: twice daily; cap: capsule; H₂RA: histamine-2 receptor antagonist; po: oral route; PPI: proton pump inhibitor; qhs: bedtime; qid: four times daily; tab: tablet; tid: three times daily.

Source: References 3, 12, 13.
What happens when medicine fails?

- Surgery for complicated disease
  - Refractory disease (elective)
  - Bleeding
  - Perforation
  - Obstruction
  - Penetration

but first… Classification
POP QUIZ
Treatment for Refractory Disease

Principles

1. Resection of ulcer and gastrin-secreting tissue
   - Antrectomy w/ B1, B2, Roux-en-Y, Pauchet’s, Csendes’...

2. For acid hypersecretion (Type 2 & 3), vagotomy
   - Truncal, selective, HSV
Complications of Gastric Ulcers

Remains significant morbidity and mortality

- Bleeding
- Perforation
- Obstruction
- Penetration
Bleeding Ulcers

● upper GI bleeding!
  o ABCs
  o PPI

● Endoscopy
  o High-risk - Active bleeding or visible vessel
  o Low-risk - clean based ulcer, pigmented spot
  o Clots should be investigated for underlying vessel
  o Clips, cautery, and injection

● IR embolization

● Surgery
Perforated Ulcers (finally)

- Sudden onset pain

- Three Phases

  1. Chemical peritonitis (<6 hrs)

  2. Intermediate stage (6-12 hrs)
     some relief of pain, Peritoneal exudate

  3. Intra-abdominal Infection! (>12 hrs)
Goals in OR

1. Source control
   - Washout
   - closure of ulcer - omentopexy vs excision

2. Ulcer cure?
   - Definitive ulcer surgery vs medical therapy post-op?
     - stability, constitution
     - patch hole, get out
“We have no responsibility to such patients but to save their lives. Any procedure, which aims to do more than this, can quite significantly be considered meddlesome surgery. We have no responsibility during the surgery to carry out any procedure to cure the patient of his duodenal ulcer.”

(Roscoe R. Graham, 1890-1948)
The open abdomen in Abd sepsis

Current surgical management of severe intraabdominal infection

Moshe Schein, MD, FCS(SA), Asher Hirshberg, MD, and Moshe Hashmonai, MD, FACS, Haifa and Tel Hashomer, Israel

From the Departments of Surgery, Rambam Medical Center, Haifa, Israel, and Sheba Medical Center, Tel Hashomer, Israel
Guidelines

From Surgical infection Society (2010):

- “What are the proper procedures for obtaining adequate source control?”

- In severe peritonitis, mandatory relaparotomy not recommended in absence of (1) intestinal discontinuity, (2) abdominal fascial loss, or (3) intraabdominal HTN

Indications for open belly in sepsis?

“Poorly defined and empiric”

- Failure to obtain source control
- Planned redebridement
- Feculent peritonitis (relative)
- Damage control due to instability

The proof is in the pudding!
Q1

Which of the following endoscopic ulcer characteristics has the highest risk for recurrent bleeding?

A. Oozing ulcer
B. Clean based ulcer
C. Non-bleeding “visible vessel”
D. Nonbleeding ulcer with an overlying clot
E. Dieulafoy ulcer
Q2

Which type of gastric ulcer corresponds with the associated acid secretion
A. Type 1 / high acid secretion
B. Type 2 / high acid secretion
C. Type 3 / normal or low acid secretion
D. Type 4 / high acid secretion
E. All of the above
Associated Congenital Anomalies

- vertebral
- anorectal
- cardiac
- tracheal
- esophageal
- renal
- limbs
Clinical Evaluation and Management of Imperforate Anus

Three goals

1. High vs. Low

2. Anatomy of the fistula

3. Life-threatening defects
Sources


