Case Presentation
Peptic Ulcer Disease
Kings County Medical Center
Hesham Ahmed, MD
History

- Pt is xx yr old presented to KCHC
- with hx of:
  - Nausea/vomiting coffee ground material for 24 hours.
  - weakness, lethargic
- Pt has hx of 3 visits to ER from YYYY to 2006...main c/o weakness, n/v, weight loss, epigastric pain, constipation.
Past medical hx

- HTN
- PARKINSON Disease
- PROSTATE CA.

Medication

- Prevacid
- Colace
- Coreg
- HCTZ

Social hx

- Smoking and alcohol
P.E

- TEMP: 98.2
- BP: 123/50
- HR: 81
- RR: 22
- Sat 97%
- ABD SOFT, LAX, MILD EPIGASTRIC TENDERNESS, NO REBOUND, NO RIGIDITY

7/24/2006
-CBC:  17,7,17,243
-CHEM :140,4.1,105,26,34, 0.9,96
-WNL LFTS .
-WNL PT,PTT .
GI CONSULT & EGD:

- Large prepyloric 6x5cm penetrating mass seen with fresh blood clot over it.
- No active bleeding.
- No bx was taken.
• Decision was made to take pt for surgery after medical clearance
• Billroth II and j- tube placement was done.
Pathology

- Chronic gastric ulcer with underlying granulation tissue (5.5x 4.5)cm .
- Marked submucosal edema and hemorrhage .
- Serosal edema, hemorrhage and fibrosis .
- Surface erosion and hemorrhage .
Post op course

- *Pt was extubated and tx to ICU in stable condition.*
- *Post op day 6 clear liquid diet.*
- *Post op day 7 regular diet.*
- *Jp was d/c day 10.*
- *Pt was discharged home post op day 14*
- *Pt was seen in clinic for f/u no c/o*
Biography:

German-Austrian surgeon (1829-1894) Christian Albert Theodor Billroth is considered the founder of modern abdominal surgery, as well as surgeries of the stomach, bile and female genitalia. He is probably considered the most single influence on the development of modern surgical knowledge.
During the 1920s, Pepto-Bismol was sold at drugstore soda fountains. This print ad promoted large bottles with stoppers, from which druggists dispensed single doses.
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YOU NEED
AGAINST
HEARTBURN™

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Zantac 150™
Ranitidine Tablets 150 mg / Acid Reducer

PREVENTS & RELIEVES
HEARTBURN Associated with Acid Indigestion & Sour Stomach

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Upper GI Bleeding

- Peptic ulcer is the most common cause of UGIB.
- ABC.
- Gastric lavage.
- Endoscopy ...90% diagnostic.
- Hemostatic methods: thermal, injection of ethanol, epinephrine or combination.
- Permanent hemostasis is obtained in 90% of patients.
- Mortality from bleeding decreased from 10% to 7% over the last 30 yrs.
- Most likely related to better management with intensive care as well as endoscopic evolution.
- Repeat endoscopy ??.............yes
DECISION MAKING

History and physical examination
- Peptic ulcer disease
- ASA, NSAID
- Alcohol
- Vomiting
- Liver disease
- Trauma

UPPER GASTROINTESTINAL BLEEDING

ABCs
- Gastric irrigation

Preparation for endoscopy
- Endoscopy

Gastrointestinal source of bleeding

No bleeding source identified
- Selective angiography
  - Endoscopic hemostasis

Bleeding controlled
- Medical therapy

Bleeding not controlled
- Esophagogastric ulcer
  - Ligated vessel
  - Vagotomy and pyloroplasty
  - Vagotomy and antrectomy

Bleeding controlled
- Medical therapy

See Esophageal Varices

Hemorrhage

Excision
Gastrectomy
Stigmata of Bleeding: Risks for Rebleeding and Prevalence

- Active bleeder: 50% risk of rebleeding
- NBVV: 40% risk of rebleeding
- Clot: 20% risk of rebleeding
- Dot: 10% risk of rebleeding
- Clean base: 0% risk of rebleeding

Prevalence:
- Bleeder: 7%
- NBVV: 8%
- Clot: 13%
- Dot: 23%
- Clean base: 49%
Proton pump inhibitor treatment for acute peptic ulcer bleeding??

- **OBJECTIVES:** To evaluate the efficacy of PPIs in the management of acute bleeding from PU using evidence from RCTs.

- **SEARCH STRATEGY:** We performed a search of CENTRAL, The Cochrane Library (Issue 3, 2003), MEDLINE (1966 to February 2003) and EMBASE (1980 to February 2003) and proceedings of recent major meetings through to February 2003. We searched the reference lists of articles and contacted pharmaceutical companies and experts in the field for additional published or unpublished data.

- **CONCLUSIONS:** PPI treatment in PU bleeding reduces rebleeding and surgical intervention rates in studies comparing treatment with placebo or H(2)RA, but there is no evidence of an effect on mortality.

- Leontiadis GI, McIntyre L, Sharma VK, Howden CW
Role of intravenous omeprazole in patients with high-risk peptic ulcer bleeding after successful endoscopic epinephrine injection:

A prospective randomized comparative trial.

METHODS: A total of 200 peptic ulcer patients with active bleeding or nonbleeding visible vessels (NBVV) who had obtained initial hemostasis with endoscopic injection of epinephrine were randomized to receive omeprazole 40 mg infusion every 6 h, omeprazole 40 mg infusion every 12 h or cimetidine (CIM) 400 mg infusion every 12 h. Outcomes were checked at 14 days after enrollment.

CONCLUSION: A combination of endoscopic epinephrine injection and a large dose of omeprazole infusion is superior to combined endoscopic epinephrine injection with CIM infusion for preventing recurrent bleeding from peptic ulcers with active bleeding or NBVV.

Lin HJ, Lo WC, Cheng YC, Perng CL.

Division of Gastroenterology, Department of Medicine, VGH-TAIPEI, Sec. 2 Shih-Pai Road, Taipei 11217, Taiwan.
# Classification of Peptic Ulcer

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Acidity</th>
<th>Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Lesser Curve</td>
<td>Normal or Low</td>
<td>Blood Type A</td>
</tr>
<tr>
<td>Type II</td>
<td>Gastric &amp; Duodenal</td>
<td>Hyperacidity</td>
<td>Blood Type O</td>
</tr>
<tr>
<td>Type III</td>
<td>Pyloric and Prepyloric, Channel Ulcer</td>
<td>Hyperacidity</td>
<td>Blood Type O</td>
</tr>
<tr>
<td>Type IV</td>
<td>High on Lesser Curve</td>
<td>Low</td>
<td>Blood Type O</td>
</tr>
<tr>
<td>Type V</td>
<td>Any</td>
<td></td>
<td>NSAID</td>
</tr>
</tbody>
</table>
## COMPARISON

<table>
<thead>
<tr>
<th></th>
<th>MORTALITY</th>
<th>MORBIDITY</th>
<th>RECURRENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V+A</strong></td>
<td>&lt;2 %</td>
<td>5-12 %</td>
<td>2%</td>
</tr>
<tr>
<td><strong>V+P</strong></td>
<td>&lt; 1%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>PCV</strong></td>
<td>&lt; 0.5%</td>
<td>1%</td>
<td>20%</td>
</tr>
</tbody>
</table>

1-A: Antrectomy, 2-P: Pyrolorplasty
3-PCV: Parietal cell vagotomy, 4-V: Vagotomy

<table>
<thead>
<tr>
<th></th>
<th>BEST</th>
<th>WORSE</th>
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</thead>
<tbody>
<tr>
<td>QUICK</td>
<td>V+P</td>
<td>PCV</td>
</tr>
<tr>
<td>EASY</td>
<td>V+P</td>
<td>PCV</td>
</tr>
<tr>
<td>LOWER RE-BLEED</td>
<td>V+A</td>
<td>PCV</td>
</tr>
</tbody>
</table>

1-A=Antrectomy, 2-P=Pyroloplasty, 3-PCV=Parietal Cell Vagotomy, 4-V=Vagotomy
Gastric Ulcer

- Unlike erosions, gastric ulcers extend through the muscularis mucosa and tend to occur near mucosal junctions.
- Epigastric pain 70% of patients esp. at night 30-45%..often relieved by eating.
- Dyspepsia, nausea, vomiting, decrease in appetite in 40-60%.
- NSAIDs: 1 in 10 will develop acute ulcer.

Gastric Ulcer

- Barium study (in the absence of perforation) are 90% accurate in diagnosis gastric ulcer.
- NOT SUBSTITUTE FOR EGD.
- H.pylori in 60-90%, the rest related to NSAIDs.
- Serology sensitivity 90% / specificity 95%. cost $15 in office and $75 in lab.
- Urea breath test sensitivity 95% / specificity 98%. cost $200.
- Invasive test like rapid urease assay 90%/98%.
- Histology 95% / 80%, Culture 99% / 100% cost for both $150.
- Gastric ulcer should be treated for 8-12 weeks then re-evaluated for healing.
- Historically, incomplete healing by 12 weeks was almost an absolute indication for surgery.
Gastric Ulcer

- Perforation carries a mortality rate of 10 to 40% depending on pre op shock, medical illness and perforation for more than 24 hours.
- Free air seen in 70% of cases.
- Optimal management requires excision of ulcer, usually best accomplished by distal gastrectomy.
- In HD unstable pt excision of perforation site is advisable with closure or 4 q bx and omental closure.

Type I

- The most common form of gastric ulcer 55-60%.
- Optimal treatment distal gastrectomy that includes ulcer followed by gastroduodenal anastomosis (Billroth I).
- Truncal vagotomy is not indicated.
- Elective gastrectomy has mortality 2%, recurrence 2%.
- Proximal vagotomy with excision of the ulcer has lower mortality, but recurrence rates are high as 8-25%.
Type II, III

• 20 -25 % of benign disease.
• Treatment directed at reducing acid secretion
• Vagotomy decrease peak of hydrogen ions secretion by 50 %.
• Vagotomy and antrectomy decrease peak of hydrogen ions secretion by 85 %.
• Vagotomy and antrectomy with excision of the ulcer ....has been the treatment of the choice.

Bucker JW, Ausaustin Jc,Steinberg JB et al

Csendes A ,Braghetto I,Smoke G:
type iv gastric u. :a new hupothesis surgery
Type IV

- **Uncommon in USA resection ensures lowest long term recurrence rate**

- **Roux-en Y esophagogastrojejunostomy (Csendes procedure) is recommended for ulcer within 2 cm from GE junction.**

- **Radical subtotal with antecolic billroth II or roux-en Y is preferred for a malignant gastric ulcer.**

_Bucker JW, Ausaustin Jc, Steinberg JB et alx predictin failur of med ttt of G.U158:570-573, 1989._

GASTRIC ULCER

History and physical examination
- Pain (B)
- Dyspepsia (C)
- Decreased appetite (D)
- Vomiting (E)
- Anemia (F)
- NSAID (G)
- Rectal exam (H)

GASTRIC ULCER

Labs
- CBC (I)
- Electrolytes
- Gastric analysis (J)
- Barium upper GI study

Obstruction → Surgery

Endoscopy with biopsy (K)

Perforation → Excision of ulcer (M)

Positive → Test for H. pylori (N)

Negative → Conventional treatment (O)

NSAID ulcer (Q)

Failure to heal → Surgery (R)

Distal gastrectomy (S)
- Type 1
  - Excision of ulcer
  - Proximal gastric vagotomy
- Type 2
  - Truncal vagotomy
  - Antrectomy
- Type 3
  - Excision of ulcer (resection) with or without Roux-en-Y esophagogastrojejunostomy
- Type 4
  - Radical subtotal gastrectomy
  - Palliative resection or bypass

See Upper Gastrointestinal Bleeding (J)
Mortality in patients aged over 75 years with gastrointestinal hemorrhage.

- One hundred and fifty-five patients aged 75 years and over with gastrointestinal haemorrhage were studied and compared with a series of patients aged under 75 years.

- The mortality in patients with gastric ulcer or gastric carcinoma was not affected by age. However, the mortality in patients with duodenal ulcer was greater in the over-75s (8/31 deaths in the over-75s, 4/77 deaths in the under-75s, $P = 0.01$).

- There was no reluctance to operate on the over-75s.

Department of Medicine for Elderly People, Whipps Cross Hospital, Leytonstone, London.
Emergency operations for gastric and duodenal ulcers in high risk patients.

- Two hundred thirty-four ulcer operations performed since 1976 were compared with 778 between 1961 and 1971.
- The hospital mortality rate has increased from 2.7 to 14.5%. Increased mortality was related to a doubling of the rate of emergency operations over age 50 and to a 94% decline in elective operations under 50. Since 1976 among 200 survivors, 20 ulcers have recurred.

CONCLUSIONS:
- These recurrences confirm the need for vagotomy in perforated duodenal ulcer and for resection of ulcers proximal to the duodenum.
- Although most deaths occurred in this group, Such patients should be expeditiously offered the definitive operations most appropriate to the locations of their ulcers.

- H H McGuire, Jr and J S Horsley, 3rd
Twenty years after parietal cell vagotomy or selective vagotomy antrectomy for treatment of duodenal ulcer. Final report.

- **OBJECTIVE:** This study was a prospective, randomized evaluation of parietal cell vagotomy (PCV) and selective vagotomy-antrectomy (SV-A) in the treatment of duodenal ulcer.

- **METHODS:**
  - 200 patients with duodenal ulcers were randomized to PCV or SV-A.
  - One surgeon was responsible for the operations and follow-up studies.
  - An attempt was made to evaluate all patients annually in the hospital. Gastric analyses were performed on each visit, for which the patient gave his/her consent.

- **RESULTS:**
  - There was no operative mortality.
  - The recurrence rate-by-life table analysis was less ($p < 0.003$) after SV-A than PCV.
  - Dumping was greater ($p < 0.001$), and there was no difference in the frequency of diarrhea after SV-A compared with PCV.
CONCLUSIONS:

- Selective vagotomy-antrectomy and parietal cell vagotomy are effective and safe operations, when used appropriately.
- Selective vagotomy-antrectomy is preferable for patients with pyloric and prepyloric ulcers and pyloric obstruction.

Duodenal ulcer

- Simple closure with Graham patch and h.pylori eradication is associated with recurrence rate only 4.8%, obviating the need for extensive surgery.
- Open vagotomy with antrectomy is recommended for obstruction and giant ulcer more than 2 cm.
- Gastroenterostomy without vagotomy may be advisable in elderly patients, esp men, to avoid postop gastric atony.
- Vagotomy with pyloroplasty and oversewing preferred for management of acute bleeding.
<table>
<thead>
<tr>
<th>Indication</th>
<th>1st Choice</th>
<th>2nd Choice</th>
<th>3rd Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intractability</td>
<td>Parietal-cell vagotomy</td>
<td>Truncal vagotomy and antrectomy</td>
<td>Truncal vagotomy and pyloroplasty</td>
</tr>
<tr>
<td>Perforation</td>
<td>Parietal-cell vagotomy and omental patching</td>
<td>Truncal vagotomy and pyloroplasty with incorporation of perforation into closure of pyloroplasty</td>
<td>Omental patching</td>
</tr>
<tr>
<td>Obstruction</td>
<td>Truncal vagotomy and antrectomy</td>
<td>Truncal vagotomy and gastrojejunostomy</td>
<td></td>
</tr>
<tr>
<td>Hemorrhage</td>
<td>Truncal vagotomy, pyloroplasty, and suture ligation</td>
<td>Truncal vagotomy, antrectomy, and suture ligation or ulcer excision</td>
<td>Suture ligation</td>
</tr>
</tbody>
</table>

DUODENAL ULCER

History and physical examination
- Epigastric pain/dyspepsia
- Relief with food
- NSAIDs
- Aspirin
- Ethanol
- Smoking
- Ulcer history

Uncomplicated
- Medical management
- Asymptomatic
- Observe

Atypical
- Serum gastrin
- Elevated
- See Zollinger-Ellison syndrome

Complicated
- Bleeding
- Transfusion
- Gastric avage
- Antisecretory drugs

Obstruction
- NG suction
- Antisecretory drugs

Perforation
- No ulcer history
- Ulcer history
- Good risk

Other pathology
- Endoscopy
- Unhealed ulcer
- Repeat medical management
- Intractable ulcer
- Operation

Highly selective vagotomy or vagotomy and antrectomy

Ligation of bleeder vagotomy and pyloroplasty

Therapeutic endoscopy
- Bleeding stops
- Medical management

Diagnostic endoscopy
- Obstruction clears
- Obstruction persists

Graham patch
- Vagotomy and antrectomy
- Vagotomy and gastroenterostomy

Gastroenterostomy
Selective treatment of duodenal ulcer with perforation.

Sixty cases of perforation of duodenal ulcer have been treated. Nonsurgical therapy was employed without complication in eight cases with radiologically documented spontaneous seal. Truncal vagotomy and pyloroplasty in 36 cases and truncal vagotomy and antrectomy in two cases were each without mortality.

Four fatalities occurred among 13 cases of closure and omental patch, each a case with severe associated disease. The mortality was 6.7% among the 60 cases; 2.4% for chronic ulcer and 16% for acute ulcer.
Selective treatment of duodenal ulcer with perforation.

- Selective treatment of duodenal ulcer with perforation has been based on several premises:
- 1) The natural history of the ulcer following closure of a perforation is generally favorable with an acute and unfavorable with a chronic ulcer.
- 2) An upper gastrointestinal series with water soluble contrast media can reliably document a spontaneously sealed perforation.
- 3) With a spontaneous seal, nonsurgical therapy is an acceptable option and is preferable for an acute ulcer or a chronic ulcer with poor surgical risk.
- 4) The treatment of choice for an unsealed perforation of an acute ulcer is simple surgical closure.
- 5) The treatment of choice of perforation of a chronic ulcer with acceptable surgical risk is an ulcer definitive operation.

A prospective study of operative risk factors in perforated duodenal ulcers.

Operative risk factors for patients with perforated duodenal ulcers were examined prospectively in 213 operated patients.

Nine hospital deaths (4.2%) resulted from respiratory failure, sepsis, and bleeding. Forty-five complications developed in 27 patients (12.7%).

Concurrent medical illness, preoperative shock, and longstanding perforations (more than 48 hours) were significant features that increased mortality.

Old age, gross peritoneal soiling, and the length of the ulcer history did not affect mortality in the absence of risk factors.

No death attributable to either sepsis or abscess formation occurred when surgery was performed within two days of perforation. Bacterial contamination may not signify clinical peritonitis during this period.

We conclude that simple closure of perforated ulcers is a more prudent choice when any risk factor is present, but that definitive surgery in good-risk patients merits further evaluations.
Laparoscopic omental patch repair for perforated peptic ulcer.

• METHODS: From December 1992 to February 1994, laparoscopic omental patch repair followed by use of H2-antagonists was performed successfully in 11 patients. Fifty-five patients underwent other surgical procedures for perforated peptic ulcers (conventional open omental patch: 4, selective vagotomy in combination with antrectomy: 24, distal gastrectomy: 27).
RESULTS:

• The average operation time was 135 minutes. Administration of postoperative pain medication was reduced remarkably (0.9 times per patient), and all patients recovered rapidly. No serious postoperative complications were recorded. After a mean period of 11 months, the postoperative evaluation was satisfactory for all patients, and no ulcer recurrence was found.
CONCLUSIONS:

• In perforated peptic ulcer disease, laparoscopic omental patch repair offers a number of advantages. Because no upper abdominal incision is made, there is decreased postoperative pain, and the patient rapidly recovers with fewer and less severe complications. Although the procedure requires a surgeon with particular expertise in endoscopic suturing technique, surgeons familiar with laparoscopic cholecystectomy can readily perform it after some practice.

• M Matsuda, M Nishiyama, T Hanai, S Saeki, and T Watanabe

• Department of Surgery, Chukyo Hospital, Nagoya, Japan./Ann Surg. 1995 March; 221(3): 236–240.
MEDICAL DISPATCH or
DOCTOR DOUBLEDOSAGE KILLING TWO BIRDS WITH ONE STONE.
Conclusion

Lessons from history

• Diseases which we have previously considered to be unchanging are, in fact, evolving in epidemiology, diagnosis, and management.

• The attributes which lead to the wide adoption of one operative procedure but not another are not clear. The decision making process should be directed toward the specific problem that resulted from the peptic ulcer and pt condition.