Resident Debate 3/20/2006

Surgery for complications of peptic ulcer disease: Treat complication only vs. definitive ulcer operation

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Outline

• Historical data
• Pathophysiology
• Ulcer workup
• Ulcer classification
• Medical therapy
• Surgical therapy
• Surgery for complications of PUD → Treat complication only: The Data
Historical data

• Until 1970s: ulcer therapy = mainly surgical therapy
• Since then: recognition/therapy of H pylori infection (1983, leading to the Nobel Prize in Medicine 2005 by Warren and Marshall), effective acid suppression and improved therapeutic endoscopy
• Despite medical therapy, ~3,000 die/yr in the USA due to ulcer complications
Pathophysiology

- H Pylori
- NSAIDS
- Cocaine, cigarette smoking
- Other rare causes (Crohn’s disease, hyperparathyroidism, ZES)
Ulcer workup

- Upper GI endoscopy
- Barium meal
- S-gastrin
  - gastrinoma?
  - G cell hyperplasia?
I: incisura, lesser curvature
II: gastric body and duodenum
III: prepyloric
IV: GEJ
V: anywhere (medication induced)
Medical therapy

- H2 blockers
- Proton pump inhibitors
- H Pylori treatment

- Endoscopic therapy for bleeding
  - heater probe, electrocautery, epinephrine/alcohol injection, laser photo ablation, placement of hemoclips
  - 70% success rate
Surgical therapy: indications and options

- 1. Obstruction
- 2. Ulcer recurrence after medical therapy

- 3. Hemorrhage (10% mortality)
- 4. Perforation (5%-30% mortality)

- Treat complication only: oversew ulcer/vessel, vs.
- Definitive ulcer operation: Billroth I/II, TV
Surgical Management of Ulcer Disease

• Martin, Surg Clin N Am 2005
• Local excision of ulcers was first described by Czerny in 1882.
• ‘Based on the early experience of high recurrence rates for local gastric ulcer and duodenal ulcer excisions, these lesser procedures were largely abandoned’.
• ‘In the modern era of pharmacologic control of acid secretion and eradication of H pylori, these procedure have not been re-evaluated’.
• ‘When one wishes to compare randomized, controlled trails for choice of operation for bleeding from peptic ulcers, we are left with only 2 (two) Class I trials’
Comparison of minimal and conventional surgery in patients with bleeding peptic ulcer: a multicenter trial

- Multicenter PRCT for the treatment of bleeding peptic ulcer, 137 patients
- 62 pts received minimal surgery (under-running the vessel or ulcer excision and adjuvant ranitidine) and 67 underwent conventional ulcer surgery (vagotomy and pyloroplasty or partial gastrectomy).
- NO difference in mortality: 26% after conservative surgery vs. 19% after conventional operations
- The only significant difference between the groups was the incidence of fatal rebleeding, which occurred in six patients after conservative surgery compared with none after conventional surgery (P < 0.02)
Emergency surgical treatment for bleeding duodenal ulcer: oversewing plus vagotomy versus gastric resection

- RCT comparing patients undergoing oversewing plus vagotomy (O+V) or gastric resection (GR) with ulcer excision
- 120 pts enrolled, 59 assigned to O+V and 61 to GR
- Postoperative bleeding recurrence: 17% after O+V and 3% after GR (p < 0.05).
- The duodenal leak rate was higher after GR than after O+V (13% vs. 3%) (p < 0.10) but was not different when the morbidity of reoperations for bleeding recurrence after O+V was considered on an "intention to treat" basis (12% vs. 13%)
- NO difference in overall postoperative mortality was similar: 22% (O+V) versus 23% (GR)
- ‘We conclude that GR with ulcer excision is the procedure of choice for the emergency surgical treatment of bleeding duodenal ulcer because postoperative bleeding recurrence is lower, and the overall rates of mortality and duodenal leakage are the same as with O+V’
Trends in peptic ulcer bleeding and surgical treatment

- Extensive literature search involving MEDLINE and the Cochrane Controlled Trials.
- Register revealed only 5 randomized clinical trials of surgical treatment for bleeding peptic ulcers as its primary target.
- ‘The existing body of evidence indicates that patients needing an operation are best served by a relatively aggressive approach.
- This has changed owing to a new understanding of ulcer disease, rather than the presence of controlled clinical data.
- With the new approach, surgery, if necessary, should aim at stopping the hemorrhage and not curing the disease.
- Further trials with cooperating surgeons and physicians are needed to evaluate this strategy.’
Surgical Treatment of Complicated Duodenal Ulcers: Controlled Trials

- Compared simple closure of a perforated DU to definitive surgery in 3 RCT. However, patients with risk factors were not included in 2 of these studies.
- Only 1 postoperative death was reported among these 328 pts.
- Postoperative morbidity was not significantly increased by definitive surgery, except for wound sepsis in one trial. Chest infection was the most frequent complication (11%). In two trials, patients were eligible for entry only if they had a history of chronic ulcer.
- With a mean follow-up of 20 months and 39 months, ulcer recurrence was reported in 61% and 6% of cases following simple closure and definitive treatment, respectively.
• Millat et al, World J. Surg. 2000

• Conclusions:
• ‘Whether a radical definitive treatment operation at the time of perforation is necessary, however, remains to be shown
• Moreover, we need to know whether minimal surgical treatment (to stop the bleeding or to close the perforation) combined with antisecretory drugs and eradication of H. pylori is sufficient for these patients and, if so, for how long’
No good without evil: complications of more “radical” procedures-part 1

• Early postgastrectomy problems
  – Leak: duodenal stump leak – mortality 30%-50%, gastrojejunostomy, enteroenterostomy
  – Bleeding: anastomotic or from primary ulcer
  – Obstruction: internal hernia, gastroparesis, afferent or efferent limb obstruction

• Late postgastrectomy problems
  – Dumping: 50%-60% post Billroth II (1% will need reoperation)
  – Diarrhea: due to steatorrhea post Billroth II
  – Marginal ulcer
  – Gastroparesis
  – Bile reflux gastritis
  – Afferent loop obstruction
  – Internal hernia
No good without evil: complications of more “radical” procedures-part 2

• Nutritional/Metabolic problems
  – Anemia: mostly post Billroth II, secondary to Fe and vitB12 deficiency
  – Weight loss
  – Osteoporosis: due to Ca losses (Ca bound by fatty acids)

• All associated with a greater degree of gastric resection or vagal disruption, i.e. a ‘radical’ procedure
Emerging trends in peptic ulcer disease and damage control surgery in the H. pylori era

• Smith, Stabile, Am Surg 2005
• 10-year retrospective study analyzed the changing demographics of PUD and the frequency and nature of surgical intervention
• The PUD operation rate decreased from 6.7% to 3.8% (P = 0.004)
• Among operated patients, the frequency of H. pylori testing increased from 41.8% to 81.6% (P = 0.039)
• Acute perforation and bleeding necessitated the vast majority (87.2%) of operations
• The use of acid-reducing operations declined from 50.6% to 31.6% in favor of nonacid-reducing "damage control" procedures
Surgery for hemorrhage: Treat complication only: surgical decision making

• Pt hemodynamically unstable
  – Gastric ulcer: excise and oversew the bleeding ulcer, test for H pylori
  – Duodenal ulcer: oversew GDA with a U-stitch

• Pt hemodynamically stable: definitive treatment
  – Type I: Billroth I
  – Type II/III: bilat truncal vagotomy + Billroth I
  – Duodenal ulcer: oversew GDA + antiulcer procedure: TV and pyloroplasty
Surgery for perforation: Treat complication only: surgical decision making depends on

- Variables such as presence of shock, life-threatening comorbid conditions, the degree of contamination of the upper abdomen, the amount and duration of perforation, and whether there is a history or intraoperative evidence of chronic peptic ulceration
- 1) H Pylori positivity and no ulcer PMH $\rightarrow$ ulcer excision biopsy + vascularized omental patch repair (Graham)
  - If patient stable: laparoscopic omentoplasty and peritoneal irrigation
- 2) PMH positive for peptic ulcer, or failed medical therapy:
  - if poor resection candidate, ulcer excision + omentoplasty + bilateral truncal vagotomy and pyloroplasty
  - if stable, TV and Billroth I (definitive therapy)
  - For Duodenal ulcers: omental patch + proximal gastric vagotomy (no pyloroplasty needed)
H pylori Rx

- Omeprazole 20 mg bid and
- 1 g amoxicillin + 500 mg clarithromycin
- OR 400 mg flagyl + 250 mg clarithromycin

- 2 wk Rx
- 80% success rate
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<tr>
<th>Indication</th>
<th>Procedure of choice</th>
<th>Recurrence (%)</th>
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<tbody>
<tr>
<td>Bleeding (acute)</td>
<td>Truncal vagotomy, pyloroplasty and oversewing of ulcer</td>
<td>5</td>
</tr>
<tr>
<td>Bleeding (chronic)</td>
<td>Truncal vagotomy + antrectomy</td>
<td>1-2</td>
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<tr>
<td>Perforation</td>
<td>Omentoplasty ± proximal gastric vagotomany</td>
<td>15-20</td>
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Gastric ulcer (confined perforation).
Ulcer classification

- Modified Johnson
- I: incisura, lesser curvature
- II: gastric body and duodenum
- III: prepyloric
- IV: GEJ
- V: anywhere