Management of Acute Perforation

Julia Enos

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Peptic ulcer disease

- Risk factors
  - NSAIDs
  - H Pylori
  - Smoking
  - Steroids
- Perforation recurrence rate of 12%

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Diagnosis

- Acute epigastric pain
- CXR: 60-75% will show free air

- CT: diagnostic 98% accuracy
  - Rule out pancreatitis
  - +/- PO contrast

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Treatment

- IVF resuscitation
- PPI
- Triple therapy

- Surgery?

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Boey score

The Boey score for predicting perioperative morbidity and mortality in Peptic ulcer perforation

Table 2a. Boey score

Concomitant severe medical illness
Preoperative shock
Duration of perforation >24 hours
Score: 0–3 (Each factor scores 1 point if positive)

Table 2b. Boey score and outcomes

Risk score	Mortality (OR)	Morbidity (OR)
1	8 percent (2.4)	47 percent (2.9)
2	33 percent (3.5)	75 percent (4.3)
3	38 percent (7.7)	77 percent (4.9)

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Non-op management

40-80% of perforated ulcers self seal – then what?

- Crofts 1989: Randomized control trial Op vs Non-op
  - 29/40 patients avoided surgery
  - 3 of the failed non-op were diagnosed with cancer
  - Only noted age >70 as a factor for failure
- Songne 2004
  - 82 patients initially treated with IVF, NG, PPI
    - No improvement after 24 hrs -> surgery
  - 44 (53%) avoided surgery
  - Predictive factors for failure
    - Size of air (bigger than lumbar vertebrae)
    - HR >94, Pain with DRE, Age >60

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- Bucher 2007
  - Retrospective review of 30 patients 'too sick for surgery'
    - 9 patients died (7 were in shock at admission)
      - 11 received H2 blockers, 7 mortalities
      - 19 received PPI, 2 mortalities

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Non-op management

- Pro
  - Lower mortality rate if successful
  - Avoiding risks of surgery, anesthesia
- Con
  - Higher mortality if conservative management fails

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Non-op management

- Patient selection
  - Stable
  - Contrasted study to see if already self-sealed
  - Ability for frequent monitoring
  - Other considerations
    - HR <95, Age <60-70, pain on DRE

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Operative repair

- Patch
- Gastric resection

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Patch vs Resection

- Kuwabara 2011 reviewed >3000 operative cases
  - No significant difference in outcomes of gastric resection vs simple closure
  - Gastric resection: more transfusions, longer OR times
- Gupta 2005 162 duodenal ulcer perforations
  - No difference in patching 1-2 cm vs 2-3 cm
  - 2 ulcers over 3cm
    - Antrectomy with mortality
    - Jejunal serosal patch with no complications

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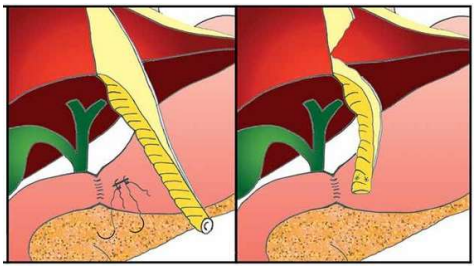
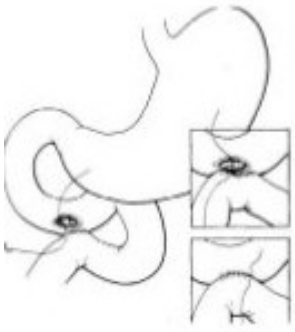
Alternative patches





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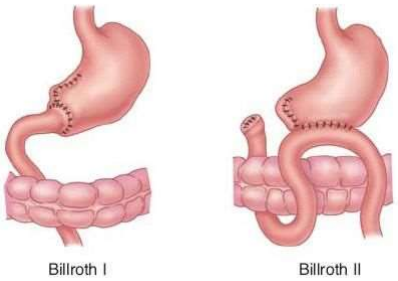
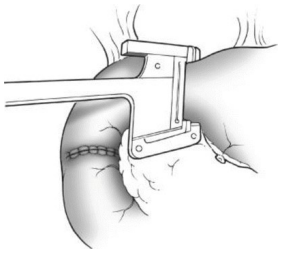
- Resection
- Extension
  - Pyloroplasty + vagotomy
- Diversion
  - Gastrojejunostomy





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Laparoscopic repair

- Sanabria 2013
  - Review of three randomized trials and 315 patients
  - No significant difference in morbidity or mortality
    - Trends towards lower morbidity but higher reoperation
- Wright 2014 database review
  - 5000 open vs 142 lap
  - Lower mortality, shorter length of stay
    - Bias – healthier patient more likely to undergo laparoscopy

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Laparoscopic repair

- Wang 2014: suture-less laparoscopic repair
  - 107 patients, Boey score 0/1, ulcer <1cm
  - 43 patients onlay omental patch
    - Just mobilized omentum and left it on the ulcer
    - Left a clip the omentum for identification on imaging
  - 64 sutured omental patch
  - No leaks between either group
    - Other report leak rate of 4%, but higher risk ulcers/patients

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Laparoscopic repair

- Patient selection considerations
  - Hemodynamics
  - Prior surgery
  - Ulcer <1cm in an accessible location
  - Surgeon comfort with the procedure

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Marginal ulcer perforation

- Omental or serosal patch
- Anastomotic revision
- Stenting

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Biopsy

- Not widely recommended at initial surgery
- Consider if atypical ulcer or concerning patient/presentation
- Follow up 2 month EGD for resolution of the ulcer and biopsies at that time if persistent

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Feeding

- Masood 2021 RCT of 42 patients (Boey 0-1)
  - Early oral feeding
  - Shorted LOS, lower pain, shorter postop ileus
  - No increased leaks

	Group A	Group B
Early Postoperative Admission	HDU	HDU
Removal of NG tube	Within 12hours	After 48 hours
Removal of Foley catheter	Within 12 hours	After 24 hours
Time to allow oral sips	After 12 hours	After 48 hours
Time to allow liquid diet	After 18 hours	After 72 hours
Time to allow solid/semisolid diet	After 24 hours	After 72 hours
Mobilization of the patient	After 12 hours	After 24 hours
Shift to oral painkillers	On second postoperative day	On third or fourth p

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Thank You

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