Advances in Surgery for Inflammatory Bowel Disease

Joel J. Bauer, M.D.
The Ideal Surgical Procedure for Ulcerative Colitis

- Complete eradication of disease
- Preservation of physiologic function
- Restoration of quality of life
RPC

- 1475 cases since 1980
- 1062 cases 7/87-10/08
  - 136 Standard mucosectomy
  - 829 Minimally Traumatic Mucosectomy
    - 194 with ileostomy
    - 635 without ileostomy
      - 377 one stage 258 STC/RPC
  - 97 double staple
Overall Results
1987-2008

- Patients 87-present: 1075
- Peri-op mortality: 3 (0.3%)
- Late mortality: 22 (2.0%)
- Pouch removed: 60 (5.6%)
- Ileostomy in situ: 47 (4.4%)
- Incomplete data: 309 (28.7%)
- Data available: 634 (59.0%)
Controversies: Unresolved

- Mucosectomy vs. no mucosectomy
- Anastomosis: sewn vs. stapled
- Ileostomy vs. no ileostomy
- The “aged” patient: RPC vs. no RPC
- Cancer: RPC vs. no RPC
Criteria For Ileostomy Omission

- Favorable non-urgent surgery in fit patient
- Ideally off steroids, or at least, low dose (≤20mg prednisone)
- Adequate mesenteric length
- No pelvic contamination
- Good hemostasis
- Sutured, air-tight anastomosis
- Tube decompression
# RPC Without Diversion

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Cases</strong></td>
<td>375</td>
<td>72</td>
<td>50</td>
<td>68</td>
<td>68</td>
<td>50</td>
<td>71</td>
</tr>
<tr>
<td><strong>Sepsis/leak</strong></td>
<td>26 (6.8%)</td>
<td>6 (8.3%)</td>
<td>11 (22%)</td>
<td>5 (7.4%)</td>
<td>10 (14.7%)</td>
<td>7 (14%)</td>
<td>13 (18%)</td>
</tr>
<tr>
<td><strong>Secondary diversion</strong></td>
<td>21 (5.6%)</td>
<td>6 (8.3%)</td>
<td>7 (14%)</td>
<td>4 (5.9%)</td>
<td>5 (7.3%)</td>
<td>3 (6%)</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Failure</strong></td>
<td>14 (3.7%)</td>
<td>?</td>
<td>3 (6%)</td>
<td>0</td>
<td>0</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td><strong>Excise Pouch</strong></td>
<td>5 (1.4%)</td>
<td>?</td>
<td>0</td>
<td>2 (3%)</td>
<td>0</td>
<td>?</td>
<td>0</td>
</tr>
</tbody>
</table>
RPC Without Diversion

Practice/Mount Sinai Series

1987-2008

- 1063 pouches
- 710 (66.9%) had no ileostomy at RPC
- 968 (91.1%) hand-sewn with mucosectomy
Safety and Efficacy of Single-Stage RPC: A Review OF 350 Cases

- To evaluate the clinical outcomes and safety of Restorative Proctocolectomy without diverting ileostomy in a large series of patients with Ulcerative Colitis

Chessin DB, Bauer JJ, Bub DS, Gorfine SR, J. ACS, submitted
## Preoperative Immunomodulators

<table>
<thead>
<tr>
<th>Immunomodulator</th>
<th>N (%)</th>
</tr>
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<tbody>
<tr>
<td>Prednisone</td>
<td>171 (49.0%)</td>
</tr>
<tr>
<td>Median Dose of Prednisone</td>
<td>16.8 (0-60) mg</td>
</tr>
<tr>
<td>6-Mercaptopurine</td>
<td>113 (62.3%)</td>
</tr>
<tr>
<td>Cyclosporine</td>
<td>30 (8.6%)</td>
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</table>
## Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>N (% )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anastomotic Leak</td>
<td>27 (7.7%)</td>
</tr>
<tr>
<td>Wound Infection</td>
<td>23 (6.6%)</td>
</tr>
<tr>
<td>DVT/PE</td>
<td>8 (2.3%)</td>
</tr>
<tr>
<td>Small Bowel Obstruction</td>
<td>67 (19.1%)</td>
</tr>
<tr>
<td>Pouch Excision</td>
<td>9 (2.6%)</td>
</tr>
</tbody>
</table>
**Pregnancy**

**Attempted n=46**  
**Conceived n=33 (67%)**

<table>
<thead>
<tr>
<th>Stoma Status</th>
<th>Did Not Conceive</th>
<th>Conceived</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Stoma</td>
<td>11</td>
<td>15 (57.7%)</td>
<td>0.128</td>
</tr>
<tr>
<td>Stoma</td>
<td>4</td>
<td>16 (80.0%)</td>
<td></td>
</tr>
<tr>
<td>No Leak</td>
<td>10</td>
<td>25 (71.4%)</td>
<td>0.462</td>
</tr>
<tr>
<td>Leak</td>
<td>5</td>
<td>6 (54.5%)</td>
<td></td>
</tr>
</tbody>
</table>
Pregnancy

• Following restorative proctocolectomy,
  – 74% of women who desired pregnancy were able to conceive
    » However, 35% required medical assistance to conceive
  – No clinical, pathologic, or postoperative factors were identified as predictors of a successful pregnancy

RPC Summary

- Excellent functional results
  - 6-7 BM/24 hrs
  - Perfect or near perfect control in ~90%

- Mucosection
  - Reduces/eliminates risk of proctitis/cancer
  - Excellent functional results
Conclusions

- Anastomotic leak following RPC:
  - Does not adversely affect long-term quality of life or functional outcome
  - Does not increase the incidence of pouchitis
  - Does not decrease fertility
Conclusions

- The overall rate of pouch failure among undiverted patients is 5.6%
- The overall rate of pouch excision among undiverted patients is 3.8%
- Pouch failure is more common after anastomotic leakage
RESTORATIVE PROCTOCOLECTOMY FOR ULCERATIVE COLITIS COMPPLICATED BY COLORECTAL CANCER

Stephen R. Gorfine, MD, Michael T. Harris, MD, David S. Bub, MD, Joel J. Bauer, MD

ASCRS June 1997
ASCRS June 2003
Dis. Col. Rect 2004
Results

- 46 (5.8%) RPC patients had colorectal carcinoma complicating CUC
- 26 (56.5%) cases were known or suspected preoperatively
Conclusions

- RPC can achieve satisfactory oncologic results in selected CUC patients with “early” cancers

- Adjuvant chemotherapy can be administered to diverted and non-diverted
Is Laparoscopy a Safe and Useful Approach to RPC?
Laparoscopic Assisted RPC

- First reported in 1992

- Theoretical advantages
  - Less pain
  - Less blood loss
  - Fewer adhesions
  - Shorter hospital stay
  - Faster return to work
  - Better cosmetic results

Features of Surgery (CUC)

- True Pfannensteil Incision
- Insert Hand Port, If Indicated
- Laparoscopic Mobilization of Flexures
- Stapled J-Pouch
- Mucosectomy vs. No Mucosectomy
- Stapled vs. Hand-Sewn Anastomosis
Recent Study

- To compare laparoscopic to open RPC to determine safety and feasibility of laparoscopic RPC
  - Short-term postoperative complications
  - Need for ileostomy

Materials

- 252 cases
  11/98-7/06
- 196 open: 56
  lapa
Conclusions

- Patients undergoing laparoscopic-assisted RPC were
  - Younger
  - Had a lower BMI
  - More often female
Conclusions

- Laparoscopic-assisted RPC is associated with
  - Less blood loss than open RPC
  - Longer operative time
- Sepsis occurred more frequently in laparoscopic-assisted RPC patients
- Other complications and LOS were similar compared to the open group
Crohn’s Disease

ANATOMIC DISTRIBUTION

- Small bowel alone (33%)
- Ileocolic (45%)
- Colon alone (20%)

Freq. of involvement
most
least
Age 17
Uncomplicated Crohn's Disease - 3 years.
No weight loss.

RESECT ALL DISEASE

A

B

Ileum

Rectum

Mount Sinai
CROHN'S ILEUM/ADHERENT TO SIGMOID COLON

SURGICAL TREATMENT

Resect rt. colon and ileum with ilaeocolic anastomosis

Resect sigmoid colon; colorectal anastomosis
Laparoscopic-Assisted Intestinal Resection for Crohn’s Disease

Joel J. Bauer, M.D., Michael T. Harris, M.D., Nicholas M. Grumbach, B.A., Stephen R. Gorfine, M.D.

From the Department of Surgery, Mount Sinai School of Medicine, New York, New York


“On the basis of this initial study, it appears that laparoscopic dissection and resection in patients with Crohn’s disease are both safe and readily accomplished in selected patients.”
Laparoscopic-Assisted Intestinal Resection
(378 Patients)

- Non-IBD: 176
- Crohn's Disease: 53
- Ulcerative Colitis: 147
- Indeterminate Colitis: 2

Mount Sinai
Features of Surgery (CD)

- Identification of Diseased Segments
- Mobilization of Bowel to be Resected
  - Lateral Peritoneal Attachments
  - Ileocolic Angle
  - Fistulae and Attachments to Normal Tissue
    - Unaffected Bowel
    - Bladder
    - Body Wall
    - Pelvic Adnexae
Features of Surgery (Cont.)

- Selection of Incision
- Extracorporeal Ligation and Division of Mesenteric Vessels
- Extracorporeal Anastomosis
- Closure of Mesenteric Defect
- Drain
Laparoscopic-Assisted Ileocolic Resection for Crohn’s Disease

- 131 Patients
  - 36 with Recurrent Disease (27.5%)
  - 33 Requiring Concomitant Procedures (25.2%)
    - 19 Fistula Divisions
    - 16 Abscess Drainages
    - 14 Additional Resections

Postoperative Length of Stay

- Laparoscopic-Assisted Ileocolic Resection (n=131)
  - Mean 5.84 Days
- Early Control Group (n=14)
  - Mean 8.50 Days (p<.005)
- Open Ileocolic Resection (n=341)
  - Mean 7.87 Days (p<.0003)
Complications

- No difference in the rate of major or minor complications between open and laparoscopic-assisted procedures in all three groups.
Conclusions

- Laparoscopic-Assisted Intestinal Resection is Feasible and Safe in Patients with Crohn’s Disease and Ulcerative Colitis
- Postoperative Length of Stay is Significantly Reduced in Patients Undergoing Lap-Assisted Ileocolic Resection for Crohn’s Disease
Conclusions

- Laparoscopic-Assisted Ileocolic Resection is Now the Operation of Choice for Most Patients Undergoing Surgery for Crohn’s Disease