PARASTOMAL HERNIAS

Jacques Heppell MD, FRCSC, FASCRS

Professor of Surgery
Mayo Clinic College of Medicine
Parastomal Hernias

• “Some degree of herniation around the colostomy is so common that this complication may be regarded as virtually inevitable.”

John Goligher, 1984
Magnitude of the Problem

- Between 87,000 and 135,000 intestinal stomas (ileostomy and colostomy) are created each year
- Approximately 50% will be permanent
- Herniation will occur in 30-50% of these
- 15-32% of ostomates with hernia require repair
Conservative management

• Asymptomatic patients require no treatment

• Stoma therapist can provide appliance modifications and support belt for patients with few symptoms
Parastomal hernias

INDICATIONS FOR SURGERY

• Obstructive symptoms
• Parastomal pain
• Incarceration of small bowel loops
• Difficulties with irrigation
• Appliance leakage/ poor fit
Parastomal Hernias

- Difficult to treat
- High rate of failure after repair
Parastomal hernias

• Randomized trials have largely been lacking in this field

• Information derives from retrospective clinical reports
Surgical Repair

- **Non-mesh**
  - Stoma ‘takedown’ universally the BEST
  - Primary suture repair
  - Stoma resite with or without laparotomy

- **Mesh**
  - Intraperitoneal
    - Sugarbaker
    - Keyhole, Double Keyhole, or Funnel
  - Extraperitoneal
    - Sublay or Onlay
Why don’t surgeons insert mesh at the time of creation of the stoma?

- Fear of infection
- Fear of erosion
- Fear of adhesions
- Failure rate not recognized
- Time consuming
Open repair of parastomal hernias with mesh

<table>
<thead>
<tr>
<th>Author</th>
<th>No. of pts.</th>
<th>Material</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>De Ruiter and Bijnen, ’92, Netherlands</td>
<td>14</td>
<td>Polypro mesh</td>
<td>1/14 required mesh removal; no hernias at 18 mo.</td>
</tr>
<tr>
<td>Hofstetter, Beart ’98</td>
<td>13</td>
<td>PTFE</td>
<td>No infections or recurrences over 8 years</td>
</tr>
</tbody>
</table>
## More results with **repair**

<table>
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<tr>
<th>Author</th>
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<tbody>
<tr>
<td>Steele, ’03</td>
<td>58</td>
<td>Polypro mesh</td>
<td>26% recurrence; 9% SBO; 3% prolapse; 3% wound inf.; 3% fistula; 2% mesh erosion</td>
</tr>
<tr>
<td>Stelzner, ’04</td>
<td>20</td>
<td>PTFE</td>
<td>3/20 recurred at 3.5 years</td>
</tr>
<tr>
<td>Longman, ’05</td>
<td>10</td>
<td>Polypro</td>
<td>No recurrences or infections at 30 months</td>
</tr>
</tbody>
</table>
Long-term complications associated with prosthetic repair of incisional hernias

Polyester mesh (n=32)
- wound infection - 16%
- fistula - 15.6%
- SBO - 12.5%

Polyprop mesh (n=138)
- wound infection - 5%
- fistula - 1.4%
- SBO - 5%

PTFE (n=30)
- wound infection - 0.8%
- fistula - 0%
- SBO - 0%

Arch. Surg 133:378, 1998
Alloderm for Parastomal Hernia Repair

- Case reports of 3 patients
- Alloderm used as onlay after fascial closure
- Acceptable outcome
- Short follow-up

Kish, Buinewicz, et al. (American Surgeon, 2005)
Onlay

Steele SR. Am J Surg 2003 v185 436-440
Sublay (Underlay)
Keyhole Technique

Fig 9

Keyhole patch
Sugarbaker Technique
Funnel Parastomal Hernia Repair

Fig. 2. 15 × 19 cm Gore-Tex dual mesh with central keyhole defect of 2 cm and 2 radial incisions of 5 mm.

Fig. 3. Intraabdominal funnel-shaped mesh tacked to the ventral abdominal wall. Fixation of the collar with U-stitches.

Hansson et al. Surg Endosc 2003 v17 (11)
Parastomal hernias

• “A much standardized procedure with the potential of producing a low recurrence rate is to treat a parastomal hernia by relocating it into another quadrant with prophylactic mesh at the new site in combination with a sublay mesh repair of the hernia at the primary enterostoma site and the celiotomy site.”

• Leif A Israelsson, 2004
LAPAROSCOPIC REPAIR

ADVANTAGES

• Allows “safe(r)” placement of prosthetic mesh (ostomy off field)

• Definitely can address lysis of adhesions better than open techs
LAPAROSCOPIC REPAIR

- Placement of mesh difficult
- Difficulty to see behind stoma
Outcomes laparoscopic parastomal hernia repair

- 12 patients
- Lap repair with PTFE
- F/U 20 months
- Recurrence 8% (1/12)
- Low morbidity

### Mayo Arizona
### Open vs. Lap Parastomal Hernia Repair

<table>
<thead>
<tr>
<th></th>
<th>Open Suture</th>
<th>Open Re-site</th>
<th>Open Mesh</th>
<th>Laparoscop.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of operations</strong></td>
<td>16</td>
<td>9</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td><strong>Operative Time (min)</strong></td>
<td>97 ± 65</td>
<td>247 ±130</td>
<td>108 ± 54</td>
<td>227 ± 57</td>
</tr>
<tr>
<td><strong>Length of Stay (days)</strong></td>
<td>5 ± 4</td>
<td>7 ± 4</td>
<td>4 ± 3</td>
<td>6 ± 3</td>
</tr>
<tr>
<td><strong>SSI</strong></td>
<td>0</td>
<td>1 (11%)</td>
<td>1 (8%)</td>
<td>2 (13%)</td>
</tr>
<tr>
<td><strong>UTI</strong></td>
<td>2 (13%)</td>
<td>0</td>
<td>2 (15%)</td>
<td>2 (13%)</td>
</tr>
<tr>
<td><strong>Ileus &gt; 7 days</strong></td>
<td>3 (19%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Stoma Obstruction Requiring Re-operation</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 (7%)</td>
</tr>
<tr>
<td><strong>Re-admission for SBO</strong></td>
<td>1 (6%)</td>
<td>0</td>
<td>1 (8%)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Mortality</strong></td>
<td>0</td>
<td>0</td>
<td>1 (8%)</td>
<td>0</td>
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Prevention of Parastomal Hernias
Parastomal hernias

• “I know of no certain preventive of this complication”

• John Goligher, 1984
Parastomal Hernias

• The only method that has reduced the incidence of parastomal hernia in a randomized trial is the use of prophylactic prosthetic mesh

Leif A Israelsson, 2004
Parastomal Hernias

• “Large pore low-weight mesh with reduced polypropylene content and high proportion of absorbable material placed in a sub-lay position at the primary operation reduces the incidence of parastomal hernia”

• Leif A Israelsson, 2004
Parastomal Hernias

• “The results of this study clearly indicate that the path toward reducing the incidence of parastomal hernia included using a mesh at the primary operation”

• Not surprising considering the obvious similarity between incisional and parastomal hernias
  • Leif A Israelsson, 2004
Prophylactic Alloderm

2 weeks post-op with stents in ileal conduit

10 months post-op
Ongoing Prophylactic Study
Harold, et al.

- 40 patients with permanent stoma
- Placement of Alloderm
- Sugarbaker technique
- F/U with physical exam and CT
- Early outcomes
  - No complications with Alloderm
  - No hernias in patients with mesh
  - Several hernias in patients without mesh
Experience with **prophylactic** mesh placement to date:

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<td>Abdu et al, ’86</td>
<td>43</td>
<td>Polypropylene</td>
<td>1/43 required mesh removal. None developed hernia</td>
</tr>
<tr>
<td>De Ruiter and Bijnen, ’92, Netherlands</td>
<td>14</td>
<td>Polypropylene</td>
<td>1/14 required mesh removal; no hernias at 18 mo.</td>
</tr>
<tr>
<td>Janes, ’04 (randomized!)</td>
<td>27</td>
<td>Vypro</td>
<td>No infection, etc</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>At 12 mo, 8/18 w/o mesh and 0/16 w/mesh had hernias</td>
</tr>
</tbody>
</table>
CONCLUSIONS

- Repair parastomal hernia with mesh only if symptomatic.
- Enroll patients in clinical trials looking at prevention of hernia using mesh.
- Long term results and randomized trials needed for laparoscopic approach.
- Provide specialized care to avoid permanent stomas.