Novel Options for the Management of Fecal Incontinence

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ANORECTAL CONTINENCE MECHANISMS

Reservoir Elements
  Rectal accommodation
  Colonic accommodation

Sensory & Motor Elements
  Puborectalis / levator ani
  Rectal sensation
  Internal anal sphincter
  External anal sphincter
ANORECTAL TESTING FOR FECAL INCONTINENCE

- Digital Exam
- Anorectal Manometry
- Anal Sonography *

* If surgery contemplated

Digital Exam for Continence

Position 1
Check anal tone at rest
Digital Exam for Continence

Position 2
Insert finger deeper and feel puborectalis muscle
Ask patient to squeeze

Digital rectal examination correlates well with manometry
(Orkin et al. 2010)
Impacted stool

Liquid stool seeps around impaction and through anal canal

**Overflow Incontinence**

**TREATMENT OF OVERFLOW INCONTINENCE**

**Medical**
- Disimpaction
- Bowel cleansing
- Habit Training *

**Surgical**
- None

* No evidence in adults
RESERVOIR INCONTINENCE

Pathophysiology:
↓ Compliance
Rectal resection

Diagnosis:
History
Sigmoidoscopy

Populations:
IBD
Radiation (pelvic)
Rectal surgery

TREATMENT OF RESERVOIR INCONTINENCE

Medical
Reduce dietary fiber
Treat inflammation
Loperamide, diphenoxylate

Surgical
Diversion
IAS Incontinence

Pathophysiology: Weakness of IAS
a) Trauma
b) Degeneration
c) Autonomic

Diagnosis: History (seepage only)
: Digital exam

Populations: Middle aged / Older adults
: Scleroderma
: Sphincterotomy

Treatment of IAS Incontinence

- Strip panty liner
- Cotton pledget
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**Anal Insertion Device**

Anal Insert Device with finger applicator (left)
Anal Insert Device in place (right)


**Anorectal Testing in Fecal Incontinence**

- Suspected anal sphincter injury for possible surgical repair
- Evaluate for biofeedback therapy
- Candidates for ileal pouch-anal anastomosis
Conservative vs Biofeedback Rx
(Norton et al 2002)

- Improvement: 80%, 83%, 81%, 76%
- Benefits maintained at 1 year
- Incontinence decreased (2/wk to 0/wk; p<0.001)

Biofeedback vs. Pelvic Floor exercises for Fecal Incontinence
(Heymen et al. 2010)
SURGICAL TREATMENTS FOR FECAL INCONTINENCE

Sphincteroplasty: Anal sphincter trauma
Bulking agents: ? Candidates
Sacral stimulation: ? Candidates
Diversion: Salvage

Long Term Outcomes of Sphincter Repair

<table>
<thead>
<tr>
<th>Location</th>
<th>Continent</th>
<th>“Success”</th>
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</thead>
<tbody>
<tr>
<td>Minnesota</td>
<td>6%</td>
<td>40%</td>
</tr>
<tr>
<td>Cleveland Clinic</td>
<td>12%</td>
<td>40%</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>2%</td>
<td>45%</td>
</tr>
<tr>
<td>St. Marks</td>
<td>0%</td>
<td>50%</td>
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<tr>
<td>Hull</td>
<td>20%</td>
<td>80%</td>
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</table>
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Sacral Nerve Stimulation for Fecal Incontinence

- Approved for both UI and FI in USA

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Success after permanent implant</th>
<th>Success Overall</th>
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<tbody>
<tr>
<td>Rasmussen 2004</td>
<td>45</td>
<td>86%</td>
<td>71%</td>
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<tr>
<td>Jarrett 2004</td>
<td>59</td>
<td>95%</td>
<td>74%</td>
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<tr>
<td>Gourcerol 2005</td>
<td>61</td>
<td>69%</td>
<td>32%</td>
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<tr>
<td>Hetzer 2006</td>
<td>44</td>
<td>92%</td>
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<tr>
<td>Holzer 2007</td>
<td>36</td>
<td>96%</td>
<td>77%</td>
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<tr>
<td>Melenhorst 2007</td>
<td>134</td>
<td>81%</td>
<td>60%</td>
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<tr>
<td>Wexner 2010</td>
<td>120</td>
<td>83%</td>
<td>75%</td>
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NASHA Dx Outcomes

Mellgren et al. NGM 2014

NASHA Dx Outcomes

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<tr>
<th>Time point</th>
<th>FI episodes Mean</th>
<th>FI episodes Median</th>
<th>p-value*</th>
<th>Incontinence-free days Mean</th>
<th>Incontinence-free days Median</th>
<th>p-value*</th>
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<tbody>
<tr>
<td>Baseline</td>
<td>23.3</td>
<td>15.0</td>
<td></td>
<td>4.4</td>
<td>4.7</td>
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<tr>
<td>6 months</td>
<td>14.6</td>
<td>7.2</td>
<td>&lt;0.001</td>
<td>7.5</td>
<td>8.3</td>
<td>&lt;0.001</td>
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<tr>
<td>12 months</td>
<td>13.7</td>
<td>6.2</td>
<td>&lt;0.001</td>
<td>7.9</td>
<td>9.0</td>
<td>&lt;0.001</td>
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<tr>
<td>18 months</td>
<td>13.3</td>
<td>7.0</td>
<td>&lt;0.001</td>
<td>8.1</td>
<td>8.0</td>
<td>&lt;0.001</td>
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Mellgren et al. NGM 2014
NASHA Dx vs. Biofeedback (Delhi et al. 2013)

<table>
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<tr>
<th></th>
<th>St. Marks score</th>
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<tbody>
<tr>
<td></td>
<td>Baseline</td>
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<tr>
<td>NASHA Dx</td>
<td>N=64 12.9</td>
</tr>
<tr>
<td>Biofeedback</td>
<td>N=62 12.6</td>
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Vaginal bowel control device

- Uninflated Device: To allow bowel movements
- Inflated Device: To prevent stool leakage

Courtesy of Heidi Brown MD, University of Wisconsin School of Medicine and Public Health