The Work Up of Pelvic Floor Dyssynergia and Fecal Incontinence

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Constipation Overview

- Normal Transit Constipation
- Slow Transit Constipation
- Pelvic Floor Dysfunction
Constipation

- Affects about 25% North American adult population
- >63 million people
- Affects Women > Men (2:1)
- >2.5 million office visits/year
- >$500 million spent on laxatives/year
- Causes ↓ productivity/↑ absenteeism
Normal Anatomy and Physiology of Pelvic Floor

- Sensory perception of stool
- Rectal distension
- Contract diaphragm, abdomen, and rectal muscles
- Relax EAS (decreased sphincter pressure)
- Relax puborectalis muscle

- Low resting and/or low squeeze sphincter pressures (weak IAS and EAS)
- Weakness of puborectalis
- Neuropathy
- Altered rectal or anal sensation
- Diarrheal conditions
- Diminished rectal capacity

- Prolonged colonic transit time
- Discoordination of abdominal, rectoanal, and pelvic floor muscles
- Rectal hypersensitivity
- Paradoxical increase in sphincter pressure
- <20% relaxation of resting anal sphincter pressure
- Inadequate abdomino-retal propulsive forces
“Tooth Paste Tube” Analogy
Diagnostic Criteria: Pelvic Floor Dyssynergia

A) Rome III

2 or more of six symptoms present for the last 3 months with an onset more than 6 months

1. Straining
2. Lumpy or hard stools
3. Sensation of incomplete evacuation
4. Fewer than 3 BM’s per week
5. Sensation of anorectal obstruction or blockage
6. Manual maneuvers to facilitate defecation
   – (digital evacuation, support of pelvic floor) at least 25% of the defecation
Diagnostic Criteria: Pelvic Floor Dyssynergia

B) Anorectal Manometry
Dyssynergic pattern of defecation
Diagnostic Criteria: Pelvic Floor Dyssynergia

C) Patient must demonstrate one other abnormal test:

1. Abnormal balloon expulsion test (>1 minute)
2. Prolonged Colonic Transit time (Sitzmarker/Scintigraphy)
3. Abnormal Defecography >50% Barium retention
Anorectal Manometry
Anorectal Manometry
Key Points: Anorectal Manometry

- Resting Pressure
- Squeeze Pressure
- RAIR
- Rectal Compliance
- Rectal Sensation
Anorectal Manometry

- RAIR (Rectal anal inhibitory reflex)
- Insert air → relaxation of IAS
- No RAIR = Hirschsprung’s
- RAIR: not needed for continence
Diagnostic Criteria: Pelvic Floor Dyssynergia
31 yr F constipation since age 18

- Has BM once every 2 weeks
  - Hard, pellet like
  - Uses Fleet enema

- Excessive straining, incomplete evacuation, bleeding

- Perform digital disimpaction

- Tried OTC laxative, lactulose, MOM w/o relief
History

Past Medical Hx:  Seasonal allergies

Past Surgical Hx:  No back/pelvic injuries/surgeries

Obstetric Hx:  No pregnancies

Medications:  Allegra D
Physical Exam

- No fissures, + internal and external hemorrhoids
- Hard Stool
- Normal resting external sphincter pressure
- On bearing down, paradoxical movement → contraction of external sphincter
Sitz Marker Study
Normal Defecation

Rectum

IAS

EAS
Pelvic Floor Dyssynergia

Rectum

IAS

EAS
Pelvic Floor Dyssynergia

- Affects 1/3 of patients with chronic constipation

- Dyssynergic defecation/Anismus/Obstructive defecation

- Incoordination of abdominal, rectal, pelvic floor and anal sphincter muscles

Mertz et al. Am J Gastroenterol 1999;94:609–615
Symptoms:
Pelvic Floor Dyssynergia

- Excessive Straining
- Incomplete evacuation
- Hard stools
- Infrequent stooling
- 40% use digital maneuvers to assist with defecation

Biofeedback

- Technique of conditioning and retraining the mind to regulate defecation
Biofeedback

Goals
• Teach diaphragmatic breathing exercises
• Teach anal sphincter and pelvic floor relaxation
• Improve rectal sensation
• Eliminate sensory delay
• Improve Recto-anal Coordination
Biofeedback

Components

• Visual Feedback
• Audio Feedback
• Verbal feedback
• Home exercises
• Working with a doctor/nurse/therapist
Biofeedback

• Place solid state manometry probe into the rectum

• Rectoanal coordination
  ➢ Increase the push effort of rectal muscles
  ➢ Relaxation of the anal sphincter
Table 1. Summary of the randomized controlled trials of biofeedback therapy for dyssynergic defecation

<table>
<thead>
<tr>
<th></th>
<th>Rao et al. (35)</th>
<th>Chiarioni et al. (32)</th>
<th>Rao et al. (86)</th>
<th>Chiarioni et al. (34)</th>
<th>Heymen et al. (33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trial design</strong></td>
<td>Biofeedback vs. standard</td>
<td>Biofeedback vs. polyethylene glycol, 14.6g</td>
<td>Biofeedback vs. standard vs. sham biofeedback</td>
<td>Biofeedback for slow transit vs. dyssynergia</td>
<td>Biofeedback vs. diazepam, 5mg, vs. placebo</td>
</tr>
<tr>
<td><strong>Subjects and randomization</strong></td>
<td>26 (23 Women): 13 biofeedback, 13 standard</td>
<td>104 Women: 54 biofeedback, 55 polyethylene glycol</td>
<td>77 (69 Women), 1:1:1 distribution</td>
<td>52 (49 Women): 34 dyssynergia, 12 slow transit, 6 mixed</td>
<td>84 (71 Women): 30 biofeedback, 30 diazepam, 24 placebo</td>
</tr>
<tr>
<td><strong>Duration and number of biofeedback sessions</strong></td>
<td>3 Months, 6-, 9-, and 12-month reinforcement sessions</td>
<td>3 Months and 1 year, 5 weekly 30-min training sessions performed by physician investigator</td>
<td>3 Months, biweekly, 1h, maximum of six sessions over 3 months, performed by biofeedback nurse therapist</td>
<td>Five weekly 30-min training sessions, performed by physician investigator</td>
<td>Six biweekly 1-h sessions</td>
</tr>
<tr>
<td><strong>Primary outcomes</strong></td>
<td>Number of complete spontaneous bowel movements (CSBMs)</td>
<td>Global improvement of symptoms: Worse=0; No improvement =1; Mild=2; Fair=3; Major improvement=4</td>
<td>(i) Presence of dyssynergia; (ii) Balloon expulsion time; (iii) Number of CSBMs; (iv) Global satisfaction</td>
<td>Symptom improvement: None=1; Mild=2; Fair=3; Major=4</td>
<td>Global symptom relief</td>
</tr>
<tr>
<td><strong>Dyssynergia corrected or symptoms improved</strong></td>
<td>The number of CSBMs per week increased significantly (P&lt;0.001) in the biofeedback group</td>
<td>In all, 79.6% reported major improvement at 6 and 12 months, 81.5% reported major improvement at 24 months</td>
<td>Dyssynergia corrected at 3 months in 79% with biofeedback vs. 4% sham and 6% in standard group; CSBM=biofeedback group vs. sham or standard, P&lt;0.05</td>
<td>In all, 71% with dyssynergia and 8% with slow transit alone reported fair improvement in symptoms</td>
<td>In all, 70% improved with biofeedback compared with 38% with placebo and 30% with diazepam</td>
</tr>
<tr>
<td><strong>Conclusions</strong></td>
<td>Biofeedback provided sustained improvement compared with standard therapy</td>
<td>Biofeedback was superior to laxatives</td>
<td>Biofeedback was superior to sham feedback and standard therapy</td>
<td>Biofeedback benefits dyssynergia and not slow transit constipation</td>
<td>Biofeedback is superior to placebo and diazepam</td>
</tr>
</tbody>
</table>
Biofeedback Training 3 months

Before Biofeedback
“Pelvic Floor Dyssynergia”

After Biofeedback
Normal Defecation
Conclusion: Biofeedback

Constipation: Pelvic Floor Dyssynergia

- Sustained improvement of bowel symptoms
- Sustained improvement of anorectal function
- Standard therapy ineffective

Take Home Points

• Get a good history

• Perform a complete rectal exam

• Send patient for further testing for dyssynergic defecation if criteria is met
Take Home Points

- **Biofeedback**
  - Established treatment for pelvic floor dyssynergia
  - Success rate **75-85%** of patients

- **Randomized Control Trials**
  - Both short and long term efficacy of biofeedback in dyssynergic defecation
Fecal Incontinence

• Unintentional loss of stool
• Embarrassing problem for patients
• Affects about 2-3% of the population
• Cost > $400 million is spent on diapers
Fecal Incontinence

**Passive incontinence**
- Involuntary discharge of fecal matter/flatus unaware
- Loss of perception/impaired recto-anal reflexes

**Urge incontinence**
- Discharge of fecal matter or flatus in spite of actual attempts to retain these contents
- Disruption of the sphincter function/rectal capacity to retain stool

**Fecal seepage**
- Undesired leakage of stool
- Incomplete evacuation of stool impaired rectal sensation
# Stool Diary

**PLEASE RECORD YOUR STOOL HABIT FOR ONE WEEK:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of Bowel Movement</th>
<th>Incontinence</th>
<th>Stool Seepage or Staining</th>
<th>Stool Consistency (Type 1–7)</th>
<th>Urgency — unable to postpone BM for more than 15 Minutes</th>
<th>Use of Pads</th>
<th>Medications</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes / No</td>
<td>Yes/No</td>
<td>See Below</td>
<td>Yes / No</td>
<td>Yes / No</td>
<td></td>
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</tr>
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</table>

Use the following descriptors for describing stool consistency:

- **Type 1:** Separate hard lumps
- **Type 2:** Sausage shaped but lumpy
- **Type 3:** Like a sausage but with cracks on its surface
- **Type 4:** Like a sausage or Snake, smooth and soft
- **Type 5:** Soft blobs with clear-cut edges
- **Type 6:** Fluffy pieces with ragged edges, a mushy stool
- **Type 7:** Watery
# Bristol Stool Scale

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Separate hard lumps, like nuts (hard to pass)</td>
</tr>
<tr>
<td>Type 2</td>
<td>Sausage-shaped but lumpy</td>
</tr>
<tr>
<td>Type 3</td>
<td>Like a sausage but with cracks on surface</td>
</tr>
<tr>
<td>Type 4</td>
<td>Like a sausage or snake, smooth and soft</td>
</tr>
<tr>
<td>Type 5</td>
<td>Soft blobs with clear-cut edges (passed easily)</td>
</tr>
<tr>
<td>Type 6</td>
<td>Fluffy pieces with ragged edges, a mushy stool</td>
</tr>
<tr>
<td>Type 7</td>
<td>Watery, no solid pieces. Entirely liquid</td>
</tr>
</tbody>
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Physical Examination

- Detailed physical exam
- Neurological examination of the back, lower limbs
- Perineal inspection
- Digital rectal exam: left lateral position/good illumination
Physical Examination

• Inspection
  – Fecal matter
  – Prolapsed hemorrhoids
  – Dermatitis
  – Scars
Physical Exam

- Skin excoriation

- Gaping anus
Perineal Sensation

• Evoke anocutaneous reflex (anal wink)
• Gently stroke the skin around the anus → reflexive contraction of the external anal sphincter
• Elicited bilaterally
• Absent anal wink = nerve damage and interruption of the spinal arc
Anorectal Manometry

- Low sphincter pressure $\rightarrow$ sphincter defect is present
- Decreased resting pressure $\rightarrow$ isolated IAS dysfunction
- Decreased squeeze pressure $\rightarrow$ isolated EAS dysfunction
- Severe weakness EAS $\rightarrow$ prolapsed rectum
Anal Ultrasound
57 year old female

- 3 years of fecal incontinence
- Not aware of it
- Stool is soft and formed
- No neurologic symptoms, urinary incontinence, pelvic, perianal injury
- 2 children vaginally
Case

- Perianal examination: normal
- Digital rectal examination: weak resting tone and normal increase with squeeze
Anorectal Manometry
Anal US

IAS: 8-1 O'clock
Defecography

- Assessing anorectal angle
- Structural and functional alterations:
  - Rectocele
  - Internal rectal intussusception
  - External rectal prolapse
  - Enterocole and pelvic floor dysfunction, or dyssynergia
Conclusions

- **Anorectal Manometry**
  - Key in the work-up of pelvic floor dyssynergia and fecal incontinence

- **Biofeedback**
  - Improve constipation due to pelvic floor dyssynergia

- **Therapeutic Intervention for Fecal Incontinence**
  - Dependent on results of anorectal manometry, pudendal nerve latency, anal ultrasound, defecography