Common Anorectal Disorders

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Case Study
41-yr-old school teacher

- Increasing constipation- 3 years
  - Began during college days
  - Now, B.M once every 1-2 weeks, hard, pellet-like stool only after Fleet’s enema + suppository and laxatives
- Uses digital maneuvers, and describes excessive straining, incomplete evacuation and occasional bleeding
- Tried OTC laxatives, lubiprostone, PEG-no relief

Disclosures

- Advisory Board:
  - Ironwood Pharmaceuticals
  - InTone MV
  - Synergy Pharmaceuticals
  - Valeant Pharmaceuticals

- Research Support:
  - National Institutes of Health
  - Forest Labs/Ironwood
  - Synergy Pharmaceuticals
  - InTone MV

OBJECTIVES

- Discuss advances in Evaluation, Diagnostic Tests & Treatment:
  - Dyssynergic Defecation
  - Fecal Incontinence

History Contd..

- Past Hx: Migraines, seasonal allergy, No back or pelvic injury, Gravida 1, para 1, No Forceps.
- Drugs: Minocycline 100mg bid, Nasal spray, HFD=30g/day, Senna=2/day, PEG=34g/day,
- O/E: lower abdominal fullness
- What next?

3-step DRE-PROTOCOL

1) Inspection
2) Perianal sensation & anocutaneous reflex:
   - normal, impaired, absent
3) Digital maneuvers: mass, tenderness, stool
   - Squeeze x 2: normal, weak, increased
   - Bearing down x 2
     - push effort, sphincter relaxation, perineal descent

Clinically dyssynergia if... any 2:
- inability to contract abdominal muscles
- relax anal sphincter
- paradoxical contraction of anal sphincter
- absence of perineal descent

Tantipiplachiva K, Rao S et al, CGH 2010
Yield of rectal exam in dyssynergia, n=209

All patients had
DRE
Anorectal manometry
Balloon Expulsion Test
Data Analyzed independently

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyssynergia from DRE</td>
<td>75</td>
<td>87</td>
</tr>
<tr>
<td>Balloon expulsion test</td>
<td>49</td>
<td>90</td>
</tr>
</tbody>
</table>

Tantiphaschiva K, Rao S et al, CGH 2010

Functional Subtypes: Primary Constipation

- Dyssynergic Defecation
- Slow Transit Constipation 47%
- Evacuation Disorders 59%
- Irritable Bowel Syndrome 58%

Outlet Obstr:
- Rectocele
- Descending perineum syndrome
- Rectal prolapse

Slow transit and IBS-C overlap in half of each group

Tests of Anorectal Function

- Anorectal high resolution manometry
- Anal Endosonography
- Rectal Compliance Test
- Pudendal Nerve Terminal Latency
- Balloon expulsion test
- Defecography

- Anal High Definition Manometry
- Electromyography
- Translumbar/transsacral MEP

Modified from Rao, ACG Guidelines, Am J Gastro 2004

Types of Dyssynergic Defecation


HRM Probes


**Assessment of Dyssynergic Defecation**

- Dyssynergia should be assessed in sitting position
- Ideally with a distended balloon in rectum
- RA gradient as assessed by software is inaccurate for dyssynergia—overestimates!
- Defecation index is a better measure for evaluating dyssynergia

**Diagnostic Criteria-Dyssynergic Defecation**

1. The patient must satisfy diagnostic criteria for functional constipation—Rome III
2. During repeated attempts to defecate must demonstrate Dyssynergic pattern of defecation
   - Manometry
   - EMG
3. Patient must demonstrate one other abnormal test:
   a. Abnormal balloon expulsion Test (> 1 minute)
   b. Prolonged Colonic Transit Time (radioopaque markers or SmartPill or Scintigraphy)
   c. Abnormal Defecography (>50% barium retention)

Bharucha et al, Gastroenterology 2006; 130: 1514

**How to Treat Dyssynergic Defecation?**

- General Measures
  - Diet, exercise, fluids & habit training
  - Laxatives/Prokinetics
- Specific Treatment
  - Botox injection
  - Biofeedback therapy
  - Cognitive Behavioral Therapy
  - Surgery
    - Myectomy—30% improvement
    - Colostomy

Biofeedback Therapy

- A technique of conditioning and/or retraining the mind and body to normalize bowel movement.

How many of you perform Biofeedback?

Biofeedback-Dyssynergia

Goals of Therapy:
- A) Teach Diaphragmatic breathing exercise
- B) Teach anal sphincter & pelvic floor relaxation
- C) Improve Rectal Sensation
- D) Eliminate Sensory Delay
- E) Improve Recto-anal Coordination

RCT-Biofeedback Therapy for Dyssynergia

n=77

<table>
<thead>
<tr>
<th>Standard Treatment</th>
<th>Biofeedback Therapy</th>
<th>Sham Feedback</th>
</tr>
</thead>
</table>

Symptom questionnaire, Stool diary, Colonic Transit, ARM, Balloon Expulsion test

Rao et al, CGH 2007

Effects of Biofeedback Therapy on CSBM & Dyssynergia-ITT Analysis


Biofeedback Therapy-RCTs

- Biofeedback Vs PEG 14.6 g for Dyssynergia
  - Chiarioni et al, Gastroenterology 2006; 130: 637-64
- Biofeedback vs Diazepam for Dyssynergia
  - Heymen et al, Dis Col Rectum 2007
- Biofeedback vs Sham Therapy vs Standard Therapy
  - Rao et al CGH 2007
- Biofeedback vs Standard Therapy-One Year outcome
  - Rao et al Am J Gastroenterol 2010
- Home vs Office Biofeedback Therapy-Efficacy & Cost Effectiveness
  - Rao et al, Go et al, DDW 2011

Post-Biofeedback-Attempted Defecation

RECTUM

ANUS
**Long Term Outcome of Biofeedback - CSBM/week**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Level</th>
<th>Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyssynergic Defecation</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>Fecal Incontinence</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>Levator Ani Syndrome</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>Solitary Rectal Ulcer Syndrome</td>
<td>III</td>
<td>C</td>
</tr>
<tr>
<td>Children with Functional Constipation (Encopresis)</td>
<td>I</td>
<td>D</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

- Biofeedback Therapy
  - Effectively improves symptoms and anorectal function
  - This effect is mediated by modifying their physiologic behavior
  - Biofeedback therapy provides sustained improvement in bowel function
  - Home Biofeedback is as effective as Office Biofeedback and more cost effective
  - Should be the preferred treatment for patients with dyssynergia, especially when patients fail Standard Therapy

**CASE STUDY**

AH: 47 yrs, Gravida 3, Para 2
- 2005 - Fecal Incontinence - 2 months after delivery.
- 2012 - 2nd Delivery, symptoms have worsened.
- B.M. - 2/day; 10-15 incontinence episodes/wk-10yrs
- Senses stool coming out but cannot stop it.
- Flatus incontinence
- No urinary incontinence, back injury or diabetes.
- Hypothyroid
- Tried Psyllium, loperamide 4mg/tid-No relief

**Prevalence of Fecal Incontinence: Fast Facts**

- Overall prevalence of fecal incontinence: 9.0%
- Prevalence of fecal incontinence occurring at least once weekly: 1.1%
- Prevalence in men: 7.4%
- Prevalence in women: 9.1%
- Prevalence in individuals aged ≥70 years: 17.5%

Prevalence of FI (≥1 time in previous month)*


**EBM – Biofeedback Therapy**

**HOME vs OFFICE BIOFEEDBACK-RESPONDER ANALYSIS**

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### Fecal Incontinence

**Fecal Incontinence – History & Examination**

- Establish rapport & Overcome social stigma
- Onset & Precipitating events
- Duration, Severity & Timing
- Coexisting problems/Surgery/Urinary Incontinence
- Obstetric Hx-Forceps, Tears, Presentation, Repair
- Drugs, Caffeine, Diet
- Clinical Subtypes & Grading
- Physical, Neurological & DRE


### Fecal Incontinence-Clinical Subtypes

- **Passive Incontinence**
  - Involuntary discharge of feces or flatus without awareness
- **Urgo Incontinence**
  - Discharge of rectal contents in spite of active attempts to retain
- **Fecal Seepage**
  - Involuntary seepage with otherwise normal evacuation

Rao, ACG Guidelines, Am J Gastro 2004

### Case Vignette: Incontinent vs Healthy

**LEFT**
- Patient
- Case
- Right
- Healthy

**RIGHT**
- Healthy
- Left
- Healthy
- Case

Rao, ACG Guidelines, Am J Gastro 2004
Pharmacological Treatment of Incontinence

- Fiber Supplementation
- Loperamide
- Diphenoxylate/atropine (Lomotil®)
- Lactulose
- Cholestyramine/colestipol
- Amitriptyline
- Valproic acid
- Clonidine
- Topical Therapy
  - Estrogens
  - Phenylephrine
  - Zinc-Aluminum

Goals of Neuromuscular Training for Fecal Incontinence

- Biofeedback Therapy
  - Strengthen anal sphincter/Puborectalis muscle
  - Endurance + Strength
  - Improve rectal sensation/sensory delay
  - Rectoanal coordination training
  - Isolation of anal muscles
  - Control of Accessory Muscles
  - Training to correct dyssynergia & evacuation

Clinical Utility of ARM in Fecal Incontinence

- Rao et al, Am J Gastro 1997; 92:469-75

Cochrane Review of Medical Therapy-2013

- 16 trials (11 cross over), n=558
- 11 Trials of F.Incontinence + Diarrhea
- 7 tested antidiarrheals, 6 enhance anal sphincter function (Phenylephrine, valproic acid), 2 tested Lactulose, 1 zinc aluminum
- Small studies, short F.up, meta-analysis not possible
- Risk of bias unclear

Conclusions:
- Focus of most therapy was diarrhea not incontinence
- Little evidence to guide clinicians, Larger well designed trials are required

Omar et al, Cochrane data base systematic rev 2013

Biofeedback vs Non-digital assisted squeezes-Incontinence: Primary Outcome

Responder Analysis, Home vs Office Biofeedback

P=1.000

Xiang X, Sharma A, Rao SS. ACG 2017

Surgical Treatment of Incontinence

- Sphincteroplasty
- Rectal Augmentation
- SECCA procedure
- Sacral nerve stimulation
- Maloney-ACE procedure
- Colostomy

Rao, ACG Guidelines, Am J Gastro 2004

Sacral Nerve Stimulation System: Bowel Control Study

Improvement in Weekly Incontinent Episodes

Percentage of Patients

Follow-up Interval

3 Months (n=113) 6 Months (n=157) 12 Months (n=106) 24 Months (n=67) 36 Months (n=30)

Efficacy of Dextranomer (Solesta®) in F. Incontinence, RCT

Significantly higher responder rates in Solesta group at 6 months (Responder)
**Long Term Efficacy of NASHA**

*Mellgren A et al, NGM 2014*

**Take Home Points**
- Detailed History, Physical & DRE important
- Dyssynergic defecation is common but HRM and HDM are sensitive and should be used appropriately for accurate diagnosis
- Fecal incontinence is multifactorial
- ARM, Anal Ultrasound, MRI, Neurophysiology Tests are complementary, lifestyle measures, antidiarrheals are helpful
- Therapeutic options will depend on a clear understanding of pathophysiology
- Biofeedback should be preferred option
- Selected cases surgery or SNS or Dextranomer

**New devices for Fecal Incontinence**
- Role of anal/vaginal plugs & Devices: *Fenix®, Renew®, Vaginal insert (Pelvalon®)*

**EBM – Incontinence – 2017**

<table>
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<tr>
<th>Treatment Modality</th>
<th>Level</th>
<th>Recommendation</th>
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<tbody>
<tr>
<td>Pharmacological</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loperamide</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>Diphenoxylate/atropine</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>Lactulose</td>
<td>IIA</td>
<td>C</td>
</tr>
<tr>
<td>Fiber supplements</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>Clonidine</td>
<td>IIA</td>
<td>C</td>
</tr>
<tr>
<td>Topical Therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc Aluminum</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>Estrogen</td>
<td>IIA</td>
<td>B</td>
</tr>
<tr>
<td>Phenylephrine</td>
<td>I</td>
<td>C</td>
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<tr>
<td>Biofeedback Therapy</td>
<td>I</td>
<td>A</td>
</tr>
<tr>
<td>SNS</td>
<td>II</td>
<td>B</td>
</tr>
<tr>
<td>TENS/PTNS</td>
<td>II</td>
<td>C</td>
</tr>
<tr>
<td>Dextranomer (NASHA type)</td>
<td>I</td>
<td>A</td>
</tr>
</tbody>
</table>