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HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL

# Defecatory Disorders and Fecal Incontinence

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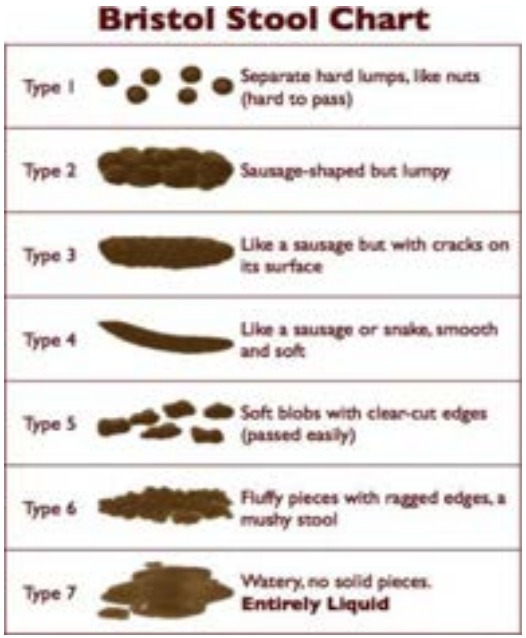
DDC 2/2024

# No disclosures

# Outline

- Defecatory Disorder (DD) and Fecal Incontinence
  - When to suspect
  - Evaluation
    - History
    - Rectal exam/ARM/Defecogram/Rectal US
  - Treatments

# A Case




- A 71yo woman w hx IBS-C  all her life
- New onset of :
  - Worsening constipation
  - Intermittent diarrhea
  - Abdominal bloating
  - Bristol stool scale Type I daily, occasional Type 7
- Last colonoscopy 2019 normal
- No alarm symptoms
- Failed Fiber, MiraLAX and Magnesium oxide

# What else do you want to know? ASK!

- Straining
- Sensation of incomplete evacuation
  - Enemas, digitalization, no vaginal splinting
- Abdominal bloating worse throughout the day
  - improves with defecation
- “Diarrhea”
  - Fecal urgency, not incontinence, not passive incontinence
- 2 uncomplicated V/D, Episiotomy, +urine urgency &occasionally urine incontinence
- Hx of a hemorrhoids

# Defecatory Disorders

*50% of the referrals to a tertiary care practice*

## Spastic Pelvic Disorders
(abnormal function)

- Pelvic tension myalgias
- Pelvic floor dyssynergia

## Rectal Obstruction disorders
(abnormal structure)

- Prolapse
- Rectocele/cystocele
- Anal rectal intussusception
- Descending Perineum

Wang, Camilleri et al. et al. AM J Gastroenterol 1995;90:1471-1475.

# Discriminant Features for the Diagnosis of Defecatory Disorders

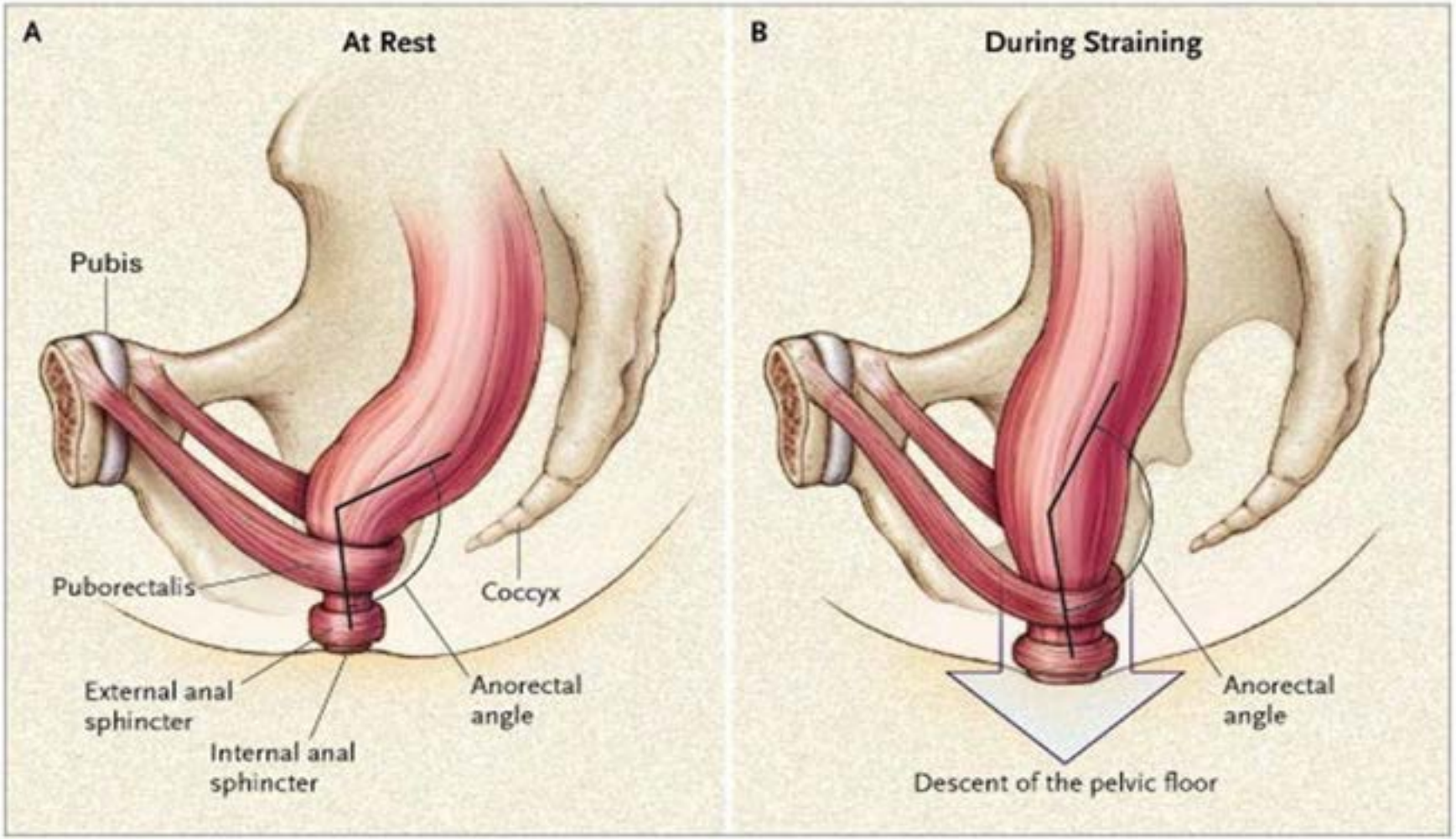
Metanalysis 3,363 patients 63 studies RED, 61 studies STC

DD 27.7%
STC 19%
DD with STC 16.6%

- Hard lumpy stool
- Urinary symptoms
- Poor anal relaxation and increase anal squeeze DRE
- Prolonged balloon expulsion time
- Rectoanal pressure gradient with high anal pressure on manometry below -40 mmHg

Brandler J, Camilleri M Clinical Gastroenterology and Hepatology 2020;18:2479–2490

# Dynamics of Defecation




Lembo A, Camilleri M. N Engl J Med 2003;349:1360-1368.

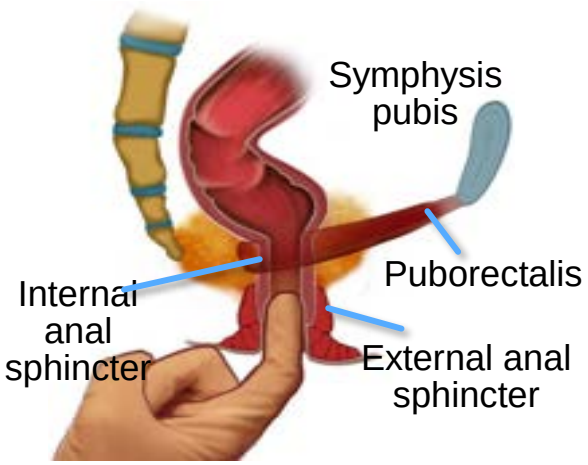
# What would you do next?

- Trial of linaclotide
- Trial of Imodium
- Rectal Examination
- Abdominal CT scan/Xray
- Send her home and tell her that this is all part of aging

# Identifying Defecatory Disorders
# Digital Rectal Exam

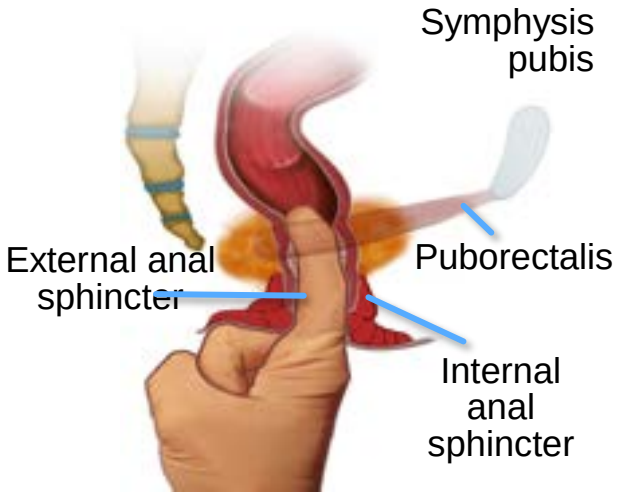
Position 1

- Check anal tone at rest
- Ask patient to squeeze

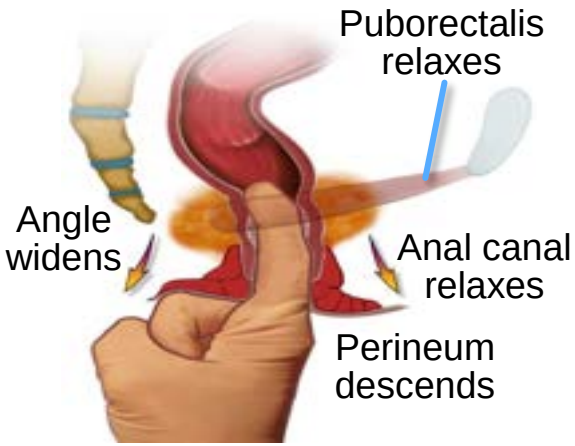



Position 2

- Insert finger deeper and feel puborectalis muscle
- Ask patient to squeeze




Expulsion




Rajab TK, et al. *N Engl J Med.* 2018;378(22):e30.

ROME FOUNDATION

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# Performance of DRE for Dyssynergia

| Chronic Constipation by Rome III, N = 209 | Estimated Value | 95% CI | |
|---|---|---|---|
| | | Lower Limit | Upper Limit |
| Sensitivity | 0.75 | 0.68 | 0.81 |
| Specificity | 0.87 | 0.68 | 0.96 |
| Positive predictive value | 0.97 | 0.92 | 0.90 |
| Negative predictive value | 0.37 | N/A | N/A |

Take-home points: DRE reliably identifies patients with dyssynergic defecation and facilitates selection of patients for further physiologic testing

Tantiphlachiva K, et al. *Clin Gastroenterol Hepatol*. 2010;8:955-960.

# Functional Defecatory Disorders

## Rome IV Criteria

FP- Asx with dyssynergia
Results not sex- age matched

**Functional Constipation or IBS-C**
**+**
2 of the 3 criteria on repeated attempts of simulated defecation

- **Dyssynergic pattern on ARM or EMG**
- **Abnormal Balloon Expulsion Test**
- **Abnormal Dynamic Imaging**

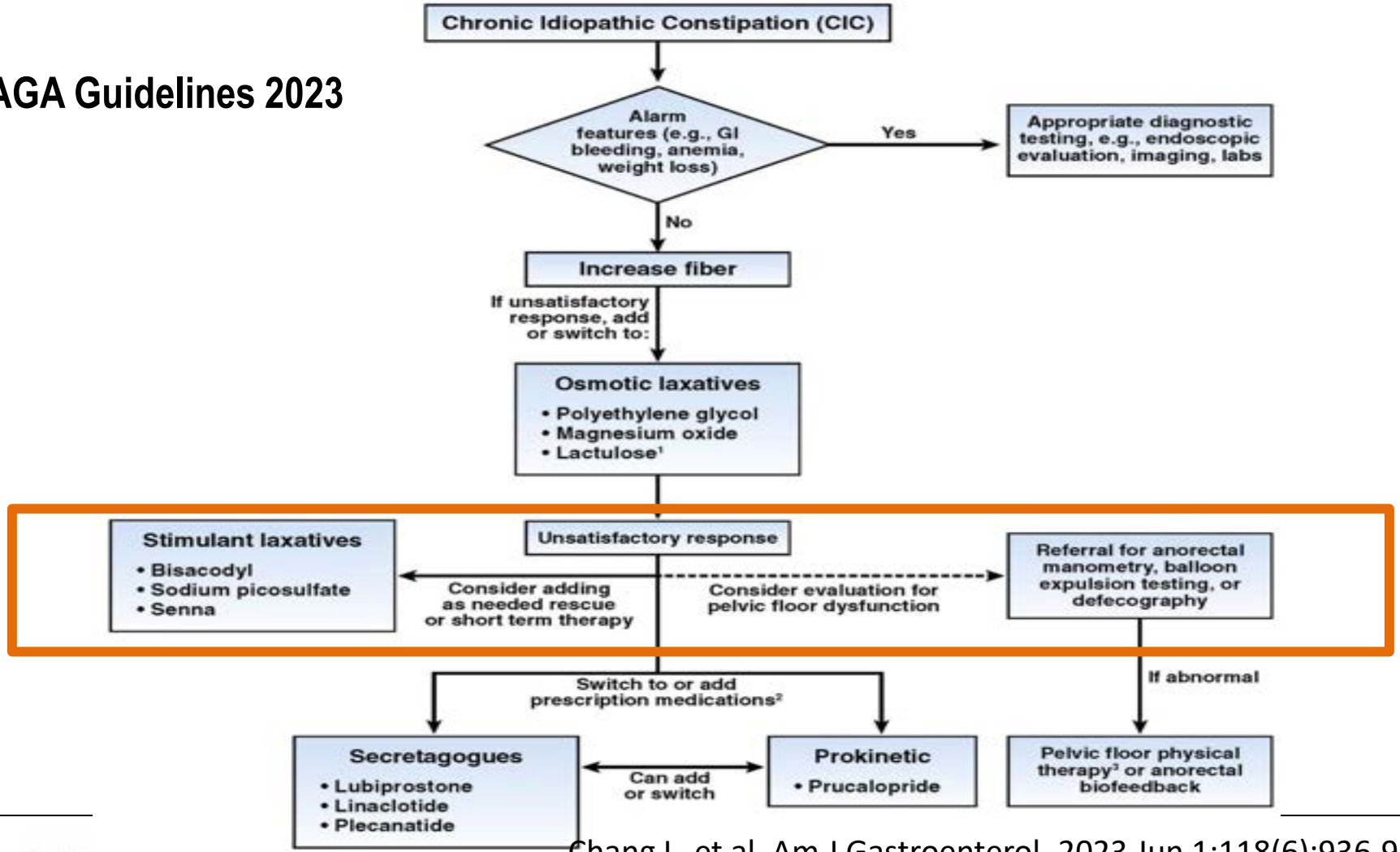
*Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

*Rao S, et al. Gastroenterology 2016; 150:1430-1442*
Rome Organization. Rome IV Disorders and Criteria.

# When to test for DD?

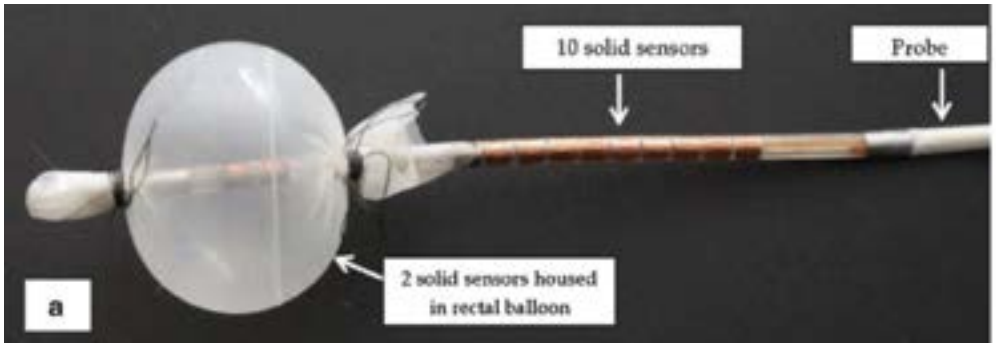
## Chronic Idiopathic Constipation (CIC)

**AGA Guidelines 2023**

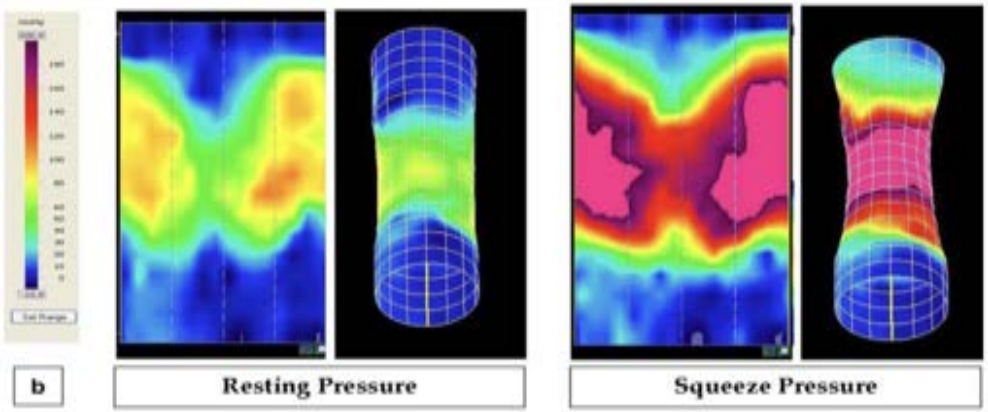



Chang L. et al. Am J Gastroenterol. 2023 Jun 1;118(6):936-954

# High Resolution (2D)/High Definition (3D) Anorectal Manometry








**IAPWG PROTOCOL**

| Time (mins) | | |
|---|---|---|
| 0 | Stabilization – 3 min | |
| 1 | | |
| 2 | | |
| 3 | Rest – 60 s | |
| 4 | Short squeeze – 5 s | 30-s recovery interval between short squeezes |
| 5 | Short squeeze – 5 s<br>Short squeeze – 5 s | |
| 6 | Long squeeze – 30 s | 60-s recovery interval after long squeeze |
| 7 | Cough | 30-s recovery interval between each cough and push |
| | Cough | |
| 8 | Push – 15 s | |
| | Push – 15 s | |
| 9 | Push – 15 s | |
| 10 | Rectal sensory testing | |
| 11 | | |
| 12 | RAIR | |

Prichard D et al. Clinical Gastro and Hepatology 2017;15:412-420
Grossi U et al Gut 2017;65:447-455

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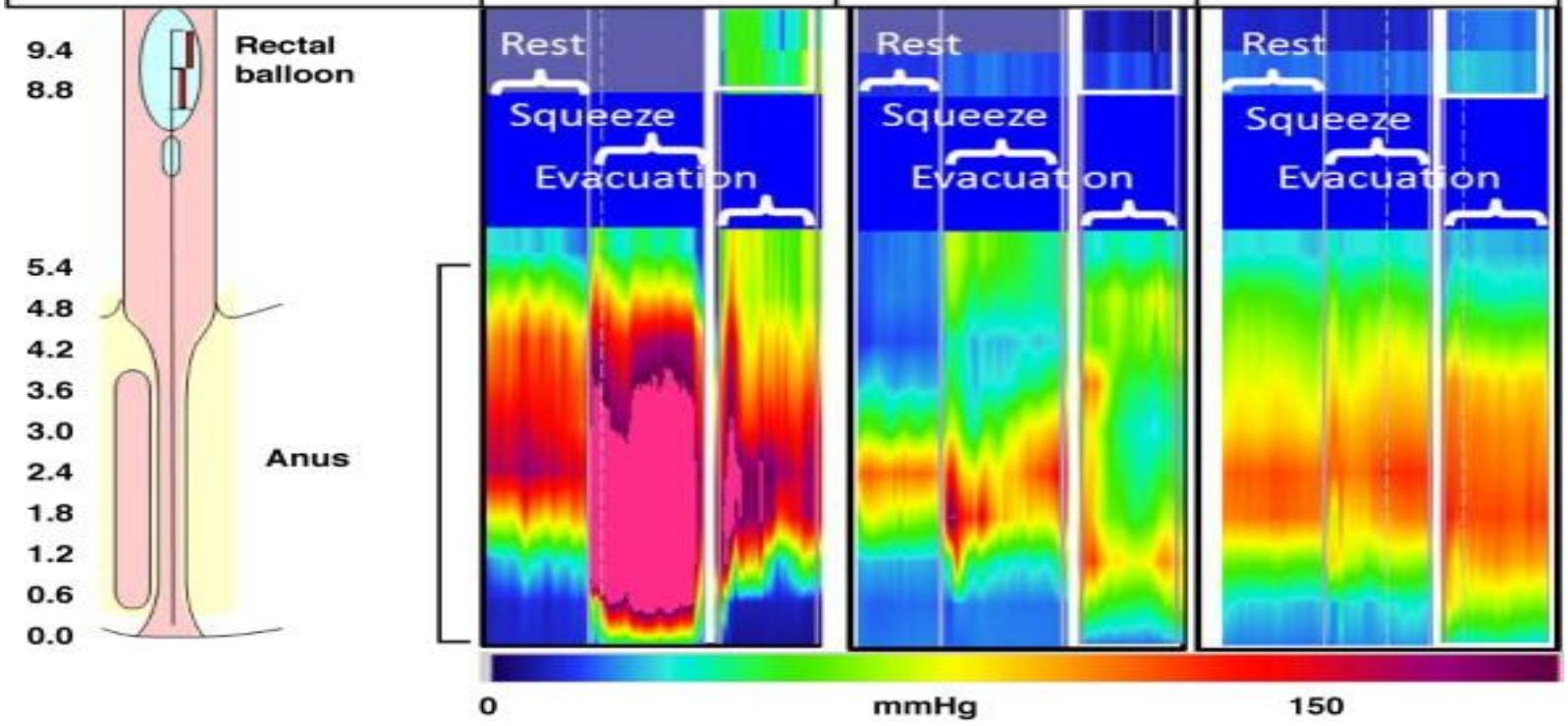
# Rectal Evacuation Disorder Phenotypes HRM

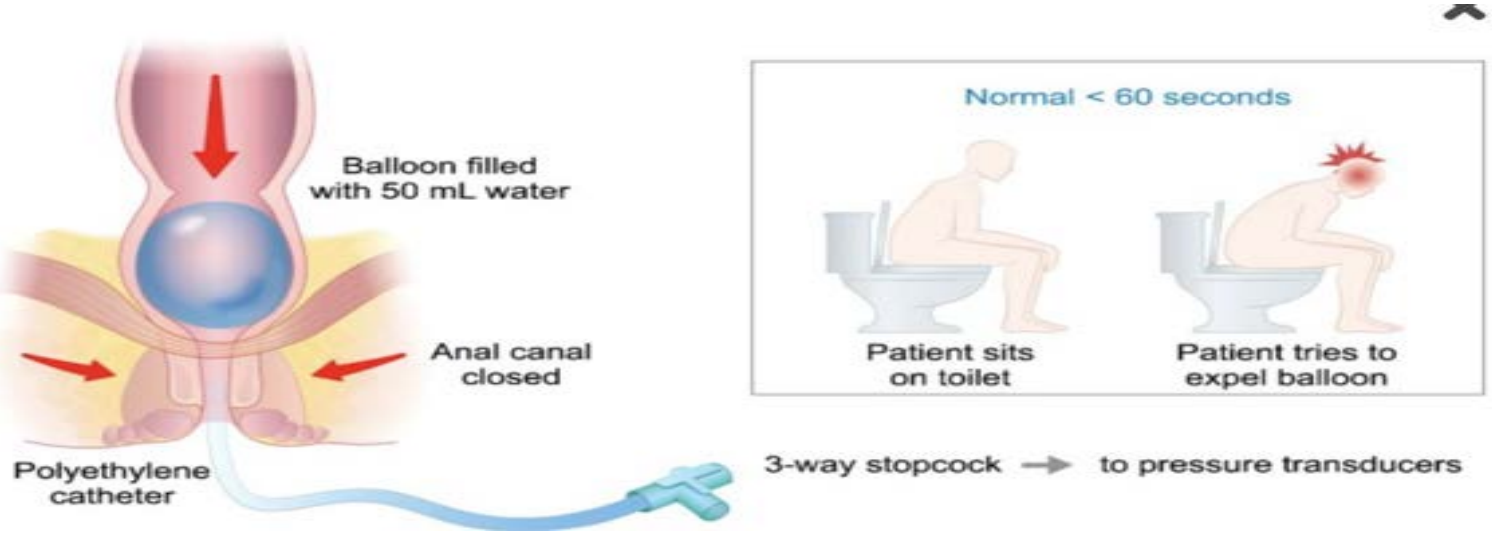
No clinically implications of identifying phenotypes

| | High anal | Low rectal | Hybrid |
|---|---|---|---|
| During evacuation | | | |
| Rectal pressure | Normal | Low | Low |
| Anal relaxation versus rest | No | Yes | No |




Bharucha and Rao Gastroenterology 2014;146:37-45.

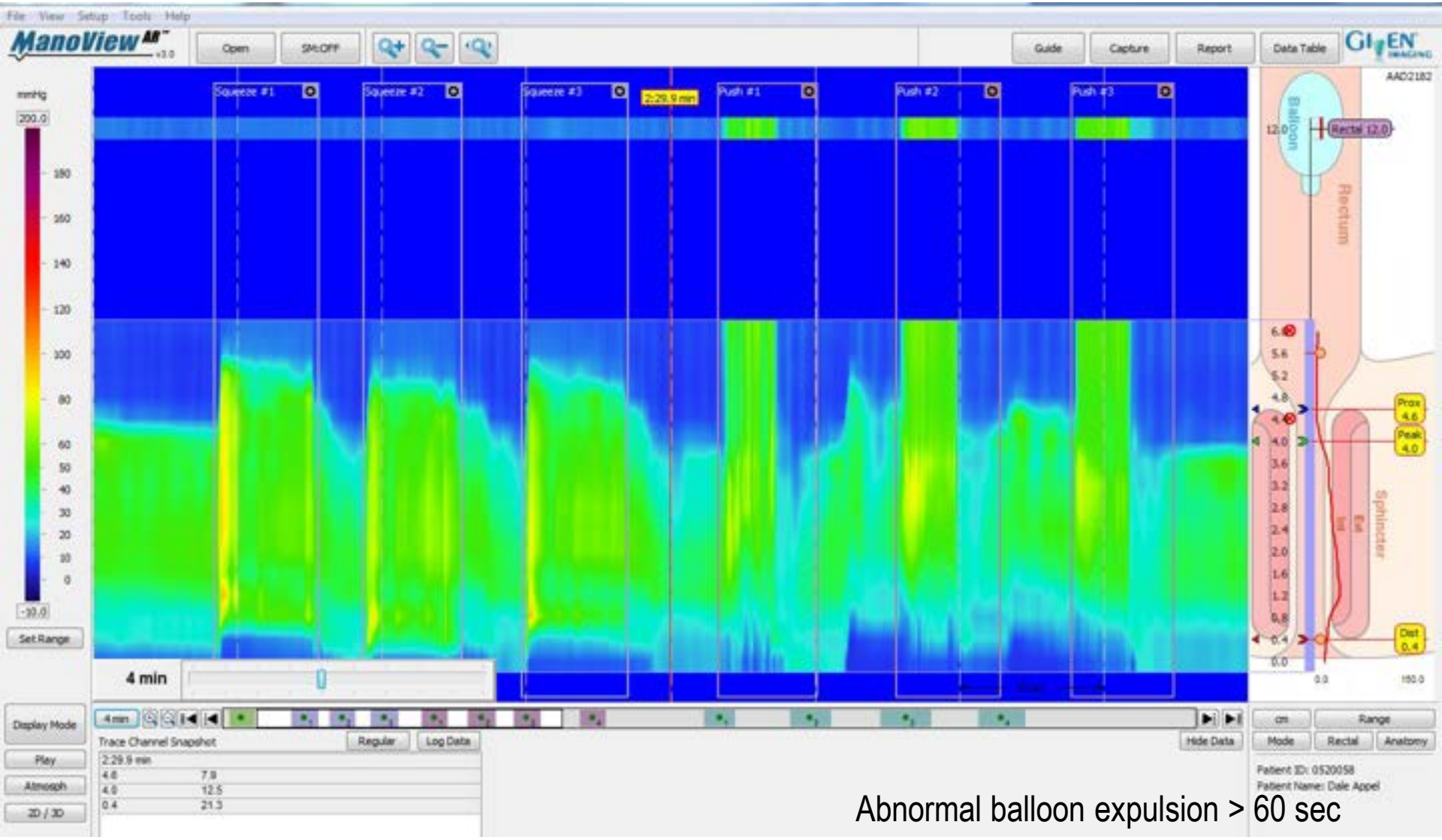
# Balloon Expulsion Test




| > 1 min | >2 min | >22 sec |
|---|---|---|
| Sensitivity 69% (54-85%) | Sensitivity 88% | Sensitivity 77.8% |
| Specificity 81% (76-86%) | Specificity 89% | Specificity 69.8% |

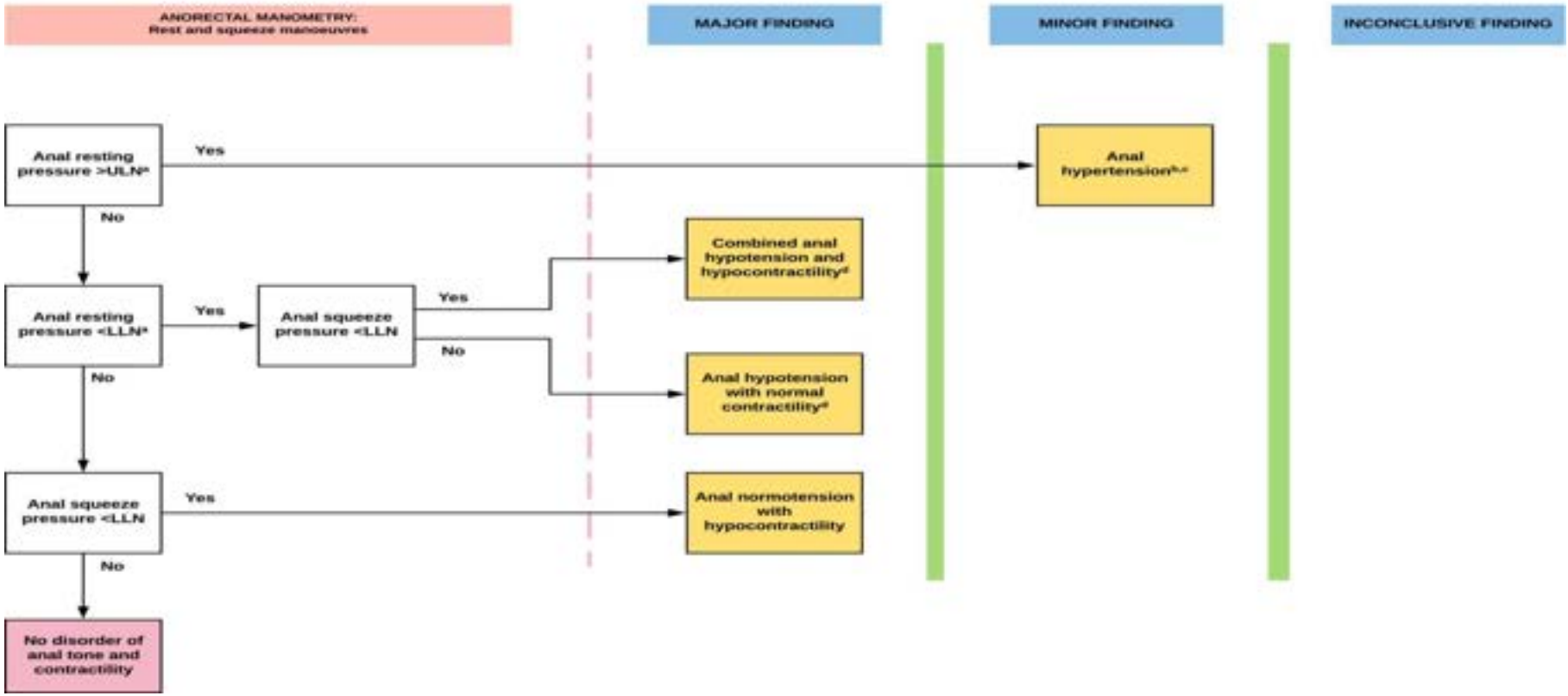
Chey.et al The American Journal of Gastroenterology.
Chedid V, et al. Neurogastroenterol Motil. 2019 Jan;31(1):e13510.

# Our Case: ARM



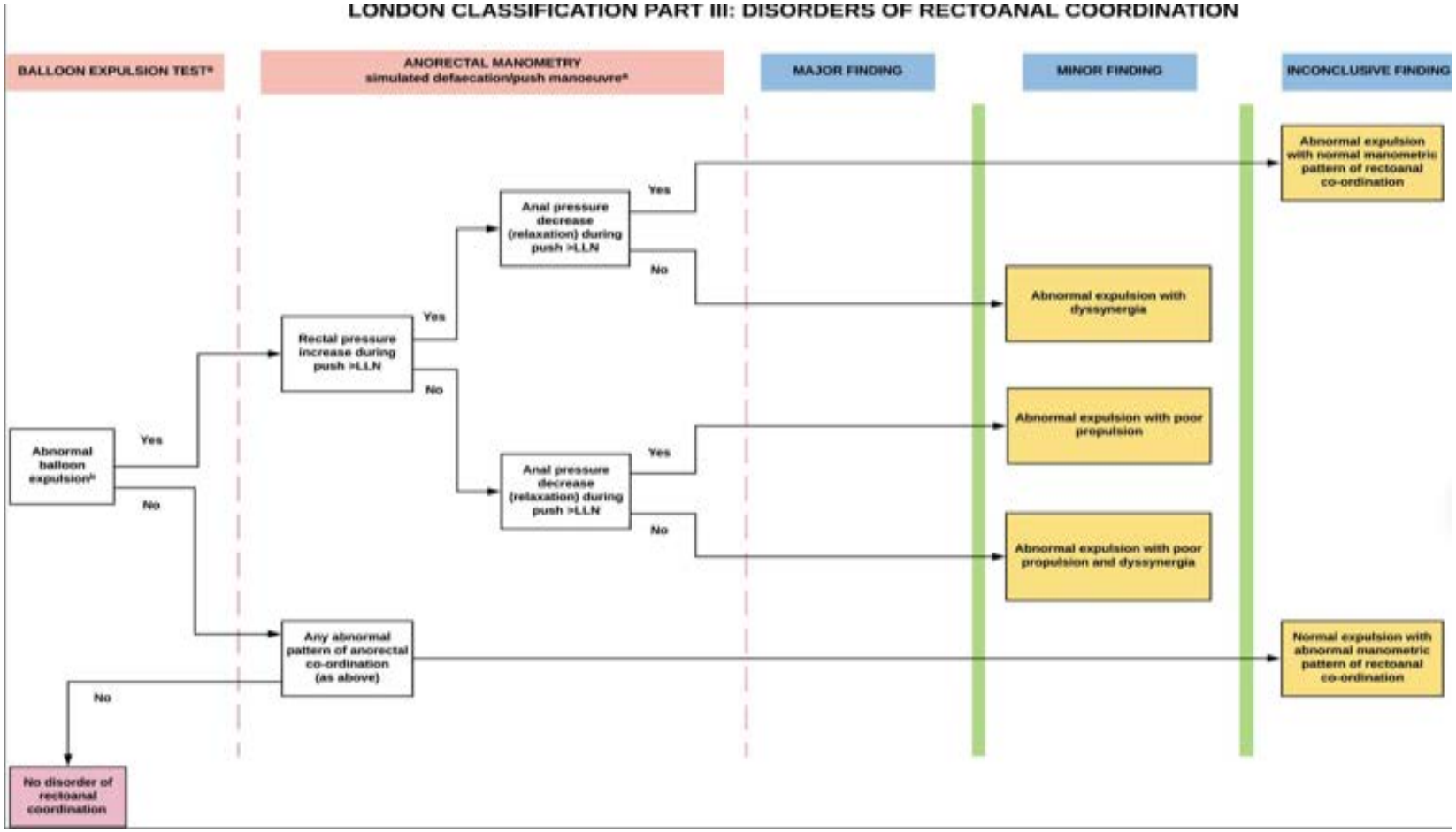

Abnormal balloon expulsion > 60 sec

# London Classification for Anorectal Manometry
## Anal Resting and Squeeze pressures




Carrington EV Neurogastroenterology & Motility, Volume: 32, Issue: 1, 2020

# London Classification for Anorectal Manometry
## Rectal Pressure and Anal Sphincter relaxation




Carrington EV Neurogastroenterology & Motility, Volume: 32, Issue: 1, 2020

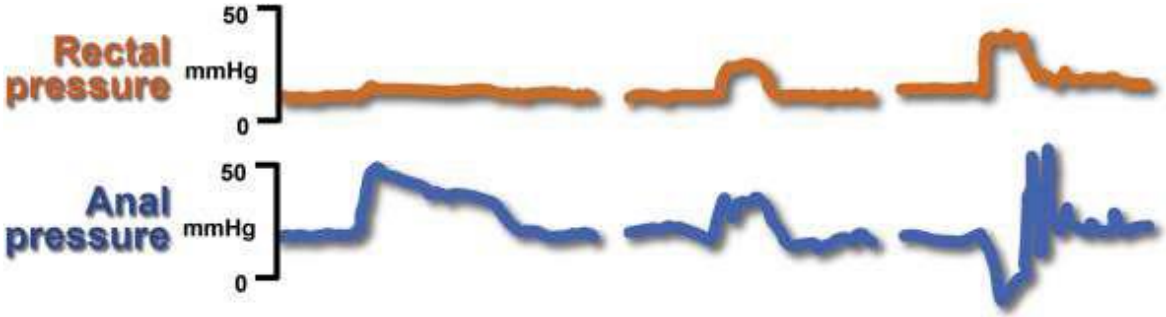
# Management of Dyssynergic Defecation

80 % success rate

| | | | |
|---|---|---|---|
| Chiarioni et al 109 | PEG laxative | Biofeedback | Superior |
| Heymen et al 84 | Diazapam 4 mg vs placebo | Biofeedback | Superior |
| Rao et al 77 | Sham feedback and usual medical care | Biofeedback | Superior |
| Faried et al 48 | Botulinum | Biofeedback | Superior |
| Rao et al 26 | Usual Medical care | Biofeedback | Superior |

*Rao, S. Gastro 2016; 150:1430–1442.e4*

# Effect of Biofeedback on Dyssynergia




**A**

**Pretreatment:**

- No change in intrarectal pressure
- Paradoxical anal contraction

**B**

- Improved pushing
- Paradoxical contraction remains

**C**

- Increased intrarectal pressure
- Coordinated relaxation in anal sphincter

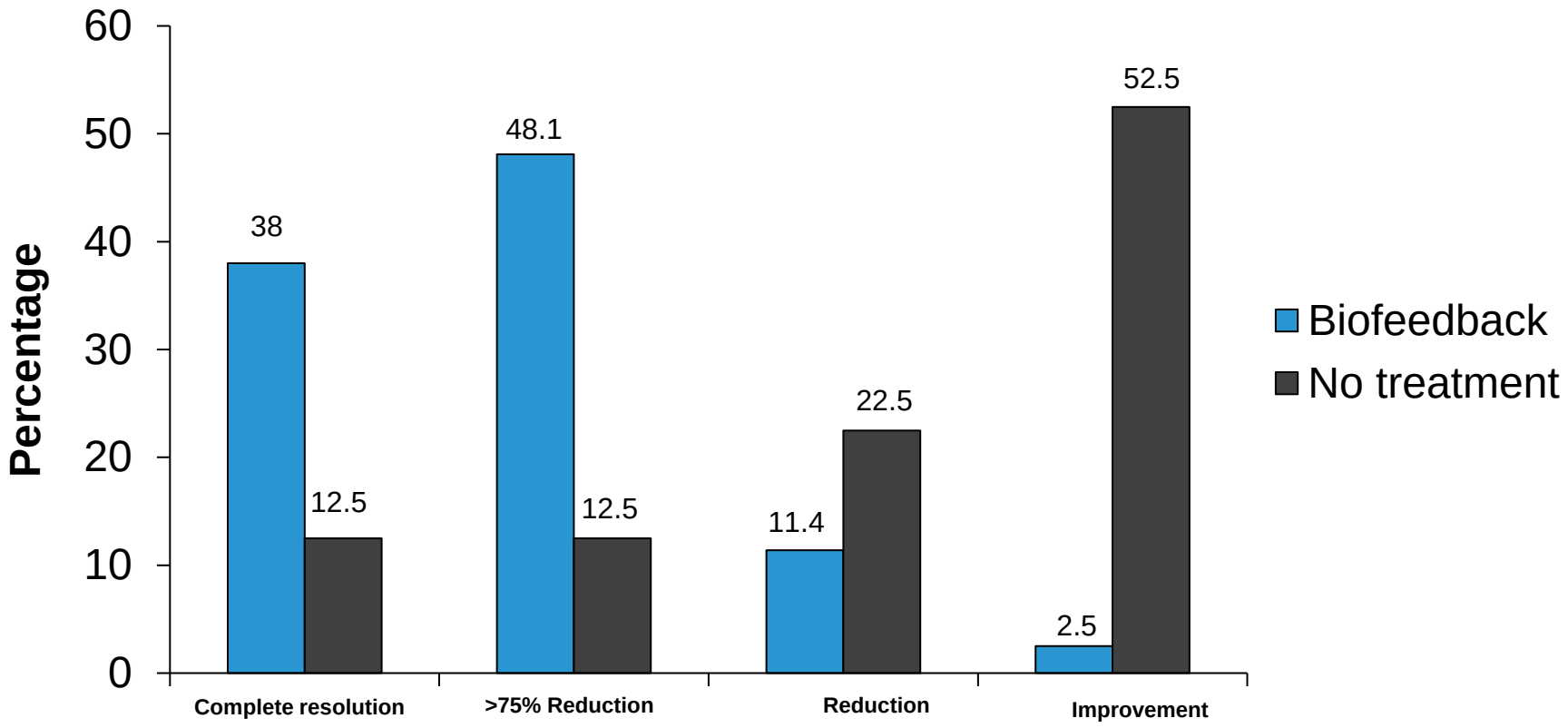
*Rao, S. Gastro 2016; 150:1430–1442.e4*

# Biofeedback for Fecal Incontinence: Training Methods

| Method | Comments |
|---|---|
| Coordination treatment | Patients trained to coordinate contractions of pelvic floor muscles in response to intrarectal distension |
| Strength training | Anal canal pressure feedback or intra-anal or perianal electromyographic feedback |
| Improving rectal sensation | Employs controlled amounts of intrarectal pressure applied via a computer-inflated balloon |

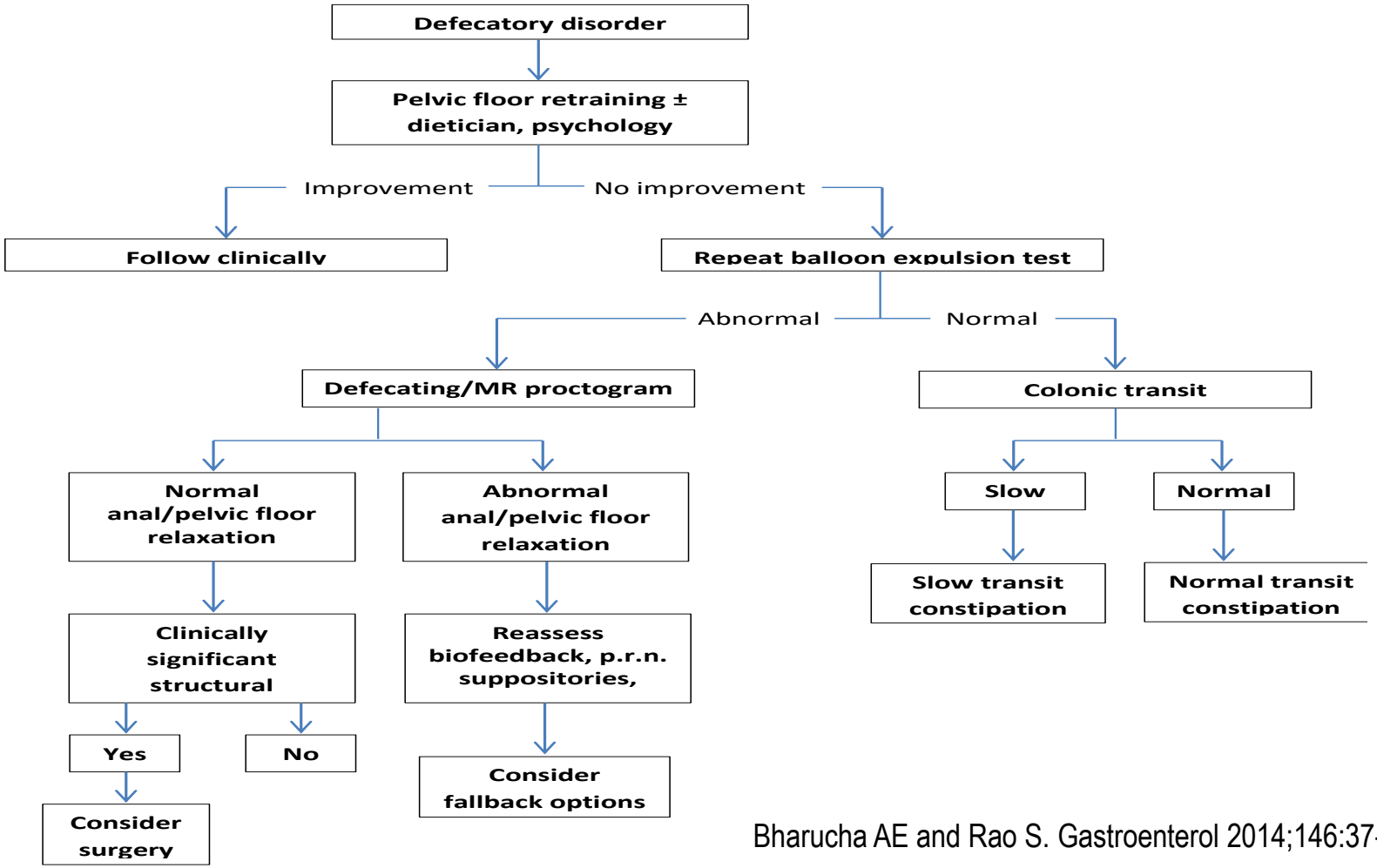
Palsson OS et al. *Appl Psychophysiol Biofeedback.* 2004;29(3):153-174.

# Long-term Results of Biofeedback for Fecal Incontinence




Lacima G et al. *Colorectal Dis.* 2010;12(8):742-749.

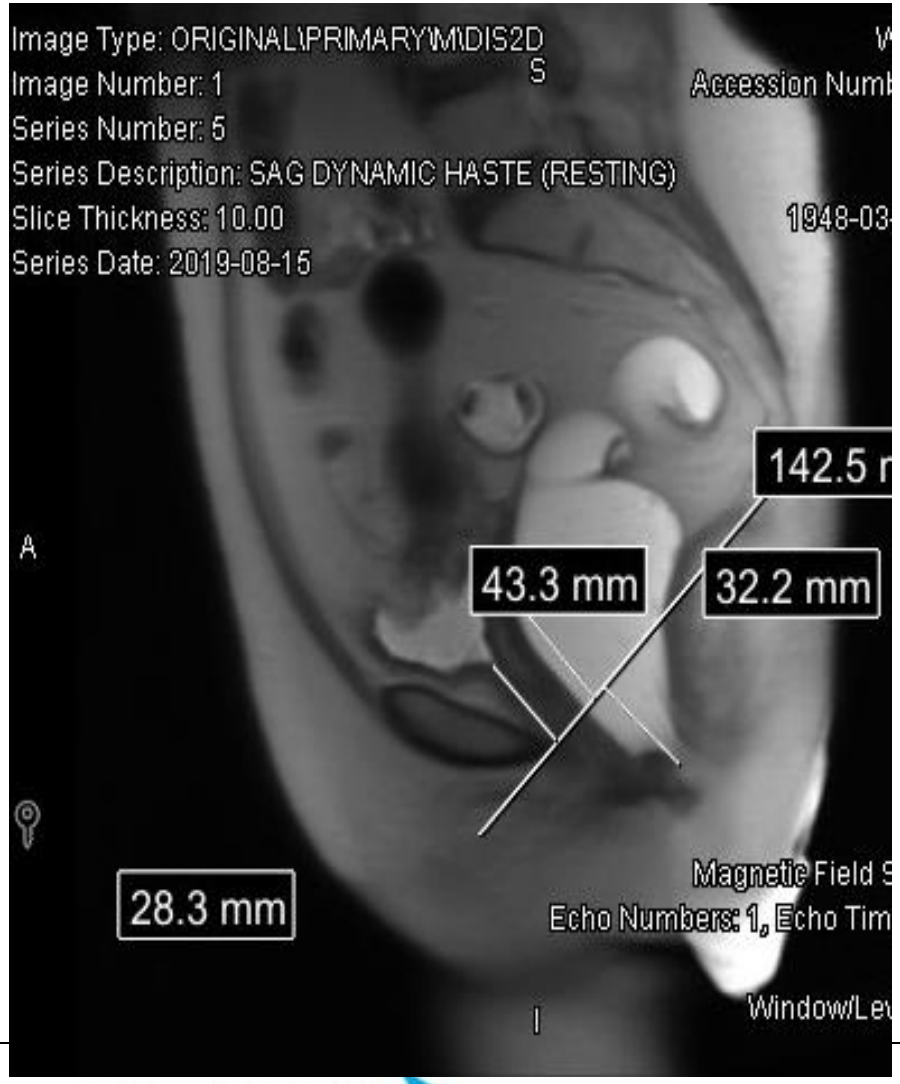
# Treatment for Rectal Evacuation Disorders



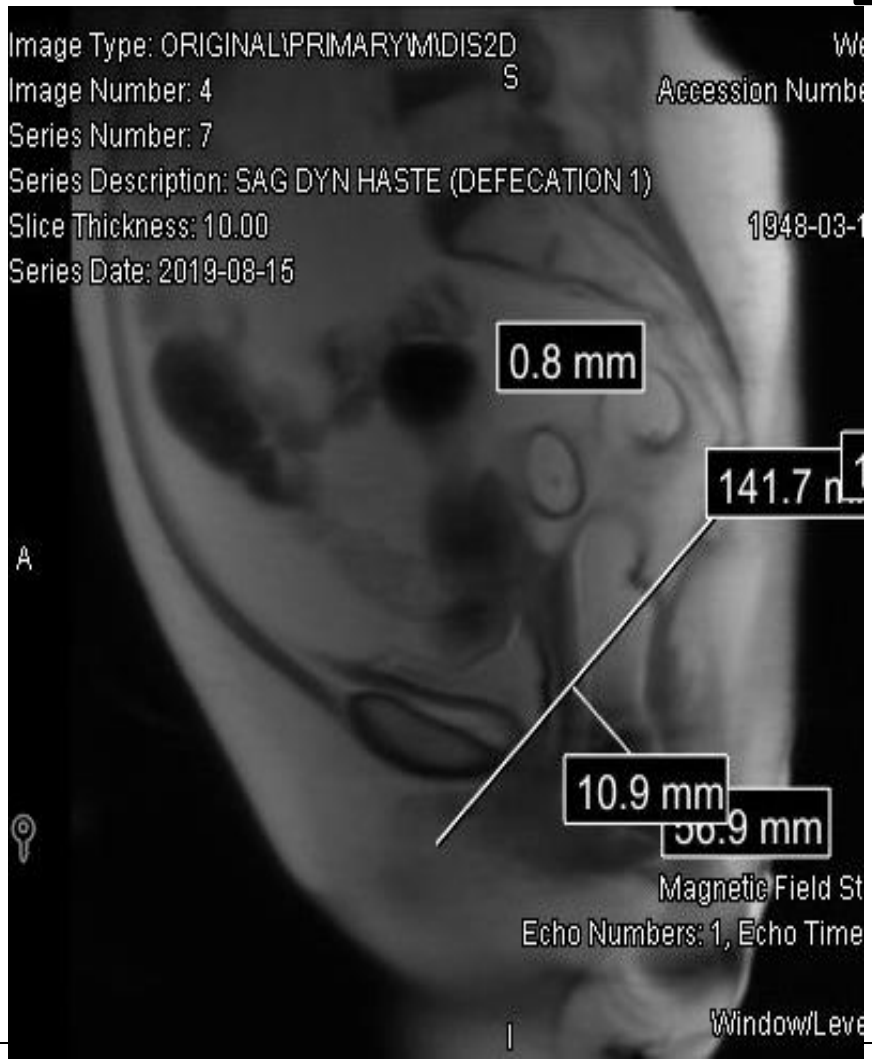

Bharucha AE and Rao S. Gastroenterol 2014;146:37-45

# Our Case : MRI Defecogram

## Resting




## Defecation

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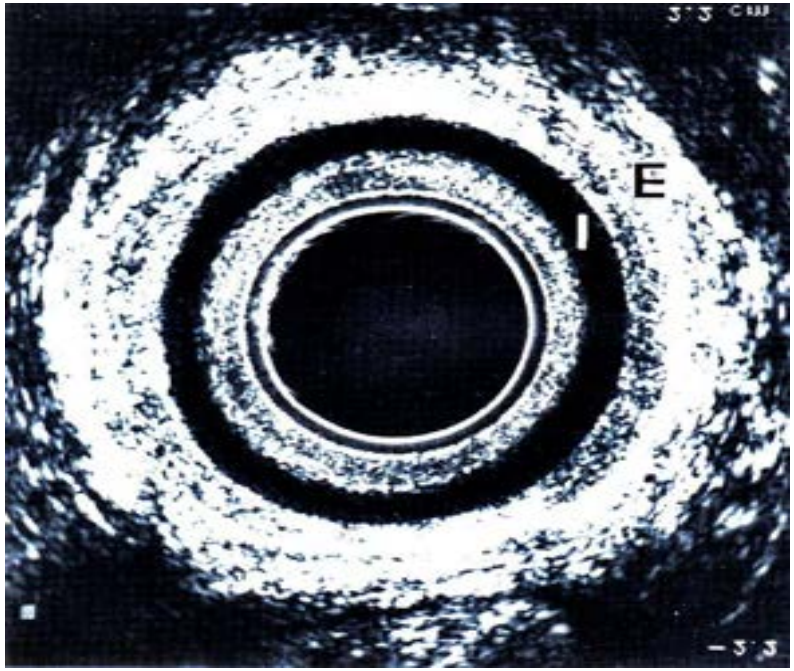
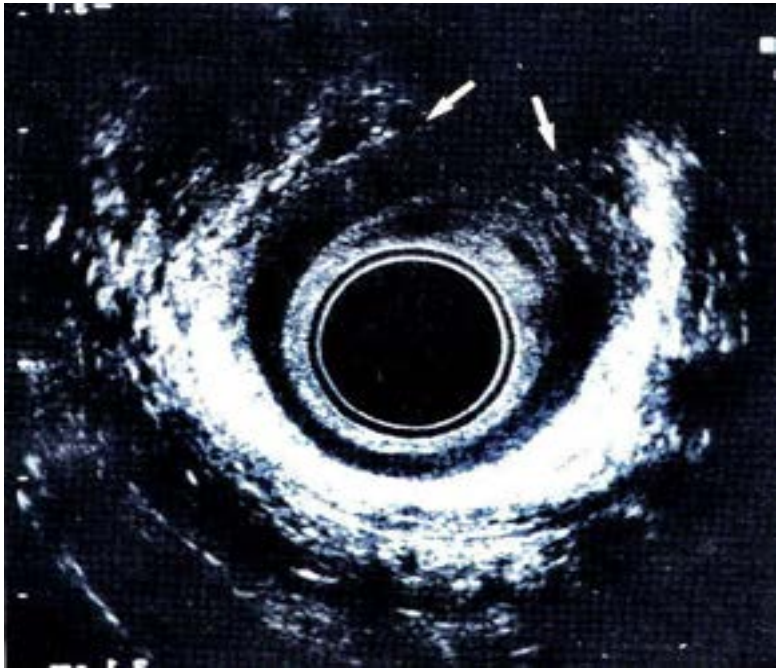
# Endoanal Ultrasound

## Normal (Sphincters Intact)




## Abnormal (Sphincters Disrupted)



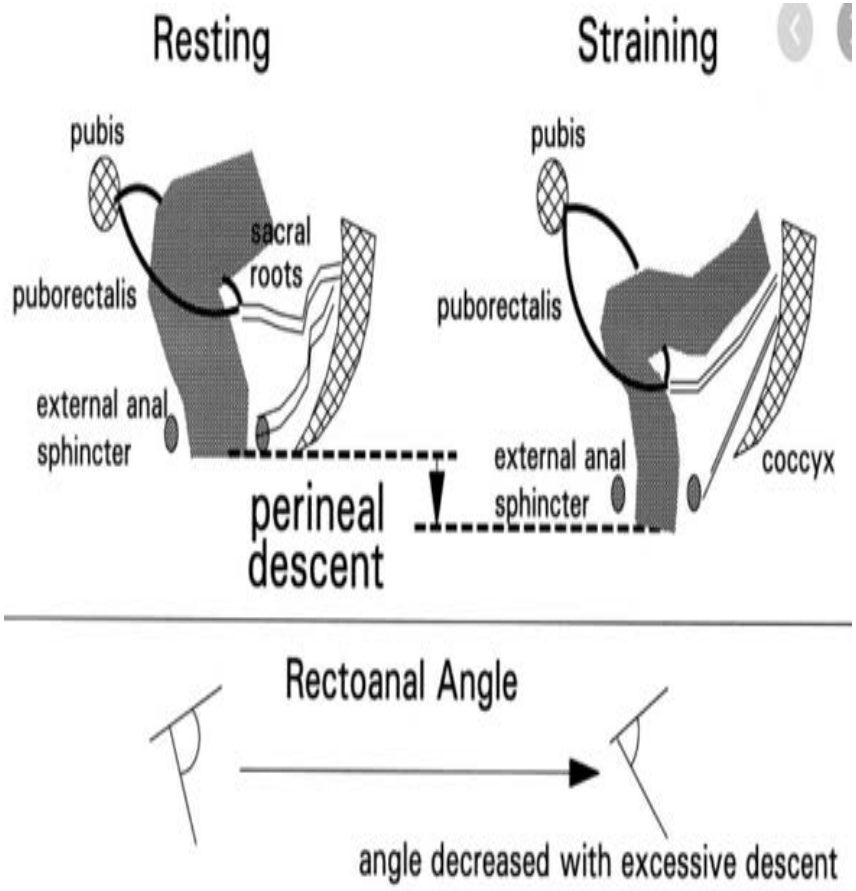
Subjective interpretation of ultrasound results may limit its value

E=external anal sphincter; I=internal anal sphincter

Rottenberg GT, Williams AB. *Br J Radiol*. 2002;75:428-488.

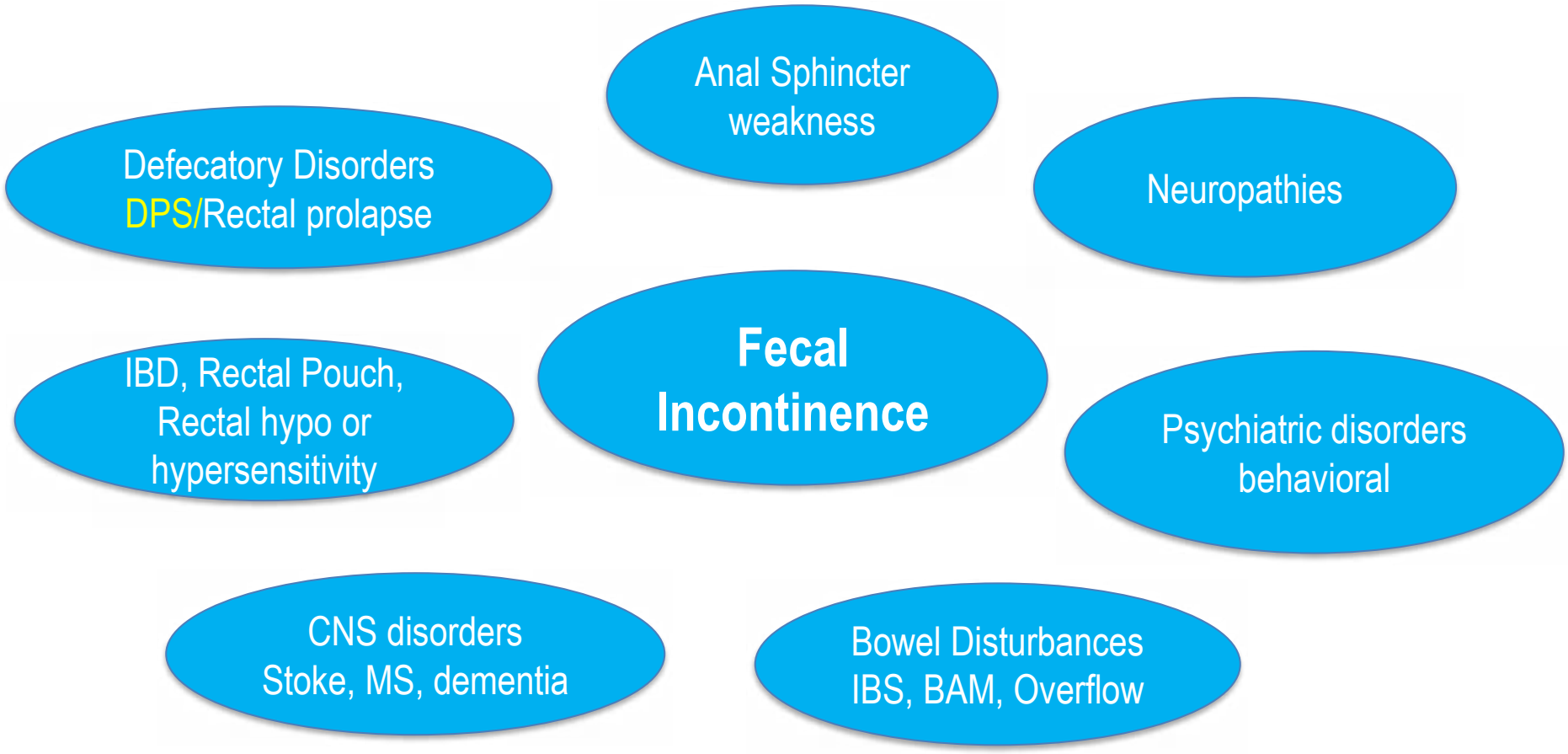
# Descending Perineum Syndrome (DPS)

- Obstructive defecation
  - Rectum pulls downward against the puborectalis muscle
- Common symptom
  - Frequent & excessive straining accompanied by incomplete evacuation leading to further straining
  - Repetitive straining
    - Mucus discharged
    - Perineal discomfort
  - Pelvic floor weakness




Harewood GC.Am J Gastroenterol 1999;126-130.

# Common Causes of FI




Wald A, et al. Functional Anorectal Disorders. Gastroenterology 2016;150:1430-1442

# Behavioral and Dietary Recommendations

- Avoid rushing to the toilet
- Clean, squeeze, re-clean
- Diet
  - Reduce FODMAPS, caffeine
- Fiber Supplementation
  - Psyllium reduces frequency of incontinence
    - RCT compared placebo to 16g of psyllium, guar arabic, or methylcellulose
    - Psyllium decreased FI frequency (2.5 vs. 5.5 for placebo) while methylcellulose increased FI frequency (6.2 vs. 5.5), guar was similar to placebo (4.2 vs. 5.5)
  - Psyllium is as effective as loperamide (? Combination)

Bliss DZ et al. Res Nurs Health. 2014 October ; 37(5): 367–378
Markland, et al. Dis Colon Rectum. 2015 Oct;58(10):983-93.

# Nonpharmacologic Management of Fecal Incontinence

| Intervention | Mechanism of Action | Side Effects | Comments |
|---|---|---|---|
| Incontinence pads | Provides skin protection; prevents soiling; conduct moisture away from skin | Skin irritation | Disposable provides better skin protection than nondisposable |
| Enemas | Evacuates rectum, decreasing likelihood of FI | Inconvenient; side effects from specific preparations | |
| Vaginal and Rectal Inserts | Creates a temporary barrier | None | Efficacy not well established |

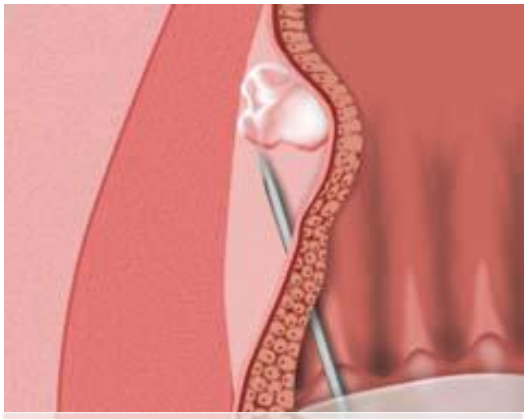
Whitehead WE, Bharucha AE. *Gastroenterology.* 2010;138:1231-1235.

# Pharmacologic Management of Fecal Incontinence

- Antidiarrheals – loperamide, 2-4mg QD
- TCAs – amitriptyline 20mg/d
- Bile acid binding resins – cholestyramine 4-8g/d

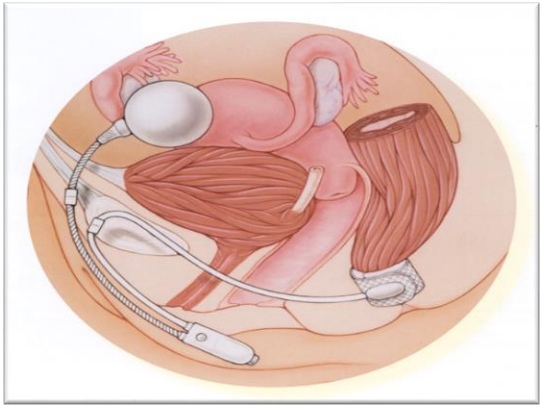
**No pharmacologic treatments have been adequately evaluated in large, randomized, controlled studies in patients with fecal incontinence**

# Endoscopic and Surgical Management of Fecal Incontinence



Solesta

Sacral nerve stimulation

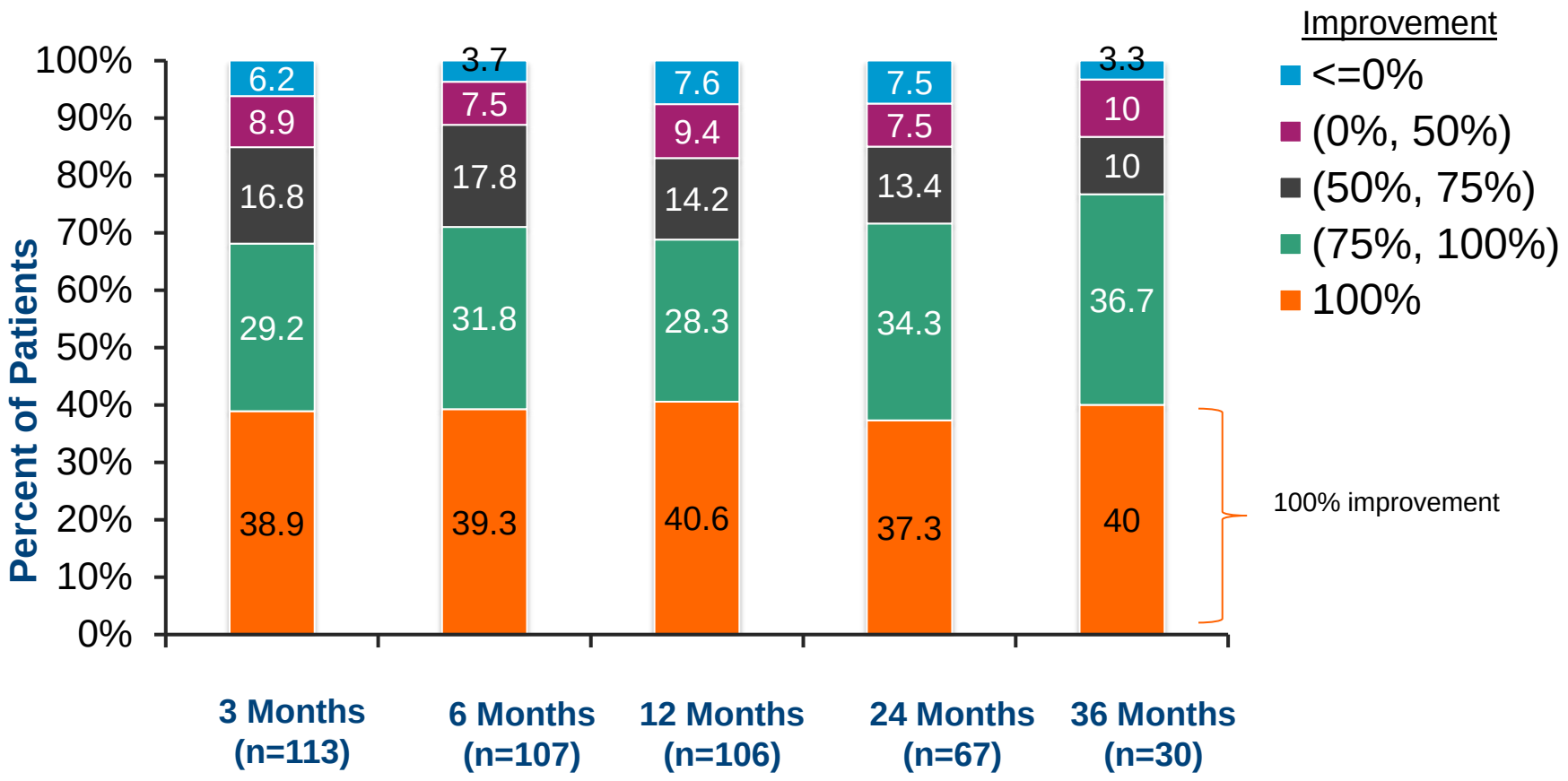


Artificial anal sphincter


Magnetic anal Sphincter

Solesta [package insert]. Oceana Therapeutics, Edison NJ, 2012. Accessed

# Sacral Nerve Stimulation System: Bowel Control




Wexner SD, Coller JA et al. *Ann Surg*. 2010;251:441-449.

# Back To Our Patient

- Conservative management
  - Psyllium husk and Prucalopride
  - Occasional suppositories and enemas
  - Rarely uses imodium
- Pelvic floor therapy
  - Success, refresher after 2 years
- Referal colorectal surgery
  - Surgical management
  - Sacral nerve stimulator

# Learning Points

- Ask! Consider DD and FI in patient with refractory constipation and in patients that report diarrhea
  - Bloating, sensation of incomplete evacuation, concomitant urine or defecatory disorder symptoms
- Consider  Rectal exam / ARM +/- MRI defecogram
  - If refractory constipation, fecal incontinence
- Multidisciplinary approach
  - Conservative management works
    - Fiber, osmotic laxatives, stimulants, Imodium, suppositories, enemas
  - PT Biofeedback therapy works 70-80% DD
  - Consider referral to surgery if a structural component

# Thank you !