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Irritable Bowel Syndrome-Constipation

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Disclosures

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Disclosures

Felicia Shaya, MS, PA-C

Consulting: Salix Pharmaceuticals, Clinical Area-GI

Case Study #1

Patient is a 73 y/o female with a pmhx including and not limited to LPR, H. Pylori, A-fib, depression and family history of CRC who is s/p appendectomy and total abdominal hysterectomy

- Patient states she has a history of IBS-C and complains of bloating. A good bowel movement improves her symptoms. Admits to lower abdominal cramping. She has suffered from constipation almost her whole life and admits to a BM about every 2 weeks if she takes nothing to assist in her bowel motility.
- Denies melena, hematochezia or weight loss.

- (+) use of a herbal tea for which minimally improves symptoms with small bowel movements.
- She has failed metamucil, benefiber and Miralax 2-3 times day, Senokot and cannot tolerate enemas. She denies trying Lubiprostone or Linaclotide.
- Admits to peri-anal splinting to produce a BM and admits to vomiting with severe constipation.

BRISTOL STOOL CHART

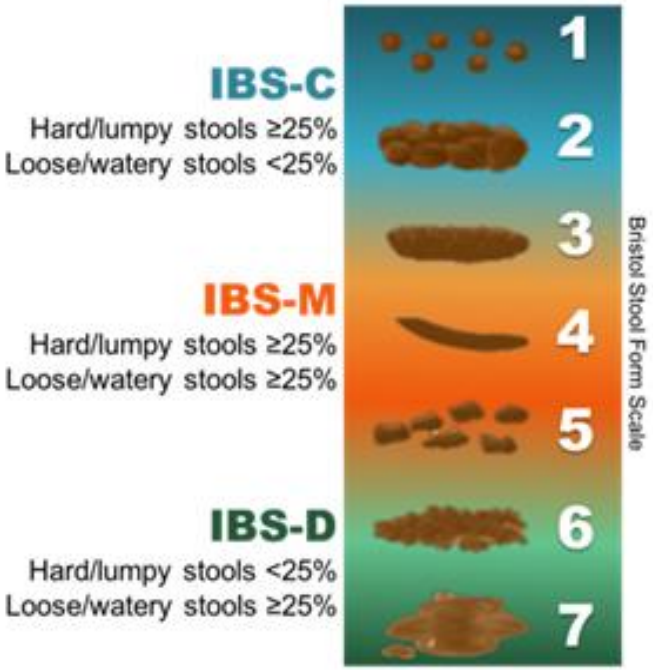
	Type 1	Separate hard lumps	Very constipated
	Type 2	Lumpy and sausage like	Slightly constipated
	Type 3	A sausage shape with cracks in the surface	Normal
	Type 4	Like a smooth, soft sausage or snake	Normal
	Type 5	Soft blobs with clear-cut edges	Lacking fibre
	Type 6	Mushy consistency with ragged edges	Inflammation
	Type 7	Liquid consistency with no solid pieces	Inflammation

Defining and Characterizing IBS

Rome IV Criteria for IBS[1]

- Recurrent abdominal pain, on average, ≥ 1 day per week in the last 3 months, associated with ≥ 2 of the following:
  - Related to defecation
  - Change in frequency of stool
  - Change in form (appearance) of stool
- Criteria should be fulfilled for the last 3 months with symptoms onset ≥ 6 months before diagnosis

IBS Subtypes Based on Bristol Stool Forms [2,3]



IBS-C, irritable bowel syndrome with constipation; IBS-D, irritable bowel syndrome with diarrheal IBS-M, irritable bowel syndrome with mixed symtoms.

1. Lacy BE et al. *Gastroenterology*. 2016;150:1393-1407; 2. Longstreth GF et al. *Gastroenterology*. 2006;130:1480-1491; 3. O'Donnel LJD et al. *BMJ*. 1990;300;439-440.

Most Recent Endoscopies

- Last Colonoscopy was conducted in January of 2020 with a good bowel preparation- One diminutive polyp in the transverse colon s/p polypectomy. One 7 mm polyp in the sigmoid colon s/p polypectomy. Diverticulosis in the ascending colon. Internal hemorrhoids. Colon, transverse, polypectomy: No tissue identified (see gross description). Colon, sigmoid, polypectomy: Hyperplastic polyp Patient was recommended to repeat in 5 years time
- Colonoscopy on May 21, 2014 was revealing of Summary/Post Proc Diagnosis: Stool found in the entire colon. This had to be repeated the following day and was conducted due to a family history of CRC was revealing of A single sessile polyp was found in the cecum; removed by cold snare polypectomy. Two polyps were found in the distal sigmoid; all polyps removed by cold biopsy polypectomy. Mild diverticulosis found in the entire colon. Internal hemorrhoids found. Colon, cecum polypectomy: Tubular adenoma Colon, rectosigmoid polypectomy: Hyperplastic polyp
- EGD in 2012-Barrett's esophagus as formal report. Successful placement of Bravo capsule. Bravo Conclusion: There was no positive symptom index correlation (a + symptom correlation is >50%) with her symptoms of heartburn and a ph<4.4.

- Family History (+) father with a history of CRC diagnosed in 60's, brother with Crohn's, sister with IBS, sister deceased from liver cancer likely due to hepatitis C
- Social History former smoker quite in 1999, social ETOH consumption, denies marijuana use or illicit drug use
- Vitals: BP: 138/74, Pulse:66, Weight 176.4 pounds
- Abdominal: Not conducted as this was a virtual visit
- Medications: Ventolin, Eliquis, Symbicort, Bupropion, Voltaren, Diltiazem, Lorazepam, Paroxetine and Triamterene-hydrochlorothiazide

Which tests/labs should be ordered?

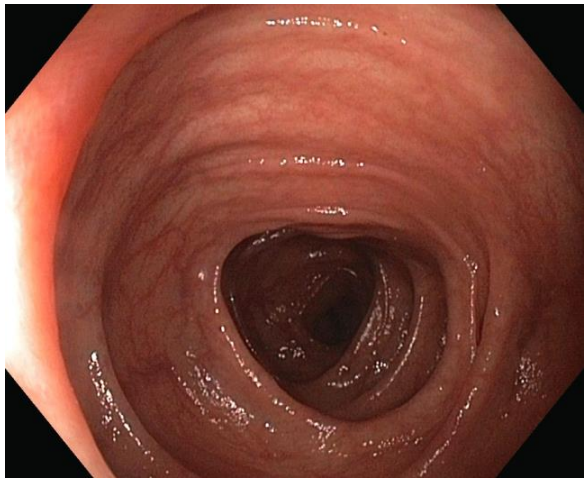
CBC, CMP, TSH, HGHBA1, calcium

Acute abdominal series

Colonoscopy

Colon Transit Study

Anorectal manometry



Differential Diagnosis/Further Workup

- Differential diagnosis
  - Slow transit constipation
  - IBS-C
  - Dyssynergic Defecation

Is any further workup necessary?

Differentiating CIC From IBS-C: Rome IV Diagnostic Criteria

IBS

Recurrent **abdominal pain**, on average, ≥1 day per week in the last 3 months, associated with ≥ 2 of the following:

- Related to defecation
- Change in frequency of stool
- Change in form (appearance of stool)

Criteria should be fulfilled for the last 3 months with symptom onset ≥ 6 months before diagnosis

Functional Constipation

Must include ≥ 2 of the following:

- Straining
- Lumpy or hard stools (BSFS 1-2)
- Sensation of incomplete evacuation
- Sensation of anorectal obstruction/blockage
- Manual maneuvers to facilitate > 25% defecations
- < 3 SBMs per week

>25% of defecations

Criteria should be fulfilled for the last 3 months with symptom onset ≥ 6 months before diagnosis. Loose stools are rarely present without the use of laxatives. Insufficient criteria for IBS.

Lacy BE et al. *Gastroenterology*. 2016;150:1393-1407.

Searching for IBS-C/CIC: Differential Diagnoses

Chronic idiopathic constipation

IBS-C

Medication-induced constipation (narcotics, antacids, bile acid sequestrants, anticholinergics)

Dyssynergic defecation

Anatomical (rectocele/prolapse)

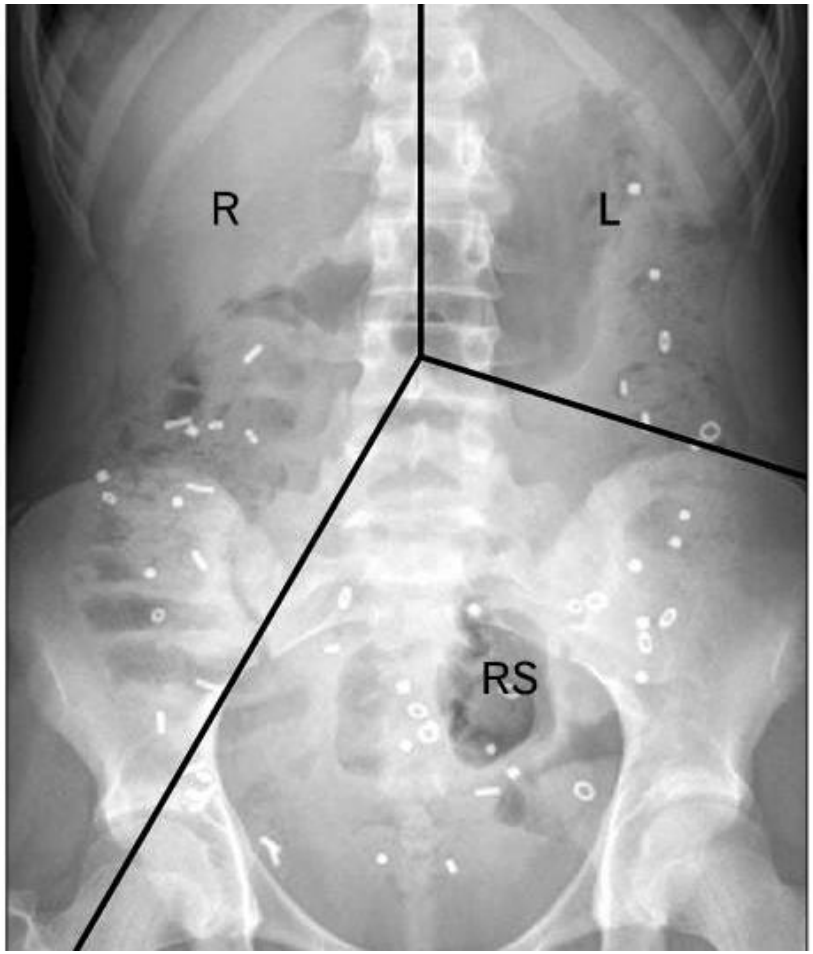
Slow transit constipation

Colon Transit Study (Sitz Marker Study)

- Used in patients with constipation to rule out Colonic Inertia, outlet obstruction or pelvic floor dysfunction
- Most basic and primary tool to rule out Colonic inertia
- Simple to perform, cost effective, available at most institutions
- Does carry risk of radiation exposure

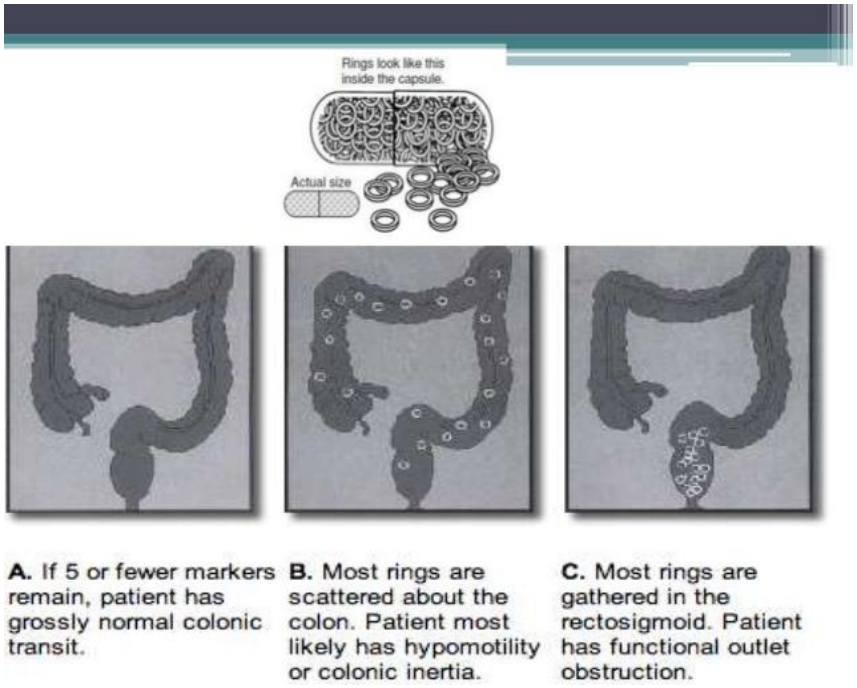
Kim ER, Rhee PL. How to interpret a functional or motility test - colon transit study. *J Neurogastroenterol Motil*. 2012;18(1):94-99. doi:10.5056/jnm.2012.18.1.94.

- Interpretation: Can breakdown into 3 regions
  - The right, left and rectosigmoid
- Other ways to measure is colonic transit scintigraphy and wireless motility capsule



Colon Transit Study (Sitz Marker Study)

- Patients should refrain from use of laxatives or bowel stimulants 2-3 days prior and during study
- Swallow capsule with 24 markers on day 1, On day 5 abdominal X-ray is arranged
- Normal = 5 or less markers
- Abnormal = 5 or more markers
  - If markers are diffusely in the colon = Hypomotility or colonic inertia
  - If markers are more located in the sigmoid colon-functional outlet obstruction/pelvic flood dysfunction



Results of Test/Labs

- CBC, TSH, CMP normal. HGBA1C borderline elevated at 5.8
- Colonoscopy as previously mentioned
- Colon Transit Study (CTT)-Impression-24/24 Sitzmarks markers were retained on day 5, mostly within the distal descending, sigmoid and rectum. This pattern of retention could relate to functional outlet obstruction. All of the Sitzmarks markers were expelled by day 7

Recommendations

- CTT and consistent with colonic inertia and likely ano-rectal obstruction she will take Miralax about 5 times in one day and then start Linaclotide 145 mcg daily. We discussed an ARM in detail and she is agreeable to proceed and testing explained
- Patient later sent a portal message that the Linaclotide 145mcg was ineffective so this was increased to 290mcg

Overview of IBS-C/CIC Therapies: Mechanisms of Action

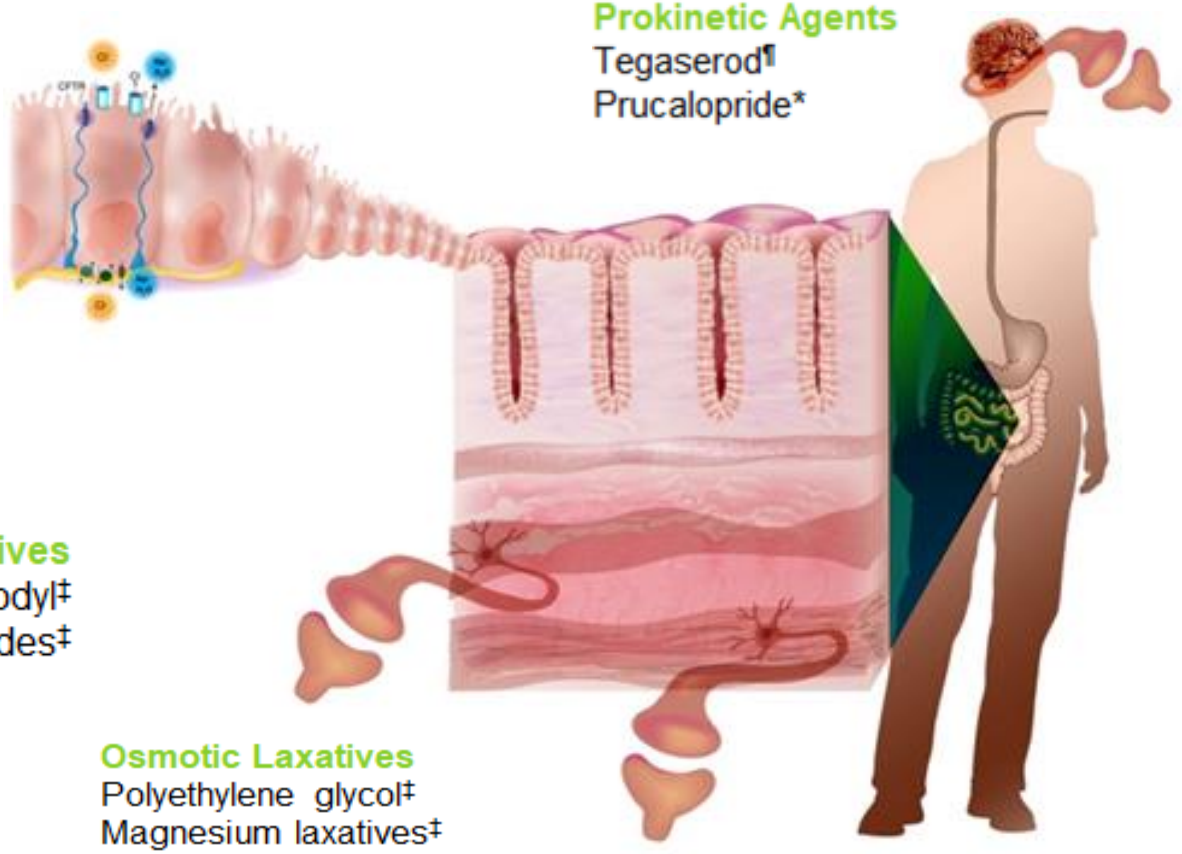
Prosecretory Agents
Lubiprostone†
Linaclotide†
Plecanatide†

Fiber/Bulking Agents‡

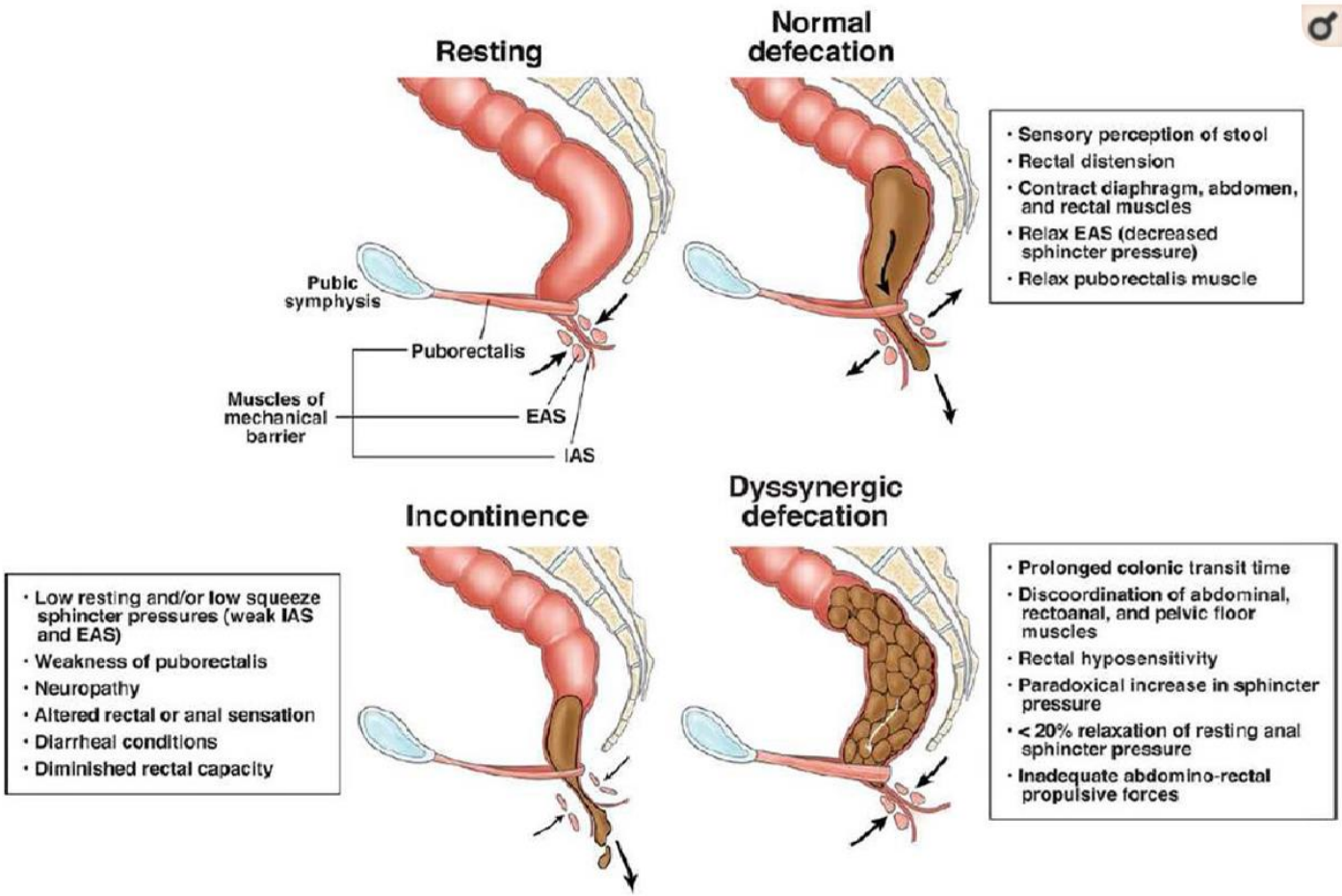
Stimulant Laxatives
Bisacodyl‡
Sennosides‡

Osmotic Laxatives
Polyethylene glycol‡
Magnesium laxatives‡

Prokinetic Agents
Tegaserod¶
Prucalopride*



FDA-approved for CIC in adults; FDA-approved for CIC and IBS-C; Approved for occasional constipation; FDA-approved for IBS-C.



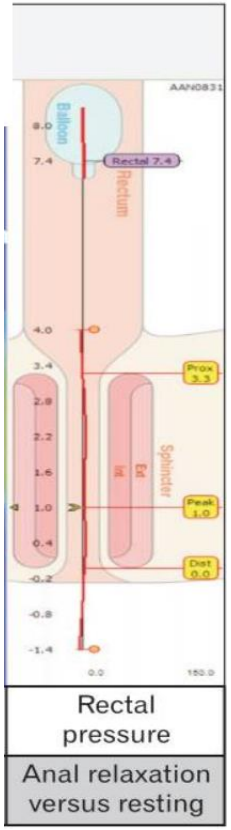
logy of the Pelvic Floor in the Sagittal Plane at Rest, During Defecation, and the Key Pathophysiologic Changes in Subjects with Fecal Incontinence and Dyssynergic Defecation

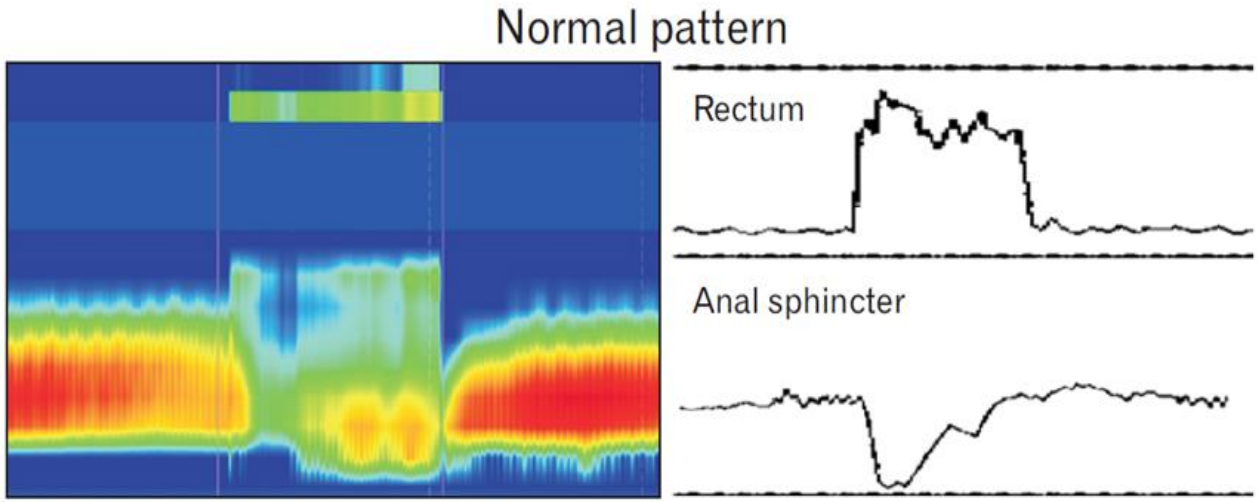
Front Med (Lausanne). 2014 Mar 24;1:5. doi: 10.3389/fmed.2014.00005. eCollection 2014.

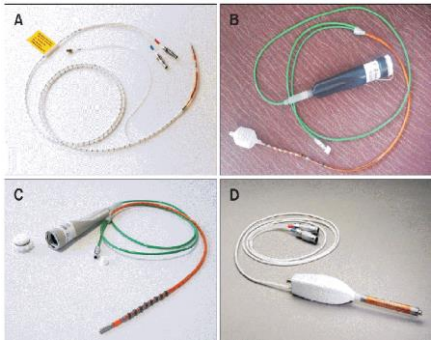
Ano-Rectal Manometry and Balloon Expulsion Test

- Beneficial in patients with constipation or FI.
- Measures pressures of anal sphincter muscles, sensation in rectum and neural reflexes needed for bowel movements.
- Anal sphincter tone is measured at rest (Measures EAS, IAS and hemmorrhoidhal plexus), squeeze, cough reflex (screens for damage to sacral reflux arc), simulated defecation and graded balloon distention (assess rectal balloon distention and RAIR).
  - Absence of RAIR reflux consistent with Hirschprung.

Normal Defecation – Increased Rectal Pressure Coordinated With Relaxation of Anal Sphincter and Pelvic Floor

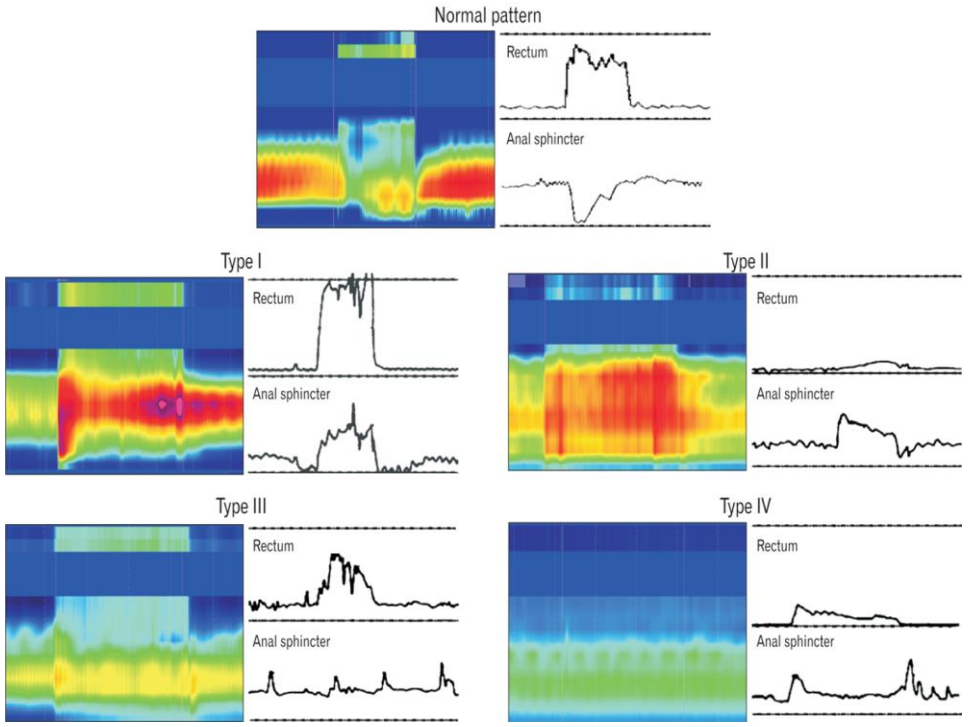






J Neurogastroenterol Motil. 2016;22:423~435 https://doi.org/10.5056/jnm16060 © J Neurogastroenterol Motil;
J Neurogastroenterol Motil. Jan 2016;22 (1) 46-59.

Subtypes of Dyssynergic Defecation



Type I:	The patient can generate an adequate pushing force (rise in intraabdominal pressure) along with a paradoxical increase in anal sphincter pressure.
Type II:	The patients is unable to generate an adequate pushing force (no increase in intrarectal pressure) but exhibit a paradoxical anal sphincter contraction.
Type III:	The patient can generate an adequate pushing force (increase in intrarectal pressure) but, either has absent or incomplete (< 20%) anal sphincter relaxation (i.e., no decrease in anal sphincter pressure).
Type IV:	The patient is unable to generate an adequate pushing force and demonstrates an absent or incomplete anal sphincter relaxation.

J Neurogastroenterol Motil. 2016; 22(3): 423-435.

Ano-Rectal Manometry (ARM)

Rectal Sensation:

- RAIR was present
- First sensation was felt at 30 mL
- Urge to defecate was felt at 50 mL
- Maximum tolerable volume was felt at 90 mL

Reflexes:

- Anal wink was observed on external exam. Cough reflex was intact.

Balloon Expulsion:

- Prior to the manometry catheter intubation, a balloon catheter was inserted into the patient's rectum and inflated with 50 mL of room temperature water. The patient was given 2 minutes of privacy on a commode to expel the balloon. The patient was successful with this.

ARM Continued

Impressions

- Rectal sensation intact.
- No evidence of pelvic floor dysfunction by manometry or balloon expulsion.
- A secondary high pressure zone was noted to descend from the distal rectum of uncertain significance. Consider internal prolapse.

Recommendation:

- Defecography to further evaluate for internal prolapse.

Defecography

- A test used to provide information on the structural changes to evaluate for a rectocele, rectal prolapse, intussusception, descending perineal syndrome that may coexist with dyssynergic defecation
- Test is a dynamic fluoroscopy performed in the sitting position after barium paste is placed into the patient's rectum who then is asked to squeeze and evacuate the barium and an X-ray is utilized
- Can be used as adjunct test when ARM is equivocal or patients have prolonged balloon expulsion time
- Does a good job at evaluation of Anorectal function and assessment
- Weakness are it can be costly and radiation exposure
- Gold standard for diagnosis of rectocele

Patcharatrakul T, Rao SSC. Update on the Pathophysiology and Management of Anorectal Disorders. *Gut Liver*. 2018;12(4):375-384. doi:10.5009/gnl17172.

Case Study

- Patient is a 51 y/o female with a Pmhx of Constipation, HLP, Hemiparesis, neuromuscular disorder, anxiety, interstitial cystitis, arthritis, neurogenic bladder, MS secondary progressive (On Amypara, Tecfidera), with a Bionest who reports a history of constipation for years despite being on linzess 290mcg x1 year, use of Senokot and Dulcolax with only minimal improvement in symptoms
- She has hard to pass incomplete bowel movements about once every ten days, (+) rectal bleeding intermittently on TP, rare mild RLQ abdominal discomfort associated with constipation and improved with defecation. She consumes 16 ounces of water a day and is unable to quantify amount of fiber consumption

- Surgical History: s/p 1 vaginal delivery s/p 1 episiotomy. Colonoscopy over 9 years ago at an outside facility was normal.
- Family History: (+) for mother with a history of CRC dx in early 70's s/p colectomy still living. Maternal grandfather with CRC unsure of age dx but likely 60's. Otherwise negative for known GI malignancies, colon polyps or IBD.
- Social History: social ETOH consumption, negative for smoking or marijuana use.
- Vitals: BP: 123/64, Pulse:92, Weight 133 pounds.
- Abdominal: Soft. Bowel sounds are normal. She exhibits no distension and no mass. There is no tenderness. There is no rebound and no guarding. Rectal: Deferred
- Medications: Ampyra, Linzess, Myrbetriq, Pamelor, Tecfidera, Crestor, Senokot and Dulcolax.

Which tests/labs should be ordered?

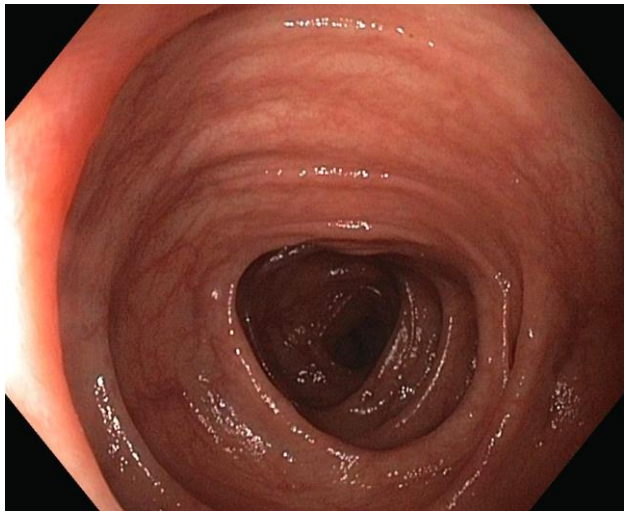
CBC, CMP, TSH, HGHBA1, calcium

Acute abdominal series

Colonoscopy

Colon Transit Study

Anorectal manometry



Differential Diagnosis/Further Workup

- Differential diagnosis
  - Slow transit constipation
  - IBS-C
  - Dyssynergic Defecation

Is any further workup necessary?

Results of Tests/Labs

- CBC, CMP, TSH, T4, Magnesium, HGBA1C were normal.
- AAS-Moderate colorectal stool burden
- Colonoscopy-with a double Suprep preparation was revealing of The entire examined colon is normal. Biopsied. Melanosis in the colon. Colon, random biopsies: Colonic mucosa with no significant pathology. No evidence of microscopic colitis
- Colon Transit Study-There is a large amount of stool throughout the colon with 24 of 24
- Sitzmarks markers scattered throughout the colon. Findings are consistent with colonic hypomotility.
- **ARM-Impressions:** Rectal hypo-sensitivity. Low baseline anal sphincter pressure. Poor squeeze.

What is the diagnosis?

- Pelvic floor dysfunction by manometry (Type II) and balloon expulsion with Colonic inertia

Treatment Options

- Pelvic floor PT with biofeedback and neuromuscular retraining.

  Patient referred to PT

- Discuss fiber/ water intake, can use Laxatives and new drugs such as Lupiprostone, Linactolide and plecanatide.
- If fails above discuss referral to CRS

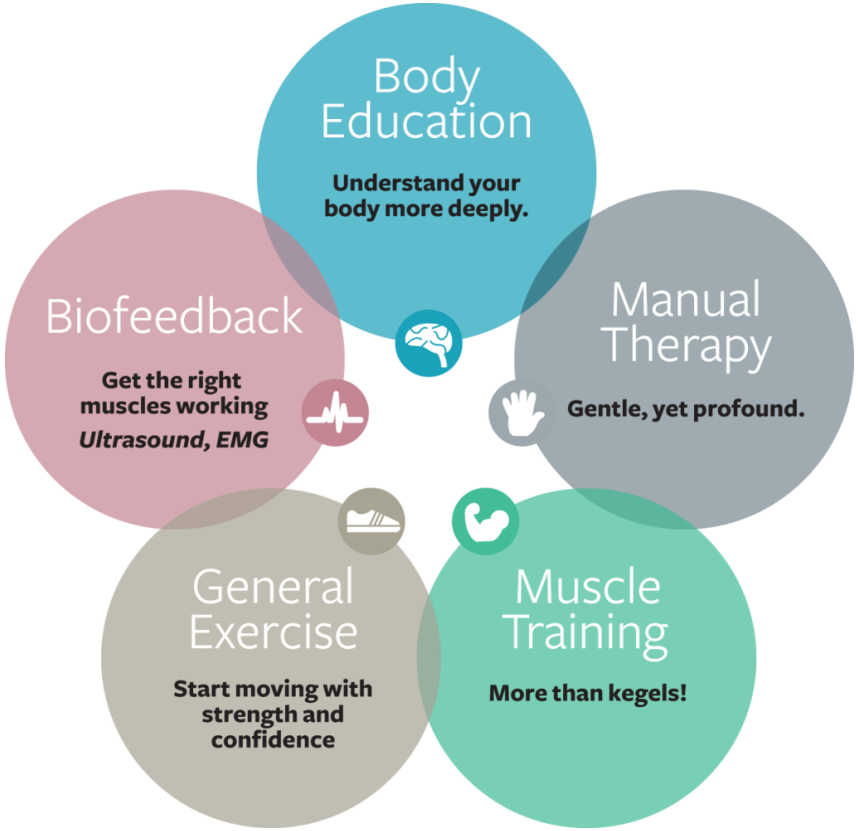
Pelvic Floor PT With Biofeedback

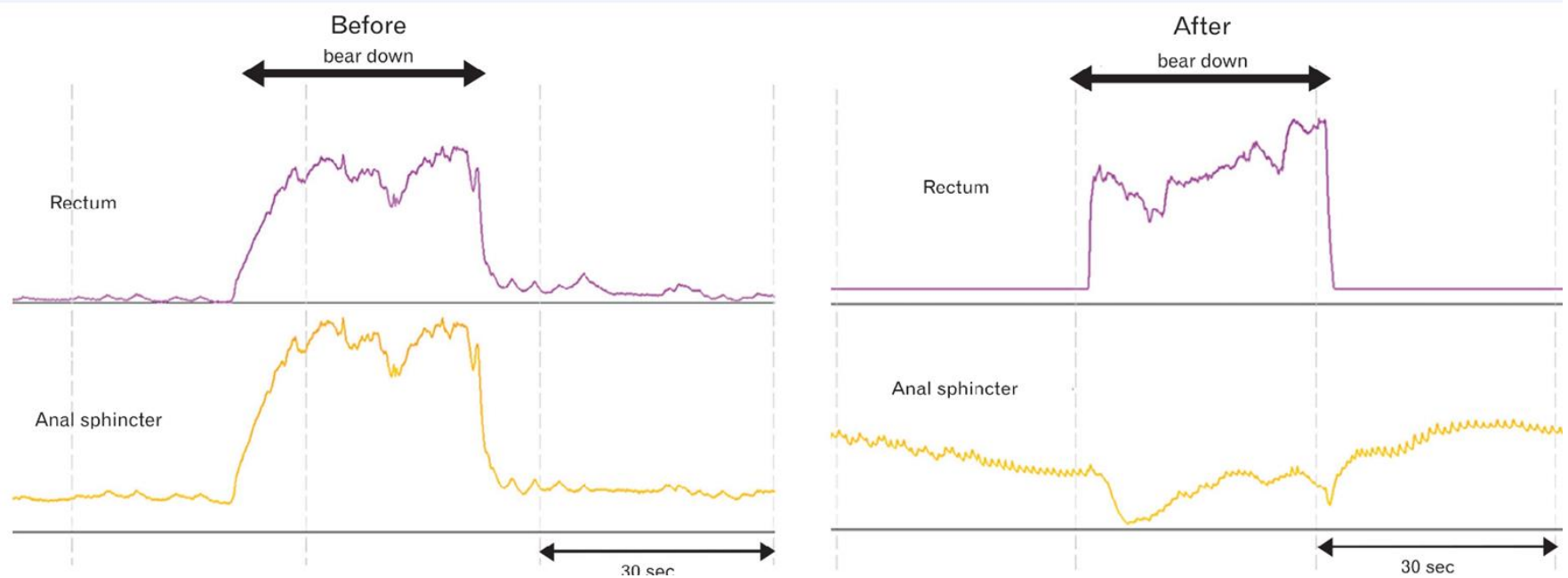
- Mainstay treatment for Dyssynergic Defecation
- Instrument based operant conditioning
- Goals are to correct dyssynergia or in-coordination of abdominal and pelvic floor muscles during evacuation and to improve perception of rectal filling in patients with impaired rectal sensation.
- Effective, although success depends on patients motivation and skill of therapist.

J Neurogastroenterol Motil. 2016; 22(3): 423-435.

Pelvic Floor PT With Biofeedback

- Explain pathophysiology of defecation
- Focus on dietary fiber and water intake – best source of fiber is food
- Encourage patient to create a stool diary
- Focus on breathing mechanics and position
- Soft tissue massage to stretch and relax (as patients can have trigger points)
- Biofeedback
- Balloon Training

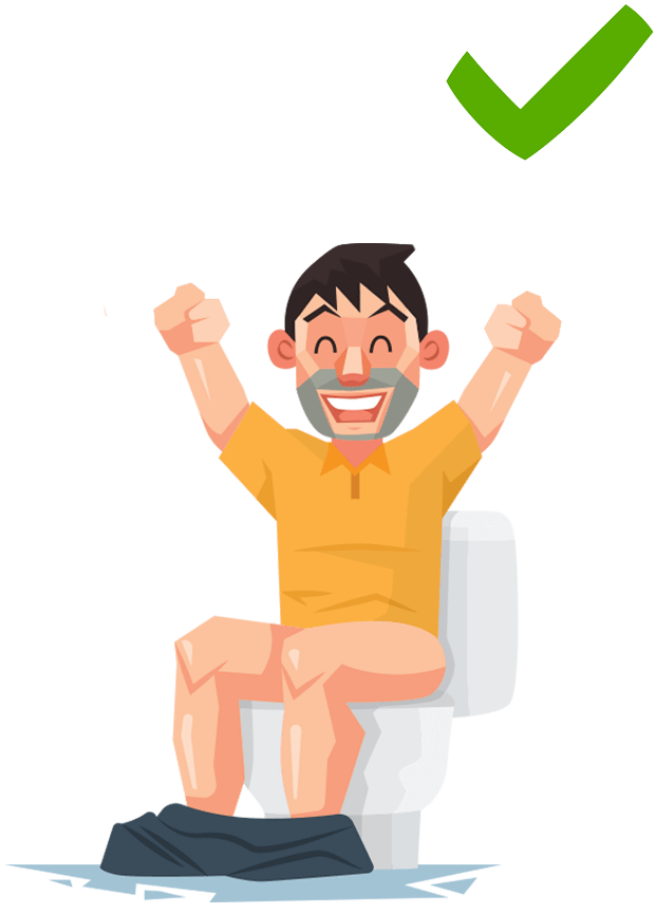




J Neurogastroenterol Motil. 2016; 22(3): 423-435. https://doi.org/10.5056/jnm16060.

What Follow Pp Is Necessary

- Patient was initially seen in clinic s/p colonoscopy. After 5 episodes of PFPT, then s/p 7 episodes of PFPT 3 months later then again 3 months later patient preferred to follow up again in 4 months.
- Could suggest ever 6 months or 1 year intervals.
- More frequent follow ups whether in clinic or via Mychart does produce better outcomes.



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Q&A