Pelvic Floor Dysfunction and Constipation: A Primer for the Gastroenterologist

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Objectives

• To discuss the connection between pelvic floor dyssynergia and constipation
  • Discuss *unique risk factors* including sports injury and endometriosis
  • Describe how a *gastroenterologist* should evaluate and treat

• To discuss alternative methods to evaluate and treat pelvic floor dysfunction using a *multidisciplinary* approach
Definition

*Puborectalis muscles and other muscles of the pelvic floor become uncoordinated, resulting in an inability to relax the pelvic floor.*

**Pelvic floor dyssynergia**
- Constipation
- Impaired evacuation

**Pelvic floor dysfunction**
- Constipation
- Impaired evacuation
- Fecal incontinence
- Urinary incontinence
- Pelvic pain
- Pelvic pressure/bulge
- Sexual dysfunction

**Functional defecation disorder**
Continence requires:

- Contraction of puborectalis
- Maintenance of anorectal angle
- Normal rectal sensation
- Contraction of sphincter

Defecation requires:

- Relaxation of puborectalis
- Straightening of anorectal angle
- Relaxation of sphincter

**Perineal descent of 1-3.5 cm normal during defecation**

Case

• A 40 y/o woman with a history of long-standing constipation. She has seen several gastroenterologists who have given her a variety of over the counter and prescription laxatives with no benefit. She feels she can’t get stool out and is bloated.

• Medical history of fibromyalgia, interstitial cystitis, ovarian cysts

• Hip surgery for a prior “soccer injury”

• No prior pregnancies
Pelvic Floor Dyssynergia

**High risk groups**
- **Women**
  - History of psychological d/o
  - History of abuse
  - Poor posture
  - Poor toileting behavior
  - Parcoparesis

- **Sports trauma**
  - Pelvic injury

**Associated conditions**
- Parkinson
- Multiple Sclerosis
- Fibromyalgia
- Interstitial cystitis
- Vulvodynia
- Coccydynia
- **Endometriosis**

Pelvic pain syndromes
Risk factors for exercise induced PFD

- Have had a lower extremity, tailbone or lower back injury
- Play a high impact sport
- Do exercise with jumping/running
- Have poor abdominal bracing strategy
- Poor breathing techniques

Karmakar D: 2018. BJOG:125-5;614
Pelvic floor dysfunction in athletes

• Improper equipment
  • Bikers with thin saddle nosed bike seats

• Injury to Coccyx
  • Ice hockey, Horse riding

• Femoral injuries
  • Football, Soccer, Skiing, Sky diving

• Excessive kicking or pelvic rotation
  • Soccer, Ice Hockey, Figure Skating, Ballet, Martial Arts and Gymnastics

• Excessive bouncing
  • Runners, Volleyball, Football, Baseball, Crossfit
Endometriosis

• Common: seen in 10-20% of women
• Endometrial tissue outside of uterus
• **3.5 times more likely to be diagnosed with IBS first**

• **Adolescent** (subtle disease)
  • ovarian surface: endometrioma

• **Adult (30s and 40s)**
  • Endometrioma
  • Adhesive
  • Rectovaginal septal deep implants

• **Postmenopausal**
  • peritoneum: obstructive

Seaman.*Brit Jo Ob Gyn:* 2008:11:1392-6
Endometriosis

- **History:**
  - Pelvic dysfunction/constipation
  - Ovarian cysts
  - Blocked fallopian tubes
  - Appendicitis
  - IBS
  - Dyspareunia, Infertility, cyclical pain

- **Treatment:**
  - Hormonal/OCP
  - GnRH analogues
  - Surgery: laser or removal

Diagnostic testing for Pelvic floor dyssynergia

- Rectal exam
- 3D-HR Anorectal Manometry
- Balloon expulsion testing
  - Sitz Marker Study
  - Defecography
  - Dynamic MRI

J Neurogastroenterol Motil 2014;20:407-409
Dyssynergia Subtypes by high resolution anorectal manometry

Type I
The patient can generate an adequate pushing force (rise in intra-abdominal pressure) along with a paradoxical increase in anal sphincter pressure.

Type II
The patient is unable to generate an adequate pushing force (no increase in intrarectal pressure) but can exhibit a paradoxical anal contraction.

Type III
The patient can generate an adequate pushing force (increase in intrarectal pressure) but, either has absent or incomplete (<20%) 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.
Balloon expulsion test

Balloon filled with 50 mL water

Anal canal closed

Polyethylene catheter

3-way stopcock → to pressure transducers

Normal < 60 seconds

Patient sits on toilet

Patient tries to expel balloon

J Neurogastroenterol Motil 2014;20:407-409
Sitz-mark study

- Radio-opaque markers
  - Ingested on day 1
  - X-ray on day 5

- Usually excrete all markers by day 5
  ( < 5 is acceptable)

- Must hold laxatives and meds
  influencing motility
Biofeedback

- Education a key component
  - Diaphragmatic breathing
  - Fiber/diet intake

- Teaches patients to relax their pelvic floor utilizing **visual feedback**
  - EMG
  - Anorectal manometry sensors

- Studies and protocols not standardized
Impact of Biofeedback on Constipation in Patients with Pelvic Floor Dyssynergia

** Significant difference at 6 months which was sustained for 2 years, p < 0.001

Chiarioni et al. Gastroenterol: 2006;130(3):657-64
Pelvic Floor Rehabilitation/ Physical Therapy

• Evaluation and education
  • Breathing techniques
• Manual manipulation
• Joint mobilization
• Stabilization of pelvis/lumbosacral spine
• Biofeedback
• Yoga/stretches

Medical Therapy

- **Muscle relaxants** *(high tone pelvic floor)*
  - Diazepam: Positive retrospective studies

- **Botulinum toxin injection**
  - 100-300 IU into puborectalis or anal sphincter
  - 87% short term & 40% long term improvement in PFD
  - Significant 1 month improvement over biofeedback with a trend at 1 year

Farid M et al. 2010:Jo Gastro Surgery

Heymen S et al. 2007. Dis of Colon and Rectum
What to remember.....

Patient with refractory constipation

Pelvic floor dyssynergia

- Rectal exam
- Sitz marker study

Evaluate

-HR Anorectal Manometry
-Balloon expulsion test

Treat

Pelvic floor PT +/− biofeedback
+/− diazepam
+/− botulinum toxin

Inadequate response

Multidisciplinary approach for further evaluation and treatment

Evaluate
Additional diagnostic testing for Pelvic floor dysfunction

**Defecography**
- Fluoroscopic images
- More physiologic
- No tissue definition

**MRI Defecography**
- Dynamic MRI of pelvis
- Less physiologic
- Full tissue definition

**3-D HR Anorectal manometry**
- Good correlation with defecography
- Intra-rectal prolapse
  - High rectal pressure
  - High anal sphincter pressures

Multidisciplinary evaluation of PFD

**Urology**
- Pelvic floor dysfunction
  - Interstitial cystitis
  - Overactive bladder

**Urogynecology**
- Pelvic floor dysfunction
  - Pelvic Floor Prolapse
    - Rectocele
    - Enterocoele
    - Cystocele

**Gynecology**
- Pelvic floor dysfunction
  - Endometriosis
  - Ovarian cancer

**Gastroenterology**
- Pelvic floor dysfunction
  - Treatment of constipation

**Colorectal Surgery**
- Pelvic floor dysfunction
  - Anal spasm
  - Rectocele
  - Rectal prolapse

Adapted from the Society of Colon and Rectal Surgeons
Conclusion

• Symptoms and past medical history should indicate when pelvic floor dyssynergia is a main cause for refractory constipation

• Work-up can be driven by what is available, but treatment is standard and should involve pelvic floor physical therapy

• When treatment remains refractory utilize a multidisciplinary approach to aid in the evaluation and treatment of pelvic floor dysfunction