



# Surgical Management of Constipation, Fecal Incontinence, and Rectal Prolapse

**Amber Traugott, MD, FACS**  
*Associate Professor of Surgery - Clinical  
Division of Colon and Rectal Surgery  
The Ohio State University Wexner Medical Center*

**MedNet21**  
Center for Continuing Medical Education

 **THE OHIO STATE UNIVERSITY**  
WEXNER MEDICAL CENTER

## Disclosures

- No financial disclosures
- Disclaimer for all images credited to ASCRS:
  - This Work is based on materials prepared by the American Society of Colon and Rectal Surgeons (“ASCRS”) solely for educational purposes. It is not medical advice or intended to replace the judgment of a licensed physician. ASCRS is not responsible for any claims related to procedures, professionals, products, or methods referenced in the Work, and it does not approve or endorse any products, professionals, services or methods that might be referenced.
  - I, Amber Traugott, am responsible for any modifications to, and presentation of, the Work(s).

## Objectives

- Discuss the role of the surgeon in treatment of common pelvic floor disorders
- Describe surgical evaluation of the patient with these complaints
- Provide overview of surgical treatment options for
  - Constipation
  - Fecal incontinence
  - Rectal prolapse

## Epidemiology and Etiologies

- Estimated 1 in 4 women will have at least one pelvic floor abnormality
  - Likely an underestimate
- Not as well studied in male populations
- Etiologies/associations
  - Pregnancy/childbirth
  - Chronic straining
  - Inflammatory processes/radiation
  - Spinal trauma or surgery
  - Anorectal, pelvic or gynecologic trauma/surgery
  - Neurologic disorders
  - Psychiatric disorders

## Wide Range of Symptoms

- Constipation
- Tenesmus
- Abdominal pain
- Bloating
- Bowel frequency/urgency



- Stool leakage
- Stool accidents
- Pelvic pain
- Anorectal pain
- Prolapsing or bulging tissue

## Role of the Surgeon for GI Functional Disorders

- **Correct anatomic or mechanical pathology** that interferes with function, when possible
- **Implant devices** that enhance function
- **Bypass** such pathology when other options exhausted
- Know the capabilities and limitations of the surgical options available
- Counsel patients on options and likely outcomes
  - Surgery may mean trading one set of issues for another
  - May not resolve all symptoms

## Evaluation

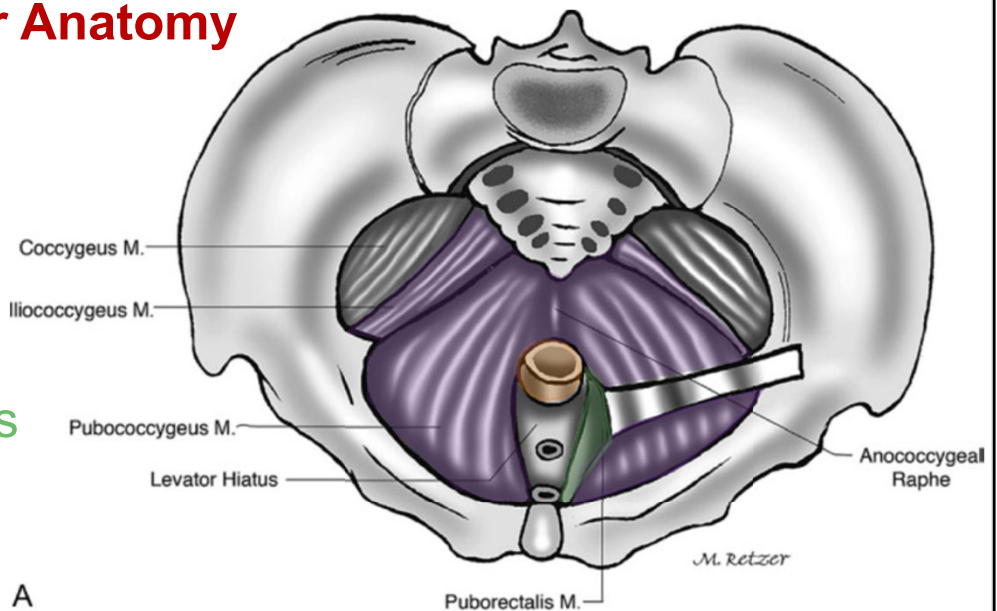
- Aims
  - Rule out and/or identify other causes of bowel dysfunction
  - Delineate mechanism underlying the symptoms
- History and physical examination
- Colonoscopy
- Testing to investigate **function** and **anatomy** (as applicable)
  - Transit studies
  - Manometry
  - MRI or fluorodefecography
  - Ultrasound

## Pelvic Floor Anatomy

Rectum

Levator ani

Puborectalis



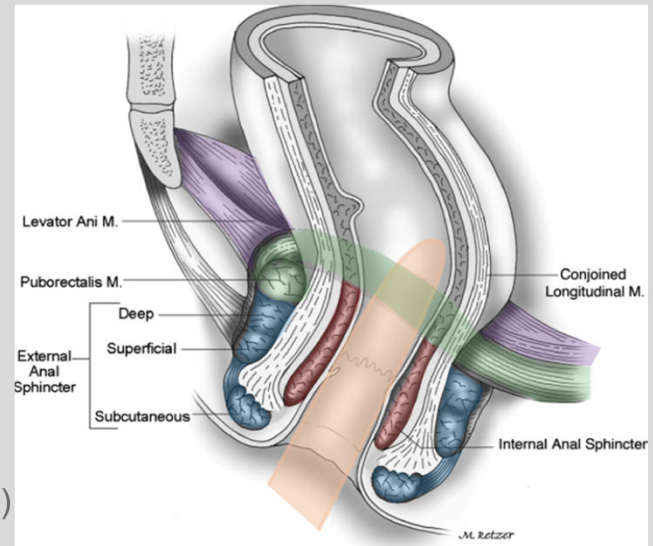
A

(Image modified from ASCRS Member Resource Library)



## Anorectal Exam

- Stenosis
- Sphincter tone
  - Resting tone – IAS (autonomic)
  - Squeeze tone – EAS (somatic)
- Levator tone and tenderness
- Valsalva “as if trying to have a BM”
  - Sphincter relaxation?
  - Puborectalis relaxation?
  - Paradoxical contraction?
  - Perineal descent (up to 3.5 cm WNL)
  - Rectocele? Prolapse?

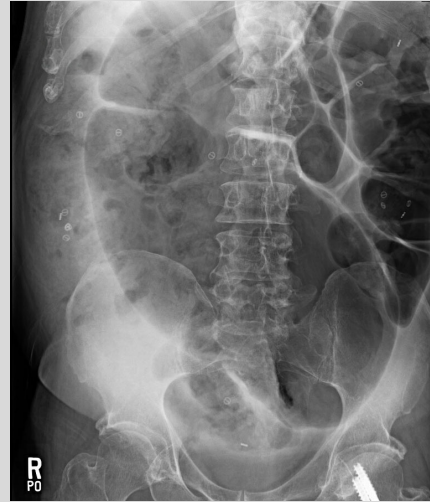


(Image modified from ASCRS Member Resource Library)

## Surgical Approach to Constipation

## What is the Mechanism?

- Slow transit/colonic inertia
- Outlet dysfunction/obstructed defecation syndrome (ODS)
- Rule out fixed mechanical obstruction
  - Imaging
  - Colonoscopy



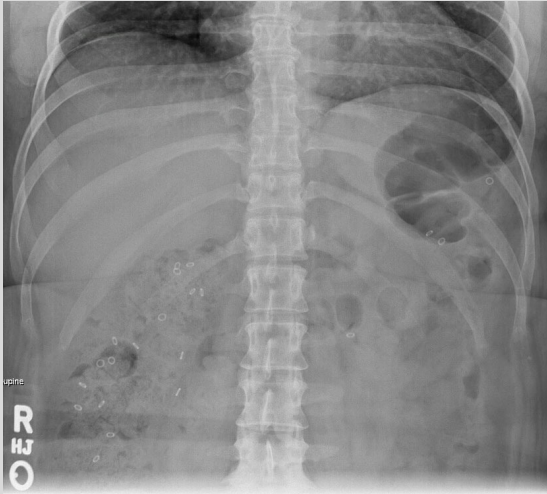
## Transit Evaluation – Sitzmark Study

- Capsule with 20-25 markers, x-ray day 5 or 7
- Abstain from laxatives/stool softeners
- Abnormal: >20% retained markers
- Distribution of markers
  - Mostly on the right/seen throughout
    - Slow transit
    - **Doesn't preclude outlet dysfunction**
  - Rectosigmoid predominant
    - **Preserved transit**
    - Outlet dysfunction



(Image from ASCRS Member Resource Library)

# Sitz Marker Study – Slow Transit



# Sitz Marker Study – Outlet Dysfunction

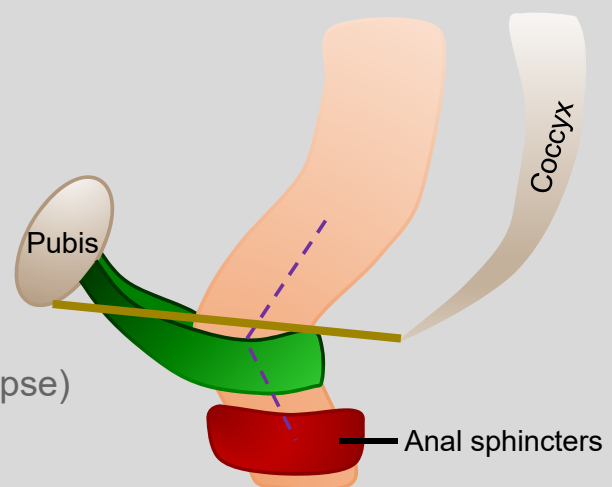


## Outlet Evaluation – Anorectal Manometry

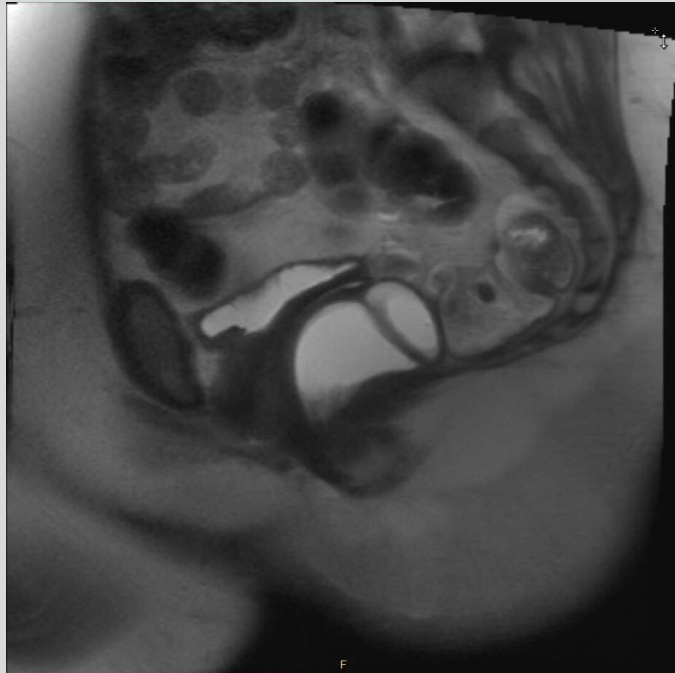
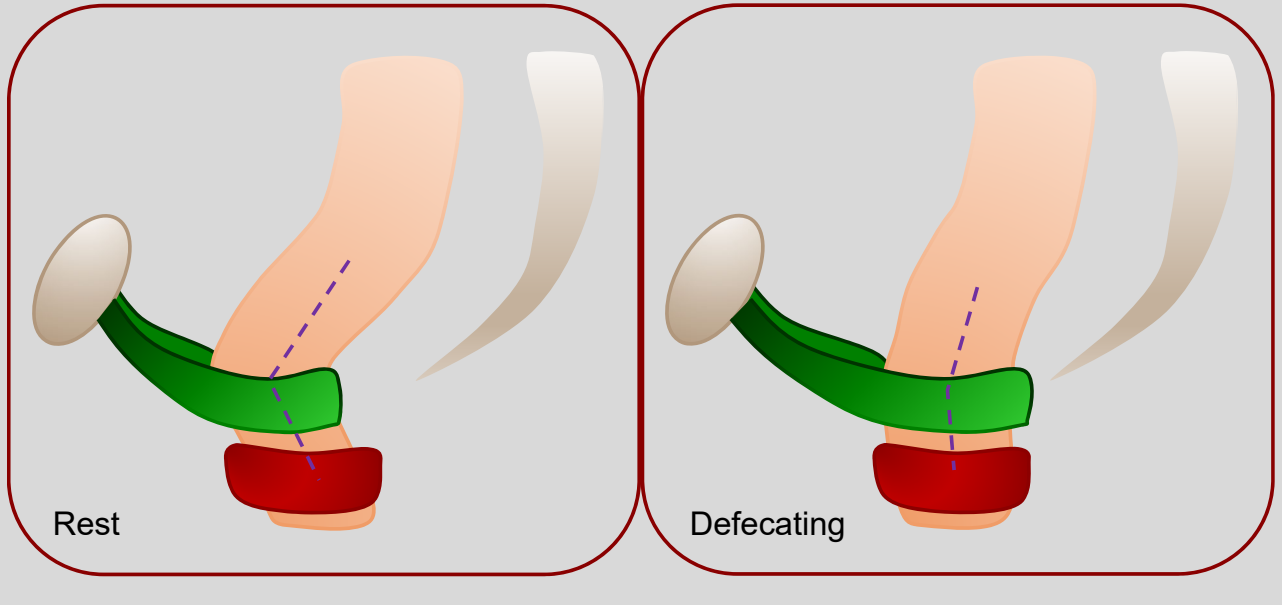
- **Evaluates physiology** of defecation with minimal insight into anatomy
- Parameters most relevant for surgical decision-making
  - **RAIR** (rectoanal inhibitory reflex) – if absent, context matters
    - Rectal distension normally causes internal sphincter relaxation
    - Megarectum – most adults
      - Chronic rectal distension and reduced sensation
    - Hirschsprung's disease – rare in even young adult patients
      - Congenital aganglionosis of myenteric and submucosal plexus
      - Requires full thickness biopsy for diagnosis
  - **Balloon expulsion test**
    - If unable to expel, indicates very poor outlet function

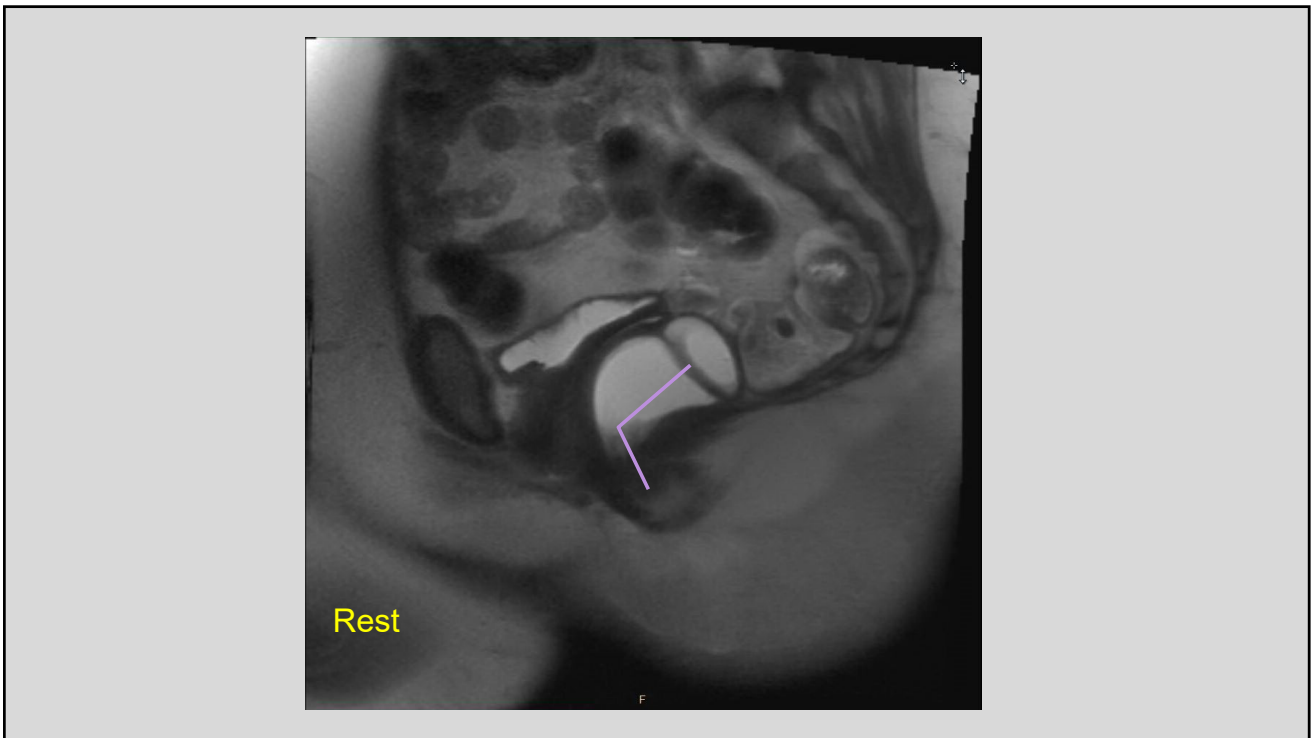
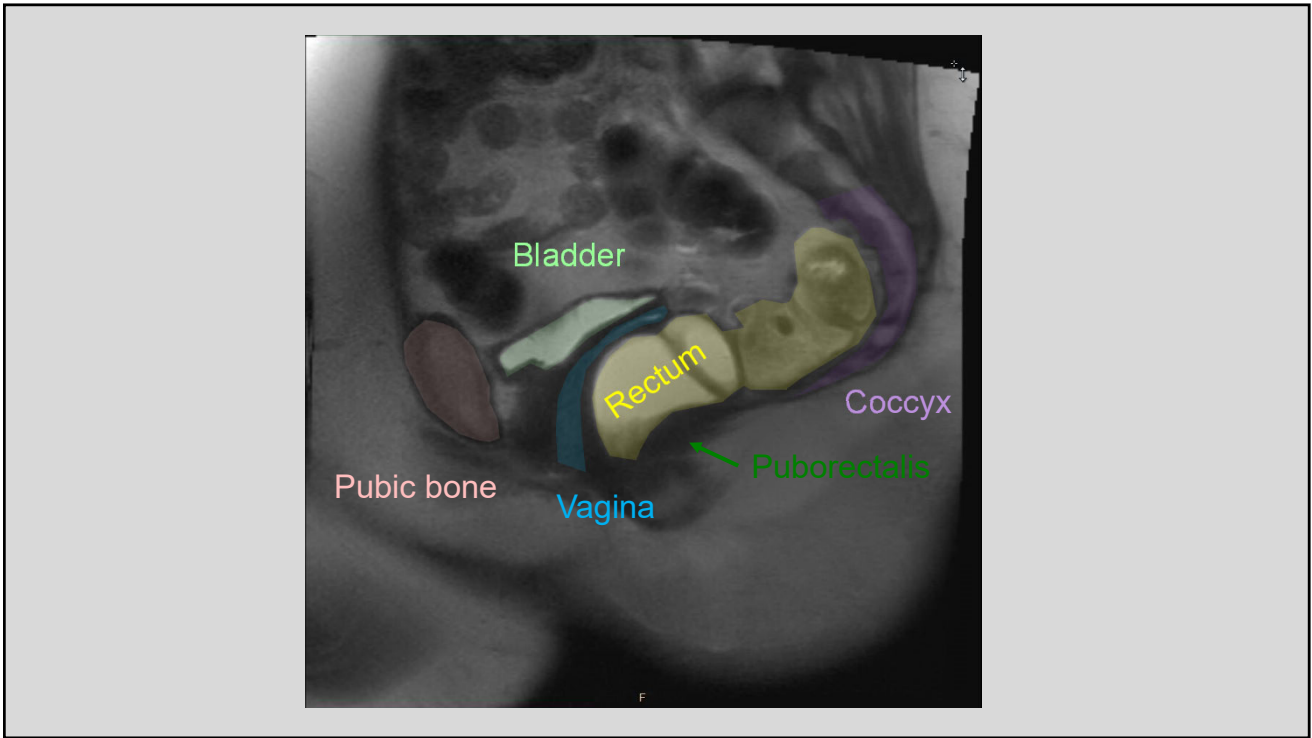
## Outlet Evaluation – Defecography

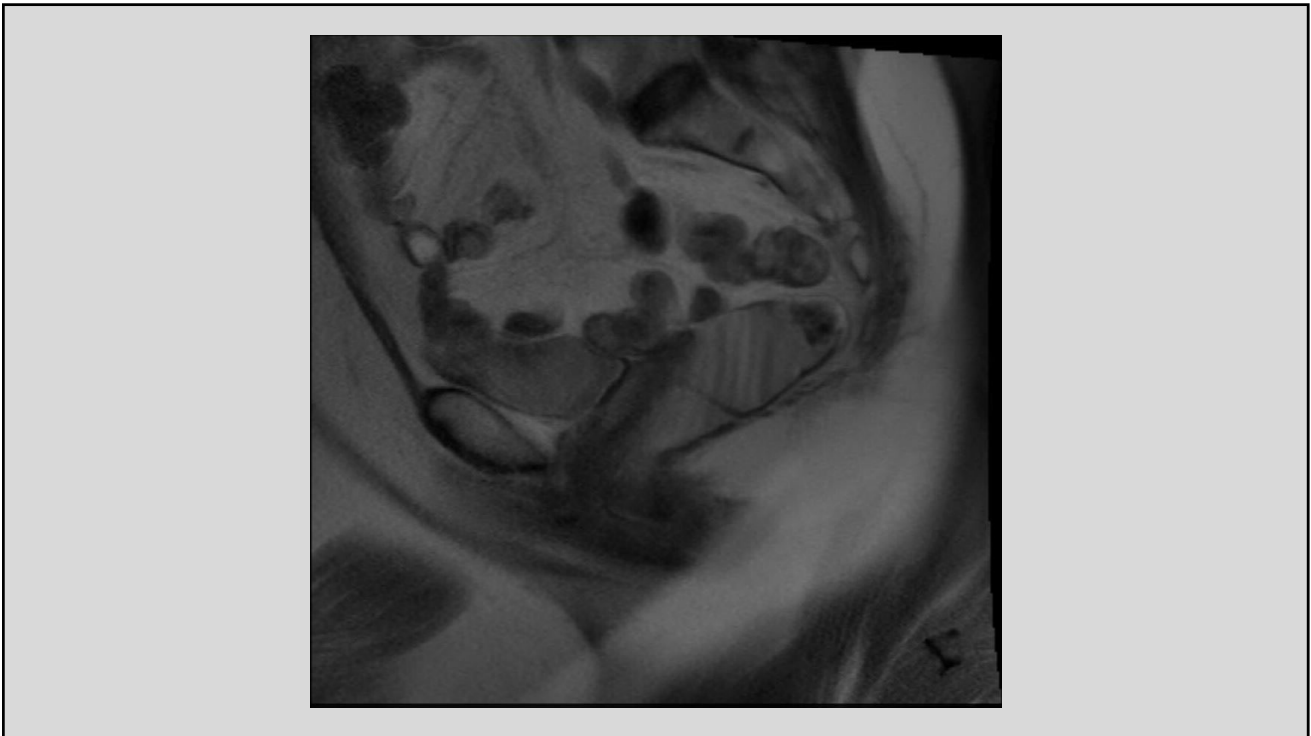
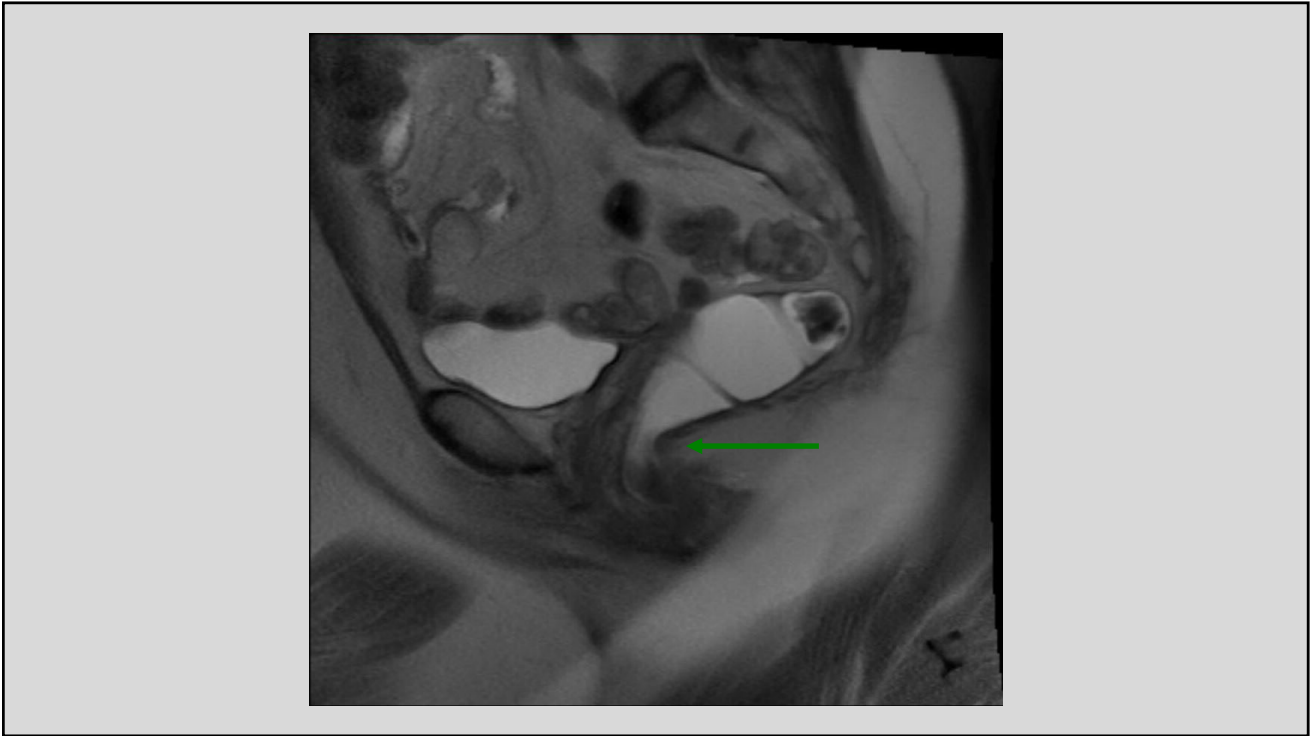
- **Evaluates anatomy** of defecation with minimal insight into physiology
- MRI vs fluoro
- Key elements reported
  - **Anorectal angle (ARA)** – reflects **puborectalis sling** function
  - Evacuation of contrast
  - Presence of intussusception (prolapse)
  - Degree of organ descent from **pubococcygeal line (PCL)**

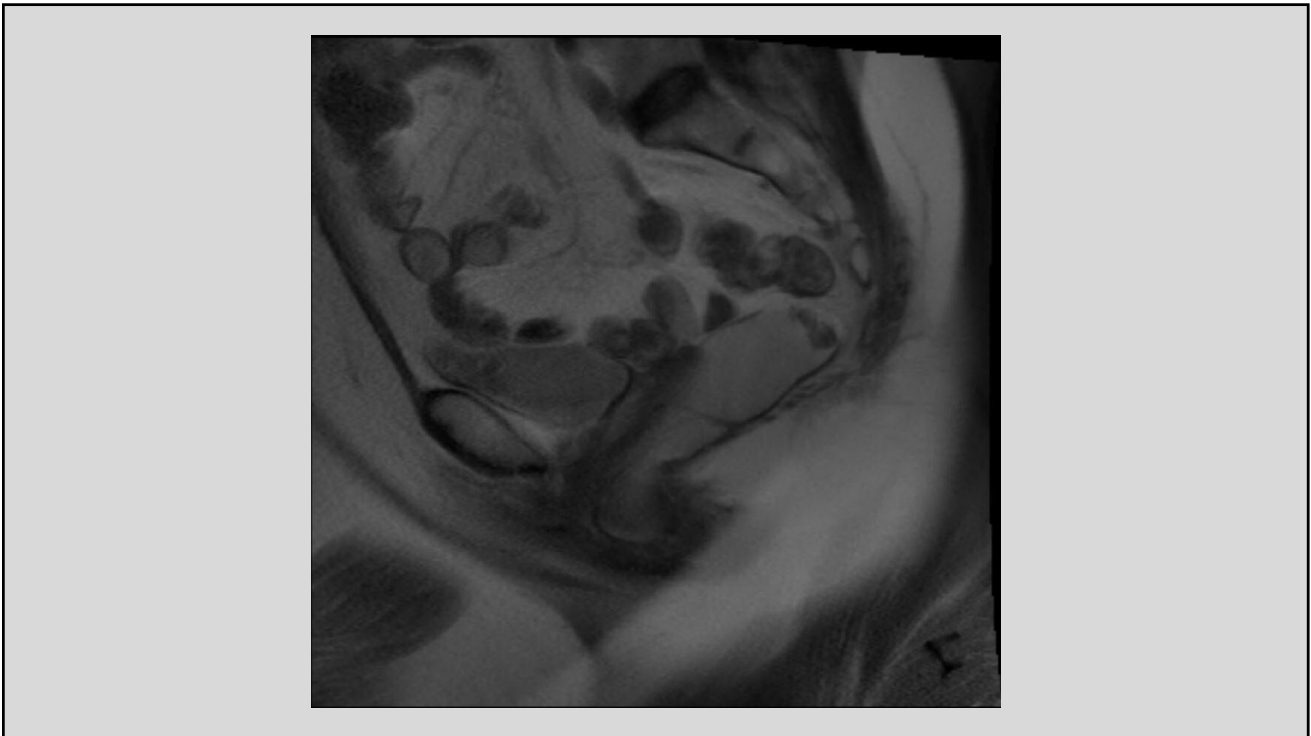
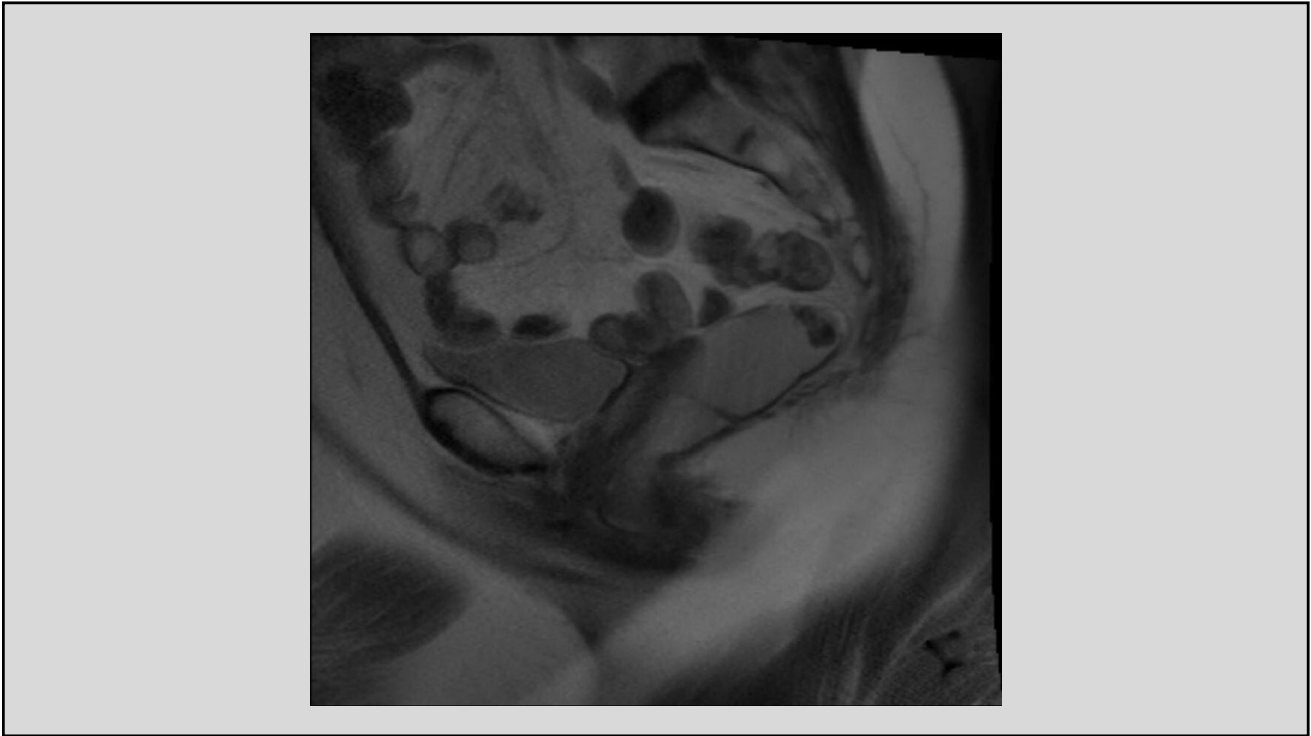


# Outlet Evaluation – Defecography

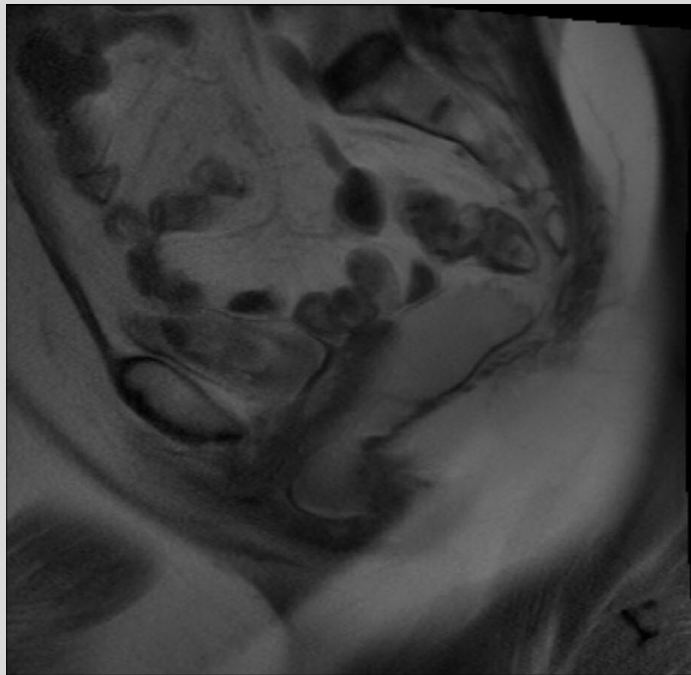
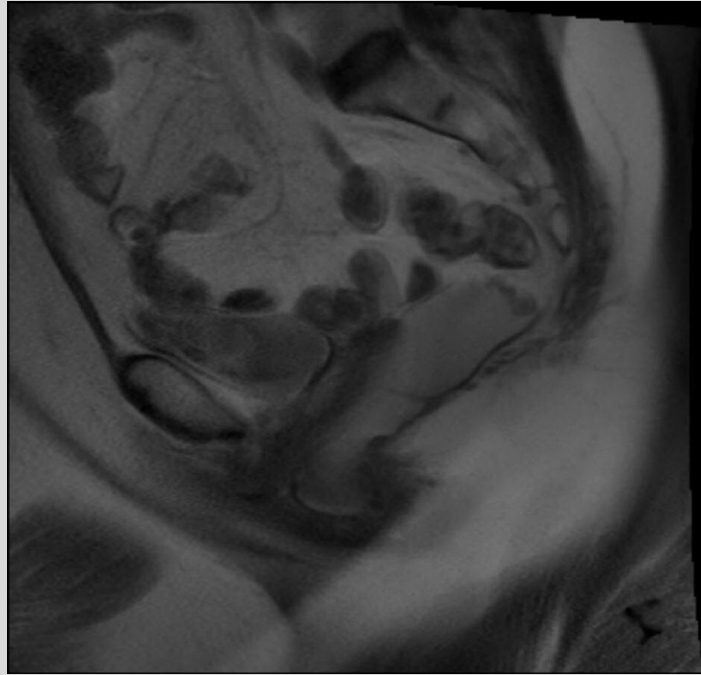


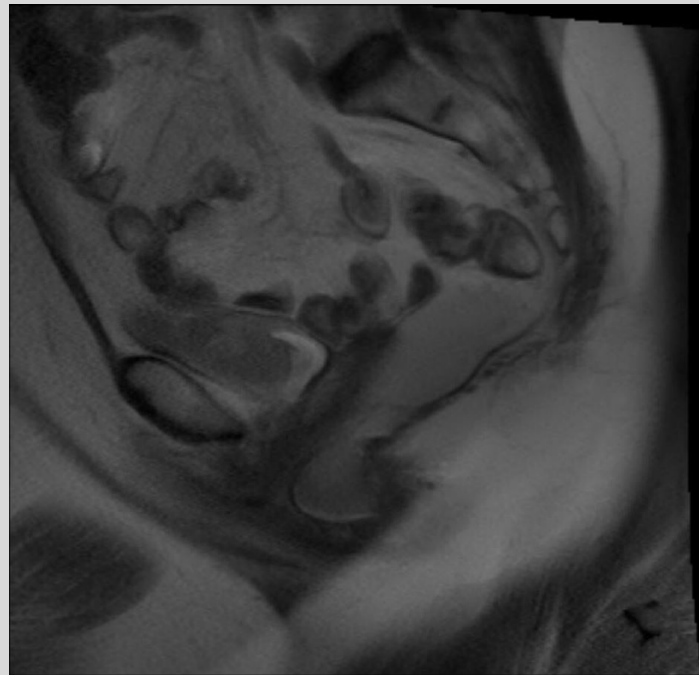
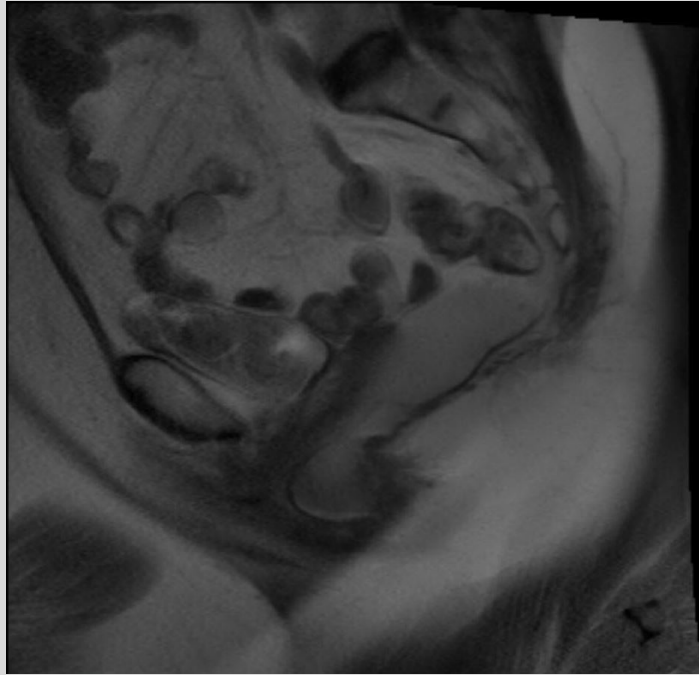


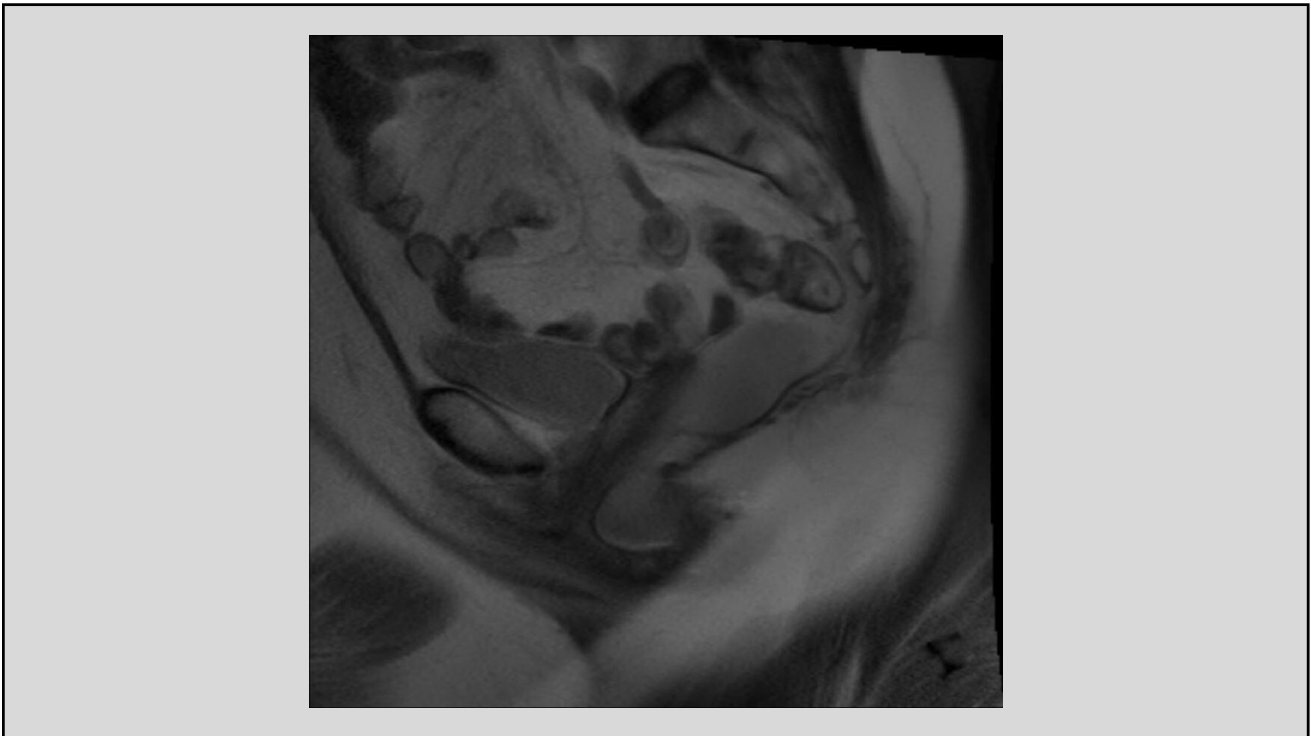
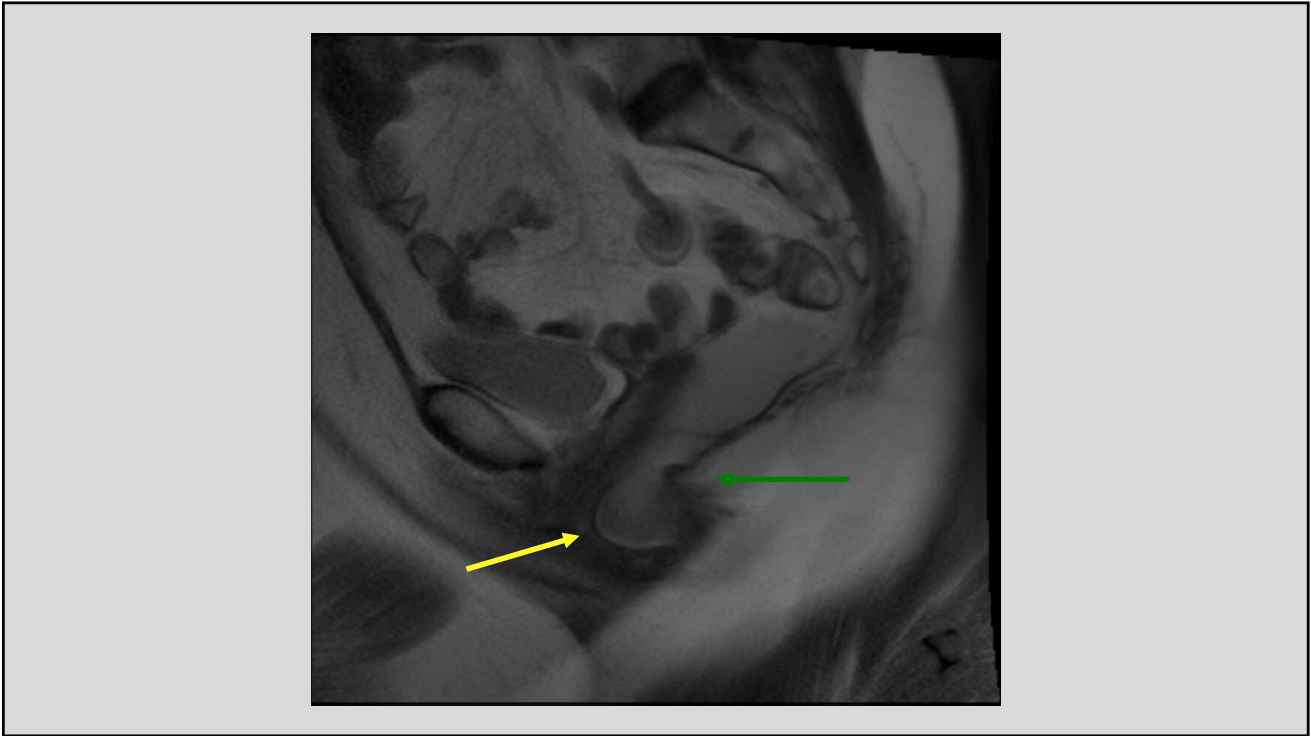


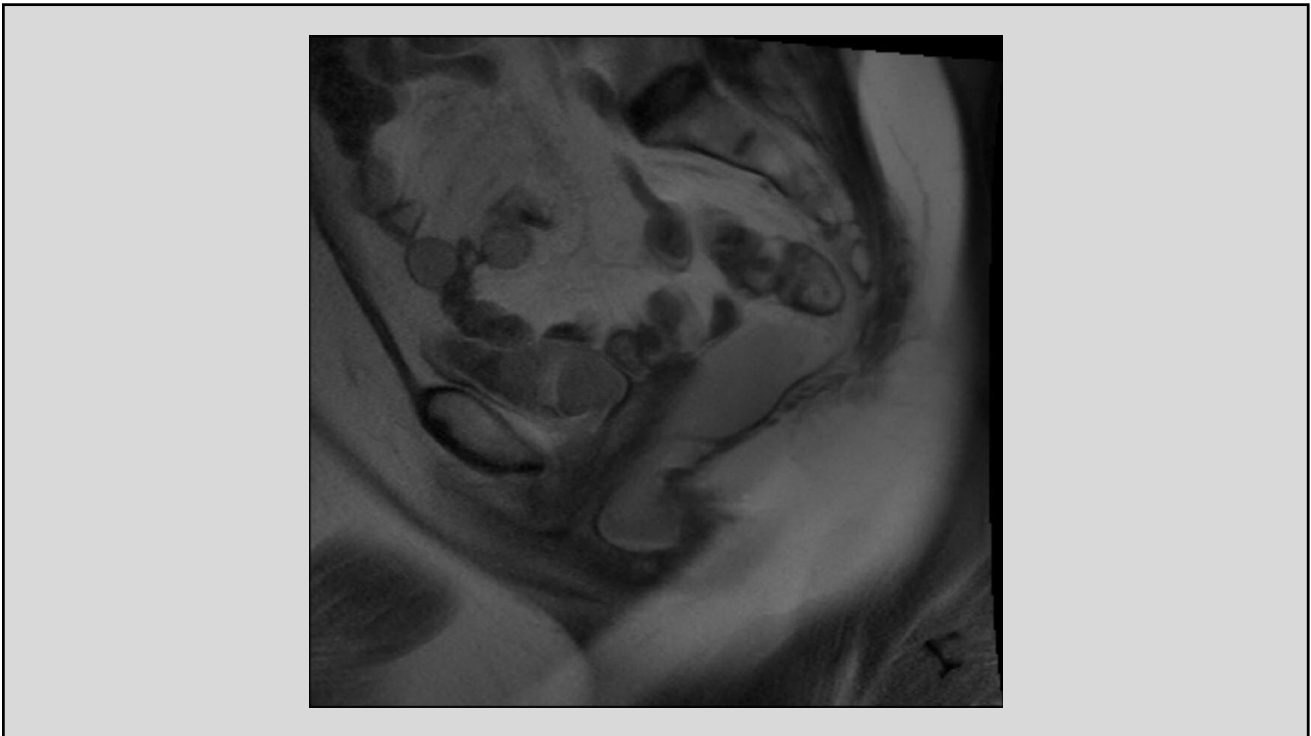
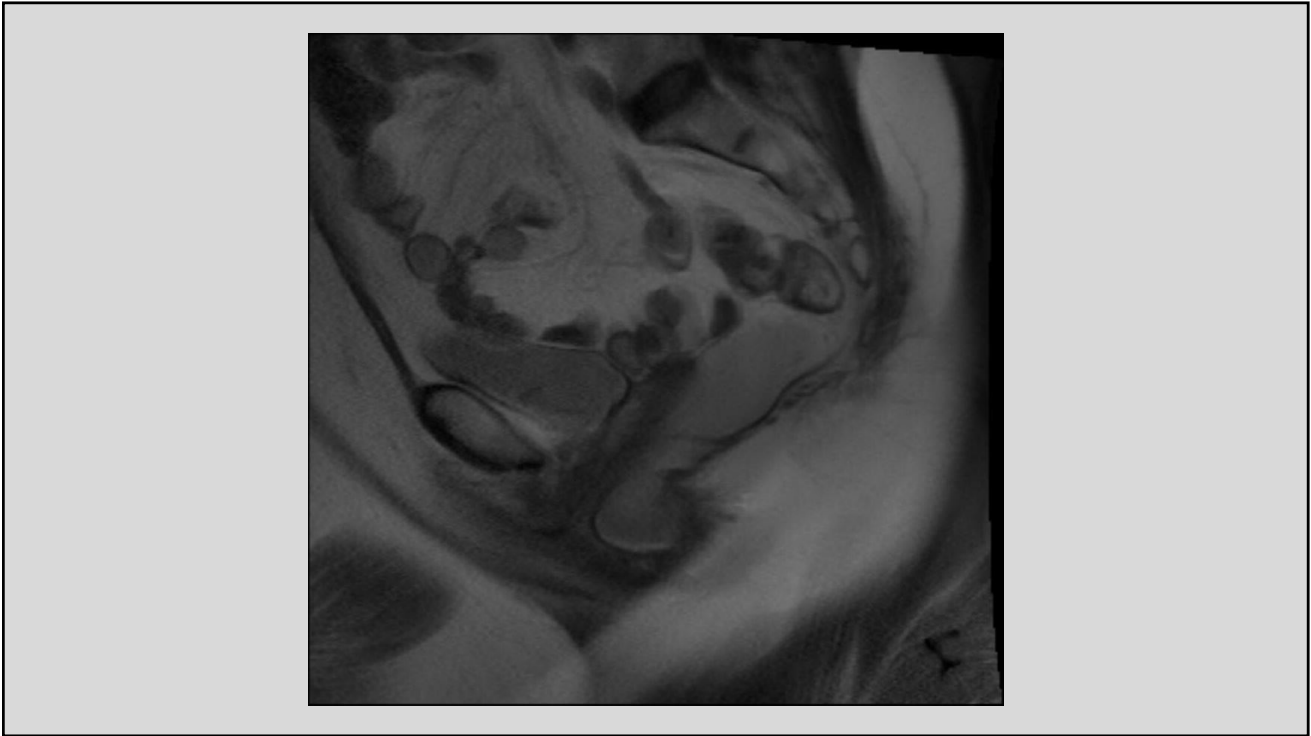


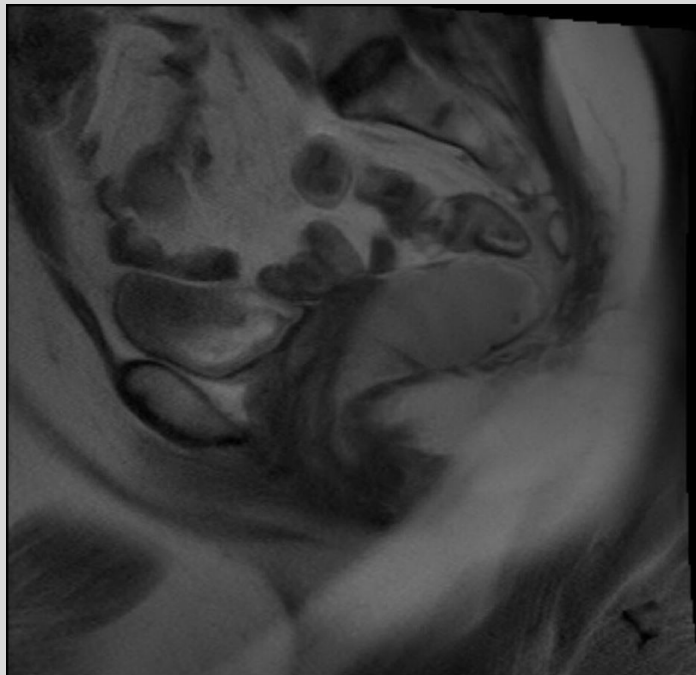
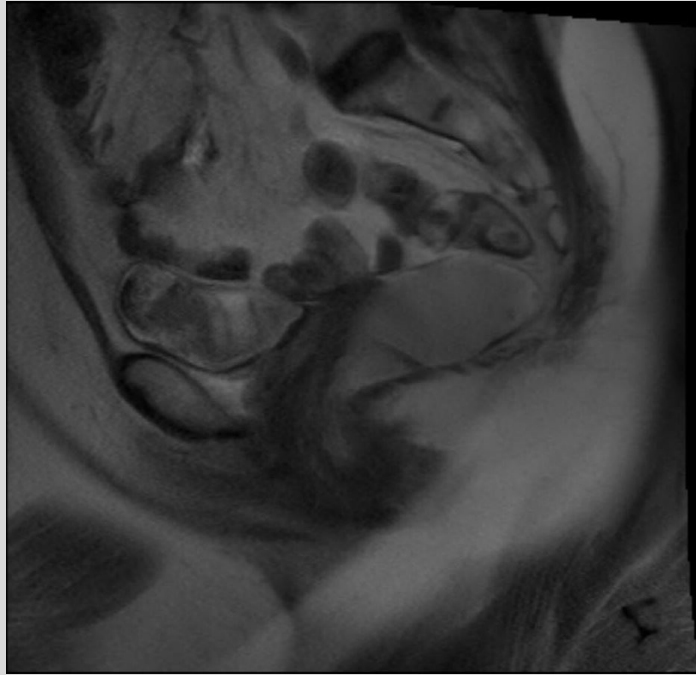


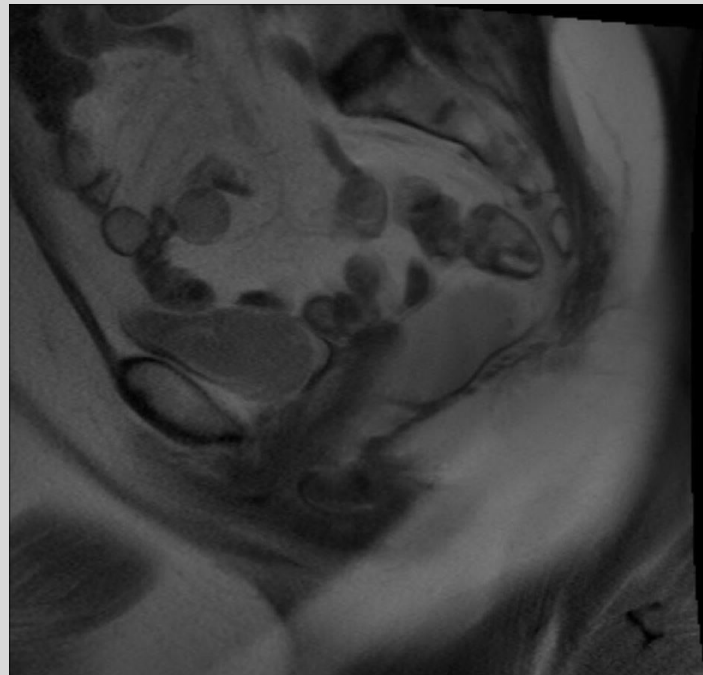
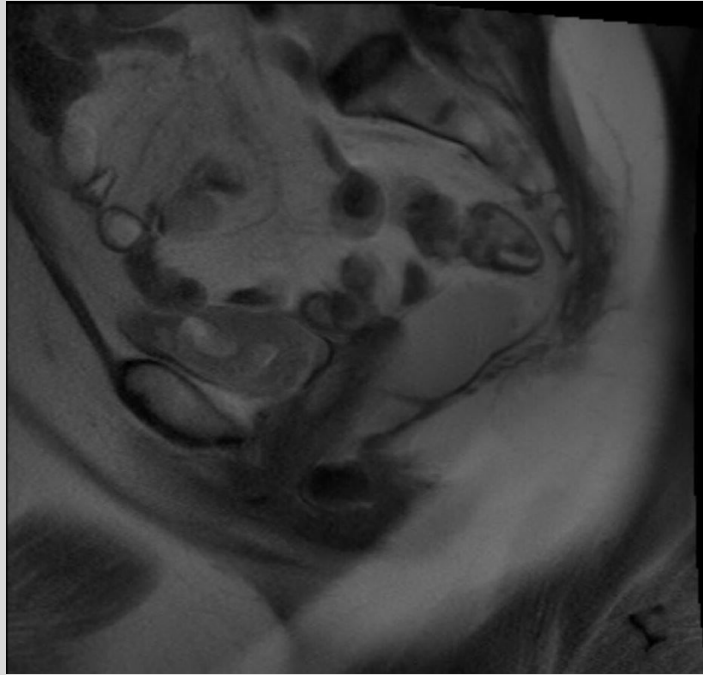


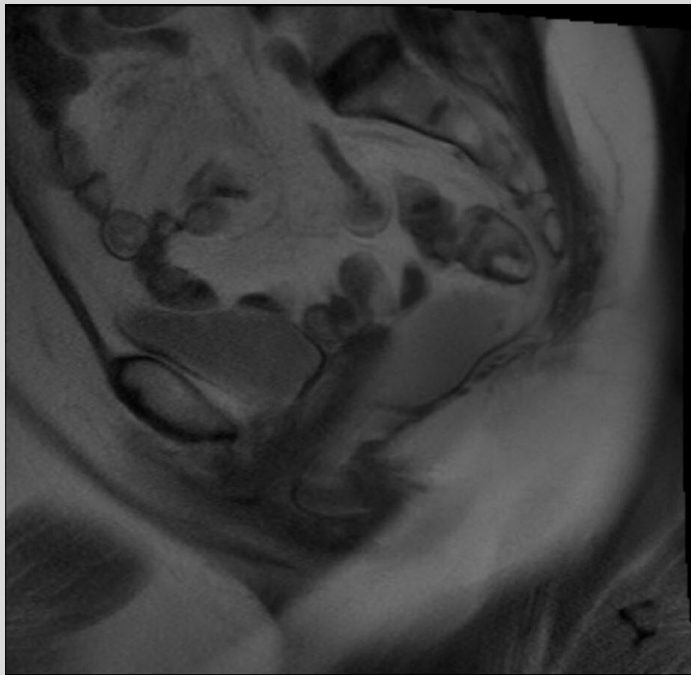
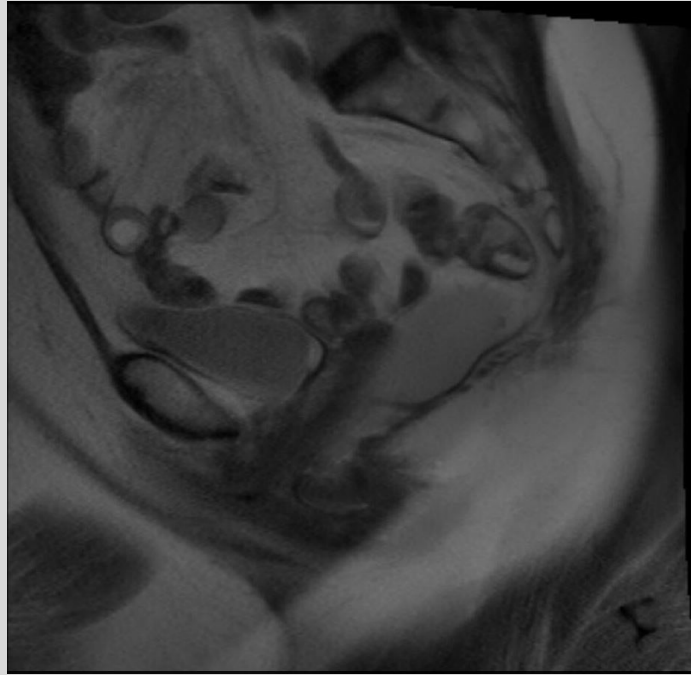


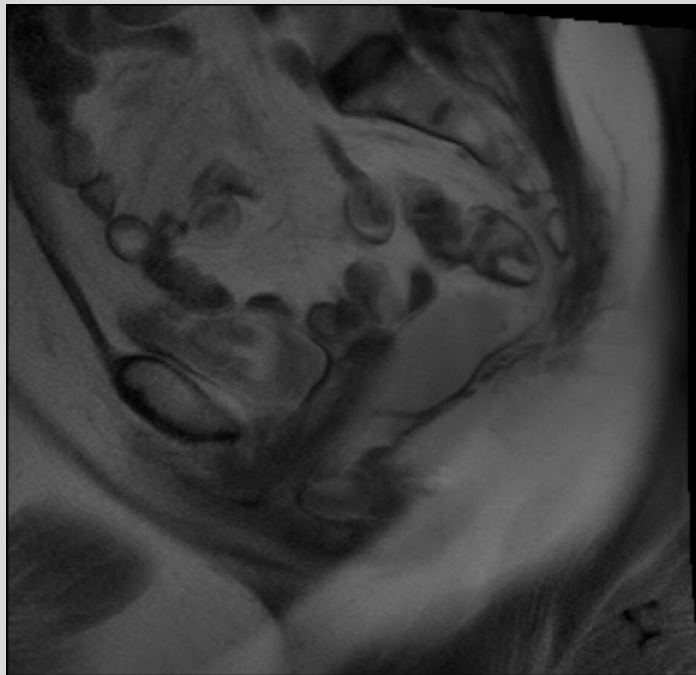
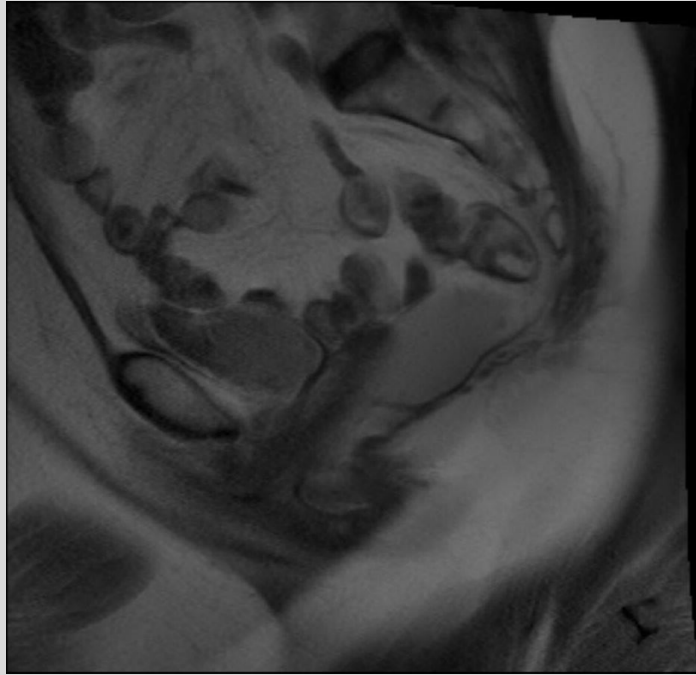




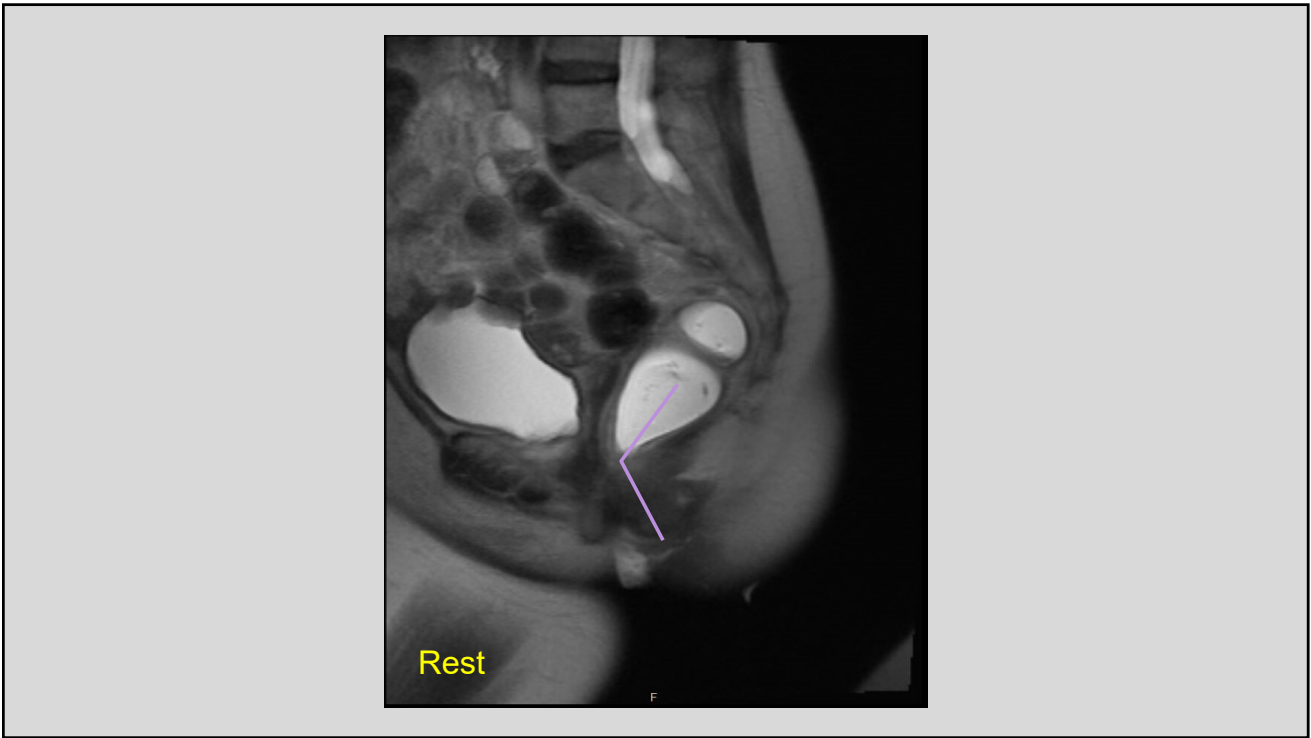






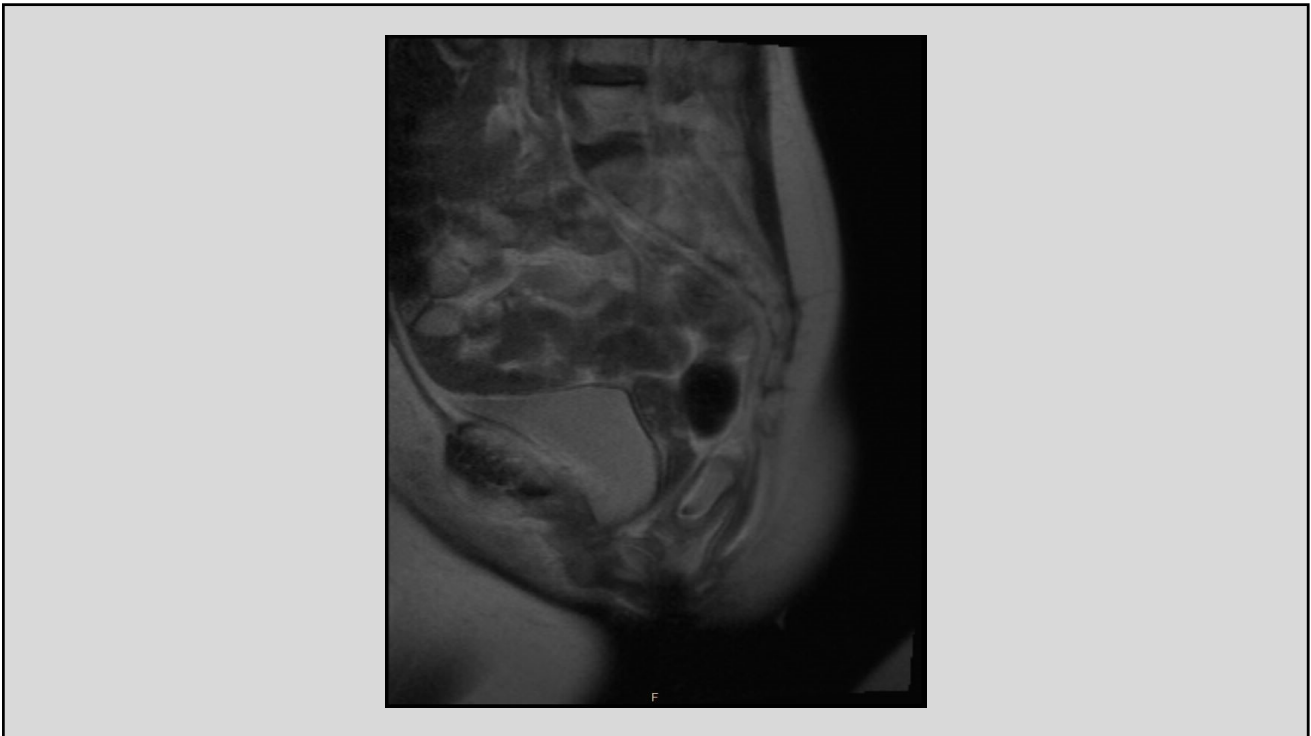


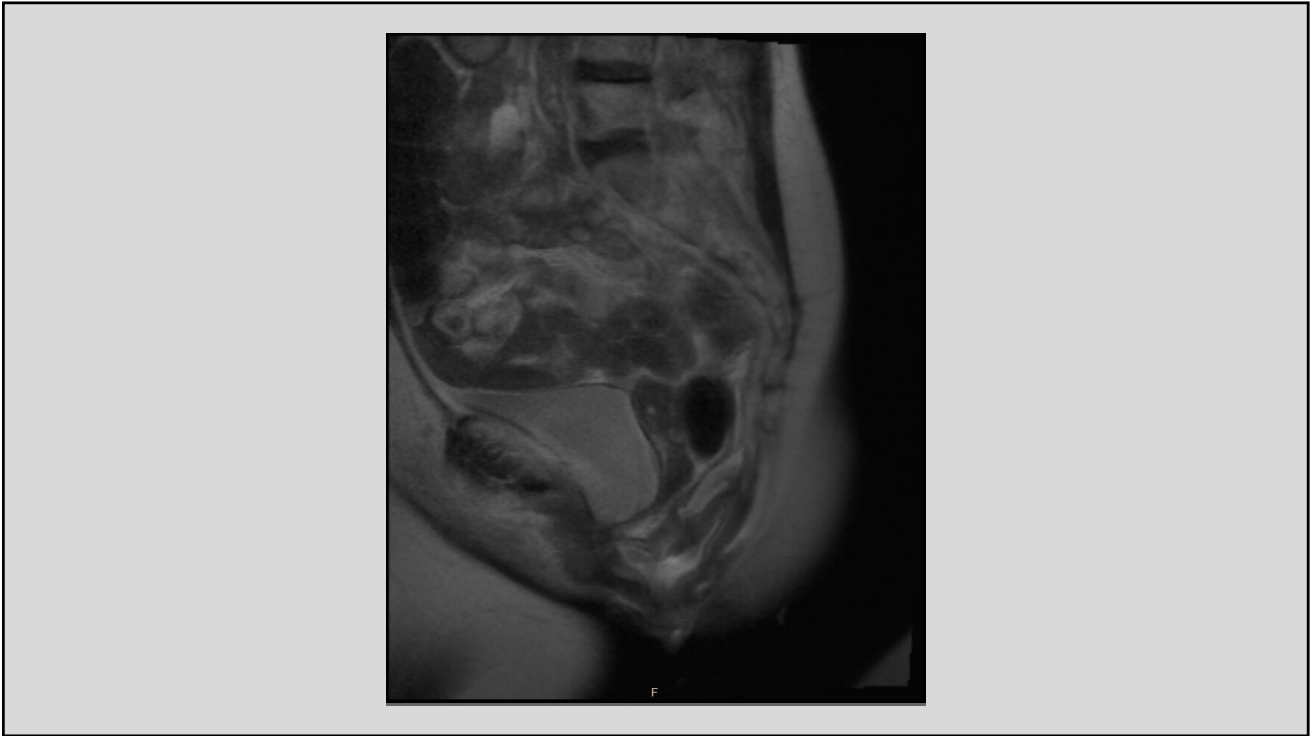


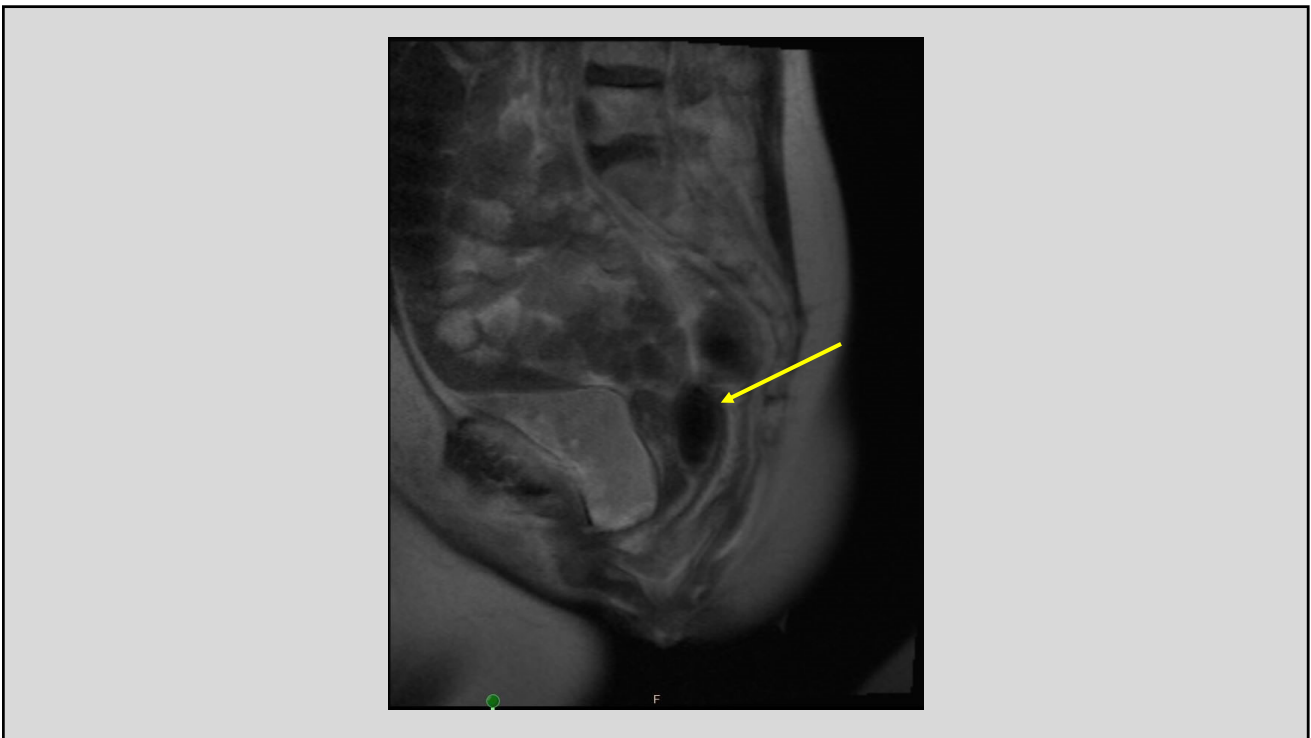
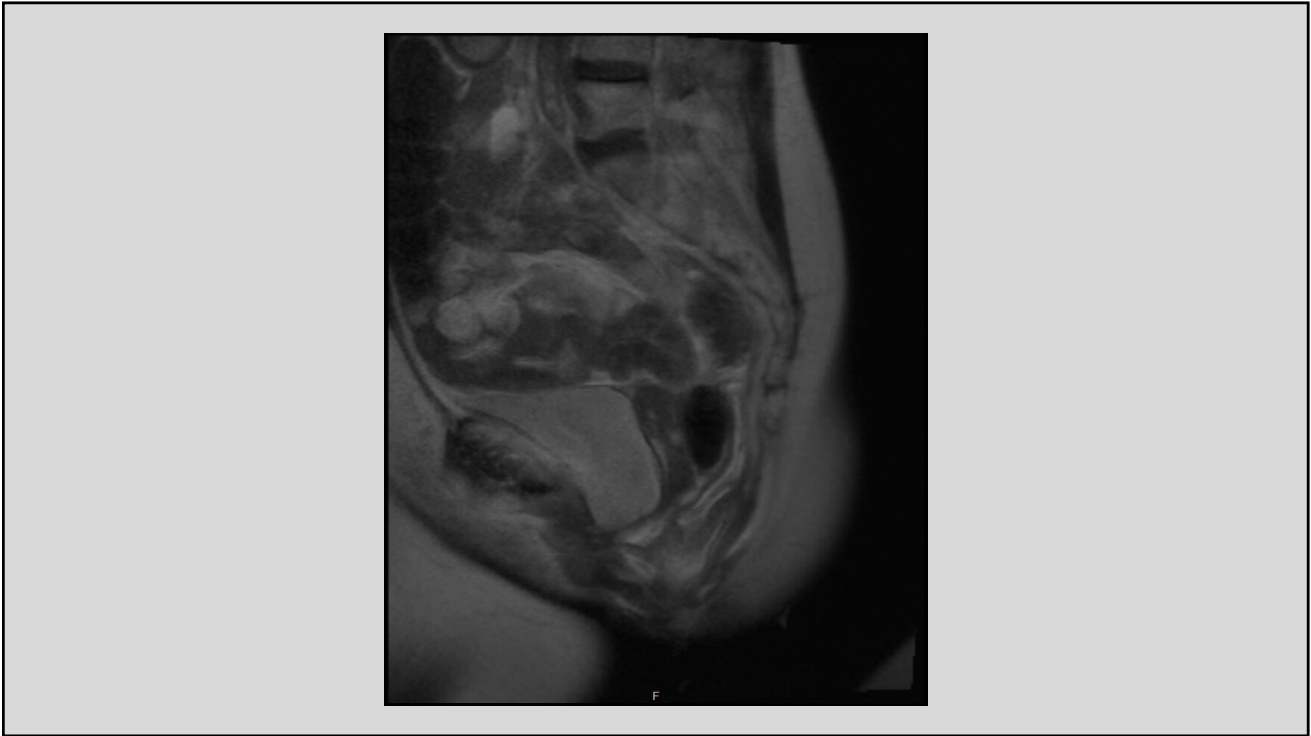


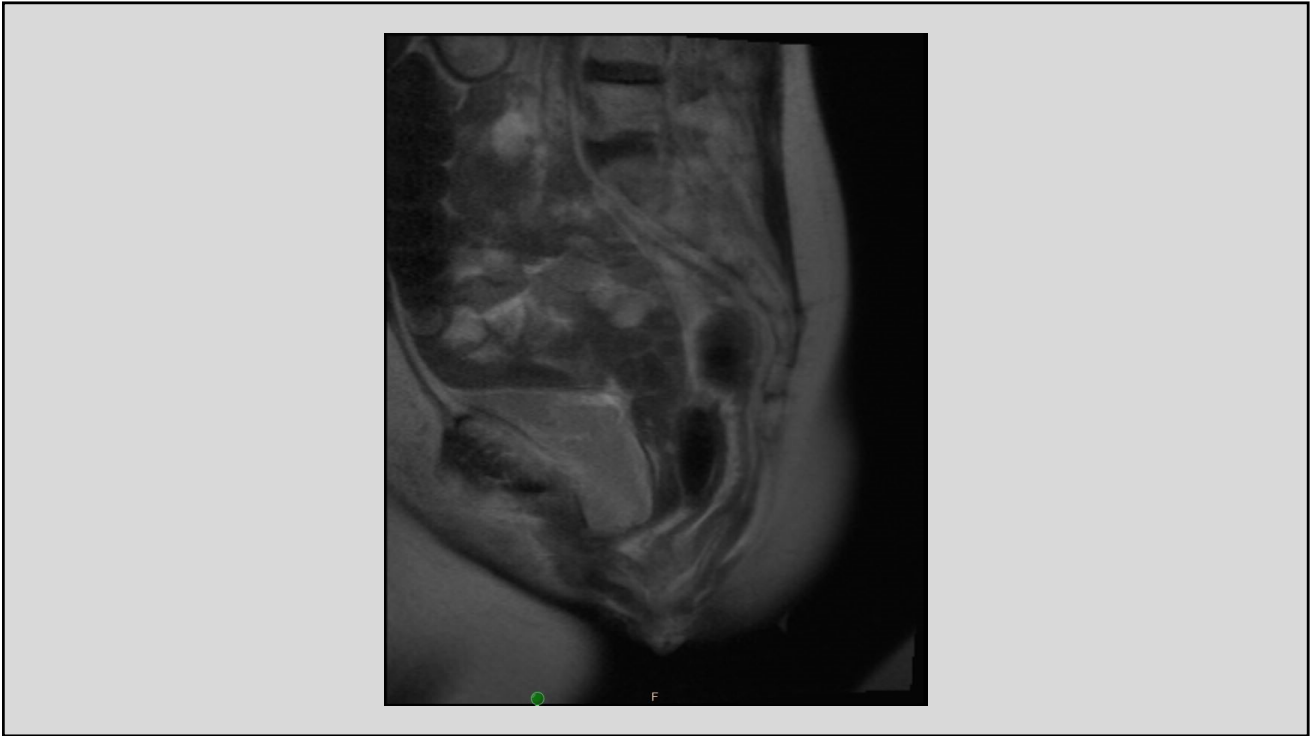


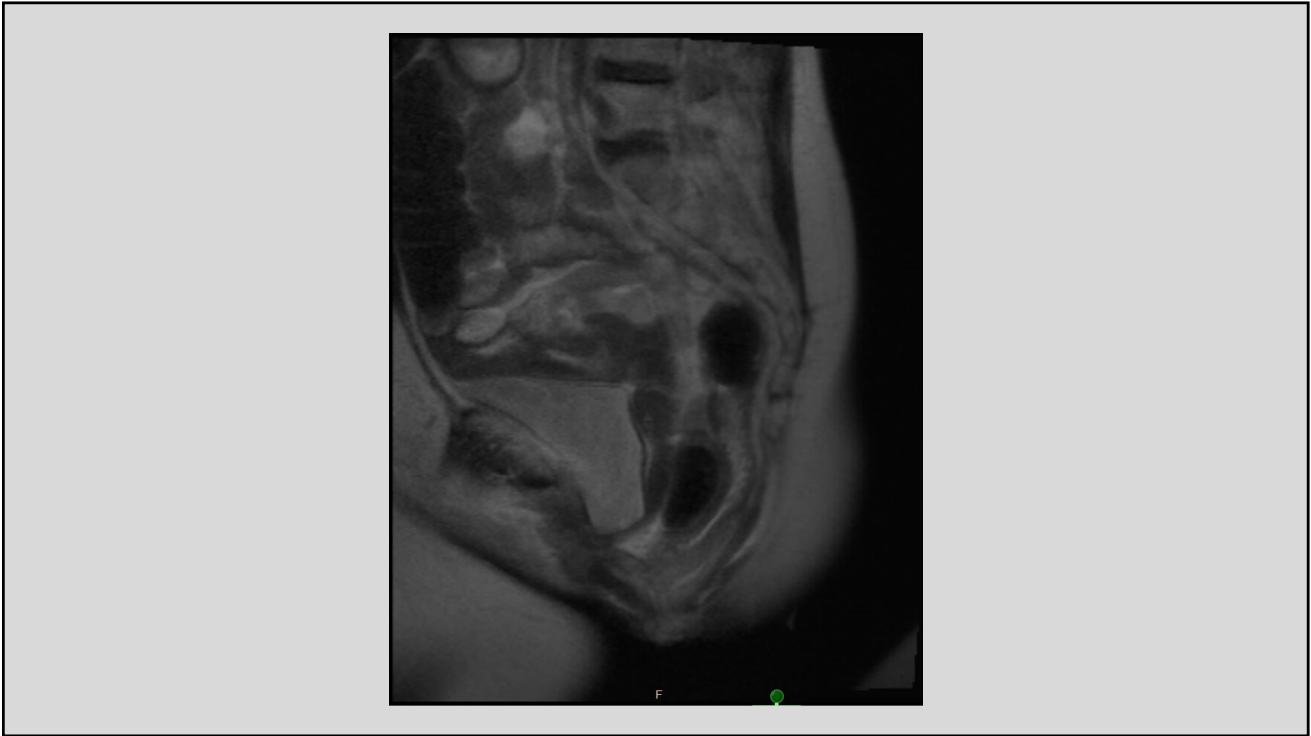




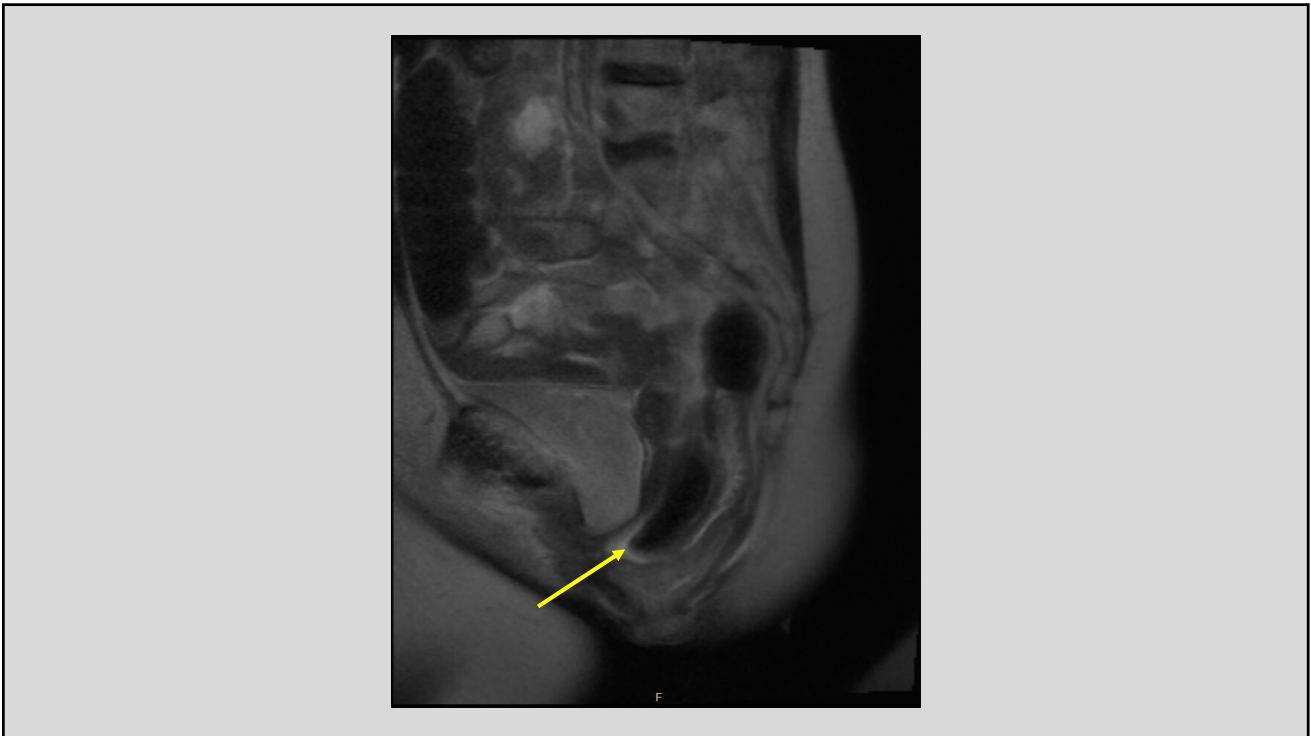
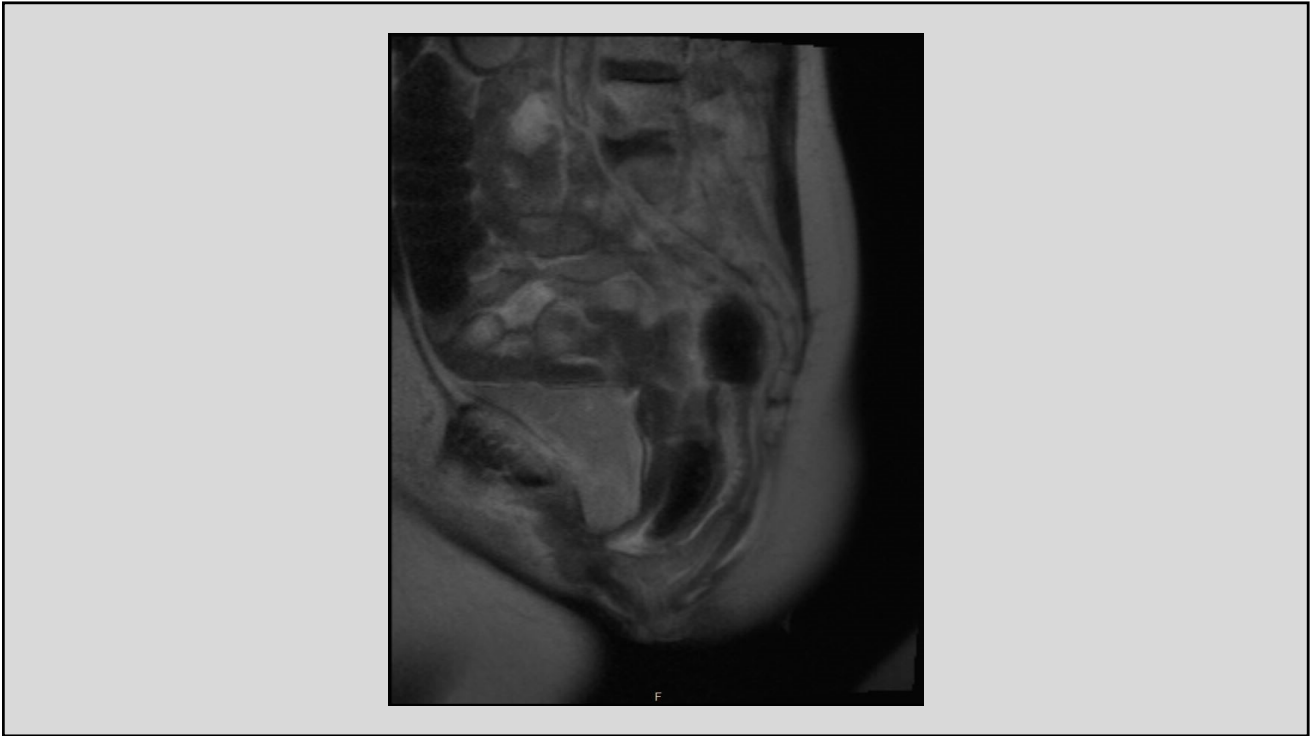












## Surgical Options for Slow Transit Constipation

- Consider total abdominal colectomy
  - Ileorectal anastomosis
  - End ileostomy
- Higher complication rates than colectomy for other indications (24-43%)
  - Ileus, SBO, N/V, anastomotic leak
- High 30d readmission rates (66%) and ER utilization (72%)
- ~85% patient satisfaction, ~5% progress to permanent stoma

Dudekula A, et al. Aliment Pharmacol Ther 2015; 42:1281-93.  
 Knowles CH, et al. Colorectal Dis. 2017; 19 (Supp 3):17-36.

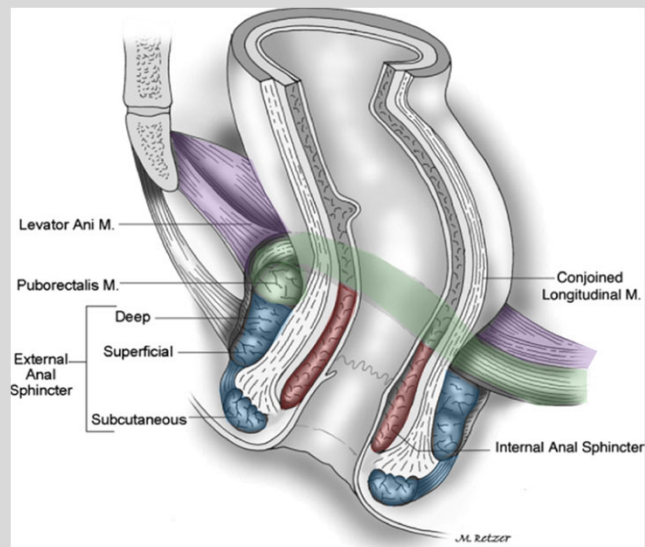
## Treatment Options for Obstructed Defecation

- Stool bulking (fiber)
  - Laxatives and stool softeners do not address underlying mechanism
  - Bulky stool may activate RAIR
- Adequate hydration
- Positioning techniques
- Pelvic floor PT (at least 80% of patients have significant improvement)
- Surgery
  - If possible, address mechanism
  - If not possible, diversion

## Surgical Approach to Fecal Incontinence

### Requirements for Bowel Continence

- Mechanical barriers
  - Internal anal sphincter
  - External anal sphincter
  - Puborectalis
- Normal rectal compliance
- Intact innervation

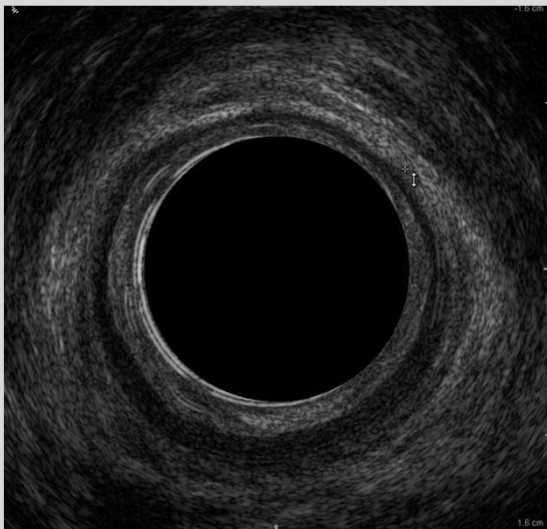


(Image modified from ASCRS Member Resource Library)

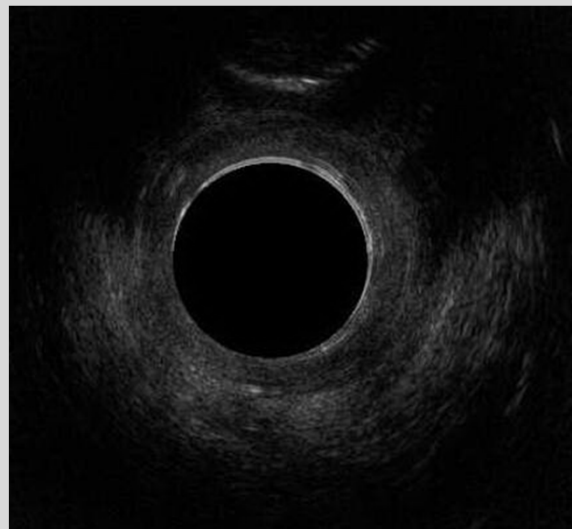
## Nonoperative Management of Fecal Incontinence

- Manage stool consistency
  - Treatment of diarrhea if present
  - Fiber/bulking agents
- Continence plugs
- Pelvic floor PT
- Injectable hyaluronic acid-based bulking agent
  - Not well covered by insurance due to poor efficacy/durability
  - May be effective for mild symptoms
  - Duration of effect usually ~1 year

## Ultrasound for Sphincter Assessment

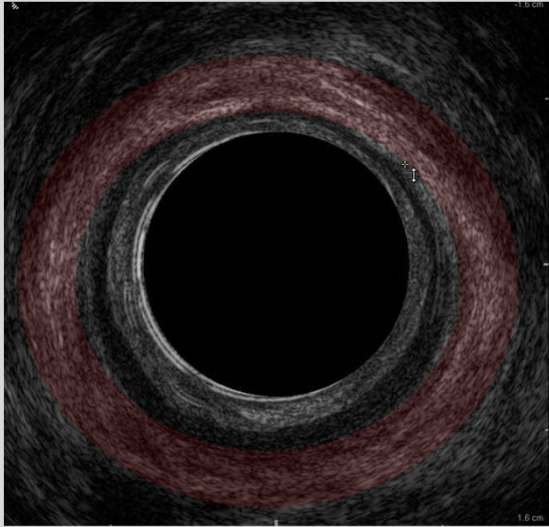


Normal

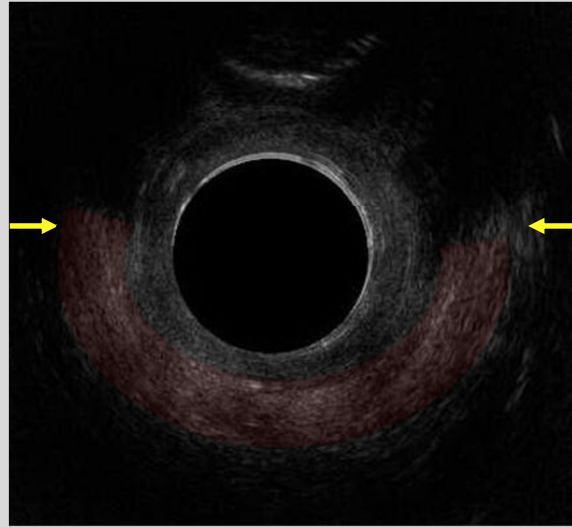


Anterior EAS defect

## Ultrasound for Sphincter Assessment



Normal



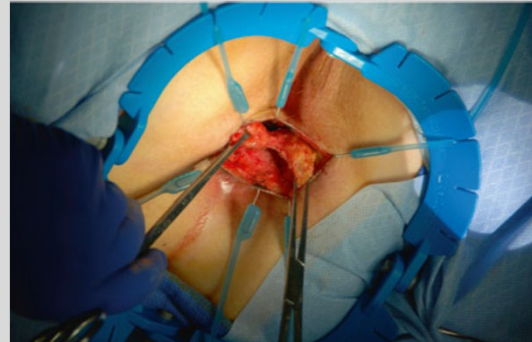
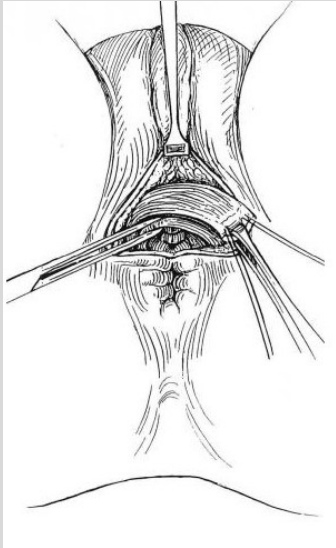
Anterior EAS defect

## Sphincteroplasty

- Reapproximate sphincter defects, only  $<180^\circ$
- Short term results ( $<3$  years)
  - ~65-79% good/excellent
  - ~20-27% poor
- Long term results (5-10 years)
  - ~46% good/excellent
  - ~20-54% poor
- Better results in younger patients close in time to injury

Altomare DF, et al. World J Gastroent. 2010; 16(42): 5267-5271.

## Sphincteroplasty



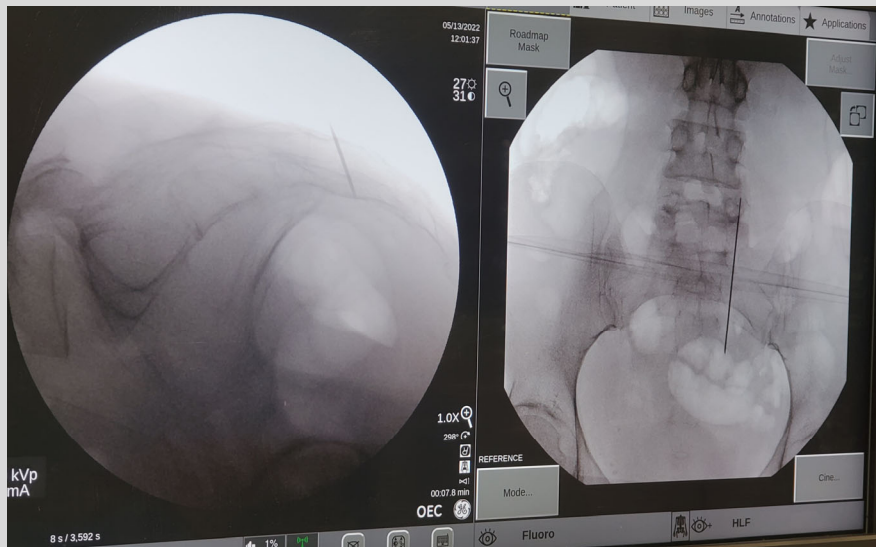
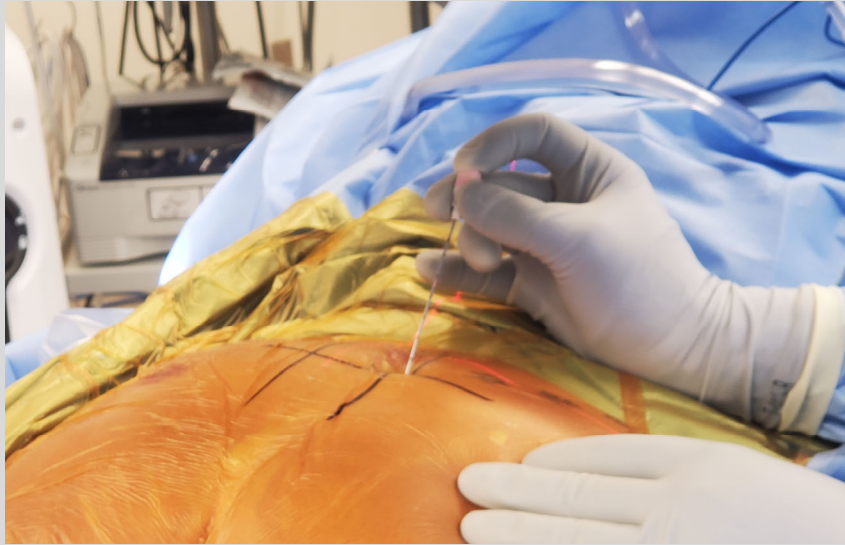
(Images from ASCRS Member Resource Library)

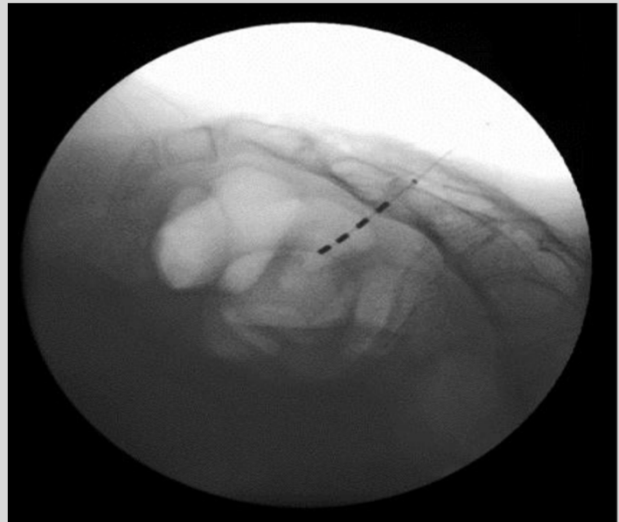
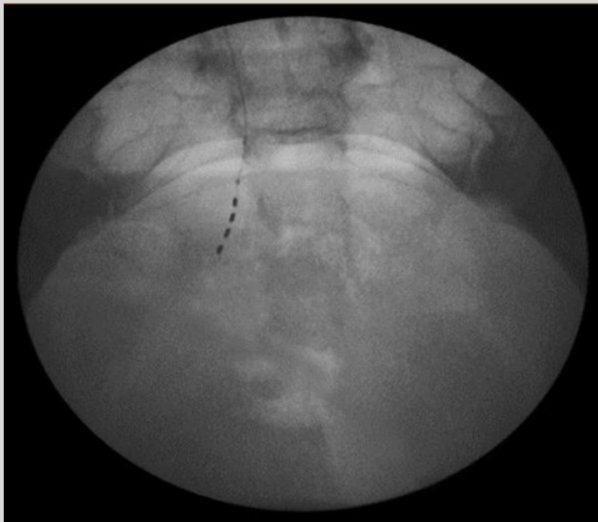
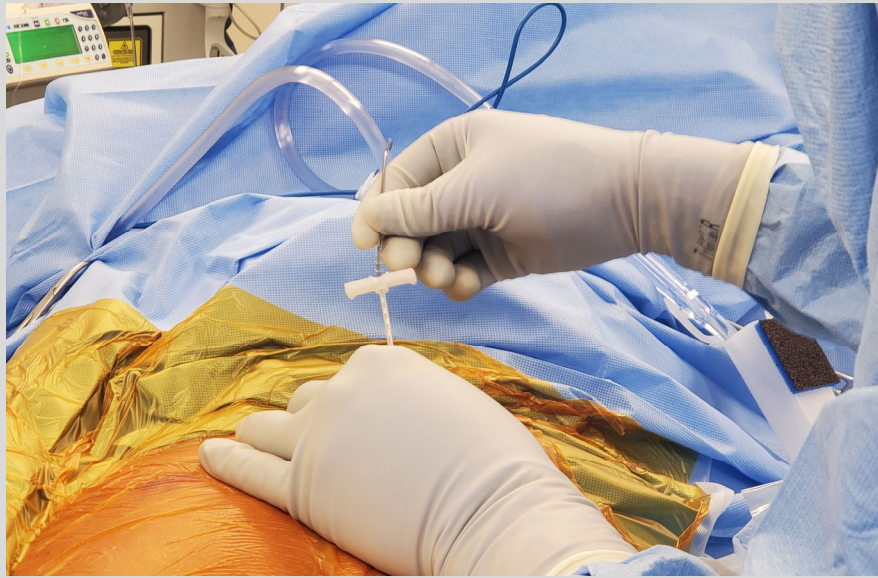
## Sacral Nerve Stimulator (SNS)

- FDA approved in 2011 for fecal incontinence
- Tined electrode lead placed in S3 foramen
- Trial period with external generator of 1-2 weeks
  - Success = >50% reduction in episodes
- Successful trial → generator implant in gluteal fat











## SNS Outcomes for Fecal Incontinence

- Primarily case series
- Response rate (at least 50% reduction in symptoms)
  - ~90% of patients who receive full implant<sup>1</sup>
  - ~60-70% of all patients who undergo pre-implant trial
  - ~38-50% “cure” rate
- Long-term outcomes
  - One series<sup>2</sup> (N=73) showed benefit persists without decrement at least 5 years
- 15-30% may undergo explantation/revision in <5 years
  - Complications
  - Loss of efficacy
  - Device malfunction/migration

<sup>1</sup>Thaha MA, et al. Cochrane Database of Systematic Reviews 2015; 8: 1-80.

<sup>2</sup>Hull T, et al. Dis Colon Rectum 2013; 56: 234-245.

## Surgical Approach to Rectal Prolapse

## Rectal Prolapse?

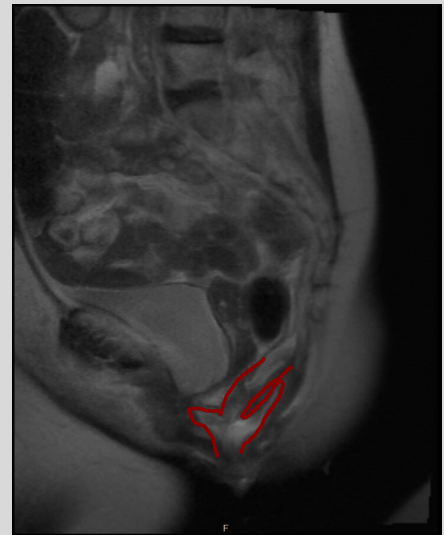
- External vs internal?
- Mucosal vs full thickness?
- Perineal/pelvic floor descent vs organ prolapse alone?
- Other compartments involved (bladder, vagina)?
  
- “Prolapse” represents a spectrum of loss of appropriate pelvic organ support



(Images from ASCRS Member Resource Library)

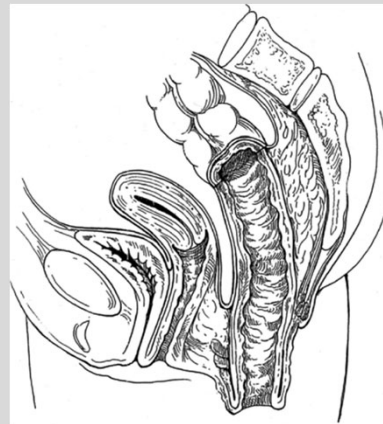
## Internal Rectal Prolapse or Mucosal Prolapse

- Nonoperative management
  - High fiber diet
  - Adequate hydration
  - Enemas/suppositories for ODS symptoms
- Pelvic floor PT/biofeedback
- Patients with internal prolapse should be **carefully selected** for surgery
- Mucosal prolapse → excise redundant mucosa



## Full Thickness External Rectal Prolapse

A patient with full thickness external prolapse risks **developing or worsening incontinence** if surgery is unnecessarily delayed!

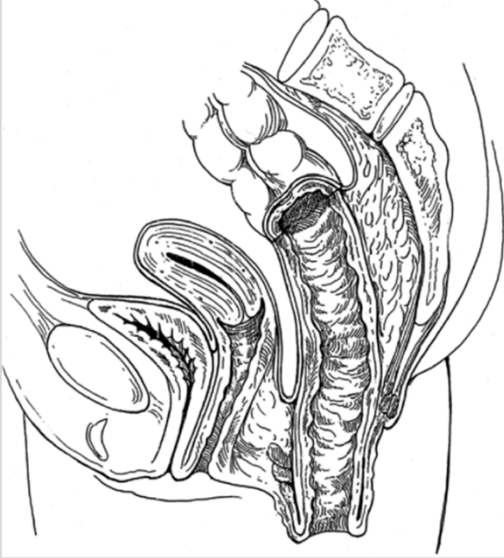


(Images from ASCRS Member Resource Library)

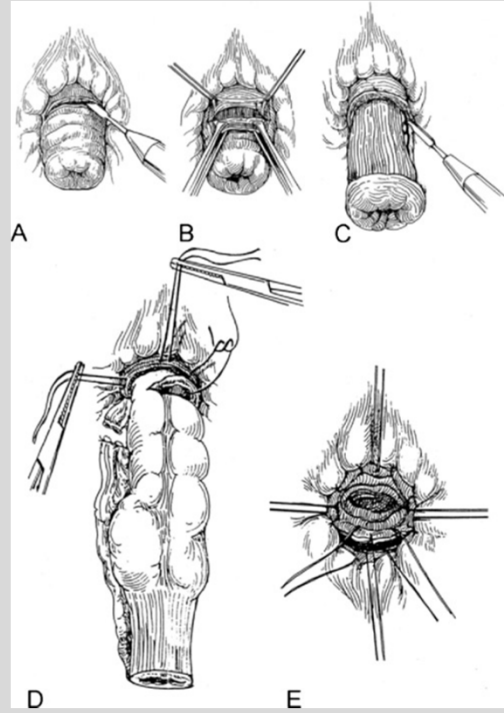
## Operative Approaches for Rectal Prolapse

- Perineal
  - Higher short-term recurrence (up to 25-30% in 5 years)
  - Lower perioperative risk, less pain\*
  - Involve excising and/or plicating redundant rectosigmoid tissue
  - Better for high risk surgical candidates or if extensive prior pelvic surgery
  
- Abdominal
  - ? lower recurrence vs perineal approaches (5-30% long term)
  - Higher perioperative risk, more pain\*
  - Involve reestablishing proximal support/fixation of the rectum
  - Risk of persistent/worsened constipation

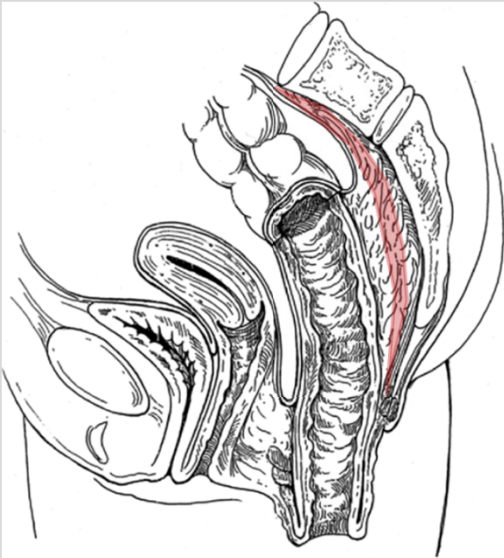
## Perineal Proctectomy



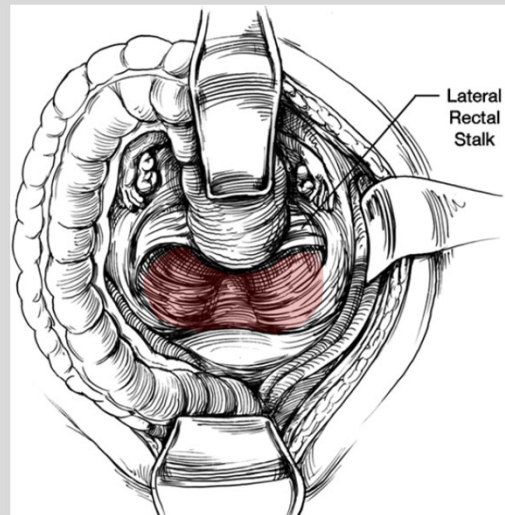
(Images from ASCRS Member Resource Library)



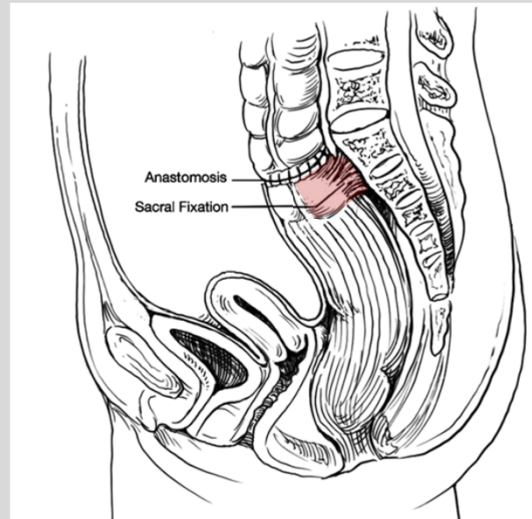
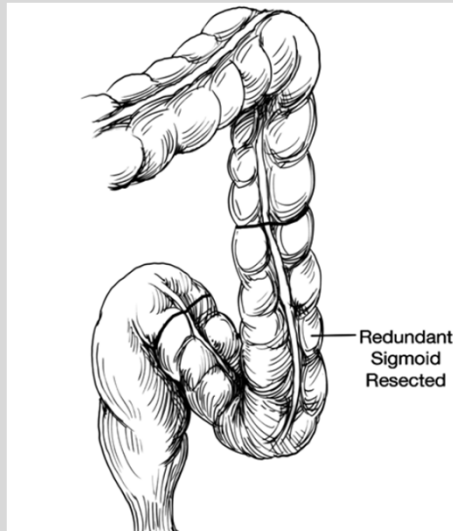
## Sutured Rectopexy (+/- Resection)



(Images from ASCRS Member Resource Library)



## Sutured Rectopexy (+/- Resection)



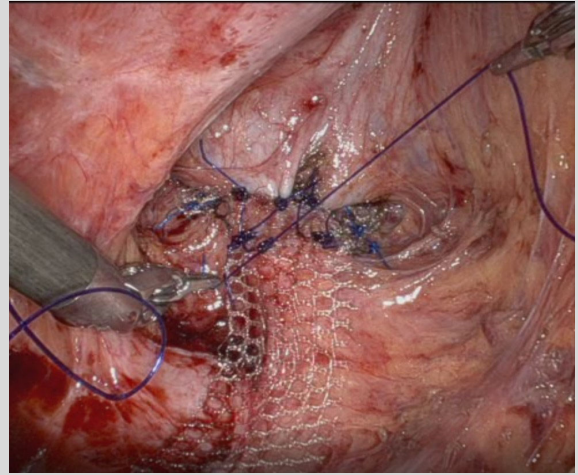
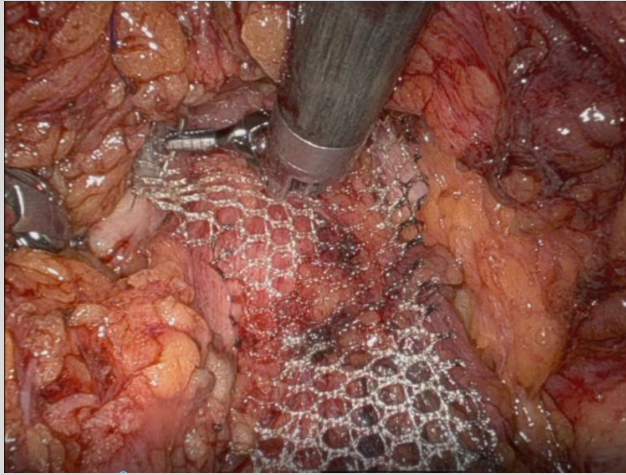
(Images from ASCRS Member Resource Library)

## Ventral Mesh Rectopexy

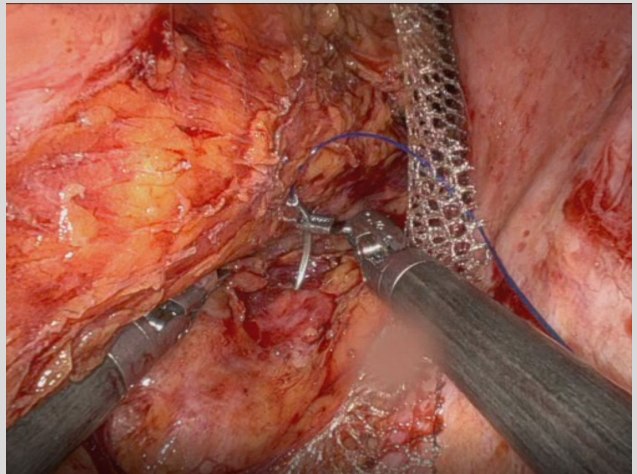
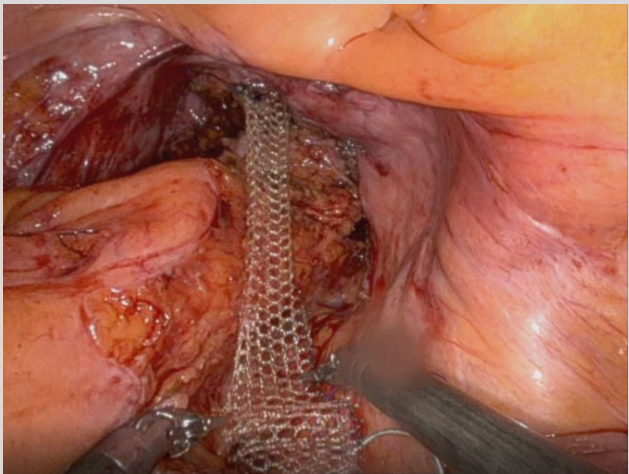
- Mesh sewn to anterior rectum and posterior vagina
- Less constipation (sometimes improved) vs posterior rectopexy
- Low recurrence rate (~5%)
- Mesh complications 0.7-2%



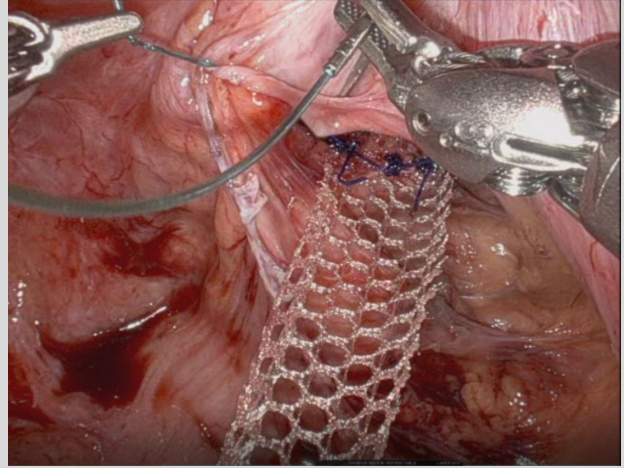
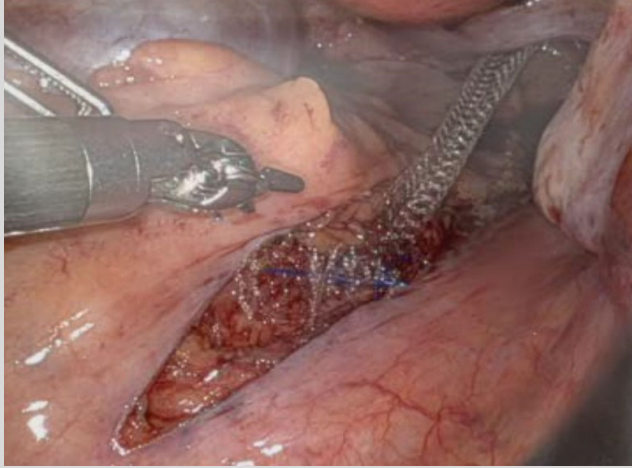
## Ventral Mesh Rectopexy



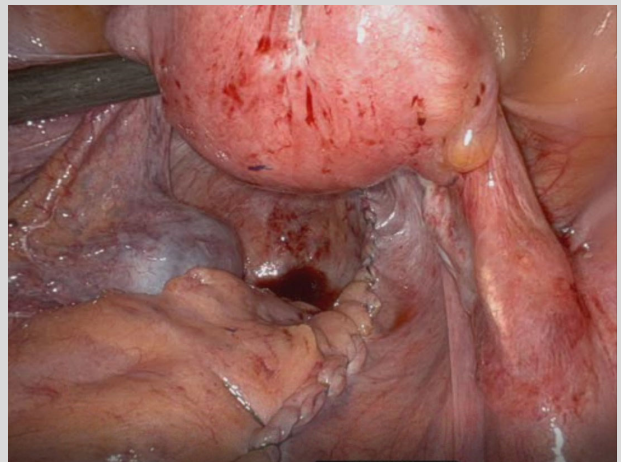
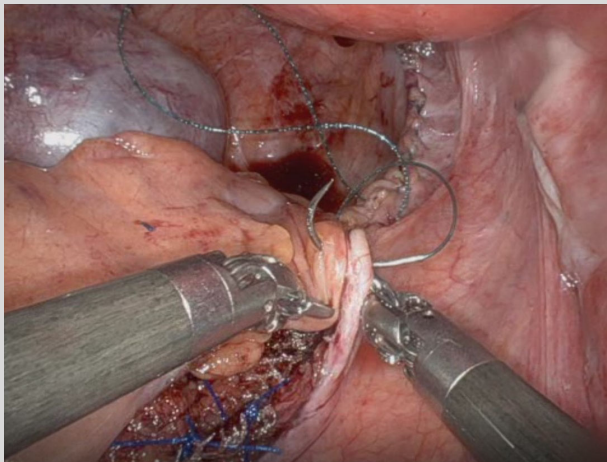
## Ventral Mesh Rectopexy



## Ventral Mesh Rectopexy



## Ventral Mesh Rectopexy



## When All Else Fails

- Diversion with ostomy is the last resort for severe refractory pelvic floor dysfunction.
- When is it indicated?
  - When all other reasonable options have been tried
  - The patient tells you they're ready

## Summary

- Treatment for GI/pelvic floor dysfunction should be tailored to the underlying mechanism(s).
  - Understanding those is essential before considering surgery!
- Set clear expectations with the patient – beware of “chasing perfect.”
  - Not all symptoms may respond or resolve after surgery.
- Surgery is a quality of life intervention for these disorders.
  - Patients often trade one set of issues for another.
- Surgeons and patients must weigh the risks and anticipated benefits of surgery together.