MANAGEMENT OF FECAL INCONTINENCE

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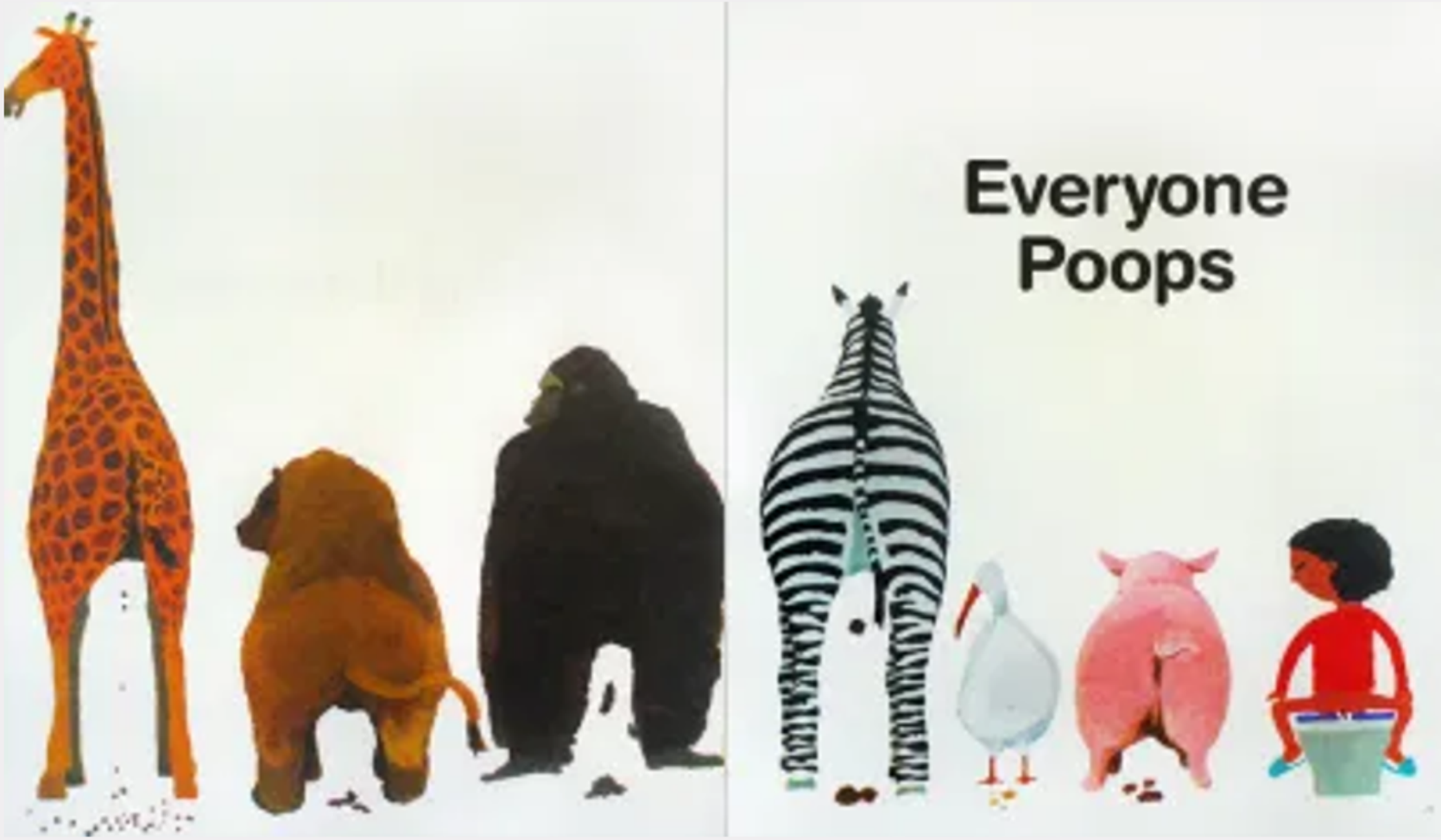

Everyone
Poops

- Inability to control stool impacts the **social dev't** of children (lack of friends, bullying)
- Successful treatment requires **dedication** of health care providers and family.

How do we achieve continence?

Motility
1
Recto-sigmoid

Colon motility + involuntary sphincter (RAIR)

Sensation
2
Anal canal + sphincter

Exquisite sensation + proprioception

Sphincter
3
Voluntary muscles

3 muscle groups, + Valsalva + gravity

4 Psychologic / intellectual

What causes incontinence?

ARM

Half are incontinent
25% no voluntary bowel movt, 35% soil

HD

Some have soiling
usually improves overtime (~15 yr)

Spinal Prob

NTD, SCT
innervation of sphincter & anal sensation

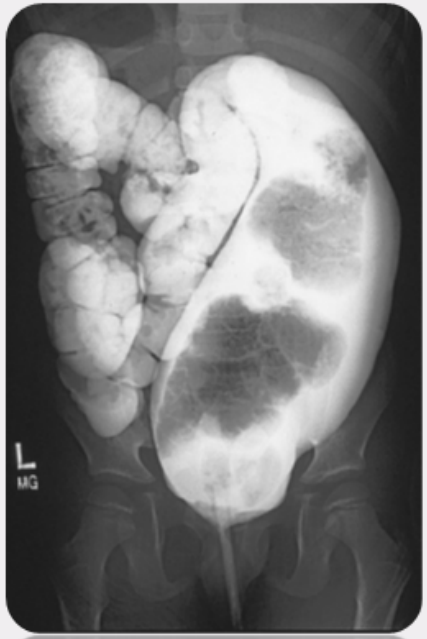
FC

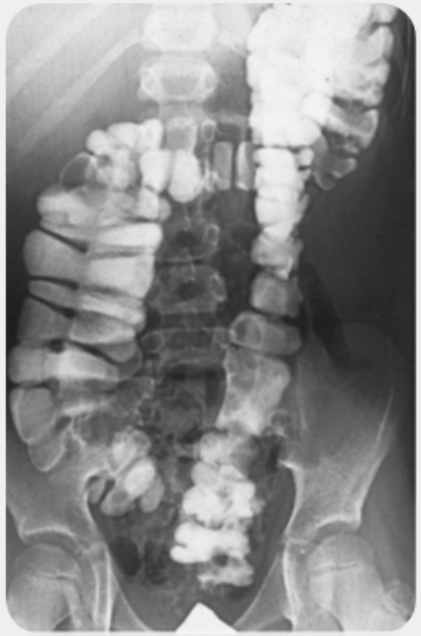
Incontinence is Part of criteria

Dev'tal delay

Autism spectrum
Lack of integration of different functions

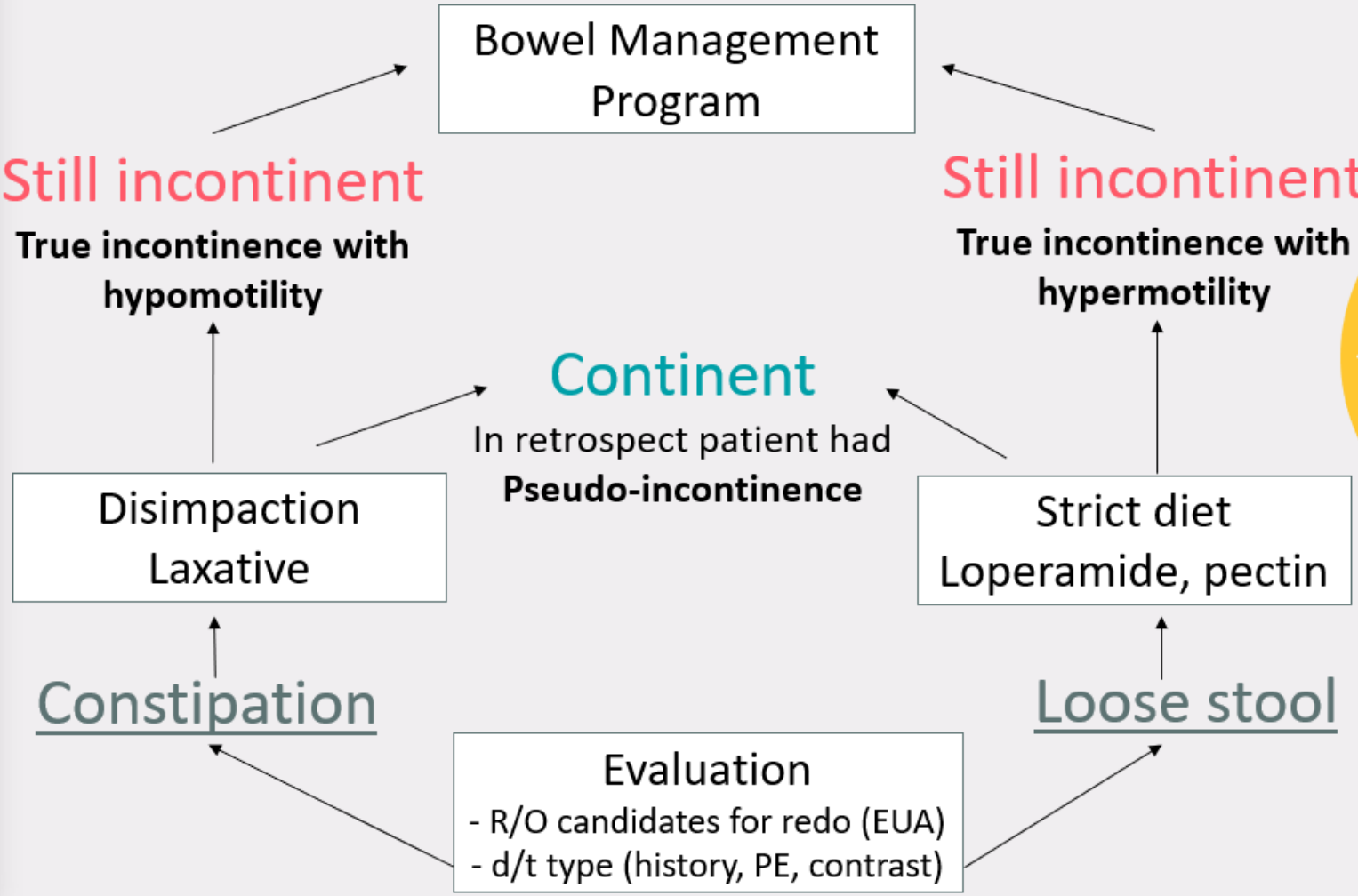
What is the type of incontinence?





- **Contrast enema (water soluble) to evaluate motility can show hypermotility or hypomotility.** *patients with spine disorders can have constipation without dilated colon b/c of abnormal innervation

Approach to fecal incontinence



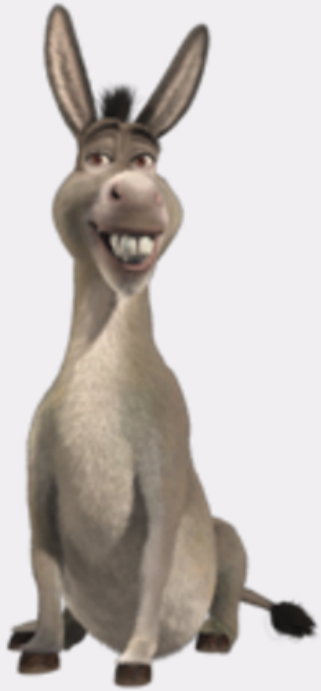
- 7 yr old boy with history of ARM. As a newborn, colostomy was opened and later PSARP was performed for vesical fistula. Then colostomy was closed and the parents were told the no routine follow-up was necessary. At the age of 7, he comes to your clinic complaining of daily soiling. Examination reveals mis-located rectum.

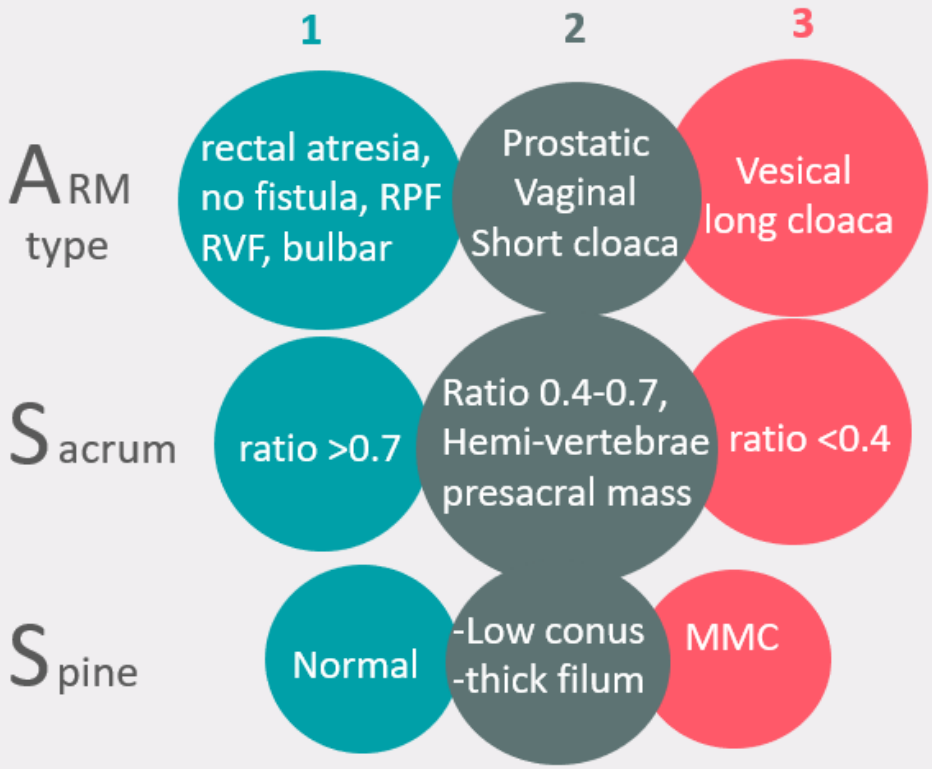
1. Would you perform redo surgery ?
2. What would you have advised regarding toilet training?

Why are ARM patients incontinent?

- Hypo development of sphincter
- Absent anus (no exquisite sensation)
  - **Relay on proprioception** (works if rectum is in center of sphincter and stool is bulky enough to distend rectum)
- Abnormal colonic motility
  - **Dec.** in megarectosigmoid (constipation, loop colostomy, fecaloma)
  - **Inc.** if distal rectum resected (old surgical techniques)

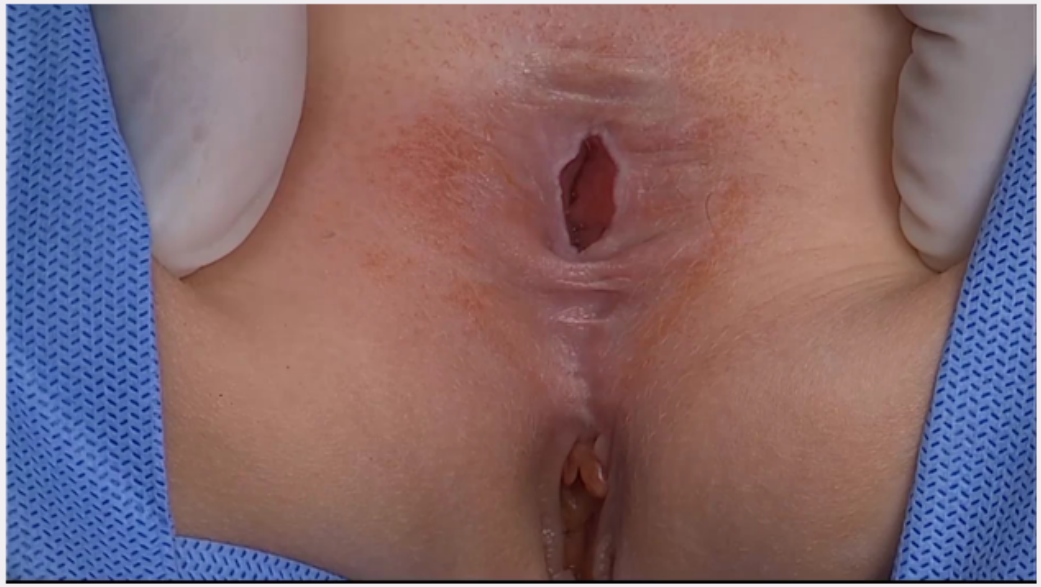
Asses potential for continence





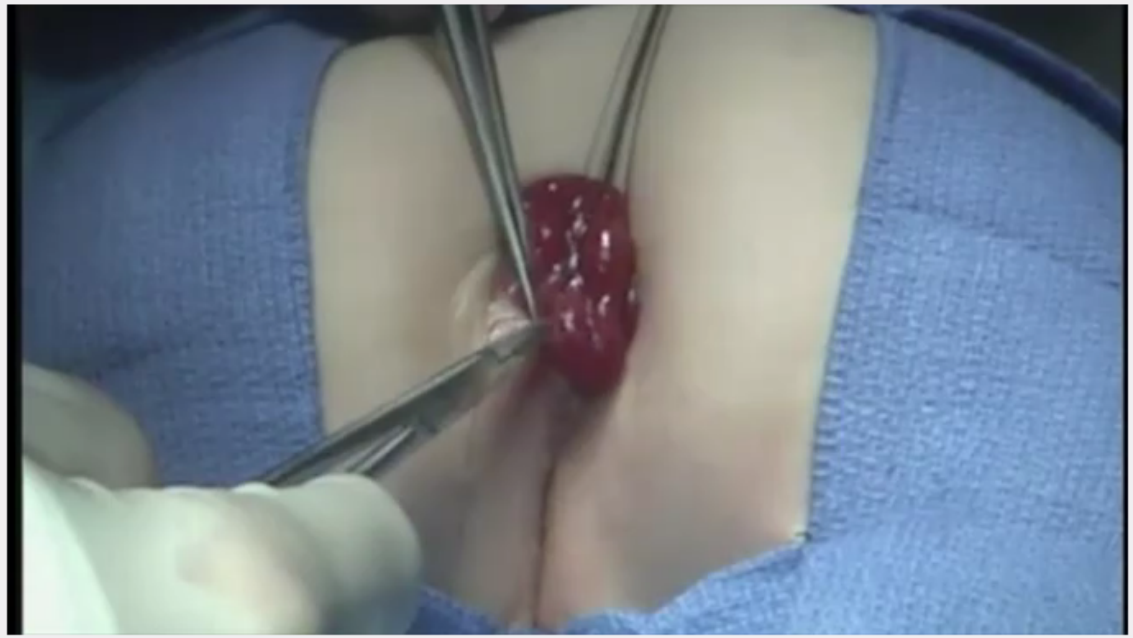
- **ARM index: predicts likelihood of successful voluntary bowel mov't.** (**3-4 good**, **5-6 fair**, **7-9 poor potential**). Postop passing 1-2 stool/days, no soiling, pushing, making faces and continence to urine are good signs.

Asses the anatomic reconstruction



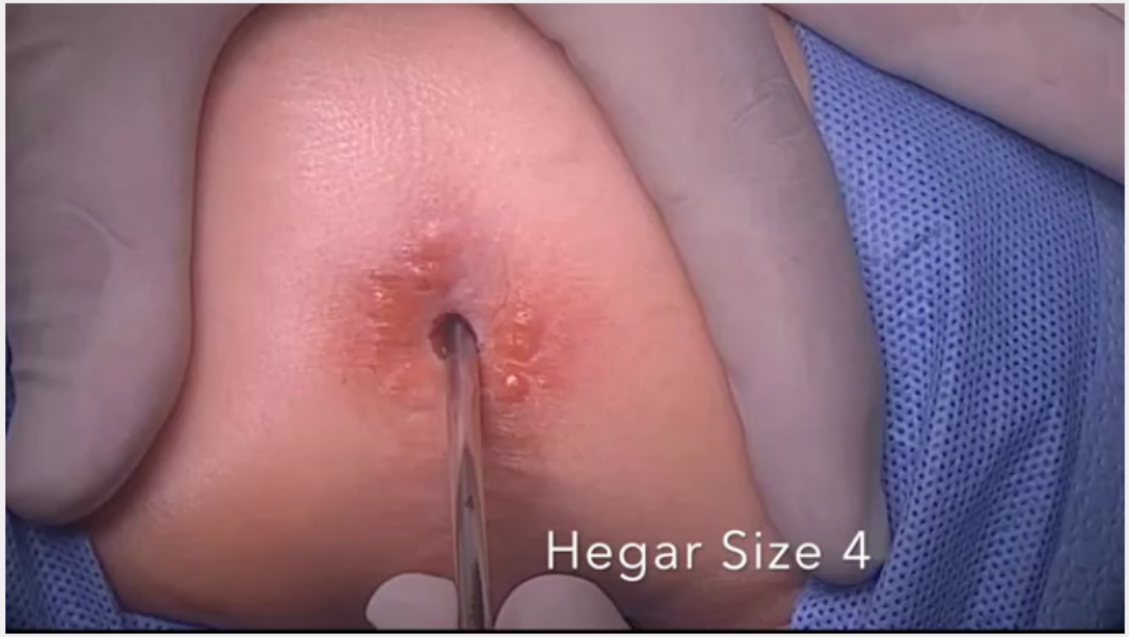
EUA: mis-located rectum (outside sphincter complex) Redo can be considered in patients with good prognostic factors. 50% of children operated with these specifications have improvement

Asses the anatomic reconstruction



- **EUA: prolapse.** Repairing of prolapse to correct incontinence should be considered if child has good prognosis. If planned after colostomy closure, it requires bowel preparation.

Asses the anatomic reconstruction



- **EUA: stricture (Hegar caliberation):** may present with staining, liquid stool and rash. Short (<1cm), ring like strictures can be corrected with Heineke Mikulicz like technique

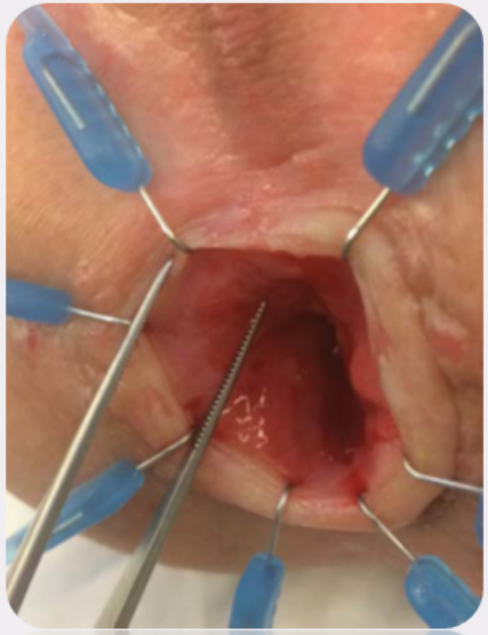
- 8 yr old boy with history of HD. Diagnosed at 2 years of age after presented with chronic constipation. Transition zone in rectosigmoid and underwent a primary pullthrough. His mother currently complains of daily soiling over past few years. She reports he stools 3 times a day but has smearing accidents multiple times a day.

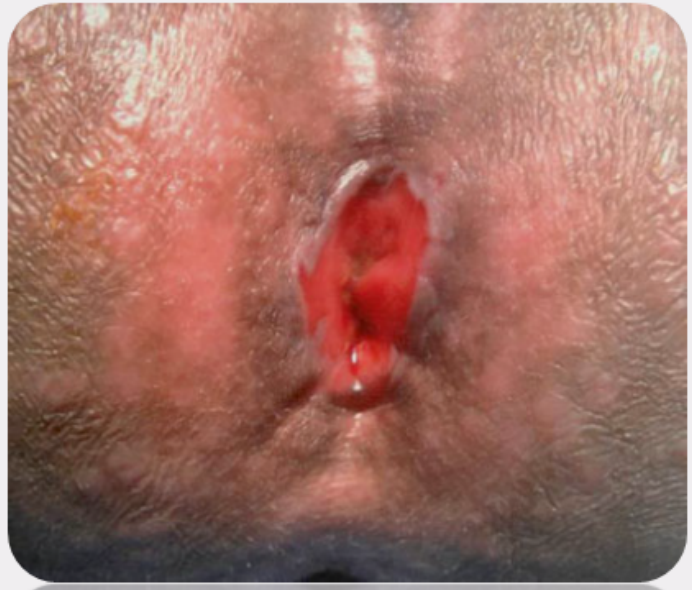
1. What is the first investigation to evaluate this patient?
2. How would you proceed with your evaluation?

Why are HD patients incontinent?

- **Lack of central processing** in syndromic HD (half are incontinent)
- **Damage to sphincter/anal canal during surgery (rare)**
- **Abnormal motility**
  - Hypermotility (lack of rectal reservoir)
  - Constipation (hypomotility) (Majority)
    - **lack of RAIR**
    - Leaving behind hugely dilated normo-ganglionic bowel
- **Obstruction**

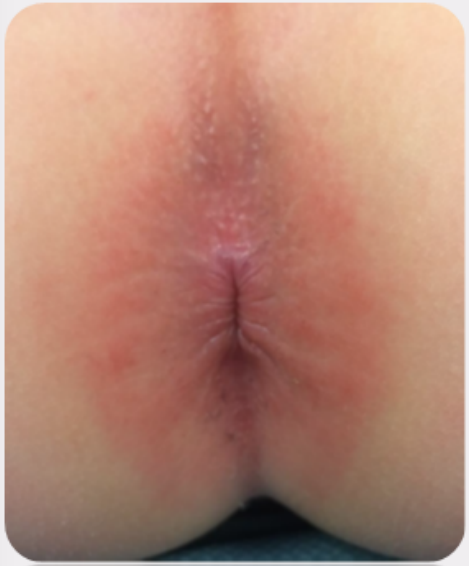
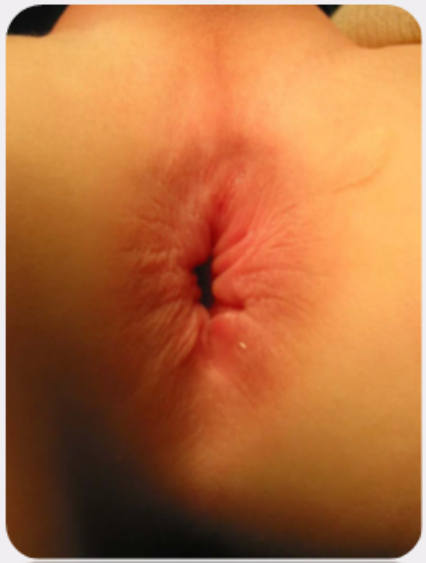
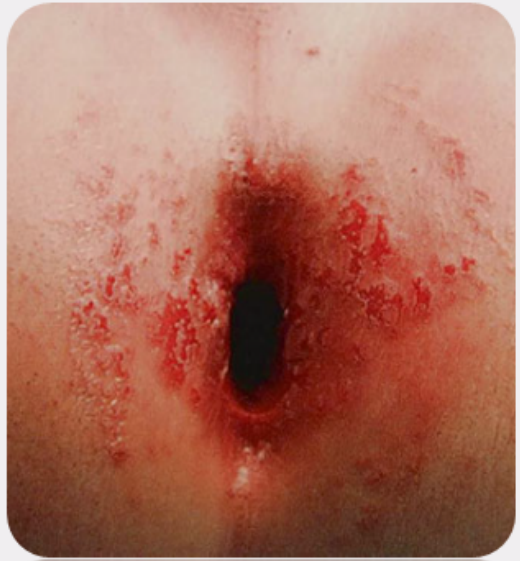
Rule out Irreversible complications





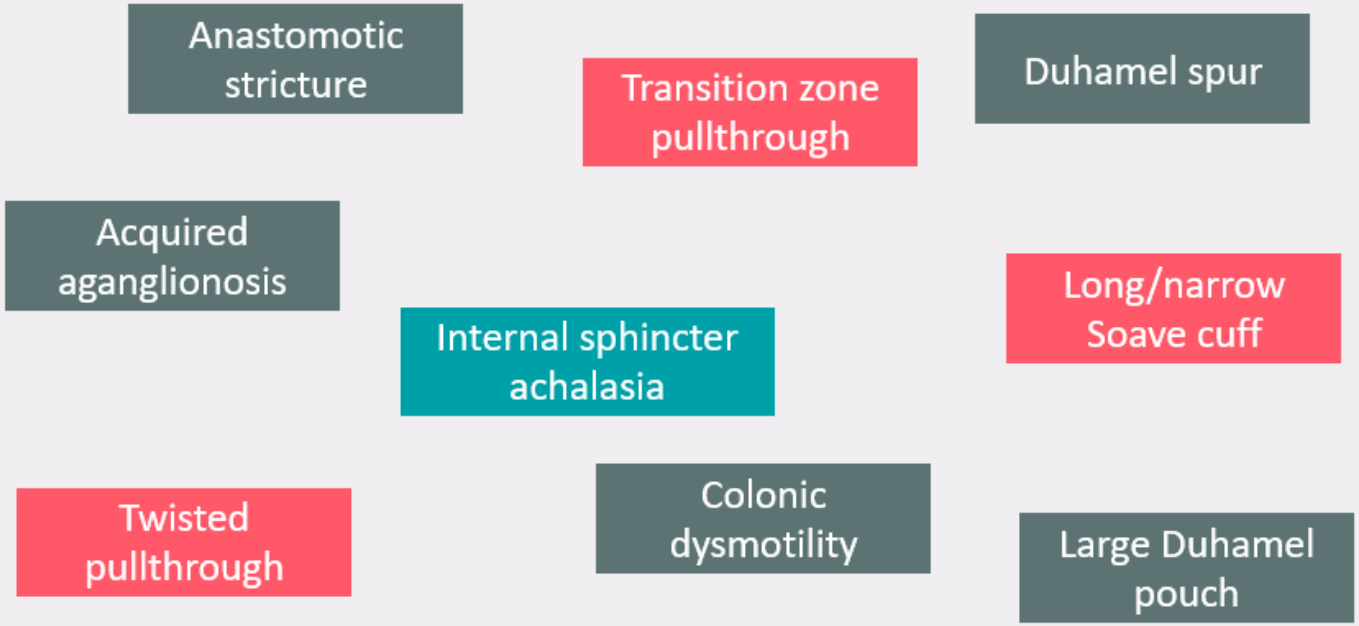
- **EUA: evaluation of anal canal/dentate line:** partially intact dentate might be enough to allow normal sensation. Bowel skin anastomosis (No dentate) will render patient incontinent.

Rule out Irreversible complications

EUA: evaluation of Sphincter tone: patulous anus can occur and indicates overstretching of sphincter or neurogenic damage during a pull-through procedure

Rule out obstruction



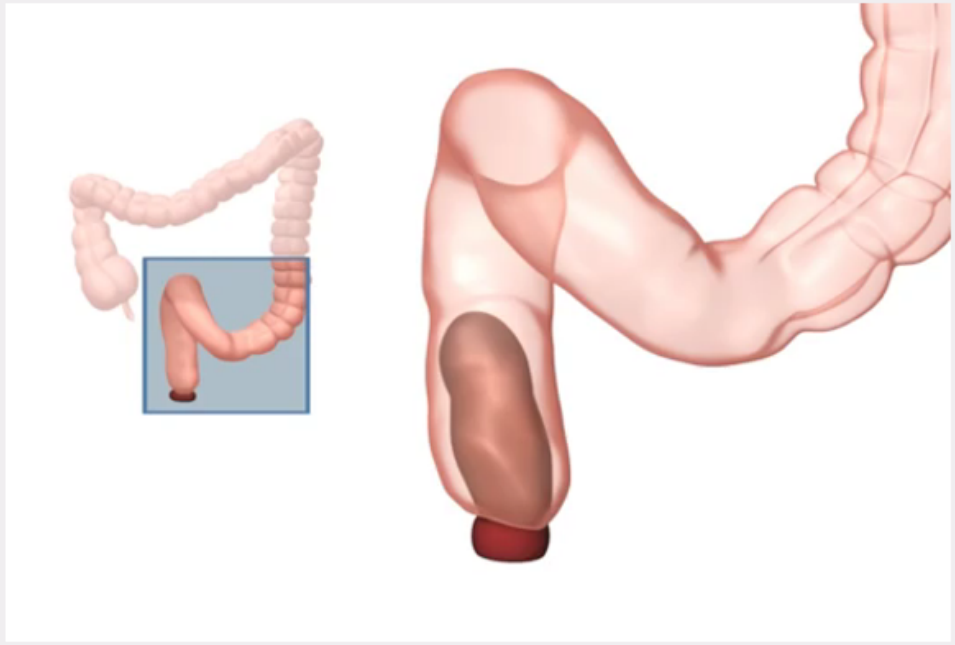
- **Most likely cause of soiling is pseudoincontinence.** ***d/t constipation from obstruction (enterocolitis, distension, FTT).** Additional work-up may include barium enema, manometry, and rectal biopsy.

- 5 yr old girl with history of sexual molestation

  Comes to your clinic with a complaint of daily fecal soiling for 8 months (since the accident). Family also reports painful bowel movements with passage of large, hard stool. Examination is difficult because she has anal defensiveness.

  1. Why is this child incontinent?
  2. How would you manage her?

Why are FC patients incontinent?



- **Vicious cycle:** withholding behavior b/c fear of bowel mov't. **Chronic constipation** leads to enormously dilated rectosigmoid: even with ganglion cells, behaves like a myopathic type of hypomotile colon

Evaluation of FC

- **History:** all possible risk factors. (initiation of solids, toilet training, starting school, family problems)
- **Physical Exam**:
  - abdominal (distention, palpable mass),
  - perineal (fistula, fissure, inflammation, signs of abuse);
  - DRE (anal tone, rectum size, stool amount/consistency)
  - Neurologic (spine)
- **Investigations**: clinical suggestion of **organic disease** or those **not responding** to medical management
  - Biopsy, anal manometry, Colonic transit studies, MRI

- **Mainstay is medical treatment** (few months - 4 years)
  - diet, laxative, enema, **Behavioral (psychiatrist may be involved)*
- **Consider surgery only after totally failed medical treatment**
  and after extensive investigations

01	• Diffuse dysmotility • < 3yr, FTT	→	• Ileostomy (repeat manometry 1-2yr)
02	• IAS/ EAS dysnergia • Severe withholding	→	• Botox (IAS/EAS)
03	• Cant tolerate laxatives	→	• Resection (laxative trial after 6mo)
04	• Cant tolerate enema (autism…)	→	• Temporary Malone (laxative trial after 1 yr)
05	• Failed initial surgery	→	• Ileorectal anastomosis • SNS if no segmental abn

Bowel management program

- Pena came up with **systematic approach** to bowel management
- Principle is to clear the colon once daily with an enema and keep colon quite for 24 hours
- **> 90% can have a normal life** with continued education, and encouragement of the family

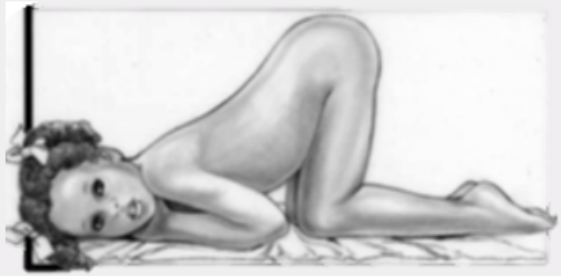
Bowel management program

- **Moto: It is unacceptable to send a child with fecal incontinence to school in diapers**

Enema components

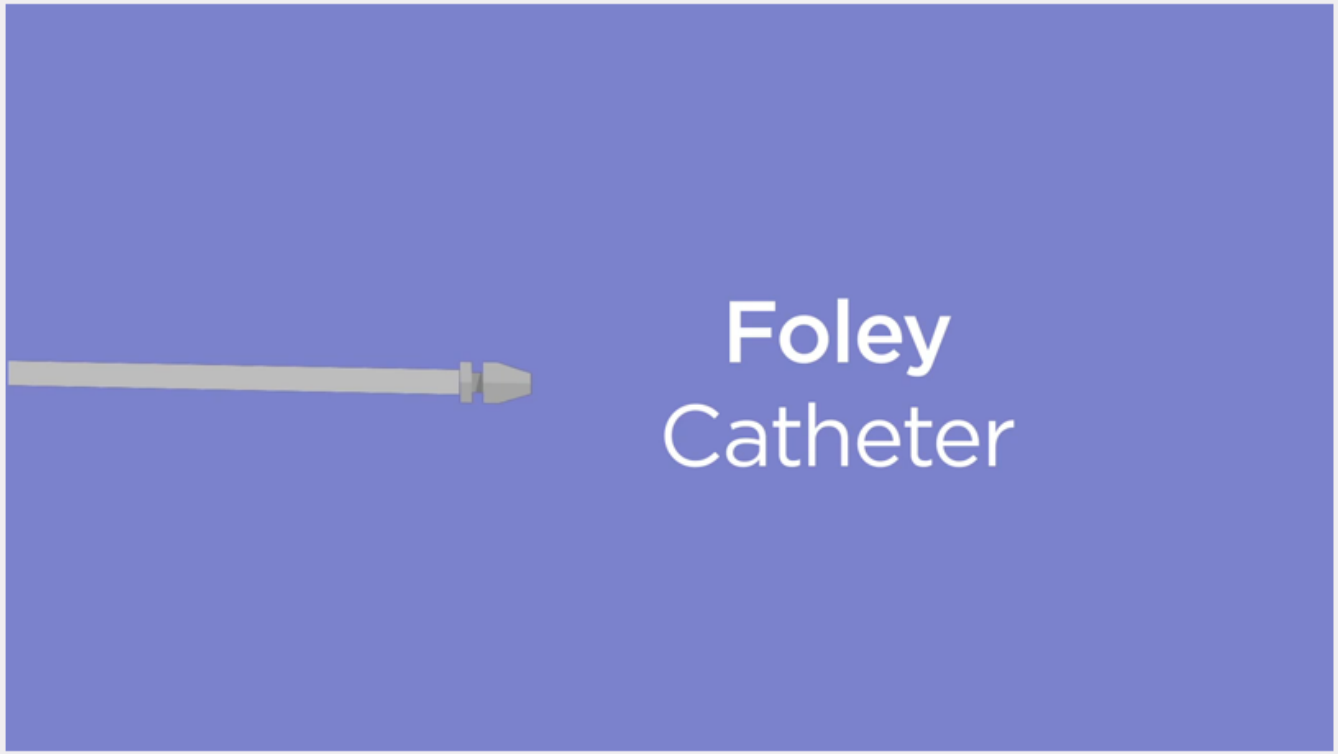
- **Saline**
  - **Glycerin**
  - **Soap**
  - **Bisacodyl**
  - **?phosphate**

Enema position



- **Positions according to age.** position of the patient must facilitate the effect of gravity for the enema fluid to go into the colon

Enema administration

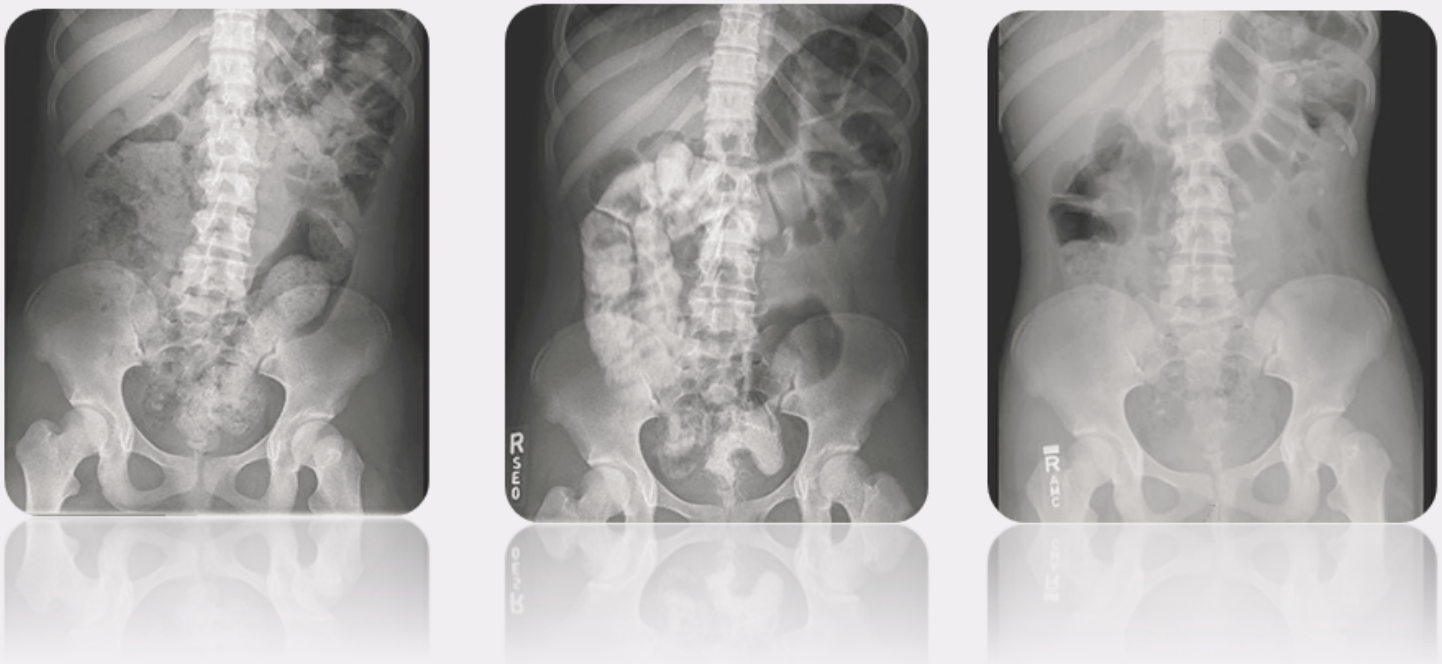


- **Procedure**: Inflate balloon catheter and pull back to prevent leakage. Whole process should take 1 hr. Can be done at any time of day but timing should be consistent.

Enema Adjustment

- Initial amount/type is estimated from **contrast enema**
- change by **trial and error** over a period of **1 week**
  - **Estimated form Daily x-ray**
    - Stool in ascending/transverse colon = inc volume
    - Stool in descending/sigmoid/rectum = inc stimulant
  - **Presence/absence of soiling accidents**

Follow up



- **Series of radiographs** obtained during inpatient bowel management shows progression toward a completely clean colon with daily adjustment of the enema.

1. Incontinence with colonic hypo-motility

- **Good prognosis ARM**
- **Successfully repaired HD**
- **Severe FC**

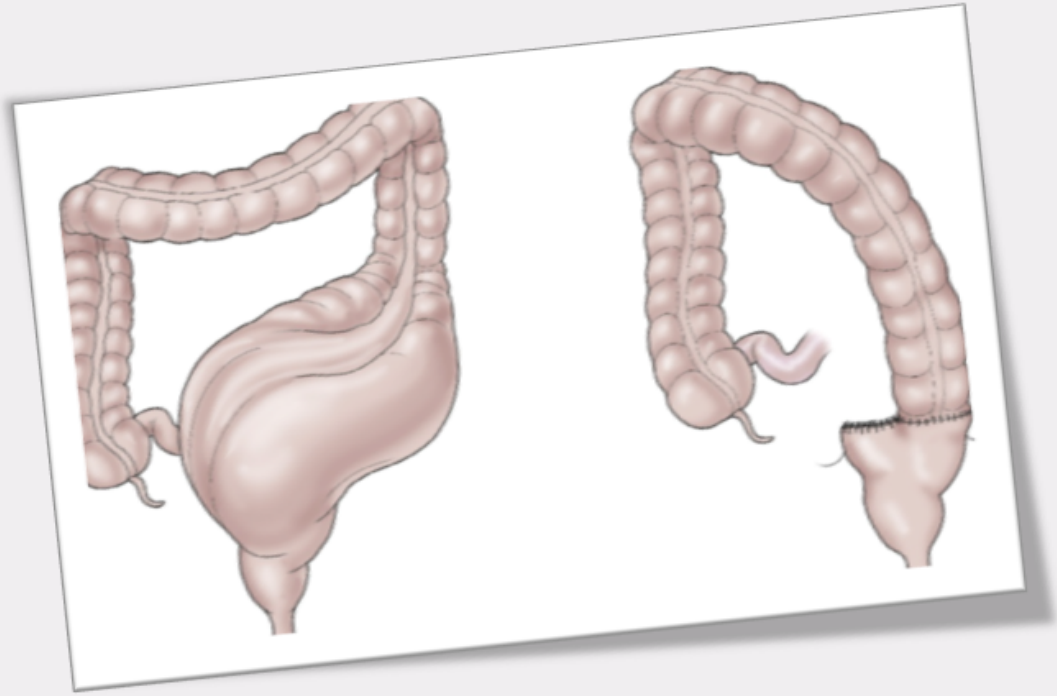
Incontinence-hypomotility

- Pseudo- incontinence
  - Dis-impaction (**enema** several times a day until X-ray is clean)
    - **>>**Osmotic laxative (golytely)>> manual dis-impaction (EUA)
  - Maintenance = large dose **stimulant laxative** (senna/bisacodyl)
    - Age > 6 years may need prolonged enemas (~6 mo)
    - **add buking agent for ARM*
- True incontinence: **Large Enema only** is enough *(no diet or medication)*
  - constipation helps them remain clean b/n enemas. (laxatives worsen condition)

Adjusting Bowel habit

- **Bowel habit**: Have regular meals. Sit on the toilet is after eating (gastrocolic reflex). It might take years for megarectosigmoid to return to normal

Sigmoid resection with preservation of the rectum



- **Surgery can't cure constipation but may help medical treatment.** operation reduces laxative requirement in those with high dose causing side effects. But first r/o true incontinence with constipation.

2. Incontinence with colonic hyper-motility

- **ARM operated before the era of PSARP**
- **A small group of HD patients**

Incontinence-hypermotility

- Pseudo-incontinence: Continent but have incontinence during diarrhea
  - **Constipating Diet** = list foods to take and foods to avoid
  - **Medications to slow the colon** = loperamide (BID)
  - **Bulking agent** = Pectin (special type of fiber)
- True incontinence
  - **Small enema**
  - But even when an enema cleans colon, stool keeps passing *(continue constipating diet loperamide, bulking agent)*
  - Most respond to aggressive management in 1–2 weeks.

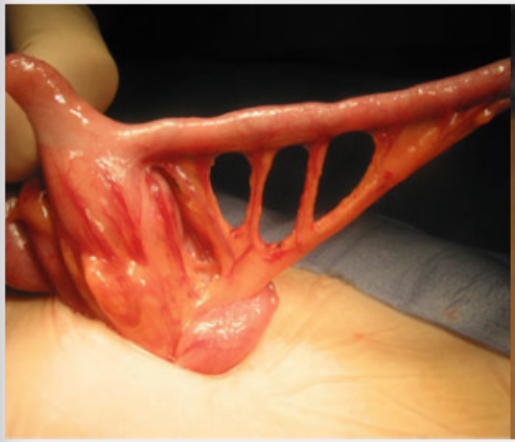
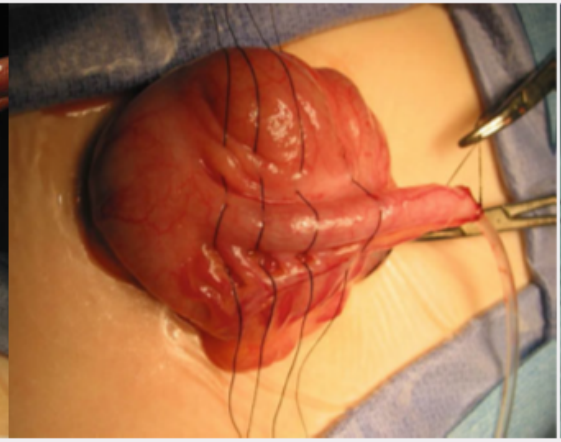
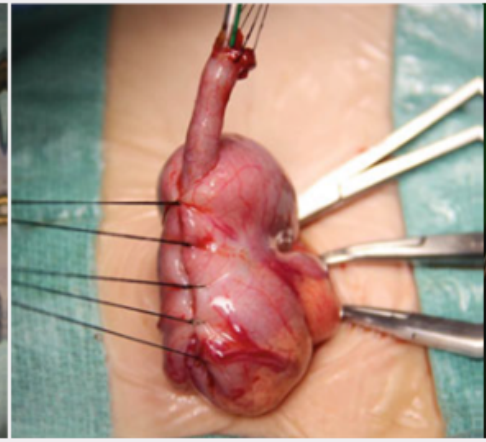
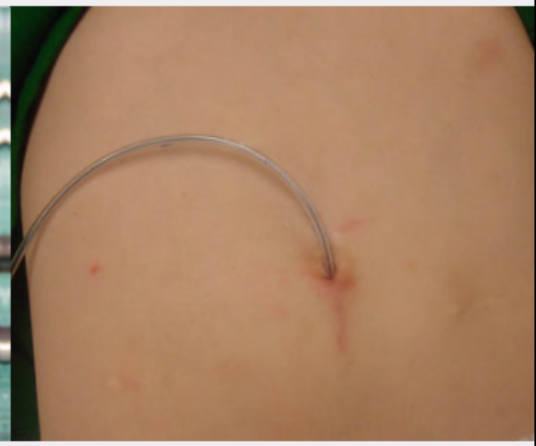
Diet

AVOID
- Milk products
- Fruits, Vegetables
- Fats, Fried foods
- Spices
- Chocolate

EAT
- Apple sauce, Jelly
- Banana, Potato
- bread, Bagels, Pretzels
- Rice, Pasta (no sauce)
- ? Soft drinks, Tea
- Boiled/broiled meat

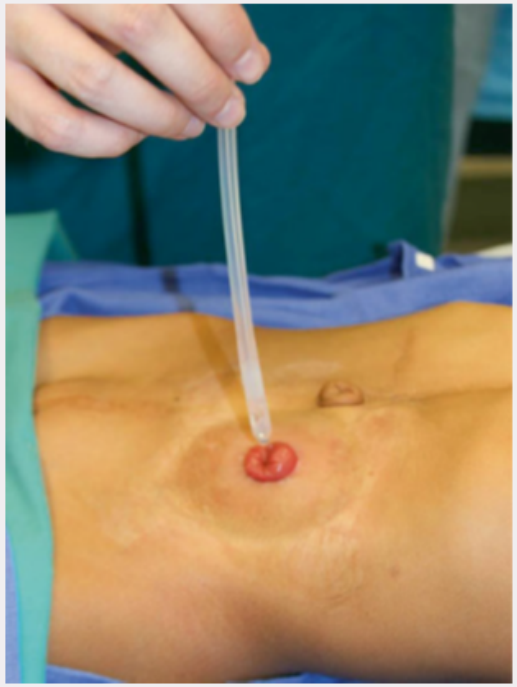
- **Diet needs to be strict**. constipating, 3 meal, no snacks until clean for 24 hr, 2–3 days in a row. Then choose a new food every 2–3 d and observe effect. Reduce dose of meds over several months

1. Is bowel management program for life?

- **Yes: for ARM with poor prognosis. We may perform surgery for antegrade enema** with apendicostomy (Malone), Neo-appendicostomy (colonic flap) or cecostomy. **Not always: For ARM Borderline prognosis.** they **can have have summer/vacation trials**

2. PSARP or permanent stoma for poor prognosis?



- **For patients in a wheelchair or with significant developmental delay, a colostomy may be a better choice.** Some patients have the capacity for good bowel control with daily enema through their colostomy.

3. Are there Alternative Therapies? (to bowel mgt)

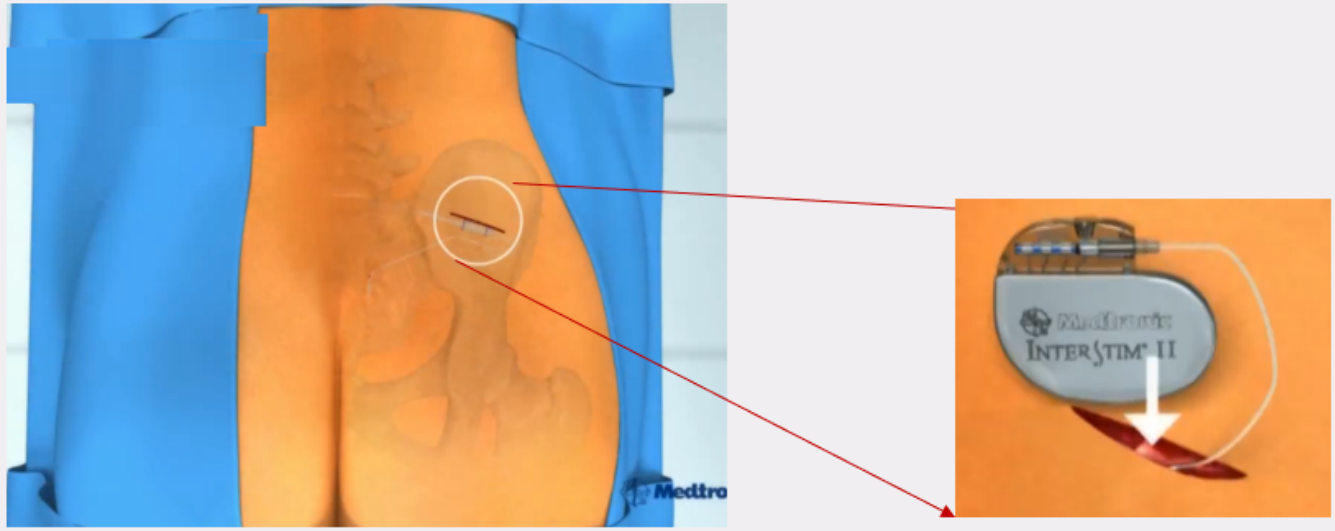
Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Sacral nerve stimulation: a promising therapy for fecal and urinary incontinence and constipation in children☆

Jason P. Sulkowski [a,b], Kristine M. Nacion [a], Katherine J. Deans [a,b], Peter C. Minneci [a,b], Marc A. Levitt [b], Hayat M. Mousa [b,c], Seth A. Alpert [b,d], Steven Teich [b,*]



- **Sacral nerve stimulation:** stimulates the anterior ramus of sacral nerve roots through surgically implanted electrodes connected to a pulse generator that is placed subcutaneously in the lateral buttock.

Summary

- Continence has **physiologic** + **behavioral** component
- **True incontinence** should be differentiated from **pseudo-incontinence**
- **ARM-** predict prognosis, counsel & treat early
- **HD** - True incontinence post-pullthrough is iatrogenic
- **FC** - Surgery doesn't cure, but may help with medical Rx

References

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Chapter by Marc A. Levitt & Alberto Peña

Summary

THANK YOU!

Are our post-op ARM patients content or continent?

Summary