Bowel and Bladder Dysfunction (BBD)

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Children's National

What is Bowel and Bladder Dysfunction?

Lower urinary tract symptoms (LUTS) and bowel movement disorders

Majority are learned behaviors

GU and GI systems

- similar embryology, innervation, pelvic location and passage through levator ani pelvic floor muscles
- both are impacted by dysfunction

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LUT Symptoms

Account for up to 40% of pediatric urology clinic visits

UTIs and VUR

Idiopathic urethritis/ urethrorrhagia

Urgency

Straining to void

Diurnal incontinence

Urinary frequency

- Increased
- Decreased

Nocturnal enuresis

Penile/Vaginal pain/discomfort

Epididymitis

Dysuria without UTI

Intermittent stream

Feeling of incomplete emptying

Posturing and holding maneuvers

Hesitancy

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Constipation and Encopresis

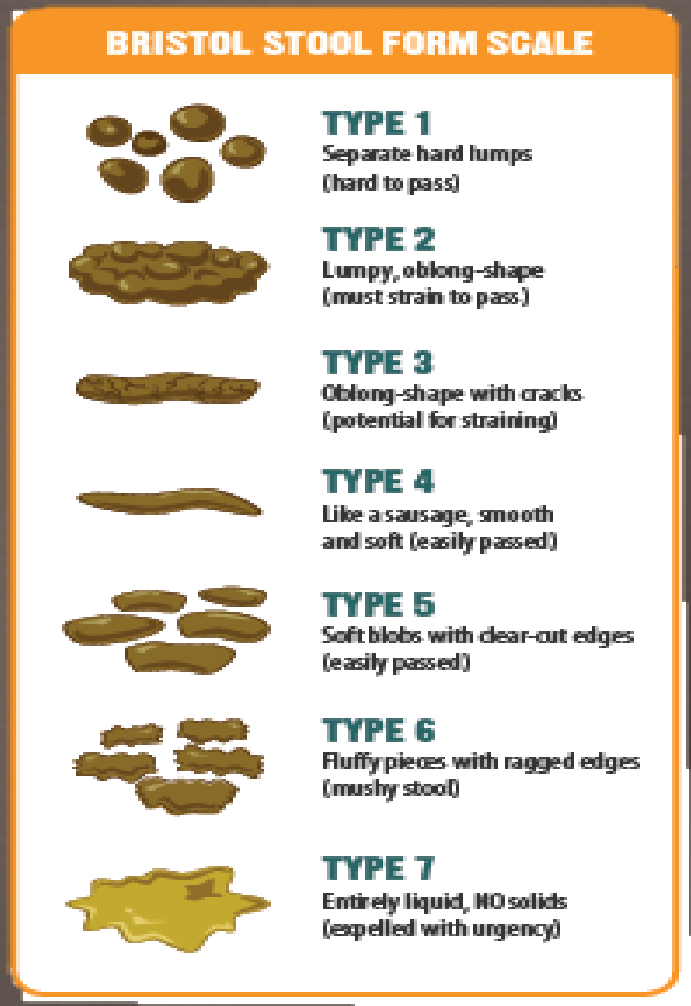
Prevalence 0.7% -29.6%
3% of PCP visits
visits

20-25% of Ped GI

Rome III Criteria

Infants to 4yrs (at least 2 for 1 month)
≤ 2 BM/week
Encopresis 1x/wk after toilet training
Excessive stool retention
Hard painful stools
Large diameter stools that obstruct the toilet
Large rectal fecal mass

Children > 4 yrs (2 or more/month)
≤ 2 BM/week
Encopresis 1x/wk
Stool withholding
Hard painful stools
Large diameter stools that obstruct toilet
Large rectal fecal mass



Functional constipation and LUTS impact the quality of life, psychosocial and economic well being of the entire family.

As common as it is, there are no universally accepted diagnostic criteria for BBD

The mechanism for development of BBD is unclear. Various theories include:

Compression and obstruction from distended rectum

Neuromuscular etiology

Pelvic floor muscular dysfunction

Behavioral issues and habits

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Rectal Distension and LUT Function

Experimental studies show conflicting results

Acute rectal distention affects bladder function in children with LUTS in 3 ways:

- Inhibitory
- Stimulatory-most patients
- No effect

The effects of rectal balloon inflation persisted or progressed in 46% of patients after deflation

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How does BBD Happen?

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Voiding in the infant

Spontaneous voiding is believed to be a spinal cord reflex

Bladder distension stimulates detrusor contraction and the external sphincter relaxes

Small voided volumes ~20 times/day, approximately once an hour

Bladder emptying is often incomplete

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Normal voiding

With neuromuscular maturation, emptying becomes more coordinated and children should void to completion approximately every 2-3 hours

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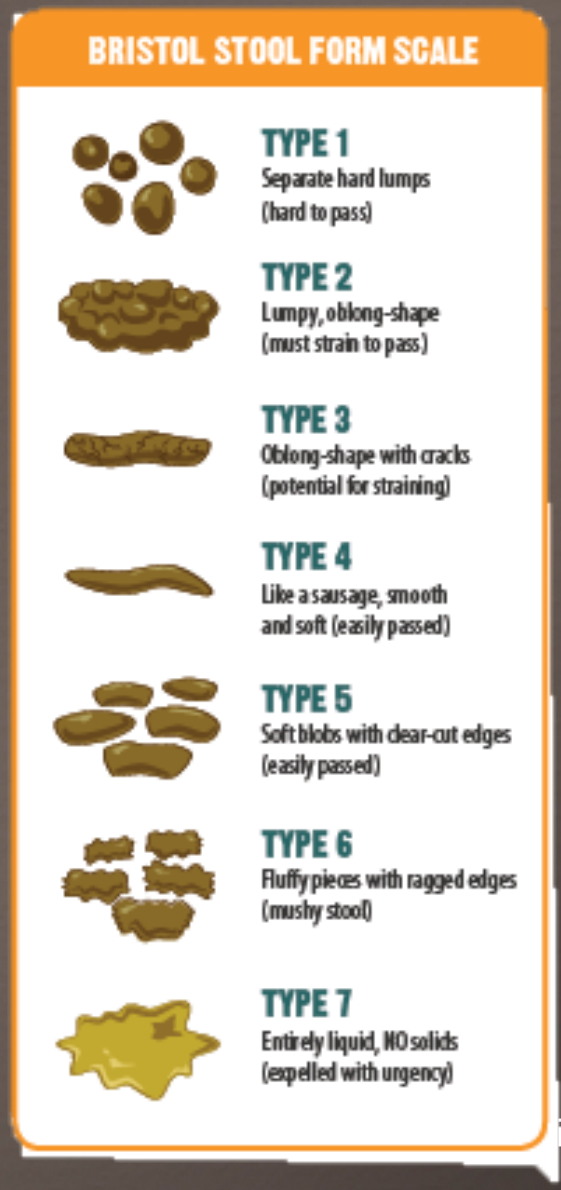
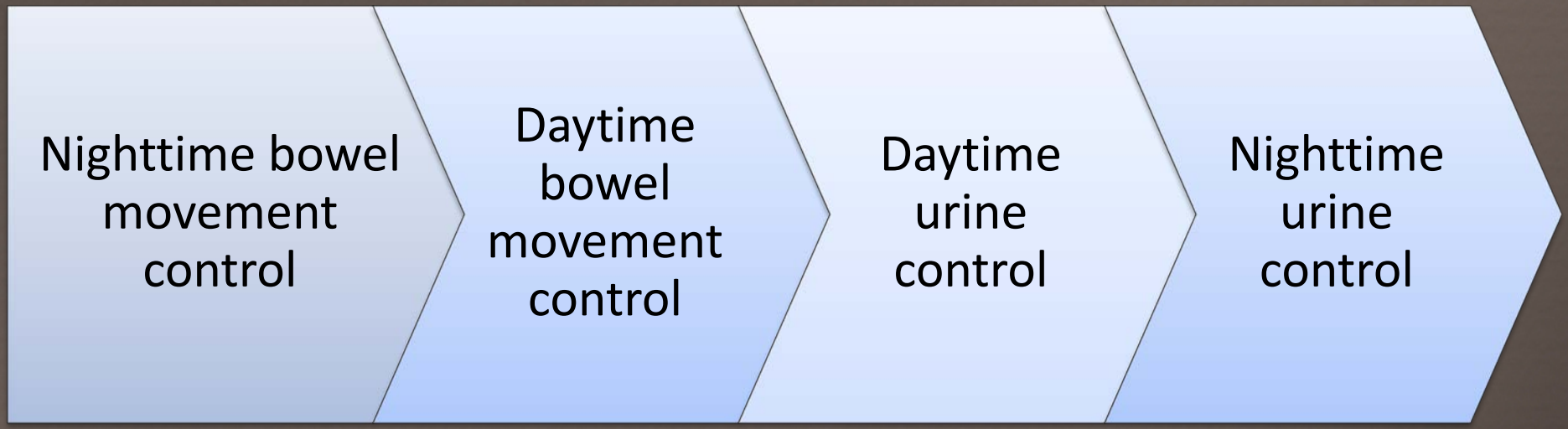
Normal bowel movements

AGE	BOWEL MOVEMENTS PER WEEK[A]	BOWEL MOVEMENTS PER DAY[B]
0–3 Months		
Breast-fed	5–40	2.9
Formula-fed	5–28	2.0
6–12 Months	5–28	1.8
1–3 Years	4–21	1.4
More than 3 Years	3–14	1.0



Typical pattern of urinary and bowel control



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To achieve voluntary independent control of elimination

Sense bladder and rectal fullness

Inhibit voiding and bowel movements until arriving at a socially acceptable place (bathroom)

Pull down clothing adequately or get assistance

Sit or stand to urinate/defecate

Wipe adequately/ 'shake'

Pull up clothing

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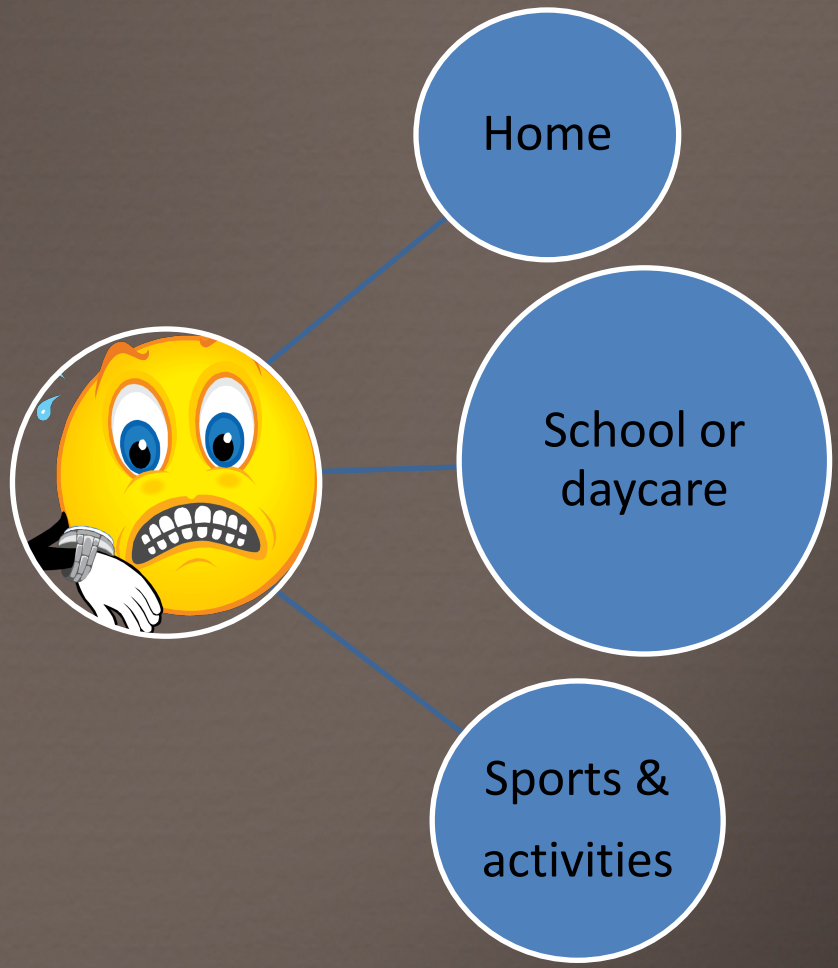
Complex coordination



How are children supposed to achieve normal habits?

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Factors impacting the development or persistence of BBD

HOME

- Lack of adult monitoring
- Distractions (Video games, computer games, TV, playing)
- Poor fluid choices, not enough water intake
- Diet low in fiber, high in constipating foods
- Overscheduling
- Caretakers unaware of ‘normal ‘ drinking, voiding and bowel movement habits

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Factors impacting the development or persistence of BBD

SCHOOL

- Urine and stool withholding
- Restrictions and limited access to bathrooms and water
- Lack of privacy in school bathrooms
- Dirty bathrooms
- Bullying
- Peer pressure
- Negative reinforcement (discouraging students, withdrawal of privileges)
- Poor fluid options and choices.
- Inadequate fluid intake

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Survey of elementary school teachers

- 30% reported making students wait to go to the bathroom during class
- Almost 50% noted progressively worsening sanitation in the bathrooms during the day
- 42% noticed bullying in the bathroom
- Fewer than 20% suspected underlying health problems in children with frequency, incontinence or encopresis

Cooper, C. JUrol, 2003

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Survey of school nurses

48% suspected underlying health problems associated with urinary frequency

33% suspected underlying health problems associated with incontinence and encopresis

61% lacked information about normal elimination

43% had been asked to provide elimination information to teachers

70% were unaware of local providers specially trained to treat children with BBD

Cooper, C. , JPedUrol, 2012

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Evaluation of BBD

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History

Drinking habits
- What, when, how much

Voiding habits
- at home, at school, color of urine in am/pm
- Holding maneuvers (Posturing, grabbing genitalia, sitting with heel on perineum, dancing, crossing legs)

Bowel movements
- Bristol stool scale, Rome III criteria, frequency, straining, pain with defecation, blood with wiping, abdominal pain, encopresis

UTIs
- Fever, symptoms,

Psychological/behavioral issues (ADD/ADHD)

Developmental delays or physical limitations

Family history

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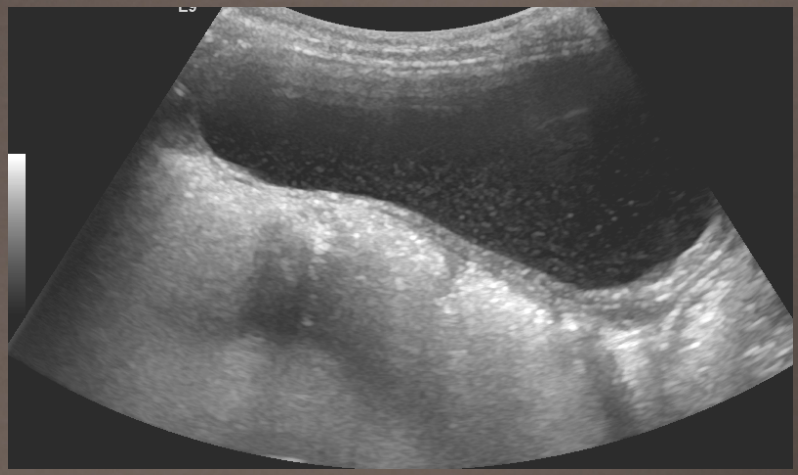
Physical examination

Palpable stool
Gaping anus, anal fissures, hemorrhoids
Pooling of urine in vagina
Labial fusion
Stained or damp underwear
Perineal rash
Meatal stenosis
Cutaneous lesions of lumbosacral spine
- Gluteal cleft anomalies, tufts of hair,
- sacral dimple

Gait (walking on toes)
Urinalysis/Urine culture



Bladder ultrasound in clinic to assess PVR and stool in rectum

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Behavior modification/Urotherapy

- Patient/parent education
- Written information on timed drinking and voiding regimen
- Aggressive bowel movement management
- Use alarm watch

Holistic Approach to Treating Wetting and Urinary Tract Infections

WISH Clinic at Children's National

Drink enough water until urine is clear by early afternoon. Stop drinking two hours before bed

Urinate (Pee) after waking, every two to three hours during the day, especially at school, and before bed

Monitor Pooping and Treat Constipation

- Soft smooth stools daily
- Eat a fiber rich diet; 20-40 grams daily based on age
- Eliminate processed foods, white carbohydrates-pasta, rice, bread, and bagels
- Eat high fiber alternatives-double fiber bread, brown rice
- Limit dairy product intake-cheese, milk, ice cream
- Eat green leafy vegetables-kale, spinach, not iceberg lettuce!
- Eat "P" and "B" fruits-prunes, blueberries, blackberries
- Fruit smoothies, Fruit-Eze spread

Exercise

Maintain normal body weight and BMI

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Bladder and Bowel Dysfunction Risk Factors

WISH Clinic at Children's National

Poor Voiding Habits (Peeing)

- Not voiding immediately after awakening
- Waiting more than three hours between voids
- Improper toilet position
- Not voiding before bed

Poor Drinking Habits

Not drinking enough water throughout the day/home and school

Drinking caffeinated, carbonated, or high sugar drinks — Soda, Chocolate milk, Coffee, Tea, Energy Drinks, Gatorade, Kool-aid,

Poor Stooling Habits (Pooping)

- Hard, infrequent stools or small, hard pellets
- Large, fat,' lumpy bumpy' stools
- Poor fiber intake; not enough fruits and vegetables, whole grains, nuts, or beans
- Straining or not taking enough time to pass stool
- Improper toilet position

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Additional initial recommendations

All behavioral issues (ADD/ADHD/defiance) must be addressed simultaneously

Renal/Bladder ultrasound (RBUS)- pre/post void

- Hx of UTIs, diurnal incontinence, straining

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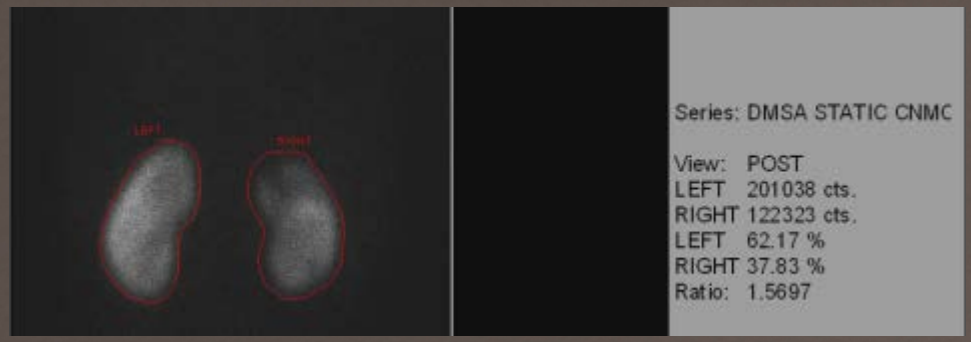
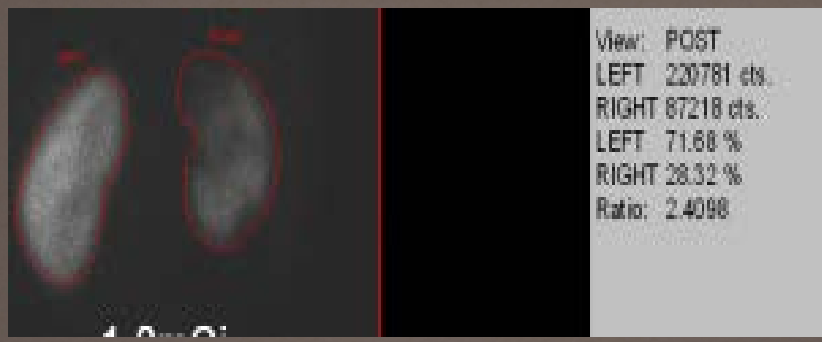
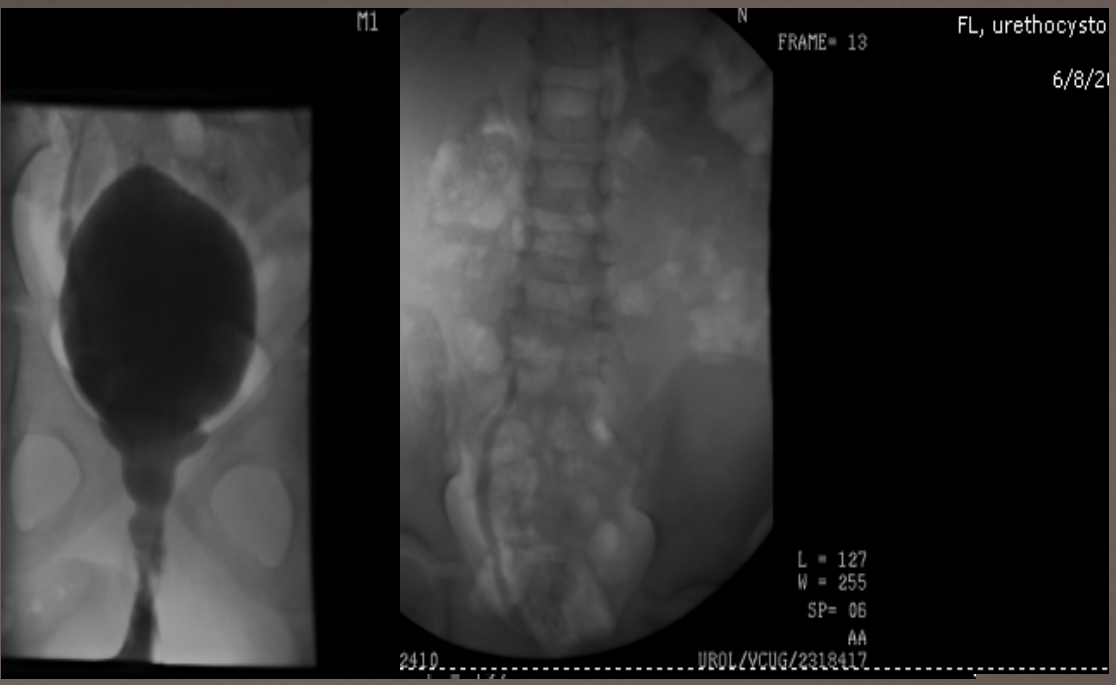
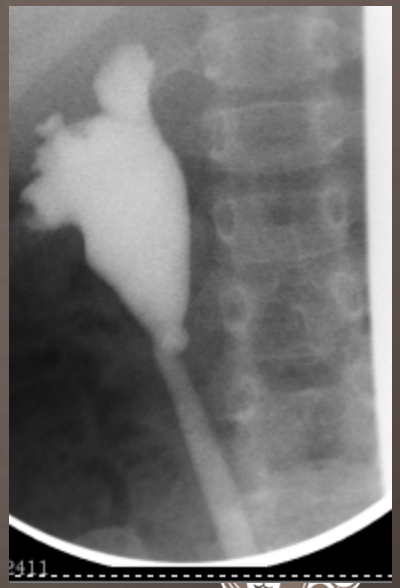




2012- 4 years 1 mon

2014-5years 8mos
19months later





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What next??????????

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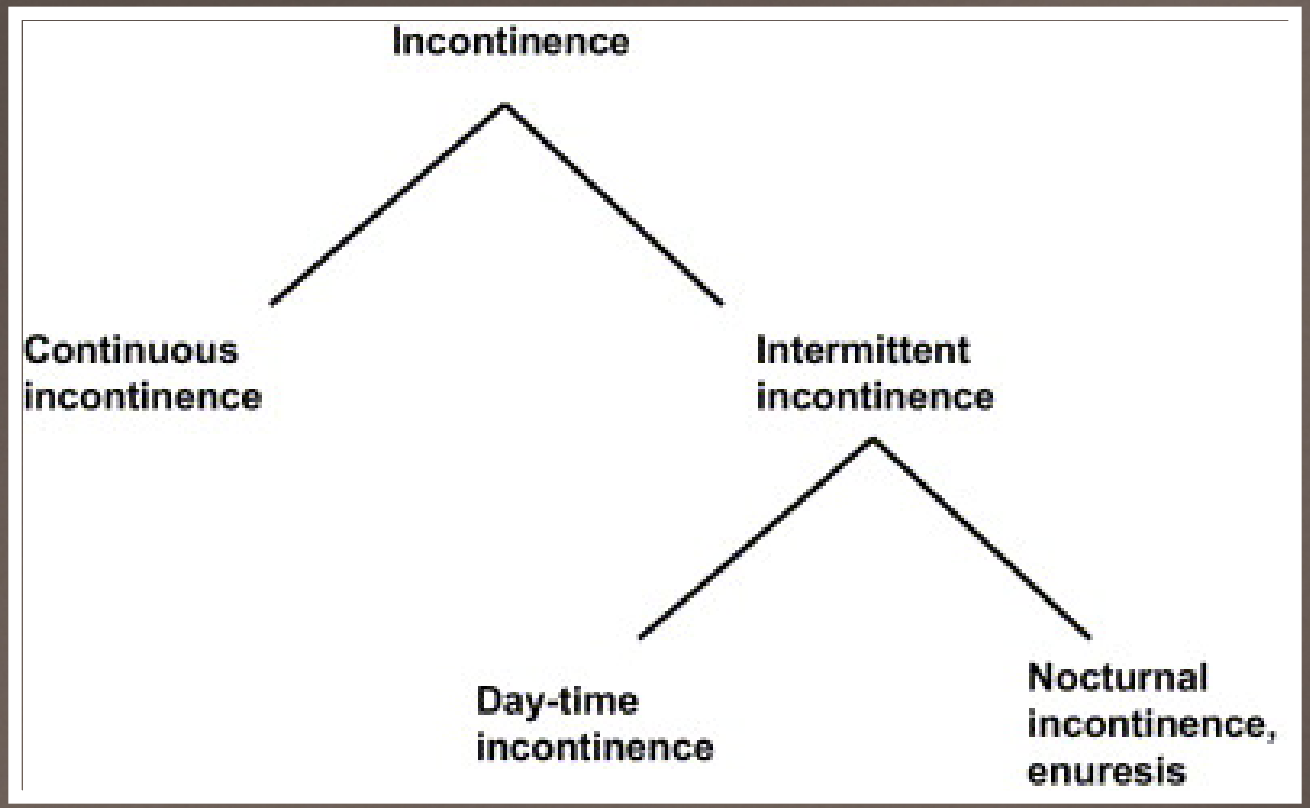

Renal Bladder ultrasound & Refer to Pediatric urologist

UTIs and VUR

- VUR is a risk factor for pyelonephritis and renal scarring
- BBD in patients with VUR
  - Increases the risk of breakthrough UTIs
  - Worsens the severity and likely prolongs resolution
  - May cause recurrence after initial improvement or surgical correction

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Culture proven UTI

Febrile and nonfebrile UTIs

- Start timed drinking and voiding
- Discuss bowel movements
- Treat constipation if criteria are met
- RBUS with pre and post void images
- Appointment with a specialist (Pediatric urologist)
  - If the RBUS is abnormal or ≥2 episodes of nonfebrile UTI
  - If there is a febrile UTI*****

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Constipation and Encopresis

Educate patients and parents about diet modifications

WATER! WATER! WATER!

Referral to a nutritionist

Referral to pediatric gastroenterology

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Conclusion

BBD involves overlapping symptoms

Most are learned behaviors that evolve over time

Requires a significant time investment

Ideally a multidisciplinary approach should be used

Better information should be given to school staff to encourage better habits

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