Dysfunctional voiding and Elimination syndromes in children

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Introduction

- ‘Functional’ disorders
- varying degrees of uropathology
- Clinical awareness
  - Urinary incontinence
  - Urinary tract infection
  - Voiding symptoms
- Behavioral factors that impact:
  - Toilet training
  - Successful transition from a childhood to an adult pattern of voiding
Definition

- Absence of anatomic urinary tract obstruction
- Absence of identifiable neurological abnormalities
- Can comprises both lower urinary tract and bowel dysfunction
Table 64–10. DYSFUNCTIONAL ELIMINATION SYNDROMES

<table>
<thead>
<tr>
<th>Non-neurogenic neurogenic bladder</th>
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<tbody>
<tr>
<td>Unstable bladder</td>
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<tr>
<td>Urgency incontinence syndrome</td>
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<tr>
<td>Small-capacity hypertonic bladder</td>
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<tr>
<td>Continent bladder instability</td>
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<tr>
<td>Infrequent voiding syndrome</td>
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<tr>
<td>Functional bowel disturbances</td>
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<tr>
<td>Constipation or fecal retention</td>
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<tr>
<td>Giggle incontinence</td>
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<td>Postvoid dribbling</td>
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<tr>
<td>Daytime urinary frequency syndrome</td>
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<tr>
<td>Nocturnal enuresis</td>
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</tbody>
</table>
Spectrum (Severity)

- ‘Severe’
  - non-neurogenic neurogenic bladder (Hinman's syndrome)

- ‘Moderate’
  - Symptoms that reflect incomplete toilet training with diminished urinary control
  - Incoordination between bladder and sphincter only during filling
  - Unstable bladder contractions
  - Sometimes referred to as ‘Dysfunctional voiding’

- ‘Mild’
  - giggle incontinence, postvoid dribbling, the daytime urinary frequency syndrome, and nocturnal enuresis
Terminology

‘Dysfunctional voiding’
- Implies only pathology associated with the urinary tract
- Ignores the contribution of the gastrointestinal tract to these symptom-complexes and disorders
- In many cases the bowel disorder may be the main cause of the dysfunction

‘Dysfunctional Elimination Syndromes’
- Inclusive categorization of all functional bladder, sphincter, and gastrointestinal disorders that pathologically affect the pediatric urinary tract (Koff et al, 1998)
DES

- Hinman's syndrome,
- the unstable bladder,
- the infrequent voiding syndrome,
- constipation and fecal retention
Other names

- Hinman's syndrome
- dysfunctional voiding
- occult neuropathic bladder
NNGNGB

- Present after toilet training and before puberty (Jayanthi et al, 1997)
- Nocturnal and diurnal urinary incontinence
- Dribbling,
- Overflow
- Urgency incontinence
- Encopresis, constipation, and fecal impaction
- Recurrent UTI’s (Hinman and Baumann, 1973)
- Stressful family environment
Clinical and Radiological abnormalities

- voiding against a closed sphincter
- spina bifida occulta
- upper urinary tract dilatation and damage with vesicoureteric reflux present in about 50% of cases.
- Bladder appears neuropathic
  - pear or dumbbell shape
  - thick wall with saccules and diverticula
  - decompensated, smooth-walled bladder of large capacity
VCUG

- large postvoid residual and a bladder neck and urethra that are nonobstructed
- Sometimes
  - indistinguishable from that of posterior urethral valves
    - dilated prostatic urethra
    - abrupt narrowing in caliber distal to the veru
    - video urodynamics: DSD with dilatation of the prostatic urethra during voiding
- No obstruction on endoscopic assessment
Urodynamics:
- >75% of cases display bladder instability
  - Not diagnostic
- bladder instability combined with signs of impaired or obstructed bladder emptying
- absence of anatomic or neurologic disease

Origin
- voluntary dyssynergia between the detrusor and the striated muscle sphincter during voiding
Evaluation

- primary goal
  - to differentiate benign conditions from those that are potentially harmful
  - Identify conditions capable of producing uropathology
Evaluation

- History

- Physical examination
  - Must include a complete neurological examination
  - Examination of the lumbo-sacral spine
  - Urinalysis (with specific gravity)
  - Urine C/S
Evaluation

- Potentially worrisome signs and symptoms
  - combined day and night symptoms,
  - overt anatomic or neurologic abnormalities,
  - an acute UTI or history of one
  - U/S
    - Must include bladder wall thickness
    - greater than 0.30 cm with a full bladder or 0.50 cm empty
    - PVR
      - If U/S is NAD generally virtually excludes significant uropathology
  - MCUH
  - Urodynamic evaluation
Management

- Depends on the specific condition
  - Bladder retraining
  - Biofeedback
  - Normalizing bowel function
  - Pharmacologic therapy
  - Psychological counseling
  - CISC
  - Surgical intervention
Prognosis

- Depends on the specific condition
- Worse for conditions with sig, uropathology
Conclusion

- Dysfunctional Elimination Syndromes comprise a wide spectrum of diseases
- The take-home message
  - To identify early those with potentially significant uropathology
  - To protect the upper tracts and renal function
Thank You