Enuresis and voiding dysfunction

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Micturation

- Ability - Patency & continence
- When?
- Where?

Safety to upper tracts
  - Infections
  - Pressure
The normal micturition cycle

**Storage Phase**

- **Bladder filling**
  - Bladder relaxes
  - Urethra contracts
  - Pelvic floor contracts

**Voiding Phase**

- **First sensation to void**
  - Bladder relaxes
  - Urethra contraction increases
  - Pelvic floor contracts

- **Normal desire to void**
  - Bladder contracts
  - Urethra relaxes
  - Pelvic floor relaxes

  [micturition]

- **Bladder filling**
  - Bladder relaxes
  - Urethra contracts
  - Pelvic floor contracts
Nerves, neurotransmitters and receptors involved in bladder filling and voiding
Outcomes

- Approach and management of Enuresis
- Etiology of enuresis
- Treatment options
- Indications for further investigations
Enuresis

Definition- Involuntary voiding
  - Diurnal
  - Nocturnal

Incidence

Aetiology

Natural history
Law of 15

- 15% of 5 yr olds wet
- 5% of 10 yr old wet
- 1% of 15 yr old wet
- 15% of enuretics have encopresis
- 15% of enuretics become dry yearly
- 15% have day time symptoms!
15% have secondary enuresis
15% of nonenuretics have nocturnal polyuria
15% of non eniretics have nocturnal awakenings
Clinical evaluation

- History – Worrisome symptoms?
- Examination
- Urinalysis
- sonar
- When to do further evaluation?
Worrysome

**Symptoms**
- Day & night frequency
- Painful urination
- Penile pain+/discharge
- Vaginal pain&/or discharge
- Rectal pain
- Straining to urinate

**Signs**
- Palpable bladder
- Back/ spine abnormalities
- Reduced anal sphincter tone

**Urinalysis**
- Fixed low specific gravity
- UTI
Treatment

Pharmacological
- DDAVP
- Imipramine

Behavioral
- Alarm
- Star chart
Approach

Enuresis

- Hx + exam
- Sonar
- Uryanalysis
- Worrisome signs

- Reassure
- Expectations
- Age of the child
- Treatment

- Further investigations referral
Male incontinence

- Age related
- Incidence – 7-17%
- Male sphincter mechanism
- Bladder
  - Storage
  - Void
Male sphincter Mechanism
Etiology

- Bladder/Sphincter insufficiency
  - Congenital
    - Anatomical
    - Functional
  - Acquired
    - Trauma
    - Neurogenic
    - Pharmacological
    - Tumours
Bladder instability

- Sensory
- Motor
Incontinence

- Total
- Overflow
- Urge
Evaluation

History
- Nature of problem?
- Etiology?

Exam

Investigations
- Radiological
- UDS
- Cystoscopy
- Laboratory
Female incontinence

- Total
  - Urethral
  - Vaginal
- Stress
- Urge
- Mixed
- Dribbling?
- Urethrovaginal reflux?
Continence versus stress urinary incontinence

**Normal**
Bladder pressure < urethral pressure

**SUI**
Bladder pressure > urethral pressure

- Abdominal pressure
- Bladder pressure
- Urethral pressure
- Pressure transmission
  - Efficient
  - Deficient
Evaluation

History
- Trauma
- Irradiation
- Pv bleeding
- Parity
- LUTS
- Sexuality

Exam
- Urine in vagina?
- Prolapse
- Atrophy
- Diverticula
Geriatric Incontinence DIAPPERS

- Delirium
- Infection
- Atrophy
- Pharmacological
- Psychological
- Excessive urine output
- Restricted mobility
- Stool impaction
Voiding dysfunctions

- Neurogenic
- Congenital
- Acquired
  - Trauma
  - Infections
  - Tumours
  - metabolic

- Non Neurogenic
  - OAB
  - Dysfunctional voiding - children
Neurogenic

Storage
- Bladder
- Urethra

Voiding
- Bladder
- Urethra
Cystogram
Neurogenic bladder
Treatment goals

- Continence
- Preserve upper tracts – Prevention & early treatment of infections
Voiding

- Bladder
  - CIC

- Outlet
  - Pharmacological-Alpha blockers
  - Surgical
Case

**History**
- 10 yrs old boy
- Primary bed wetting
- Wet pants during the day
- Can feel full bladder and voids frequently
- ?ADD

**Examination**
- Small for age
- Restless during consultation - frequenting the toilet
- Full bladder
- Normal external genitalia
Investigations

- Laboratory
- Urine dipstix & MC+S – leucocytes
  - Positive culture
  - U& E elevated creatinine
  - FBC - WCC
Radiological

Sonar – Hydronephrosis
- Hydroureter
- Thick bladder wall
- High PVR
Treatment

- Antibiotics
- Catheterisation
- Vescostomy
- later valve ablation and closure
  vescostomy