Management of Refractory Enuresis

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Conflicts of interest:
- Medtronic : formations
- Ferring France : board and formations
A problem at "any time? ........ at every ages."
What we know:

• Monosymptomatic Enuresis will spontaneously disappear in all patients
• Using chemical (vasopressin) is effective to cure Enuresis
• But sometimes, the treatment is ineffective
• In that cases: which solutions?
1-Toufic

- 6 years old
  - Normal antenal ultrasound
  - Good health, almost never sick
- 7/7 enuresis at the middle and end of the night
- No diurnal trouble, no family history of enuresis
- Limited motivation
- Drinks less during the evening (he says…)
- Desmopressin for 3 months → no results
- What next?
Toufic
6ans ; 20 Kg, 115cm

Fluid intake needed : 50 ml/kg/j
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<tr>
<th></th>
<th>1er jour</th>
<th>2ème jour</th>
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<td>Fluid intake needed : 50 ml/kg/j</td>
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Toufic
6 ans ; 20 Kg, 115 cm
1 - Toufic

• Conclusion:
  – Low motivation $\rightarrow$ guarantee of failure (even under desmo)
  – 1. Change in water supplies and urinations
  – 2. Chemical treatment if, and only if, nutritional-hygienic measures failed
  – Reasonable minimum age to start a treatment? (5 to ?)

$\rightarrow$ For Toufic: nothing to do now
$\rightarrow$”see you later!”

Neveus T. *Evaluation of and Treatment for Monosymptomatic Enuresis: A Standardization Document From the International Children’s Continence Society*
THE JOURNAL OF UROLOGY, 2010; 183, 441-447,
1 - Toufic

- 2 years later (8 yo):
  - 7/7 Enuresis
  - High motivation
  - Excellent regulation of intakes

  - Vasopressin: success
  - Stop of vasopressin some months later: success

Neveus T. *Evaluation of and Treatment for Monosymptomatic Enuresis: A Standardization Document From the International Children’s Continence Society*  
THE JOURNAL OF UROLOGY, 2010; 183, 441-447,
• 9 y.o. girl
• consult for bedwetting
  • Normal antenal ultrasound
  • Good health,
• No diurnal trouble, no family history of enuresis
• 3 urinary infections( no fever), trend to urge incontinence, large diameter of stools ➔ « She blocks toilets»
• Enuresis 7/7, resistant to desmopressin and anticholinergic treatment
<table>
<thead>
<tr>
<th>Day</th>
<th>Leaks DAY</th>
<th>Leaks NIGHT</th>
<th>Total Number of Pee/day</th>
<th>Number of stools/day</th>
<th>Normal voiding?</th>
<th>Normal transit?</th>
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<tr>
<td>Saturday</td>
<td>0</td>
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<td>Thursday</td>
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</table>
• **monosymptomatic Enuresis ?**
In case of enuresis, THE question is:
is it ISOLATED and MONOSYMPTOMATIC Enuresis?

• It is not a monosymptomatic enuresis, if:

  • Abnormal number of micturitions:
    • Too rare (under 3)
    • Too frequent (up to 8)

  • Daytime incontinence
  • Post void incontinence
  • Squatting and squeezing attitudes
  • Incontinence difficult to precise and understand

* infections,

* Abnormal stream,

• Constipation
• Comments:
  – IT IS NOT an isolated enuresis: diurnal signs + digestive symptoms
  – *Probable Dysfunctional voiding*
    • 1. How to affirm it?
    • 2. How to explain it?
    • 3. How to treat it?
Urinary disorders: Definitions

And now we have strong bases...!


In English: LUTS


Terminologie des troubles fonctionnels du bas appareil urinaire : adaptation française de la terminologie de l'International Continence Society.
Dysfunctional voiding: how to affirm it?

• Clinically:
  – diurnal leaks difficult to precise
  – Urgency
  – Infections
  – constipation (occulted):
    • very large stools
    • Full colon (abdominal palpation)
    • Encopresis
    • Vulvitis = hemorroids of child
Dysfunctional voiding: how to explain it?

- Inhibition of bladder contractions
- Permanent contraction of pelvis
- Leaks, pains
- Recurrent Urinary infections
- Constipation

Vicious circle
Dysfunctional voiding: how to explain it?

- Inhibition of bladder contractions
- Leaks, pains
- Fear or pain > Social stress
- Recurrent Urinary infections
- Constipation
- Permanent contraction of pelvis
Voiding and defecation

similar mechanisms......:

* common nerve pathways (+plexus)
* medulars centres
* common muscles
### Constipation and Bladder Dysfunction Relationship

**Stool in the rectum**
- Perineal congestion
- \(\uparrow\) Bladder Pressure
- \(\downarrow\) Bladder Capacity

**Urinary retention**
- \(\downarrow\) Detrusor contraction
- \(\downarrow\) Amplitude
- \(\downarrow\) Duration
- \(\downarrow\) Frequency

**Sustained rectal distension**
- Acute rectal distension
- Stretch receptor R
- Rectal Relaxation
- Smooth sphincter axation
- Strip sphincter traction
- + puborectal muscles

**Recto vesical reflex**
- Perineal hypertony

**Miyazoto M J Urology 2004; 171: 1353**
**Fishman I J Pediatr 2004; 145: 253**
In summary:
« bladder need an empty rectum for well being..... »
Management of treatment:

1. Regulation of urine and stools at daytime
   - "bladder need an empty rectum for well being....."

2. Medical treatment of Enuresis after few months: desmopressin

   - In other words: enuresis will disappear when daytime will be perfect
- 293 children with constipation (hospital recruitment)
  • 29% diurnal urinary leakage
  • 34% nocturnal urinary leakage
  • 11% urinary infections

Constipation management ➔ improvement of:
  • diurnal urinary leakage in 80%
  • nocturnal urinary leakage in 63%
  • urinary infections in 100%

Loening-Bauke V. Pediatrics 1997; 100:228
Correct Void = correct position + correct Decontraction + correct support + legs open
SECONDARY LUT: Incorrect position

- Inappropriated clothes
  - legs together
  - Verge breakthrough

- Inappropriated seat
- Clinical evaluation

- Oxybutinin → No
- voiding at fixed times
- constipation → treatment +++
- stools at fixed times,
- physiotherapy : biofeedback …(over 6 yo)
Take home message

• « bladder need an empty rectum for well being….. »
3 - Karim

- 9 years old,
- Antenatal US : normal
- clinical : Normal
- Primary monosymptomatic Enuresis 7 / 7
- Failed treatments :
  - desmopressin,
  - anticholinergic,
  - alarms and « soft therapies »
- « always in the moon »
- « in his dreams »
- « few interested »,

Oh non, j'ai encore oublié
3 - Karim

- 9 years old,
- Antenatal US: normal
- clinical: Normal
- Primary monosymptomatic Enuresis 7 / 7
- Failed treatments:
  - desmopressin,
  - anticholinergic,
  - alarms and « soft therapies »
- « always in the moon »
- « in his dreams »
- « few interested »
- This enuresis: psychopathologic origin?
4 - Nadim

- 11 years old, normal antenatal ultrasounds
- Normal neuro urologic clinical examination
- *Primary monosymptomatic* Enuresis PMS 7/7
- Failed treatments:
  - desmopressin,
  - anticholinergic,
  - alarms and "soft therapies"

- Unable to respect instructions and orders of parents, teachers and doctors
- At all times: "electric battery"
- Always punished
- "Sleep like a stone"
- "turbo start in the morning"
This enuresis: psychopathologic origin?
Look for ADHD hyperactive children!

Classe de 8ᵉ de Mr Trémoleau – Bourg Saint Guy (1925-1926)
What is called ADHD?

Attention-deficit/hyperactivity disorder

- 2 different sides of the same problem
- Sex ratio 2/1 male
Lack of attention

- Do not care about details, attention based errors
- Finds it difficult to stay attentive when he works or plays games
- Seems distracted when you talked to him, does not listen
- Does not respect the instructions or does not finish
- Finds it difficult to organize his activities
- Do not make work which need sustained attention
- Mislay things
- Easily disturbed by external events
- Forget everything everywhere everywhen
Hyperactivity / impulsivity

- Move all the time (hands and legs....)
- Runs and jumps everywhere
- Unable to stay calm during games and leisure activities
- Cannot wait
- Take all the space
- Speaks a lot
ADHD diagnostic is clinical
Attention-deficit/hyperactivity disorder

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<th>Never</th>
<th>rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Very often</th>
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<tbody>
<tr>
<td>1.</td>
<td>He/she does not care about details or makes careless mistakes in his/her schoolwork.</td>
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<td>1.</td>
<td>Il/elle remue continuellement les mains ou les pieds, ou se tortille sur sa chaise.</td>
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<td>1.</td>
<td>He/She finds it difficult to maintain his/her attention while working or playing</td>
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<td>1.</td>
<td>He/she stands up in class or in other situations while he/she should sit.</td>
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<tr>
<td>1.</td>
<td>He/she seems not to listen when someone is directly talking to him/her.</td>
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<td>1.</td>
<td>He/She runs and jump de manière excessive in inappropriate situations</td>
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<td>1.</td>
<td>He/she does not follow all the instructions and is not able to finish his/her work.</td>
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<td>1.</td>
<td>He/she finds it difficult to stay calm during games and leisure activities.</td>
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<td>1.</td>
<td>He/She finds it difficult to organize his/her tasks or activities.</td>
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<td>1.</td>
<td>Il/elle est « sur la brèche » ou agit comme s’il était actionné par un moteur.</td>
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<td>1.</td>
<td>Il/elle évite les choses qui demandent un effort mental soutenu comme, par exemple, le travail à l’école ou les devoirs à la maison.</td>
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<td>1.</td>
<td>Il/elle parle de manière excessive.</td>
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<td>1.</td>
<td>Il/elle égare des choses nécessaires à ses tâches ou ses activités.</td>
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- **What to do?**
  - No desmopressin needed
  - Clinical scales
  - Psychometric evaluation
  - Referral to pediatrician
    - Méthylphénidate (Ritaline*)
at all ages
Attention-deficit/hyperactivity disorder

• Bad self-esteem

• 6-12 years old:
  – Risk of academic failure

• The teenager
  – Risky behaviours +++
  – Drug consumption

• The adult
  – Professional failure
  – Drug consumption
ADHD Attention-deficit/hyperactivity disorder

* ADHD 9,3 à 13,5 % childrens have PME and associated diurnal symptoms.
  (van Gontard et coll. 1999)

• 40% ADHD / 120 enuretic patients (but 1/3: diurnal symptoms) vs 3 à 5 % in general population
  (Baeyens et coll. 2004)

* 155 Childrens with Enuresis, ADHD = 14%
  (van Hoecke et coll. 2003)

* Childrens with ADHD, 20,9% have Enuresis and 6,5% have diurnal symptoms
  (Robson et coll. 1997).

Comorbidity? Central Pohysiopatholgy?
Take home message:

Enuresis in ADHD will cure alone

Treatment of ADHD will cure Enuresis and improve global health
5 - Nabil

- 7 years old
- US and clinic exam: Normal
- Allergies, chronic tonsilitis, otitis
- Sleep very deeply and easily
- Snore a lot
- Waking up difficult
- « Diesel start » in the morning
5 - Nabil

- 7 years old
- US and clinic exam: Normal
- allergies, angines, otites
- Sleep very deeply
- snore
- Waking up difficult
- « Diesel start » in the morning

- Is the face of that boy normal?

  YES  NO
5 - Nabil

- 7 years old
- US and clinic exam: Normal
- Allergies, angines, otites
- Sleep very deeply
- Snore
- Waking up difficult
- « Diesel start » in the morning

- Is the face of that boy normal?
- NO: Breathing through his mouth
5 - Nabil

- Normal throat:

  YES [Green]  NO [Red]
Sleep Apnea Syndrom in child:

- 1 to 4 % of the children
- Peak from 3 to 6 years old
- Sex ratio m/f > 1

- RR x 3 to 4 if apneics in the family
- RR x 4 to 5 if former premature
- RR x 6 if bad academic results
Sleep Apnea Syndrome in child:

**Night**
- Breathing
  - snoring
  - dyspnea
  - apneas
- Non respiratory:
  - Bad sleep
  - Frequent wake up
  - enuresis
  - Head out of the bed

**Day**

Oral, and not nasal, breathing

Long term effects:
- School problems
- Abnormal growth
- Obesity
- Chronic asthenia
Elongated face

- Dark circles under the eyes
- Perleches
- Collapsed nose
5 - Nabil

- **SAS:**
  - Dg +: sleep study (polysomnography)

- Treatment:
  - Tonsillectomy and adenoidectomy
Maya, 16 years old

- 7/7 Enuresis « since my birth »
  - Desmopressin / oxybutinin ineffective
- No LUTS
- Sexual abuses by the father…
  - Revealed 2 years later
Charbel, 19 years old

• Primary enuresis,
• Normal imaging
• Few carbonated beverages (sodas)
• No regular consumption of cannabis
• Alarm, Desmopressin and oxybutinin ineffective
• Tofranil ® ineffective

• Toxin( Botox* ) Neuromodulation
adolescent enuresis

- Difficult problem, not easy to solve
- 20 % does not respond to desmopressin
- More girls after 15 years old
- 75 % of lonely child
- obesity problem?
- « does it always heal? »
  - 0,5 % of adults could be enuretic

take home message

- Reconsider the diagnosis of primary monosymptomatic Enuresis

- Ask about:
  - constipation
  - attention disorders
  - SAS