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Protocol Treatment of Non-Monosymptomatic Enuresis

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ABSTRACT

Background: The prevalence of Non-Monosymptomatic Enuresis occurs in 15 to 30% of children and conservative treatments should be the first line of indication. **Objective:** This article presents the evaluation and treatment protocol of the Urology Outpatient Clinic/UROPEDFISIO, which has been shown to be adequate and useful for the care of children with non-monosymptomatic enuresis. **Results:** The Urology Clinic/UROPEDFISIO protocol includes a form with a detailed anamnesis, with targeted questions, considering the

symptoms of the lower urinary tract; description about eating and hygienic habits; a playful voiding diary; the pelvic floor rehabilitation program and information to parents, and also to their children, in a playful way. **Conclusion:** The described protocol is simple, feasible and has shown promising results. It is hoped that with its dissemination, more health professionals will be able to use it and, thus, contribute to its improvement.

Keywords: pelvic exercises and rehabilitation of pelvic floor muscle, behavioral therapy, non-monosymptomatic enuresis

INTRODUCTION

Non-monosymptomatic enuresis (NME) is diagnosed in children, between 5 and 10 years of age, which is the ideal phase for investigation, because normally, urination control occurs around 2 to 3 years of age. And two symptoms are needed for this specific classification, daytime urinary incontinence and enuresis.^{1,2} According to the International Children's Continence Society (ICCS), this voiding alteration is recognized when the child has the following symptoms:

- **Daytime urinary incontinence:** loss of urine during the day, in small leaks, which may be associated with the child's postponement, in looking for the bathroom, due to "unwillingness" to interrupt activities.
- **Enuresis:** it is the loss of urine, during sleep, at any time of the day, and not necessarily during the night, as is recognized by many.

In addition, in Non-Monosymptomatic Enuresis, the child may also have some urinary symptoms related to the lower urinary tract, such as:

- Increase in urinary frequency: the child goes to the bathroom, more than usual.
- Urinary urgency: the child runs to get to the bathroom.
- Containment Maneuvers: the child adopts some habitual behaviors such as rocking the body, pressing the thighs and sitting on the heels when he is in the urge to urinate, but does not obey this command, as he does not want to interrupt the games or activities.

Constipation and fecal incontinence may or may not be associated with Non-Monosymptomatic Enuresis.^{3,4}

In primary care for children, family, psychological or behavioral problems should also be investigated, which can also be present in these cases.⁵

The prevalence of Non-Monosymptomatic Enuresis occurs in 15 to 30% of children. Among all the symptoms mentioned above, it is necessary to recognize that the child will have problems of storage and emptying. The main point of this change, in the child's interaction with his family, is that the symptoms of urinary loss during the day are neglected, often because of the lack of contact with the child during this period, due to the routines of modern life. And this can reach an even greater number of cases with this voiding alteration, however, only the loss of urine during sleep is the most perceived and cited by parents and family.⁶

The pathophysiology of enuresis is quite complex, as it involves the central nervous system (neurotransmitters and receptors), antidiuretic hormone and changes in vesicosphincter function². Therefore, three factors are determinants in the pathophysiology of enuresis, or loss of urine, during sleep, which are:

- Night Polyuria: when the volume of urine produced by the child during the night is much higher than what could be contained by the bladder, of normal capacity.
- Small bladder capacity or decreased storage: when the child does not wake up to a full bladder stimulus.^{2,7}
- Social problem: not only does the child suffer from this voiding alteration, but also all family members, affecting the quality of life, self-esteem and also the psychic-social well-being.

There are some peculiarities of this problem which should be mentioned. If parents had enuresis in childhood, the chances of their children having enuresis are 45%. And when both, that is, the father and mother suffered from this urinary problem in childhood, the chances of the child presenting increases to 77%.⁸

Evaluation

Detailed anamnesis, with targeted questions, considering the symptoms of the lower urinary tract, facilitates the recognition of the type of enuresis to be diagnosed and the treatment of choice.

The following is an evaluation form of this voiding alteration, with questions that the parents, as well as the child, must answer regarding symptoms and daily habits.

UROPEDFISIO / EVALUATION FORM	
Child's Name:	sex () girl () boy
Address:	
Phone:	
parent's Name:	
Clinical Evaluation	
Type of bedwetting	
Voiding frequency / day]	
Does the child go to the bathroom to urinate when he wakes up?	
During the night, does the child get up to urinate?	
Does the child have a loss of urine during the day?	
Does the child talk about this fact or is there a perception of the characteristic odor?	
Does the child have a loss of urine during the night?	
How does the bed dawn, too much or too little?	
Does the child have a loss of urine while sleeping during the day?	
How is the parent's attitude when he realizes that there was an escape, in clothes or in bed?	
Has there ever been any kind of punishment?	
When the child is pressed to urinate, does he run to go to the bathroom?	
Does it take positions, such as: squat, squeeze the legs or swing the body?	
Usually report how the child positions himself on the toilet to urinate:	Girl <input type="checkbox"/> Boy <input type="checkbox"/>
In relation to the child's underwear, is there any trace of feces in it throughout the day?	
How is the child's bowel functioning daily?	
Does the child have peaceful or restless sleep?	
How is the child's relationship with the family?	
How is the child's relationship at school and with friends?	
What types of drinks are preferred by the child?	
What is the average intake / day?	
What types of medicines and treatments are used?	
Did you perform any type of surgery?	
Regarding parents	
On average, how much time do you spend with your child, per day?	
During what time of the day, is your child active, like school and others?	
At home, does the child receive care from someone else?	
Did you, the parent, complain of any voiding or bowel changes as a child?	
If the answer was positive: Did you have any treatment?	
Does the child have some kind of problem in the relationship with the parent, or both?	
Regarding married life, are the parents married or not?	
Questioning children /P.S.: Preferably without the presence of parents.	
At school, do you wait for recess to go to the bathroom?	
When you're tight, do you run out to go to the bathroom?	
How do you sit on the toilet to urinate? Demonstrate to me, please.	

Figure 1: Model of the evaluation form used in the Urology Clinic / UROPEDFISIO⁹.

Furthermore, the tests considered important in these cases and which must be performed are:

- Urine / Type I: allows excluding urinary tract infection and is part of the initial evaluation;
- Ultrasound: assists in the diagnosis of lower urinary tract infection and further clarifies, in cases of non-monosymptomatic enuresis that did not respond to the initial treatment;
- Electromyography in conjunction with the Urodynamic Study: helps to identify any dysfunction of the pelvic floor muscles and bladder function, being very important to outline the treatment or evaluate its failure.
- Urodynamic study: allows some important variables investigated, such as decreased bladder capacity and detrusor hyperactivity, which are the main changes demonstrated in this exam, followed by bladder obstruction. Urodynamics can be performed non-invasively by performing perianal contact electromyography and flowmetry.¹⁰

Treatments

Regarding treatment proposals for these cases, the ICCS, in a document published in 2015¹¹, recommends that conservative treatments should be the first line of indication; however, there is still no scientific evidence in the treatment of non-monosymptomatic enuresis, according to the evidence based on clinical practice.¹¹

In the literature, we found four studies on conservative treatment of non-monosymptomatic enuresis, two are retrospective studies and show encouraging results. Pineda et al.¹², in 2008, published about the rehabilitation of the pelvic floor, with the use of biofeedback and electrostimulation in the treatment of NME, and observed an 80% improvement in the symptoms of these patients. Another more recent study⁴ investigated the effects of pelvic exercises on the treatment of NME for a period of six months and observed a significant improvement in episodes of enuresis, urinary incontinence, dysuria, urgency and containment maneuvers. In addition to these, we have acupuncture, psychotherapy, homeopathy, hypnotherapy, but without proven evidence.

The best results in treatments have still been obtained with pharmacological treatments associated with behavioral therapy. An ICCS 2010 guidelines³ were developed, in which oxybutynin is considered an effective anticholinergic in the treatment of adolescents with monosymptomatic enuresis, as its use favors the suppression of detrusor hyperactivity. In another more recent one, a 2017 ICCS guidelines¹³ mentions the same anticholinergic, as a drug considered effective in the treatment of detrusor hyperactivity, urinary incontinence and cases of lower urinary tract dysfunction (LUTD), showing significant improvement when combined with behavioral therapy, on symptoms of voiding frequency, urine volume and urinary incontinence.

Psychological treatment is extremely necessary in these cases, when there is evidence of isolation of the child, both at home and at school, especially when the parents are separated, or also, in cases of punishment of the child, whether physical or verbal, for fact of being wet, throughout the day, which is the main complaint of family members.

Anyway, the main choice of the best treatment employed will depend on the evaluation and the precise diagnosis. For this reason, this article presents the evaluation and treatment protocol of the Urology Outpatient Clinic/UROPEDFISIO, which has been shown to be adequate and useful for the care of children with non-monosymptomatic enuresis.

Stages of the conservative treatment protocol of the Urology Clinic/UROPEDFISIO

1. Behavioral Therapy

Information on non-monosymptomatic enuresis and the entire anatomy of the pelvic floor muscles, and the relationship with the lower urinary tract and bladder function, should be explained to parents, and also to their children, in a playful way.¹⁴

1.1. Eating habits

The volume intake needs to be adjusted according to the total volume of liquids ingested throughout the day, informed by the parents. The use of a colored bottle of 500 (ml) should be used to facilitate and encourage fluid intake. Children and parents should be instructed to split this intake, as a proposal for behavioral change, as follows: 50% in the morning, 40% in the afternoon and 10% at night.

Children should be advised, during treatment, to avoid sodas, at night, drinking only for weekends. Juices are allowed throughout the day, and caffeinated drinks are allowed only in the morning, until lunchtime.^{9,18}

1.2. Hygienic Habits

The change in children's habits must be adapted by the parents, and in an encouraging way, because by gaining their trust, the process becomes easy and pleasant. Many of them do not look for the bathroom when they wake up in the morning, which further contributes to this problem. Therefore, parents should encourage, through examples that the child first needs to urinate as soon as they wake up. It is important that they participate in the treatment, scheduling their going to the bathroom, by means of a watch or cell phone, every two hours, always having the patience to wait for the last urine drops in the toilet. The use of a watch or cell phone is a current and very creative way, which they love, for the development of attraction and involvement with the adopted protocol.^{9,18}

Another behavioral change in this protocol is to correct the child's urination position, so that the pelvic floor muscles are relaxed. In girls, this adaptation is done with the use of toilet seat reducers and foot support, providing safety during urination. The garments must be positioned, always lowered to the ankles. In addition, the torso should be bent forward and the elbows supported close to the knees. Boys, on the other hand, must be standing, with their feet flat on the floor and, when necessary, they should also use a support for this, always avoiding that they stand on tiptoe to reach the toilet.^{9,15}

Below, the representation of the “Voiding Posture”, mentioned above:


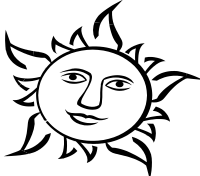

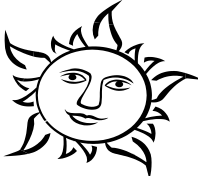

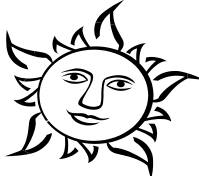


Figure 2: Voiding Posture^{9,15}

Regarding bowel habits, parents should be instructed and the child encouraged by them to adopt the same voiding posture shown in Figure 2, both girls and boys, to facilitate evacuation. In the preparation of children's meal, foods rich in fiber should be included, as there is importance in stimulating fiber consumption for good intestinal functioning.¹⁴

2. Playful voiding diary

The use of a playful voiding diary is an evaluative tool, which is a non-invasive assessment, where the child participates directly, since it is the child who daily reports the situation of the bed and its clothes, whether it is dry or wet, by means of representative drawings, sun and rain, respectively⁹. (Figure 3)

DATE	/ /	DATE	/ /	DATE	/ /
					
DATE	/ /	DATE	/ /	DATE	/ /

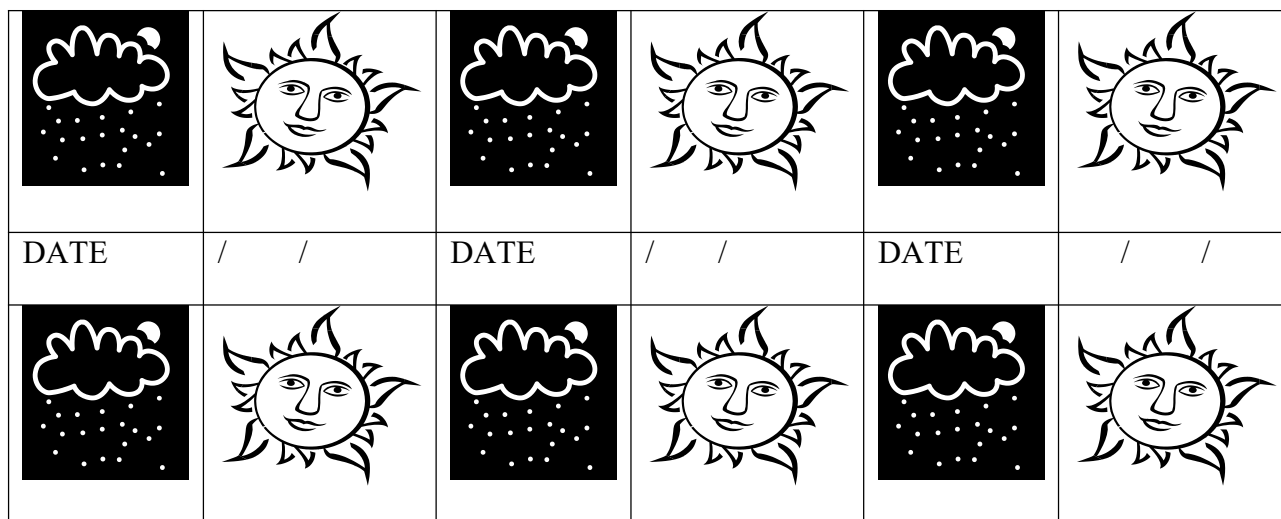


Figure 3: Playful Voiding Diary ⁹

3. Rehabilitation of the pelvic floor

The includes the pelvic exercises. The main purpose of the exercise protocol is the functional isolation of each muscle group, thus allowing them to gain resistance. The exercises are light and functional, where they are requested to perform an active contraction of the pelvic floor muscles (uniform way), not allowing the co-contraction of the muscles of the hips or glutes. ^{1,19}

It should be noted that the child has no awareness of performing exercises, so it is important to create playful ways to perform the treatment, such as the use of balls and drawings. In the supine position, children should perform two sets of 10 repetitions, totaling 20 contractions per session. Children are advised to perform these two sets of 10 contractions of the pelvic floor muscles at home with the aid of a ball, in the same position, as performed weekly at the outpatient clinic. ⁹

Exercise 1:

The child should be positioned supine, semi-reclined, with the knees semi-flexed and with external rotation of the heel, thus facilitating the stretching of the internal obturator muscle. A flexible ball is used, which provides resistance between the knees. The child performed the exercise, successively squeezing and releasing the ball (Figure 4) ^{9,19}.

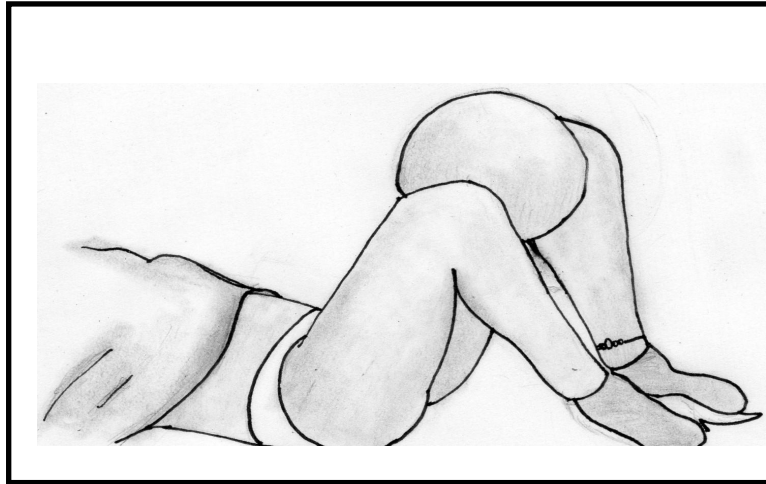


Figure 4: Adductor muscle training with pelvic floor muscle, according to foot position.

Exercise 2:

The child should be placed in a lying position in a lateral position, with the knees semi-flexed and the feet relaxed, in which he / she performs successive movements of squeezing and releasing the ball positioned between the knees. The purpose of this exercise is the work of gaining muscle resistance of the accessory muscles, that is, participants of the action, the rectus abdominis. (Figure 7)^{9,16}

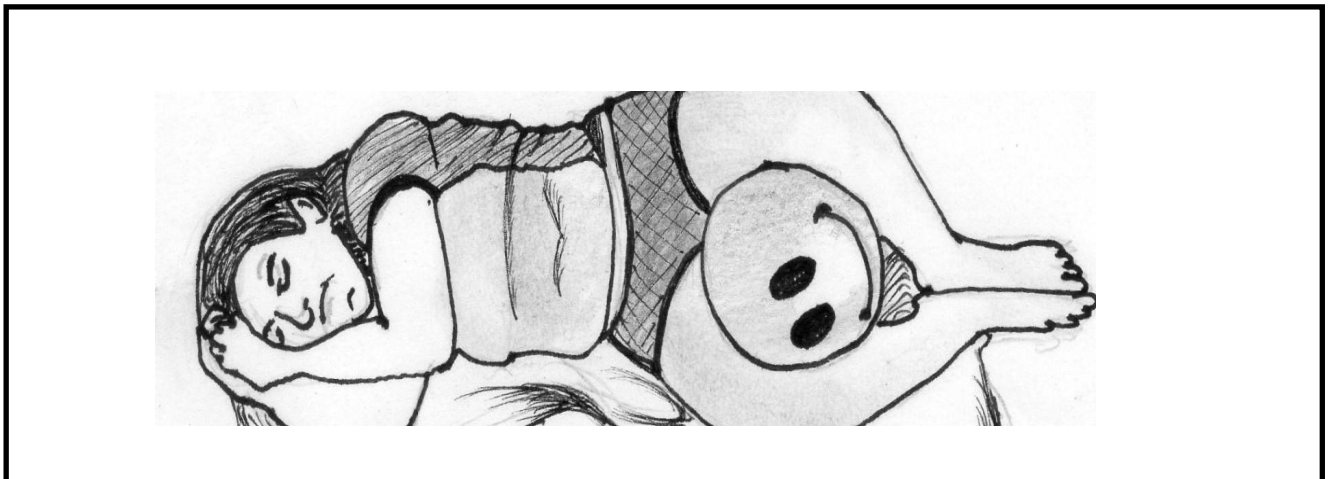


Figure 7: Training of the rectus abdominis muscles.

Exercise 3:

The child should be placed in a supine position, with the arms crossed over the chest, so that there is no overlap in the weight bearing, during the exercise, with the knees semi-flexed and the feet supported in a neutral position. In this case, the child is asked to raise and lower his

hip in order to provide the “hip tipper”. This exercise aims to gain resistance from another group of accessory muscles, the glutes and also promote proprioception in hip movements (Figure 8)^{9,17}.

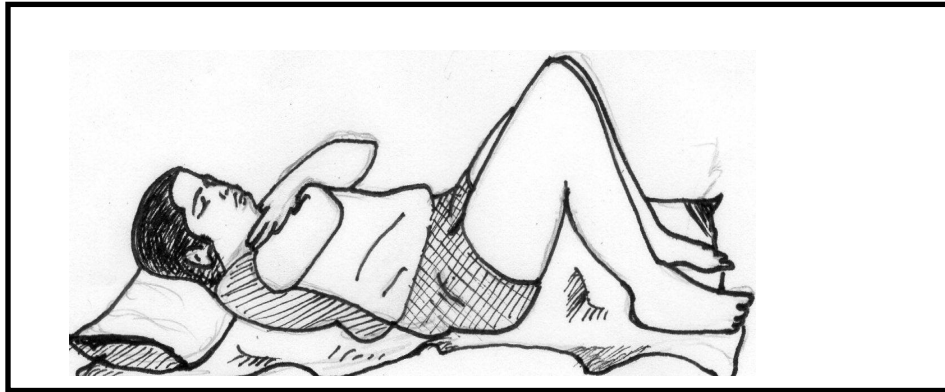


Figure 8: Accessory muscle training: gluteus

Exercise 4:

Bobath Therapy: Active coordination of the hip muscles / balance / mobility.

The child should perform this exercise, sitting on the ball, where he performs the movements of the hips, according to the movements of the hands of a clock. (Figure 9)^{9,17}.

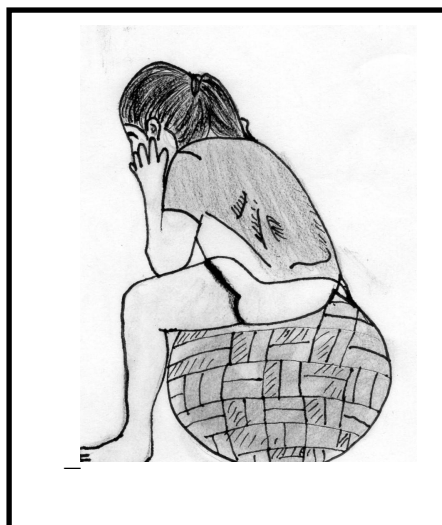


Figure 9: Bobath Therapy: Ball

Parents should be instructed on the exercise program, during the consultation with the Physiotherapist, who allows full participation of the parents during the entire intervention, which need to be of three months, or 12 weeks. The recommended consultation duration is 30 minutes. The first exercise is oriented to be done at home, twice a week, on alternate days.⁹

CONCLUSION

All treatment modalities are effective to treat non-monosymptomatic enuresis, but conservative treatment offers benefits, such as: simple resource, easy access, low cost, without any known adverse effect. The described protocol is simple, feasible and has shown promising results. It is hoped that with its dissemination, more health professionals will be able to use it and, thus, contribute to its improvement.

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