

Journal of Physical and Rehabilitation Medicine Forecast

Approach of Rehabilitation on Giggle Incontinence in Children

Sara A^{1*}, Bernardo M², Margarida R¹, Raquel A¹, Patrícia C¹, Diogo MC¹ and Rosa A¹

¹Physical Medicine and Rehabilitation Service-Porto University Hospital Centre (Centro Hospitalar Universitário do Porto), Portugal

²Physical Medicine and Rehabilitation Service-Senhora da Oliveira Hospital (Hospital Senhora da Oliveira), Guimarães, Portugal

Abstract

Giggle incontinence is a syndrome characterised by complete involuntary urination which occurs with laughter. This is considered to be a rare situation, of unknown aetiology, whose incidence may be underestimated. We present two clinical cases, one of a 6-year-old child and the other of a 12 year-old girl, referred to a paediatric psychiatric appointment since they presented abundant involuntary urination with laughter. They did not present any other urinary complaints. Both had a development appropriate to their age; a good family and social environment. Having been established the clinical diagnosis, they did not present any significant alterations. After the clinical diagnosis of giggle incontinence was established, the children were reassured, as well as the parents, and advised to have frequent urination, by schedule. Treatment with biofeedback, methylphenidate or anticholinergics techniques is still controversial.

Keywords: Giggle incontinence; Incontinence; Child; Laughter; Rehabilitation

Introduction

Giggle incontinence, first described in 1959, is a syndrome characterised by involuntary, complete urination, which occurs specifically during or immediately after laughter. It is a rare situation, of unclear aetiology, which incidence may be underestimated.

It appears between the ages of 5 and 7, more frequently in females, in a proportion of two to one. There is usually an associated family history.

This type of incontinence is considered a sub-group of urinary incontinence, associated with involuntary, unpredictable urinary loss, until the complete emptying of the bladder, exclusively with laughter. The diagnosis remains clinical, including a neurological and neuro-urological examination of the child.

Urination is a reflex between the bladder and the spinal cord, controlled by central inhibitory stimuli. During urination voluntary movements occur: a contraction of the detrusor muscle through parasympathetic stimuli and the relaxation of the internal bladder sphincter by activation of the parasympathetic system. The relaxation of the peri-urethral muscles of the pelvic floor is controlled voluntarily by the pelvic nerves.

Clinical Description

Clinical case 1

6-year-old child, referred to an external paediatric psychiatry appointment for presenting episodes of abundant involuntary urination, exclusively during laughter.

She obtained day sphincter continence from the age of 2 and night sphincter continence from the age of 3. The episodes occurred from the age at which she obtained sphincter continence. Their frequency was variable and could occur between 4 and 6 times a week. The child denied other urinary complaints, namely nocturnal incontinence, urinary loss due to stress or effort, urinary urgency, dysuria, pollakiuria. She did not present bowel changes. Previously a healthy child, with minor psychological disorders adequate for her age. Attends the 1st grade, with good school performance.

EO: weight 21.4 kg, height 117.5 cm, partial coalescence of the small lips. ENU unchanged.

Performed: Mycological journal: bladder with good capacity (250-300 ml), without urgency.

OPEN ACCESS

*Correspondence:

Sara Filipa Tenreiro Amaral, Physical Medicine and Rehabilitation Service-Porto University Hospital Centre (Centro Hospitalar Universitário do Porto), Portugal.

Tel: 964915395

E-mail: sarafilipaamaral86@gmail.com

Received Date: 07 Feb 2021

Accepted Date: 19 Feb 2021

Published Date: 23 Feb 2021

Citation: Sara A, Bernardo M, Margarida R, Raquel A, Patrícia C, Diogo MC, et al. Approach of Rehabilitation on Giggle Incontinence in Children. *J Phys Rehabil Med Forecast*. 2021; 4(1): 1017.

Copyright © 2021 Sara A. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Reno-vesical ultrasound: no changes.

Clinical case 2

12-year-old girl, referred to an external paediatric psychiatry appointment of nephrology appointment for episodes of involuntary urination during laughter.

She obtained day and night sphincters continence at the age of 3. The child denied other urinary complaints, namely nocturnal incontinence, urinary loss due to stress or effort, urinary urgency, dysuria, pollakiuria. She did not present bowel changes.

She mentioned episodes of abundant loss when laughing, but always with a preserved feeling. No incontinence in physical education classes or due to efforts. No relevant personal background.

EO: no changes, including the ENU.

She was medicated with Ditropan 5 mg 2id, with partial improvement in regard to complaints. The child was referred to a rehabilitation programme aimed at strengthening the pelvic floor.

Complementary diagnostic examinations: reno-vesical ultrasound: no changes.

In both clinical cases, a clinical diagnosis of giggle incontinence was made. The children were reassured that the situation was not organic and likely to improve with growth and maturation. They were also advised to have frequent and hourly urination. In both cases, programs for strengthening the pelvic floor were performed, with 2 sessions per week of biofeedback during 4 months, with positive results.

Discussion

Giggle incontinence is considered to be a sub-group of urinary incontinence, associated with involuntary, unpredictable urinary loss until complete emptying of the bladder, exclusively with laughter or "giggle".

It is a well-defined entity, often associated with social embarrassment. Support from family and friends are essential to preserve self-esteem. Treatment with biofeedback, methylphenidate or anticholinergic techniques is still controversial.

Symptoms are often refractory to changes in hydration patterns, bowel control, programmed urination and relaxed basic voiding education. Effective intervention requires combination therapy, usually over a long period of time. The treatment aims to optimize the emptying of the bladder and induce total relaxation of the urinary sphincter or pelvic floor before and during urination.

The specific objectives are: consistent relaxation of the pelvic floor during urination, normal flow pattern and complete emptying with each urination (that is, absence of residual volume after urination).

Strategies to achieve these goals include muscle awareness of the pelvic floor and repeated biofeedback sessions, with visualization of traces of uroflow curves and /or pelvic floor activity, including relaxation of the pelvic floor. Biofeedback with Kegel exercises was evaluated in children who did not respond to programmed urination or treatment with anticholinergic agents or pseudoephedrine. Two-thirds of children who attended 4 or more biofeedback sessions per week or fortnight had a full response that lasted for at least 6 months; those who attended fewer sessions got only a partial response [1].

Pelvic floor muscle strengthening programmes have been proven

to have beneficial effects on losses, with a level of evidence 4 and a degree of recommendation C.

Intermittent self-catheterization is indicated if there are high residual volumes. If the bladder neck is involved in increasing resistance to urination, alpha-blocking drugs may be introduced. Recurrent urinary infections and constipation should be treated and avoided during the treatment period.

Treatment effectiveness can be assessed by improving bladder emptying and resolving associated symptoms. Controlled studies of the various interventions are needed. As with detrusor hyperactivity, the natural history of untreated dysfunctional urination is not well defined, as is the ideal duration of rehabilitation programs.

The prognosis is good, with a spontaneous resolution occurring in adolescence in most cases. Nevertheless, some cases may persist into adulthood.

The aetiology of giggle incontinence is unknown but there are some explanatory theories related to the knowledge of the mechanisms of laughter. In some individuals, laughter can cause: a decrease in the central inhibitory action controlling the urination reflex; contraction of the detrusor muscle by activation of the parasympathetic nervous system or a decrease in the internal bladder sphincter tone by stimulation of the sympathetic system. Constipation is a factor which aggravates incontinence by mechanisms not fully clarified, probably by local bladder irritation.

The diagnosis is clinical, and urodynamic studies fail to demonstrate any abnormalities, there is no anatomic dysfunction, the upper tracts appear normal on ultrasound, the urinalysis is normal and there are no neurological abnormalities.

Some studies also report beneficial effects with alpha-adrenergic, phenylpropanolamine, ephedrine and anti-epileptic agents.

Chandra M. et al., [2], conducted a study in which oxybutynin (0.2 to 5 mg/kg twice a day) with urination per hour was used in 109 children (70% girls). After 10 weeks, the frequency of losses improved and total remission was achieved in 89% of patients.

In 3 studies assessing the effectiveness of methylphenidate (MPH): most children (70% to 90% female; mean age ranging from 11 to 16 years) had a family history of RE; the frequency of losses varied from once a month to several daily events. Treatment included varying daily oral doses (0.2 to 0.5 mg/kg or 5 mg) and formulations (intermediate or short action) of MPH. The duration of treatment ranged from 2 months to over 5 years. Resolution of incontinence symptoms took up to 5 years. Therefore, it is not yet clear whether patients benefited from the drug or spontaneous resolution of the clinical picture [3-5].

A recent retrospective study reported that the frequency of daily losses and dysfunctional urination are predictive factors of resistance to treatment, and one treatment option, 5 mg MPH daily plus behavioural urotherapy for at least 6 months, had a maximum success rate of 56% [6-8].

Conclusion

Since the aetiology of giggle incontinence is not known it is difficult to determine the appropriate form of treatment. Positive results have been reported with conditioning training, methylphenidate and imipramine. Others have tried antimuscarinic agents and alpha-sympathomimetics. In addition, there are some proactive measures

that can be adopted, namely: frequently emptying the bladder; avoiding triggering situations; anticipating the situation by adopting the sitting or squatting position (this posture exerts pressure on the perineum, closing the urethra, preventing urinary incontinence); biofeedback exercises (pelvic muscle exercises). It is important to reinforce the idea that such accidents are beyond the child's control and not the child's fault, in order to avoid problems of self-esteem.

There is no acceptable evidence that any form of treatment is superior to no intervention.

The prognosis is good, with spontaneous resolution occurring in adolescence in most cases. Nevertheless, some cases may persist into adulthood.

References

1. Richardson I, Palmer LS. Successful treatment of giggle incontinence with biofeed- back. *J Urol.* 2009; 182: 2062-2066.
2. Chandra M, Saharia R, Shi Q, Hill V. Giggle incontinence in children: a manifestation of detrusor instability. *J Urol.* 2002; 168: 2184-2187.
3. Sher PK, Reinberg Y. Successful treatment of giggle incontinence with methylpheni-date. *J Urol.* 1996; 156: 656-658.
4. Berry AK, Zderic S, Carr M. Methylphenidate for giggle incontinence. *J Urol.* 2009; 182: 2028-2032.
5. Chang JH, Lee KY, Kim TB, Yoon SJ, Lee T, Kim KH. Clinical and urodynamic effect of methylphenidate for the treatment of giggle incontinence (enuresis risoria). *Neurourol Urodyn.* 2011; 30: 1338-1342.
6. Telli O, Hamidi N, Kayis A, Suer E, Soygur T, Burgu B. Can the success of structured therapy for giggle incontinence be predicted? *Int Braz J Urol.* 2016; 42: 334-338.
7. Maternik M, Krzeminska K, Zurowska A. The management of childhood urinary incontinence. *Pediatr Nephrol.* 2015; 30: 41-50.
8. Juliana Roda, Luísa Mendes, Nuno Figueiredo. Enuresis/risória . *Minutes Pediatr Port.* 2013; 44: 260-262.