

DETRUSOR WALL THICKNESS IN WOMEN WITH A HISTORY OF CHILDHOOD NOCTURNAL ENURESIS

Hypothesis / aims of study

In adult women, detrusor wall thickness (DWT) over than 5 mm has been shown to be associated with symptoms of the irritable bladder and detrusor overactivity. It has been speculated that this is due to isometric contractions of the detrusor muscle against a closed sphincter over an extended period of time.[1] The aim of this study was to investigate a possible association between a history of childhood nocturnal enuresis (NE) and increased DWT in adult women as this would support the hypothesis that elevated DWT is evidence of a long standing problem with bladder contraction, either congenital or acquired.

Study design, materials and methods

The records of 792 women who attended a tertiary Urogynaecological unit between November 2002 and January 2006 were retrospectively reviewed. We excluded the records of those who were not asked about a history of childhood NE and/or could not have DWT measurements due to poor imaging quality or a residual more than 50 ml. The records of 686 women remained. Enuresis in childhood was defined as bedwetting after school entry. The urodynamic assessment included spontaneous free uroflowmetry as well as filling and voiding phase multichannel cystometry. Translabial ultrasound using 8-4 MHz curved array 2D and 3D/ 4D transducers, after bladder emptying and with the patient in the supine position was performed as described previously.[2]



Figure 1: Measurement of detrusor wall thickness (DWT) by translabial ultrasound. Mean values are 2.4 mm (top left), 3.7 mm (top right), 4.4 mm (bottom left) and 6.8 mm (bottom right).

Results

Of 686 women, 65 (9.5%) reported a history of childhood NE. The mean age of women with a positive history was 50.6±15.0 years and slightly lower than the mean age of women without a history of childhood NE (54.0±13.4), P=0.04. Average DWT was 4.7 (SD 2.1, range 2.1–10.6) mm. in the NE group and 4.2 (SD 1.7, range 1.5–14.2) mm. in the non-NE group. This difference is statistically significant (P=0.025). Symptoms of the irritable bladder were reported slightly more frequently in those women with a history of childhood NE. 86.2% of the women with a history of childhood NE reported the symptom of urge incontinence and nearly 50% of this group had frequency and nocturia. From the urodynamic records, of those women with a history of childhood NE, 24 (49.2%) had detrusor overactivity. The odds ratio for DO in women with a positive history was 3.0 (95%CI = 1.8–5.0).

History of Childhood NE		Odds ratio
Yes (n=65)	no (n=621)	(95% CI)

Symptoms	Urge Incontinence	56	447	2.4 (1.2-5.0)
	Frequency	31	220	1.7 (1.0-2.8)
	Nocturia	37	283	1.6 (0.9-2.6)
Urodynamics	Detrusor overactivity	32	152	3.0 (1.8-5.0)
	Sensory urgency	10	125	0.7 (0.4-1.5)

Table 1: The association of a history of childhood NE with the symptoms of irritable bladder and types of urodynamic findings.

Interpretation of results

The incidence of childhood NE in this cohort of women seen for urodynamic testing was 9.5% which is comparable to the prevalence reported in other studies. We found an association between a history of childhood NE and increased detrusor wall thickness. This may support the hypothesis that detrusor hypertrophy may in some women be the result of a long standing problem with detrusor overactivity, whether congenital or acquired in childhood. However, childhood enuresis could also be psychological in origin, with no association with somatic abnormality[3]. We also found that women with a history of childhood NE had an increased risk of detrusor overactivity (OR 3.0 [1.8- 5.0]). More than 75% of these women showed symptoms of the irritable bladder, and again this is consistent with the literature on this condition. As the average age of women with a history of childhood NE was slightly lower than of the negative history group, it seems that NE in childhood is an indicator of more marked longstanding problems which may lead to earlier presentation.

Concluding message

Adult women presenting for urodynamic testing with a past history of childhood NE are more likely to suffer from symptoms of the irritable bladder, are more likely to be diagnosed with detrusor overactivity and to show detrusor hypertrophy on ultrasound, implying that some women with detrusor overactivity may suffer from a condition that is either congenital or acquired in early childhood.

References

1. Br J Obstet Gynecol, 1996. 103: p. 904-908.
2. Ultrasound Obstet Gynecol, 2004. 23(1): p. 80-92.
3. 'Incontinence', Vol. 2. 2005, Paris: Health Publication Ltd 2005. p 965-1058.

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HUMAN SUBJECTS: This study was approved by the Sydney West Human Research Ethics Committee and followed the Declaration of Helsinki Informed consent was not obtained from the patients.