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EVALUATION OF URETHRAL OBSTRUCTION IN BOYS WITH ENURETIC SYNDROME BY PRESSURE FLOW STUDY

Hypothesis / aims of study

A usefulness of pressure flow study (PFS) has been already recognized in adult patients with bladder outlet obstruction such as benign prostatic heperplasia. However, PFS has been not well performed in child with bladder outlet obstruction because child has difficulty to cooperate to perform PFS. Some patients with refractory monosymptomatic enuresis alone or both nighttime wetting and daytime symptoms such as bladder overactivity could have urethral obstruction due to congenital obstructive posterior membrane (COPUM) [1)]. Voiding cystourethrography (VCUG) had been performed currently in these patients to investigate urethral obstruction such as COPUM, however VCUG alone could not evaluate enough urethral obstruction such as COPUM because there was no definite opinion about diagnosis of COPUM in VCUG. Therefore, in our institution, PFS has been performed in child who was suspected of urethral obstruction such as COPUM in VCUG. To diagnose urethral obstruction such as COPUM and evaluate the postoperative effect of surgical incision, we investigate prospectively PFS finding and the outcome of surgical incision in patients with enuretic symptoms due to urethral obstruction such as COPUM.

Study design, materials and methods

Seven boys (6 to 10 years of age, mean age 7.8 years old) with refractory monosymptomatic enuresis alone or both nighttime wetting and daytime symptoms such as bladder overactivity was included in this study. These 7 boys were treated with anticholinergics at first. However, there was no respond of anticholinergics sufficiently in these patients. Therefore, we performed VCUG and PFS to investigate whether there was urethral obstruction cause of enuretic symptoms. The all patients were suspected urethral obstruction such as COPUM in VCUG and PFS, and cystoscopy under general anesthesia was performed. Furthermore, COPUM was recognized in all patients, so surgical incision was performed at the same time. At 4 months after surgical incision, VCUG and PFS were performed again to evaluate the effect of surgical incision. The other parameter such as frequent volume chart, bladder wall thickness, the number of nighttime wetting in a month and night, the number of daytime wetting and uroflowmetry were investigated before and after surgical incision. PFS was performed using 16-G double lumen catheter transurethrally.

Results

The mean detrusor pressure before surgical incision was 85.8 ± 37.4 cmH2O (range, 38 to 151) in all patients (table). At 4 months after surgical incision, the mean detrusor pressure was decreased to 51.8 ± 17.9 cmH2O (range, 34 to 88). The 4 (66.7%) of 6 patients were improved the enuretic symptoms after surgical incision. The 3 (50%) patients of 6 patients who had high detrusor pressure more than 100 cmH2O before surgical incision were improved the enuretic symptoms after surgical incision. Furthermore, abnormal continuous detrusor contraction after voiding (aftercontraction) in 4 (67%) of 6 patients was shown in preoperative PFS. In 3 (75%) of these 4 patients, the mean number of nighttime wetting in month was decreased apparently from 28.7 to 13.3 days after surgical incision. In 1 of these 3 patients with preoperative aftercontraction, postoperative aftercontraction also was recognized in PFS findings, however detrusor pressure was decreased from 60 (preoperative) to 30cmH2O (postoperative) in this patient. The other two of 6 patients could not recognized improvement of the enuretic symptoms although surgical incision was performed. In these 2 patients, VCUG revealed the improvement of urethral obstruction but no improvement in PFS. The mean detrusor pressure in preoperative PFS of these 2 patients was 68.8 cmH2O, and that of in postoprerative PFS was 54.5 cmH2O. The detrusor pressure of these 2 patients was not changed apparently after surgical incision. Furthermore, 1 of these 2 patients had aftercontraction before and after surgical incision.

Interpretation of results

In case that the preoperative detrusor pressure was more than 100 cmH2O or aftercontraction was recognized in preoperative PFS, surgical incision could be effective treatment of enuretic symptoms due to urethral obstruction such as COPUM although this study was preliminary. On the other hand, refractory cases of surgical incision although postoperative VCUG revealed the improvement of urethral obstruction might have some functional dysfunction.

Concluding message

In patients with refractory enuretic symptoms, PFS could be useful examination to diagnose urethral obstruction such as COPUM and evaluate the postoperative effect of surgical incision.

References

1) Dewan PA, Keenan RJ, Morris LL, and Le Quesne GW. Congenital urethral obstruction: Cobb's color or prolapsed congenital obstructive posterior urethral membrane (COPUM). Br J Urol. 1994 73;91-96.

(Table)

	Preoperative	Postoperative
Mean P det* (cmH2O)	85.8 ± 37.4	51.8 ± 17.9
Aftercontraction** (cases)	4	2
Mean N.enuresis*** (days)	29.4 ± 1.5	21.1 ± 8.9

P det*: detrusor pressure Aftercontraction**: abnormal continuous contraction after voiding
N.Enuresis***: Nocturial enuresis (the number of day in month)

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HUMAN SUBJECTS: **This study was approved by the dokkyo university of ethics committee and followed the Declaration of Helsinki Informed consent was obtained from the patients.**