

LOWER URINARY TRACT SYMPTOMS AND VIDEOURODYNAMIC CHARACTERISTICS OF WOMEN WITH CLINICALLY UNSUSPECTED BLADDER OUTLET OBSTRUCTION

Hypothesis / aims of study

To analyze the lower urinary tract symptoms (LUTS) and video-urodynamic characteristics of women with clinically unsuspected bladder outlet obstruction (BOO).

Study design, materials and methods

We reviewed the charts of 212 women diagnosed with BOO based on video-urodynamic criteria and 264 women without abnormal findings. Women with BOO were categorized into dysfunctional voiding, bladder neck dysfunction, and urethral stricture subgroups (Figure 1). LUTS and urodynamic parameters were compared between obstructed and unobstructed cases and among the BOO subgroups.

Results

The mean ages of the BOO (58.2 years) and control groups (58.8 years) were similar. The mean values of detrusor pressure at maximum urinary flow rate ($P_{det}Q_{max}$)/maximum flow rate (Q_{max}) of the BOO and control groups were 51.83 cmH₂O/10.22 mL/s versus 18.81 cmH₂O/20.52 mL/s. In the BOO group, cine-fluoroscopy revealed dysfunctional voiding in 168 patients (79.2%), urethral stricture in 17 (8.0%), bladder neck dysfunction in 27 (12.7%). The mean urethral resistance relationship ($P_{det}Q_{max}/Q_{max}$, URR) value in each subgroup was 8.04 in the dysfunctional voiding group, 16.87 in the urethral stricture group, and 13.17 in the bladder neck dysfunction group. The relationship of $P_{det}Q_{max}$ and Q_{max} among the three subgroups is shown in the pressure-flow plots in Figure 2. Overall, 149 BOO patients (70.3%) had detrusor overactivity, 35 (16.5%) had increased bladder sensation, 28 (13.2%) had stable detrusor conditions. Patients with dysfunctional voiding had significantly lower urethral resistance compared with the other two BOO subgroups. Combined storage and voiding symptoms were present in most BOO patients (53.8%), followed by isolated storage symptoms (30.2%). Seventy-seven patients (37.3%) had dysuria and 79 patients (36.3%) had frequency as their main symptom.

Interpretation of results

In our study, we did not enroll patients with pelvic organ prolapse and anti-incontinence surgery-induced BOO, which can be detected through pelvic examination and obtaining a complete medical history. There are distinct image appearances on fluoroscopy among the three types of BOO. In this series of patients, we found that the urodynamic parameter of $P_{det}Q_{max}$ was relatively lower and Q_{max} was relatively higher in the dysfunctional voiding group than in the bladder neck dysfunction or urethral stricture groups. This finding suggested that the degree of obstruction was relatively less serious in women with dysfunctional voiding. In other words, if we found higher urethral resistance with higher $P_{det}Q_{max}$ and lower Q_{max} , we must have a high suspicion of bladder neck dysfunction or urethral stricture. This finding provides an important hint to the physicians who have only the facilities of conventional urodynamic study without imaging. Cystoscopy and voiding cystourethrography are necessary in cases of unusually high $P_{det}Q_{max}$ and low Q_{max} to exclude bladder neck dysfunction or urethral stricture. There was no significant difference in the distribution of presenting symptoms among the three BOO subgroups, suggesting that it is not possible to make an accurate diagnosis according to presenting symptoms.

Concluding message

Women with BOO usually have nonspecific LUTS. Dysfunctional voiding was the most common form among women with clinically unsuspected BOO, but the degree of obstruction was less severe than with primary bladder neck obstruction and urethral stricture.

Figure 1. Voiding cystourethrography showing examples of the three subgroups of BOO in women

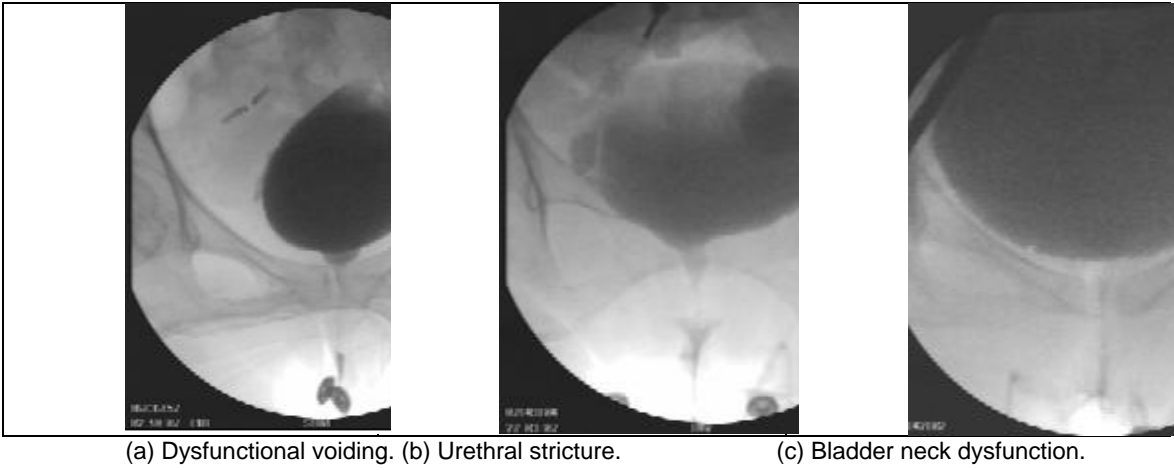
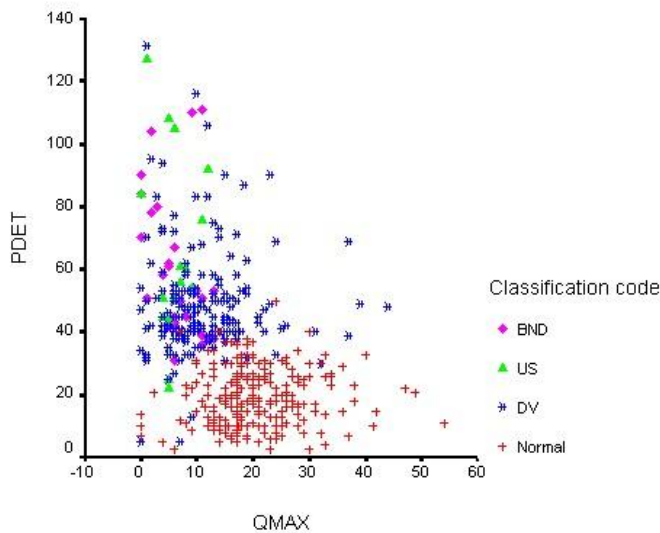


Figure 2. Pressure-flow plot.



The points represent schematically the values of maximum flow rate and detrusor pressure at maximum flow for different voids in the three subgroups of BOO and in normal controls.

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Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Research Ethics Committee of Buddhist Tzu Chi General Hospital
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	No