

## Voiding Dysfunction

# The Effect of Asymptomatic Urethral Caruncle on Micturition in Women with Urinary Incontinence

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**Purpose:** The aim of this study was to evaluate the effect of asymptomatic urethral caruncle (UC) on micturition in women suffering from urinary incontinence.

**Materials and Methods:** A total of 232 patients participated in the study. UC was diagnosed in 50 of 232 patients with urinary incontinence during a physical examination in our clinic. All cases were divided into 2 groups: UC combined with urinary incontinence (group 1) and urinary incontinence only (group 2). Urodynamic evaluations were performed according to the International Continence Society standards.

**Results:** Both groups were similar in terms of voiding diary, pad test and residual urine volume. Urodynamic studies revealed no significant difference between group 1 and 2 (infravesical obstruction: 6% vs. 4.4%; overactive detrusor: 44% vs. 42.9% respectively). The rates of severe IPSS (37.8% vs. 20.9%) and severe cystocele (20.9% vs. 13.8%) were numerically higher in group 1 with no statistically significant difference.

**Conclusions:** Our results suggest that there is no effect of asymptomatic UC on lower urinary tract symptoms in women with urinary incontinence. Therefore, treating asymptomatic UC is unnecessary in these patients. However, during incontinence surgery, it is the surgeon's decision whether to treat asymptomatic UC.

**Key Words:** Micturition; Urethra; Urodynamics

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## INTRODUCTION

The female urethra is about 4 cm long and 8 mm in diameter. It is slightly curved and lies beneath the pubic symphysis just anterior to the vagina. Urethral lesions are important diagnostic tools in female urology. These lesions include urethritis, stricture, caruncle, inflammatory polyps and cysts, prolapse of the urethra, urethral cancer, and diverticulum [1]. In addition to urethral stricture, which is a well-known pathology as a reason for voiding difficulties, a case of bulbar urethral polyp with obstructive voiding symptoms was presented in the literature [2]. Urethral caruncle (UC) is a sensitive vascular tumor localized on the floor of the urethral meatus that was first described by Samuel Sharp in 1750 [3]. The patient complains of pain, exaggerated by movement and urination, and of a blood-stained discharge; however, most patients are asymptomatic [4]. There are no published data in the literature about the effect of UC on micturition. We aimed to clarify the relationship between asymptomatic UC and micturition. Therefore, we conducted a review of urodynamic

studies in women with asymptomatic UC in order to have more information from this cohort study to form an expert opinion based on evidence-based medicine.

## MATERIALS AND METHODS

Data from 850 female patients over 35 years of age with mixed incontinence who were referred to our urodynamics laboratory were analyzed in this retrospective study. Urethral caruncle was diagnosed by physical examination in 50 patients. None of these patients had complaints with regard to UC. Patients were divided into two groups: group 1 included incontinent patients with UC (n=50), and group 2 included incontinent patients without UC (n=182). The patients in group 2 were picked from the 800 patients without UC according to their age in order to obtain a similar age distribution between the groups.

Baseline evaluation included medical history, physical examination, 24-hour pad test, voiding diary for 3 days, and urodynamics. All patients underwent a physical examination, including a pelvic examination in the lithotomy posi-

tion, by the same investigator. Grading of cystocele was performed with the 'halfway grading system' proposed by Baden and Walker [3] with the woman straining in the supine position.

Multichannel urodynamic evaluation included uroflowmetry, cystometry, and postvoid residual urine. Filling cystometric studies were performed with the patient in the sitting and upright positions. The bladder was filled with room temperature normal saline at a rate of 50 ml/min. Bladder pressure was recorded with a 6 French catheter and rectal pressure was measured with a 10 French catheter, both of which were connected to external pressure transducers. The urodynamic investigation started with uroflowmetry and determination of the residual volume by catheterization. Methods, definitions, and units conformed to standards recommended by the International Continence Society.

Statistical analysis was performed by using SPSS version 11 statistical software. The Kolmogorov-Smirnov goodness of fit test was used to examine whether the distribution of a variable was normal. Parameters are reported with standard deviation because this is the convention often followed in the literature. Statistical analyses, however, were done with the distribution free Student's t-test and Mann-Whitney test. Significance was set at  $p < 0.05$ .

## RESULTS

The mean age at presentation was  $61.8 \pm 11.4$  years (range, 38-84 years) in group 1 and  $56.6 \pm 11.8$  years (range, 38-84 years) in group 2. The diameters of UC were less than 1 cm in all cases.

There were no significant differences between the groups with respect to International Prostate Symptom Score (IPSS) or cystocele grade. However, the rates of severe IPSS and severe cystocele were numerically higher in group 1 than in group 2 (IPSS: 37.8% vs. 20.9%, respectively,  $p > 0.05$ , and cystocele: 20.9% vs. 13.8%,  $p > 0.05$ ).

**TABLE 1.** Comparisons of data according to IPSS

IPSS	Group 1 n (%)	Group 2 n (%)	p-value
Mild (0-8)	7 (15.6)	32 (18.6)	> 0.05
Moderate (9-19)	21 (46.6)	103 (60.5)	> 0.05
Severe (>20)	17 (37.8)	36 (20.9)	> 0.05

IPSS: International Prostate Symptom Score

**TABLE 2.** Comparisons of data according to cystocele grade

Cystocele	Group 1 n (%)	Group 2 n (%)	p-value
Mild	10 (23.3)	43 (29.7)	> 0.05
Moderate	24 (55.8)	79 (55.2)	> 0.05
Severe	9 (20.9)	20 (13.8)	> 0.05

All findings of IPSS and cystocele are summarized in Table 1 and Table 2, respectively.

No significant differences were seen for results on the pad test, residual urine, or number of childbirths between the two groups. The median pad test weight gains in a 24-hour period in group 1 and group 2 were 47.3 g (range, 0-291 g) and 32.9 g (range, 0-290 g), respectively.

Between the two groups, no statistically significant differences were detected according to the patients' voiding diaries (Table 3).

Table 4 presents the urodynamic parameters of the two groups. There were no statistically significant differences between the two groups in terms of urodynamic results such as infravesical obstruction and overactive detrusor (infravesical obstruction: 6% vs. 4.4%,  $p > 0.05$ , and overactive detrusor: 44% vs. 42.9%,  $p > 0.05$ ).

## DISCUSSION

Urethral caruncle is mostly seen in middle-aged and elderly women and protrudes through the external orifice as a raspberry-like mass. It is soft and bleeds easily upon manipulation. The lesions of the urethra in women can be diagnosed simply on the basis of inspection and palpation [4].

Many terms have been used to designate UC. These include *papillary angioma*, *vascular polyp*, *capillary angioma*, *urethral hemorrhoid*, and many others [3]. The cause of UC is not clear. However, several investigators have implicated congestion of the urethra, rupture of cysts of Skene's ducts, chronic irritation of the urethral mucosa, and estrogen deficiency [5].

Several studies have shown that the histological appearance of a caruncle includes chronic inflammation, mucosal

**TABLE 3.** Comparisons of data according to voiding diaries

Voiding diary	Group 1 (Mean±SD)	Group 2 (Mean±SD)	p-value
Functional capacity (cc)	292.5±177	335±164	> 0.05
Maximal urine (cc)	418±199.5	480±201.8	> 0.05
Mean voiding number	8.2±3.2	8.5±3.3	> 0.05

**TABLE 4.** Comparisons of data according to urodynamic findings

Urodynamic findings	Group 1 (Mean±SD)	Group 2 (Mean±SD)	p-value
First desire (cc)	122.7±85	113.7±82	> 0.05
Normal desire (cc)	356±159	389±159	> 0.05
PdetrQmax (cmH <sub>2</sub> O)	29.4±23.3	29.5±20.4	> 0.05
Qmax <sup>a</sup> (ml/sec)	14.9±8.7	16.9±9.3	> 0.05
Qmax <sup>b</sup> (ml/sec)	26.3±15	23.3±12.4	> 0.05
OAD (cmH <sub>2</sub> O)	30.9±19	29.6±20.3	> 0.05
ALPP (cmH <sub>2</sub> O)	77.7±37.3	93±44	> 0.05

Qmax: maximum urinary flow rate, OAD: overactive detrusor, ALPP: abdominal leak point pressure, <sup>a</sup>: Qmax during detrusor contraction, <sup>b</sup>: Qmax during free flow

proliferation, edema, and vascular engorgement. According to their predominant histologic characteristics, UCs are classified as granulomatous, papillomatous, or angiomatous [6]. Although UC is a benign lesion, it sometimes may mask certain malignancies such as urethral adenocarcinoma, primary urethral transitional cell carcinoma, lymphoma, or primary malignant melanoma [7-11].

Most UCs are small and asymptomatic. However, some patients suffer from painful urination and blood-stained discharge. The blood is usually seen at the beginning or end of urination, or following coitus, friction from clothes or pads, or other trauma [12]. Although expert opinion suggests that there is no relationship between UC without well-known symptoms and voiding problems, no clear publications in the literature were seen regarding the effect of UC on micturition. In accordance with evidence-based medicine, more information is needed to make the relationship clear. For this reason, we re-evaluated our incontinent patients from a urodynamic database and we observed no effect of UC on micturition with respect to IPSS, voiding diaries, and urodynamics.

Several treatments are described in the literature for UC. Medical treatment with diethylstilbestrol was published in the literature [13]. Electro-coagulation or electro-excision are also other methods for UC treatment. However, surgical excision is the most preferred method among urologists [1].

To the best of our knowledge, association between urodynamic study and UC has not been presented in the literature. In our study, we did not observe any urodynamic finding suggesting that UC could directly affect lower urinary tract symptoms. However, in this study, the caruncles had a small diameter thus it is unclear whether lesions of more than 1 cm might yield different results. We rarely see large caruncles in our practice, and we did not determine the parameters for larger lesions because of the limited number of cases.

## CONCLUSIONS

Our study, for the first time, demonstrated the relationship between asymptomatic UC and lower urinary tract symp-

toms. We think that small (< 1 cm), asymptomatic UCs do not have any kind of impact on lower urinary tract symptoms in patients with incontinence.

## Conflicts of Interest

The authors have nothing to disclose.

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