

## Ultrasound Imaging in a Case of Urethral Diverticulum

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### BRIEF HISTORY

A 34-year-old woman, gravida 3, para 2, was transferred to our urogynecological clinic for further investigation because of a 2-year history of frequency, urgency and occasional dysuria. General physical examination was unremarkable. Pelvic examination showed a 3 cm non-tender, firm and poorly mobile mass palpable in the anterior vaginal wall. Pressure upon the mass resulted in expulsion of a little pus from the urethra (Fig. 1).

The patient went through several investigations to assess her bladder function. Urinalysis showed a high leukocyte count and bacteriuria. A complete urodynamic study was done after the bacteriuria was treated by effective antibiotics. The positive findings of the urodynamic study included a 284 mL maximal cystometric capacity but no detrusor overactivity or urodynamic stress incontinence during the bladder filling phase. Urethrocystoscopy was performed but it was hard to detect the diverticular opening in the distal urethra.

The presence of a suburethral vaginal mass was further evaluated by performing introital sonography using an Aloka SSD-1200 scanner (Tokyo, Japan) with a 3.5 MHz small curved linear-array transducer. It showed a communicating opening between the urethra and suburethral mass (Fig. 2). The patient underwent a diverticulectomy and has been well postoperatively.

### DISCUSSION

Urethrocystoscopy is essential in diagnosing urethral diverticula. The anterior vaginal wall is compressed with a finger in the vagina and the urethral lumen is inspected for any expression of pus from the floor or roof of the urethra. In 50% of patients there will be multiple diverticula and more than half of the urethral diverticula will communicate with the middle third of the urethra [1]. In our case, the patient had a diverticulum in the distal urethra and was plagued by irritable voiding symptoms. The position of diverticulum might have led us to fail to detect the opening by urethrocystoscopy.

Ultrasound has been used in the detection of urethral diverticula because of its advantages of being non-invasive and readily available in most urological and gynecological units. Multiple approaches to ultrasonography have been employed including transvaginal, translabial, suprapubic, perineal and transrectal. When a tiny diverticular opening in the distal urethra cannot be detected by endoscopy, ultrasound might enable visualization. Keefe et al supported transperineal or transvaginal sonography, stating 100% sensitivity in their small series of urethral diverticula [2]. However, the result of our case shows that a transintroital approach seems more appropriate than other ultrasonography to detect diverticula in the distal urethra.



**Fig. 1.** Pressure upon the suburethral mass resulted in expulsion of a little pus from the urethra.



**Fig. 2.** Introital sonography demonstrating a diverticular opening in the distal urethra. u: urethra; com: communicating opening; m: mass; v: vagina.

### REFERENCES

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2. Keefe B, Warshauer DM, Tucker MS, Mittelstaedt CA: Diverticula of the female urethra: Diagnosis by endovaginal and transperineal sonography. *Am J Roentgenol* 1991; **156**:1195-1197.