

Urethral Diverticulum with Urethrovaginal Fistula

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BRIEF HISTORY

A 36 year-old woman came to our OPD with a chief complaint of urinary incontinence (UI) for one year. Physical examination revealed no stress-related UI, or palpable bulging mass over the vaginal wall, but she had urinary leakage on her underwear. She had a cesarean section and concomitant surgical intervention for a blister lesion over the anterior vaginal wall one year previously. Afterwards, she had UI. Under the impression of possible urethro-vaginal fistule, a voiding cystourethrogram (VCUG) (Fig. 1) was done, which showed an abnormal accumulation of contrast medium over the posterior aspect of the anterior urethra.

TREATMENT AND COURSE

She underwent a transvaginal diverticulectomy, and a fistule tract (Fig. 2) between the anterior vaginal wall and urethra could be identified during the operation. Plication of the pubcervical fascia was performed after the diverticulectomy. A Foley catheter was in place for one week. A postoperative VCUG (Fig. 3) one month later showed no residual diverticulum or fistule, and there was no UI.

DISCUSSION

Urethral diverticulum (UD) presents between the third and fifth decades, and is estimated to occur in 1%~6% of women. Many are asymptomatic or misdiagnosed and the prevalence in patients with recurrent urinary infection may be as high as 40% [1]. Most patients

present with nonspecific, refractory, lower urinary tract symptoms, unrelated to the number or the size of diverticula, and undergo extensive evaluation and empirical treatment before a correct diagnosis is established. In one study, the median time from presentation to diagnosis was 9.5 months [1]. A high level of suspicion and appropriate imaging are critical in establishing the diagnosis. In another study,

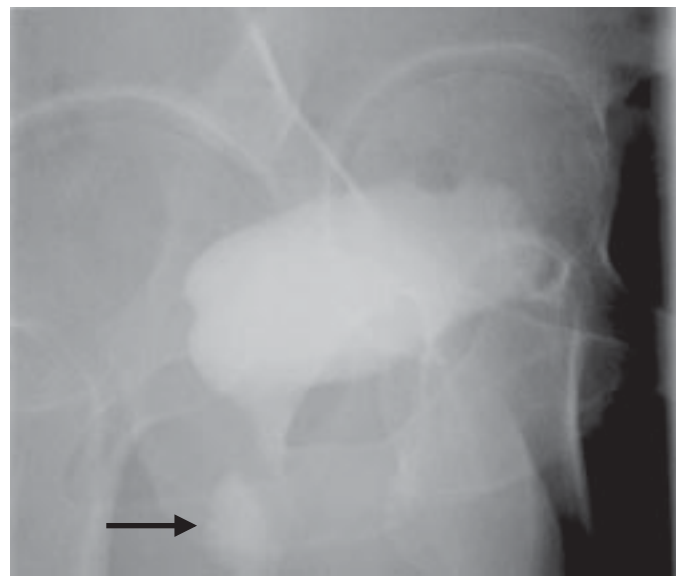


Fig. 1. VCUG reveals a urethral diverticulum (arrow).

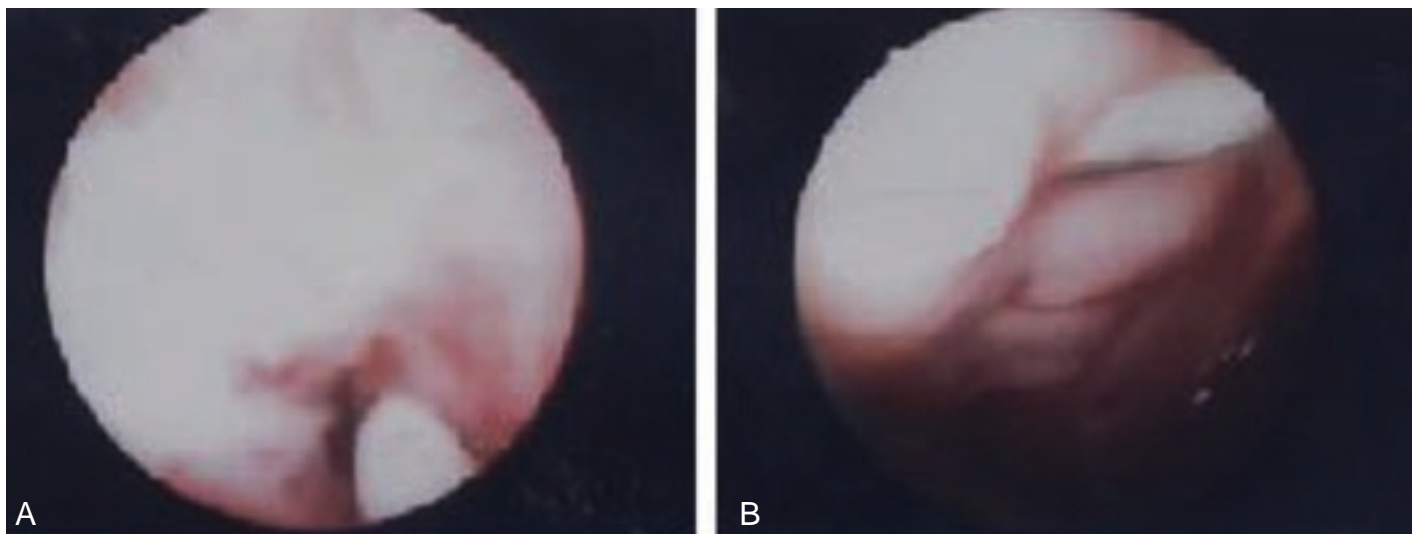


Fig. 2. A urethro-vaginal fistula: (A) View from the urethra, (B) View from the vagina.

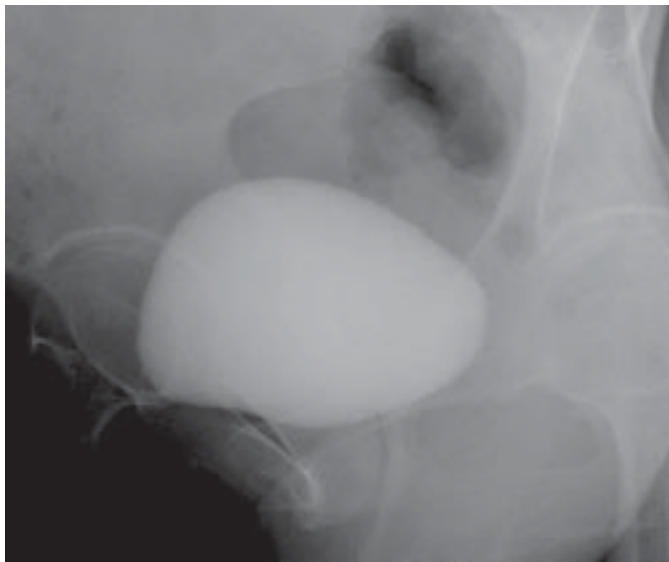


Fig. 3. Follow-up VCUG one month after surgery.

Careful palpation of the anterior vaginal wall revealed a tender cystic mass that expressed pus or cloudy urine via the meatus in 52% of patients with UD [2]. Urethroscopy may identify the position of the ostia, but it fails particularly if the urethral diverticulum is collapsed and the ostium is not visible. VCUG can confirm the diagnosis of UD in approximately 65% of cases by demonstrating the anatomy of the diverticulum with contrast media [2]. A double balloon urethrogram is a positive-pressure urethrogram and has a higher accuracy and sensitivity than VCUG [1]. Many patients have paradoxical incontinence and approximately 50% of women [1] with urethral diverticula demonstrate 'genuine' stress UI. Video urodynamics may offer both an anatomical assessment and a urodynamic pressure study. Magnetic resonance imaging (MRI) resolves normal anatomy and urethral pathology with good multiplanar resolution, and is highly recommended when clinical findings strongly suggest a UD but all other imaging modalities are non-conclusive [2]. Virtual computed tomography (CT) urethroscopy consists of thin-section transverse images of VCUG on a high speed

CT scan. It is non-invasive and identifies the anatomy and pathology of the extraluminal organ better than urethroscopy, and also has better ability to detect the ostia than MRI [1]. But it is still experimental and time consuming, with significant radiation exposure.

There are no specific indications for treatment in asymptomatic urethral diverticula. Patients with mild symptoms may be followed and treated symptomatically with antibiotics and anticholinergics. Surgical intervention with transvaginal diverticulectomy was found to be highly effective [3]. Pre-operative preparation includes treating any acute suppuration and inflammation with a short course of antibiotics.

A diverticulectomy may be combined with a reconstructive procedure. To prevent urethrovaginal fistula formation, some authors have advocated the liberal use of Martius grafts [2-4]. A pubovaginal sling of rectus fascia or other sling procedures can be considered in patients with concomitant stress urinary incontinence [2,4]. Urethral reconstruction with vaginal, labial or bladder wall flap techniques is used when tension-free primary closure of the urethral defect is not possible [4].

CONCLUSIONS

Urethral diverticula are frequently under-diagnosed due to a lack of clinical awareness. The greatest challenge remains in detecting and treating the condition in a timely fashion. MRI is considered when clinical symptoms and signs strongly suggest a UD but all other imaging modalities are non-conclusive.

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