Combined Diverticulectomy and Anti-incontinence Surgery for Patients with Urethral Diverticulum and Stress Urinary Incontinence: Is Anti-incontinence Surgery Really Necessary?

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SUMMARY

Objective: Urethral diverticulum has been identified in 0.6–6% of women and is diagnosed most frequently in the third to fifth decades. Combined diverticulectomy and anti-incontinence surgery are usually undertaken for patients with urethral diverticulum who present with symptoms of stress urinary incontinence. However, this approach may not always be necessary.

Case Report: We report two cases with urethral diverticulum and stress urinary incontinence successfully treated with diverticulectomy only.

Conclusion: This clinical approach could avoid the potential complications of anti-incontinence surgery. [*Taiwanese J Obstet Gynecol* 2006;45(1):67–69]

Key Words: diverticulectomy, stress urinary incontinence, urethral diverticulum

Introduction

The presenting symptoms in women with urethral diverticulum may include urinary frequency and urgency, dysuria, recurrent urinary infection, stress urinary incontinence, post-voiding dribbling, dyspareunia, and hematuria [1,2]. Combined urethral diverticulectomy and anti-incontinence surgery are suggested for patients who have concomitant urethral diverticulum and urinary incontinence [3]. During the last 3 years, six patients with urethral diverticulum were treated at our institution, two of whom had concomitant symptoms of stress urinary incontinence. We used diverticulectomy alone for these two patients. The surgical results were evaluated subjectively and objectively.

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Case Reports

Case 1

A 33-year-old woman, gravida 2, para 2, was referred to our department with a history of pelvic pain, urgency, stress urinary incontinence, and dysuria for 3 years. Two months prior to this admission, she noted the gradual onset of a bulging vaginal mass and occasional pus discharge from the urethral meatus. The patient's medical and surgical history was not significant. She denied any history of sexually transmitted disease. On pelvic examination, a markedly tender anterior vaginal wall mass about 4 × 3 cm was found. Pus discharge from the urethral meatus was noted after applying direct pressure to the mass. Office urinalysis results were

positive for leukocytes and trace blood. The Q-tip test was less than 10°. Urodynamic study showed that the abdominal leak point pressure was 80 cmH_2O and the urethral pressure profile revealed a maximal urethral closure pressure of 70 cmH_2O, with a functional urethral length of 3.5 cm. Cystoscopy revealed a posterior urethral diverticulum located at the mid-urethra. The ostium of the diverticulum was about 0.6 cm in diameter with pus-like material filling the diverticulum. The patient underwent diverticulectomy as described by Young et al [4]. The urethral defect was reconstructed with a 5-0 absorbable suture. The periurethral fascia was closed in a vertical and nonoverlapping manner to avoid wound dehiscence. The vaginal wall was closed with a running suture of 3-0 polyglactin. Postoperatively, the patient did very well. Prophylactic antibiotic (trimethoprim/sulfamethoxazole 400 mg bid) was prescribed for a total of 14 days. She was discharged on day 5 with an indwelling 14-F Foley catheter after an uneventful hospital course. On day 14, she returned to the clinic and the Foley catheter was removed. She was followed for 6 months and reported complete resolution of her stress urinary incontinence. Urgency and pelvic pain also improved postoperatively.

Case 2

A 43-year-old woman, gravida 4, para 3, presented to the gynecologic clinic with chronic pelvic pain, stress urinary incontinence, and dyspareunia of about 6 years' duration. Her medical and surgical history were unremarkable. Six years prior to this hospitalization, she began to notice gradual onset of pelvic pain and dyspareunia. She also felt the onset of urinary incontinence on coughing or running. She visited a gynecologist and diagnostic laparoscopy showed minor pelvic adhesion. Adhesiolysis had no benefit. Due to persistence of the symptoms, she was admitted to our department.

On pelvic-vaginal examination, a tender mass 3 × 3 cm was found in the anterior vaginal wall, while other findings were normal. Urinalysis showed increased white blood cells (30~50)/high power field (HPF), five red blood cells/HPF, and a pH of 6.0. Translabial sonography revealed a suburethral cystic mass of 23 × 24 mm. Voiding cystourethrography showed a posterior urethral diverticulum located at the mid-urethra. Cystometrography and uroflowmetry were normal. Urethral pressure profilometry showed a maximal urethral pressure of 50 cmH_2O, with a functional urethral length of 3.2 cm. Abdominal leak point pressure was 55 cmH_2O.

The patient underwent transvaginal diverticulectomy without any anti-incontinence surgery. The diverticulum was removed *en bloc* and no malignant lesion was reported pathologically. Postoperatively, the patient was followed up for 2 years with complete resolution of stress urinary incontinence. Follow-up urodynamic studies showed normal cystometrography and uroflowmetry. Urethral pressure profilometry revealed a maximal urethral pressure of 80 cmH_2O. The abdominal leak point pressure was negative.

Discussion

Some authors have advocated that simultaneous anti-incontinence surgery and urethral diverticulectomy can be performed safely for patients with urethral diverticulum presenting with symptoms of stress urinary incontinence without increased risk to the urethral reconstruction, yet with excellent continence rates [3,5, 6]. The most common anti-incontinence surgery in the combined surgery is pubovaginal sling. However, adjustment of the proper tension of the sling has always been a problem in this operation. Improper adjustment frequently results in the two most common and distressing complications, namely, outflow obstruction and detrusor instability [7]. The incidence of transient acute urinary retention that necessitates suprapubic cystostomy or clean intermittent catheterization is estimated to be as high as 60%. Moreover, the reported rate of *de novo* detrusor instability after pubovaginal sling is between 15% and 35% [8]. Likewise, vaginal diverticulectomy can put the patient at significant risk for complications, especially devastating urethrovaginal fistula [9,10]. Moreover, according to the literature, the distribution of urethral diverticulum is 25.4% in the proximal urethra, 57.1% in the middle urethra, and 17.4% in the distal urethra [11], that is, most urethral diverticula are located in the upper two-thirds of the urethra. Both cases reported here had urethral diverticulum located in the middle urethra. Therefore, for those patients with urethral diverticulum in the middle urethra presenting with stress urinary incontinence, addition of anti-incontinence surgery to diverticulectomy should be individualized.

Based on our surgical experience, it is not mandatory to perform combined vaginal diverticulectomy and anti-incontinence surgery for all patients with urethral diverticulum presenting with stress urinary incontinence. Meticulous suture of the urethral defect left by the diverticulectomy with reconstruction of the periurethral fascia might enhance urethral resistance and thus overcome the problem of stress urinary incontinence. The location of the urethral diverticulum in our cases was the mid-urethra. For patients with proximal or

distal urethral diverticulum and symptoms of stress urinary incontinence, adding anti-incontinence surgery to urethral diverticulectomy may be justified.

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