Urethral Diverticulum in Females : 25 Years Experience at Ramathibodi Hospital

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Abstract

We retrospectively reviewed the urethral diverticulum in females from 1972 to 1997. Sixty seven patients were found in this study. Nine per cent were nulliparous and the rest were multiparous with the mean of 2.2 births (range 1-6). Voiding cystourethrography and intravenous pyelography were the main diagnostic investigations (92.4%). Stones in the diverticulum were found in 4.4 per cent. The treatment included marsupialization for the diverticulum at distal urethra in 14 per cent and diverticulectomy for the diverticulum at middle and proximal urethra in 86 per cent. The complications included 1.4 per cent of stress incontinence and 4.4 per cent of recurrent infection.

Key word : Urethra, Urethral Diverticulum, Surgery

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Occasionally, urethral diverticulum is the underlying cause of recurrent urinary tract infection and lower urinary tract symptoms in females. This condition is often unrecognized and sometimes rarely diagnosed. We, herewith, present our experience with this interesting condition over the past 25 years.

MATERIAL AND METHOD

The retrospective study of urethral diverticulum of all female patients who were admitted to the Department of Surgery, Ramathibodi Hospital from 1972 to 1997 (a 25 year period) were reviewed. Patient age, site of urethral diverticulum, clinical presentations, choice of treatment as well as results

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of the treatment and any complications were noted.

RESULTS

There were 67 female patients with urethral diverticulum in this study. Mean patient age was 44 years (range 19-70 years). The mean follow-up time was 1.5 years (range 3 months-5 years). Six patients (9%) were nulliparous while 61 patients were multiparous with an average of 2.2 births (range 1-6 births). Regarding the past surgical history, 3 patients were found to have had anterior colporrhaphy done in the past, 2 had a history of failed urethral diverticulectomy from other hospitals and 1 had a history of urethrovaginal fistula repaired. (Table 1)

Fifty-eight patients (86%) had urinary symptoms and more than one symptom complaint. The symptoms included 50 (74.6%) of dysuria, 48 (76.6%) of dyspareunia, 40 (59.7%) of post void dribbling and 2 (2.9%) of urinary stress incontinence. Nine cases (13%) were found to have an anterior vaginal wall mass and referred for urologic evaluation (Table 2). The mode of investigation included voiding cystourethrography in 57 patients (85%), IVP in 5 patients (7.4%) and ultrasonography with cystourethroscopy in 2 patients (2.9%). Interestingly a stone in the urethral diverticulum from plain KUB film confirmed by voiding cystourethrography was found in 3 patients (4.4%). All 67 patients had pyuria but only 24 cases (38.5%) had grown bacteria on their urine culture. Bacteriological studies revealed E.coli in 15, Enterobacter sp. in 6 and Klebsiella sp. in 3. (Table 3)

Diverticula at the distal urethra were found in 10 cases (14%) and were treated with marsupialization. Two (2.9%) had diverticula at the proximal urethra and treated with diverticulectomy, one of them was complicated by post operative stress incontinence but cured after pubovaginal sling procedure. The remaining 55 cases (82%) had diverticula at mid urethra and were treated with diverticulectomy.

The overall operative results were satisfactory judged by three months to five years post operative follow-up and for urine examination and symptomatology. There were very few post operative complications. Only one patient who had diverticulum at the proximal urethra had stress incontinence, three cases with mid urethra diverticulum still had recurrent cystitis and needed long term prophylactic antibiotics. Two had inadequate excision and also developed urinary tract infection post operatively. None of the cases had urethro-vaginal fistula detected. (Table 4)

DISCUSSION

Urethral diverticulum represents a cystic dilatation of a portion of the periurethral ductal system[1]. Urethral diverticulum may occur on a congenital or acquired basis. Most of the female urethal diverticulum are caused by infection of the periurethral gland. Because of the inflammation and enlargement of the obstructed periurethral gland it will rupture into the urethral lumen and result in complete epithelization[1]. Other etiologies mentioned were trauma, instrumentation and post operative consequence after urethral surgery.

The classical symptoms of urethral diverticulum are dyspareunia, recurrent urinary tract infection, urethral discharge, post void dribbling and anterior vaginal wall pain[1-3]. The actual report incidence of presenting symptoms varies tremendously. Mackinnon et al reported 73 per cent of

Table 1. Past surgical history.

Anterior colporrhaphy	3 cases
Failed urethral diverticulectomy	2 cases
Urethro -Vaginal fistula repair	1 case

Table 2. Presenting symptoms.

Symptoms & signs	cases	%
dysuria	50	74.6
dyspareunia	48	76.6
post- void dribbling	40	59.7
urinary stress incontinence	2	2.9
anterior vaginal wall mass	9	13

Table 3. Result of bacteriologic studies.

Bacteria	cases	%
E. coli	15	22
Enterobacter sp.	6	8
Klebsiella sp.	3	4
no bacterial growth	43	64

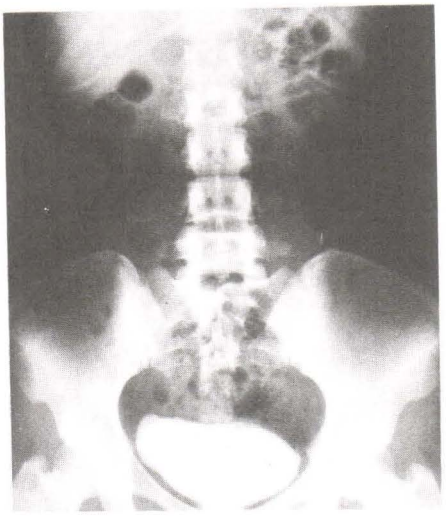

Fig. 1. Post- voiding film of IVP shows contrast media left in the bladder and proximal diverticulum.

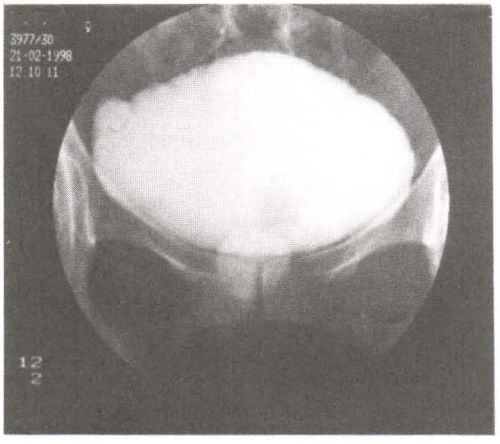

Fig. 2. Voiding cystourethrogram shows contrast media in the proximal urethral diverticulum.

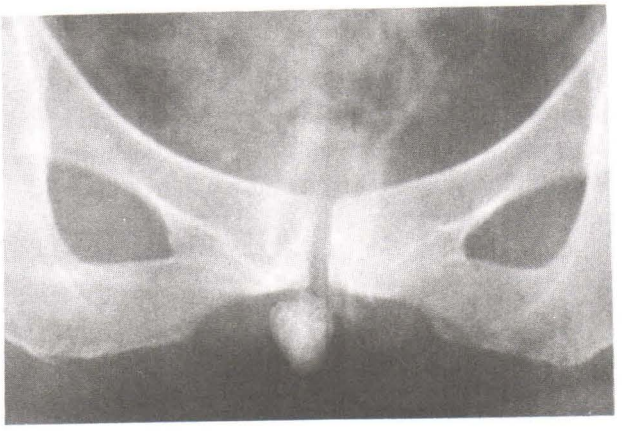

Fig. 3. Plain film shows a stone in the urethral diverticulum. (AP film)

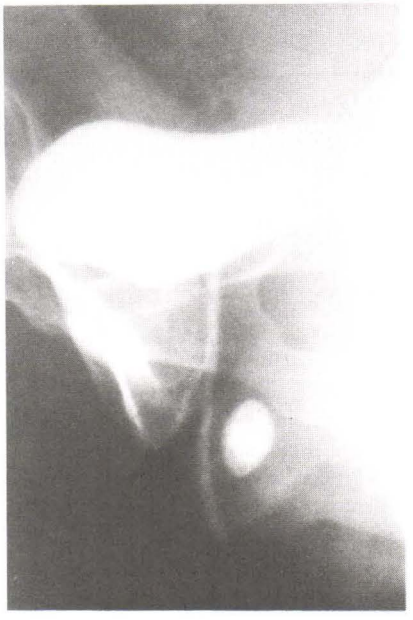

Fig. 4. Cystogram with urethral catheter in oblique film shows a stone not in the urethra.

dyspareunia, 66 per cent of frequency of urination, 4 per cent of recurrent urinary tract infection, 29 per cent of urethral pain, 12 per cent of urethral mass, 25 per cent of stress urinary incontinence and 17 per cent of hematuria[2]. In our series we found 74.6 per cent of dysuria, 76.6 per cent of dyspareunia, 59.7 per cent of post void dribbling, 2.9 per cent of stress urinary incontinence and 13 per cent with anterior vaginal wall mass.

Stasis and chronic infection are likely within the diverticulum and are the cause of stone formation as well as the possibility of increasing the risk of carcinogenesis[2]. We found 3 cases (4.4%) with stone in the diverticulum and no carcinoma was found.

Even though all of the cases had pyuria most of the urine cultures were found to be negative due to prior antibiotics being used. We found 35.8

per cent with positive urine culture, the majority of causative organisms being E. coli.

The diagnosis of urethral diverticulum depends on a high degree of suspicioun, anterior vaginal wall mass, urethral tenderness and induration from stone in diverticulum. Further radiographic investigation is needed to confirm the diagnosis including post voiding film of IVP and voiding cystourethrogaphy which can detect 60-63 per cent of urethral diverticulum[1,2]. Retrograde positive pressure urethrography,[4] endovaginal sonography and magnetic resonance imaging provide ancillary diagnostic techniques[4,5].

Treatment options include observation when the diverticulum is asymptomatic and no stone palpable in the diverticulum, endoscopic management for small diverticulum and open surgical management[6]. Marsupiallization is the treatment of choice for diverticulum at the distal urethra without disturbing the continent mechanism. Diverticulectomy is recommended for the treatment of diverticulum at the middle and proximal part of urethra. The results of operation show a recurrent rate of 3.6 per cent, fistula formation of 1.8 per cent and stress urinary incontinence of 2 per cent. Five per cent of the patients reported recurrent infection[2,5,8].

SUMMARY

The high index of clinical suspicioun incoporated with appropriate physical examination and radiologic investigation will facilitate the diagnosis and management of urethral diverticulum in females. Appropriate preoperative evaluation surgical treatment and postoperative care facilitate adequate diverticulum removal and reduction of the post operative consequence.

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Diverticulum ของหลอดปัสสาวะหญิง : ประสบการณ์ 25 ปี ที่โรงพยาบาลรามาธิบดี

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ผู้ศึกษาได้รวบรวมศึกษาผู้ป่วยหญิงที่มารับการรักษาที่โรงพยาบาลรามาธิบดีระหว่าง พ.ศ. 2515-2540 พบผู้ป่วยที่รับการรักษาด้วย diverticulum ที่ท่อปัสสาวะจำนวน 67 ราย 9% ไม่เคยผ่านการตั้งครรภ์มาก่อน ส่วน 91% เคยตั้งครรภ์เฉลี่ย 2.2 ครรภ์ การวินิจฉัยได้จากประวัติที่น่าสงสัยร่วมกับ Voiding cystourethrogram และ IVP ซึ่งสามารถให้การวินิจฉัยได้ถึง 92.4% พบนิ่วใน diverticulum 4.4% การรักษาประกอบด้วย marsupialization 14% เพราะอยู่บริเวณท่อปัสสาวะส่วนปลาย ที่เหลือ 84% รักษาโดย diverticulectomy พบปัญหาแทรกซ้อนน้อย มี stress incontinence 1.4% มีการอักเสบของทางเดินปัสสาวะเป็นๆหายๆ 4.4%

คำสำคัญ : หลอดปัสสาวะ, ไดเวอร์ติคูลุ่มของหลอดปัสสาวะ, การผ่าตัด

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