

Paraurethral Cyst in Adult Women: Experience with 85 Cases

Farzaneh Sharifiaghdas, Azar Daneshpajoo, * Mahboubeh Mirzaei

Purpose: To present the clinical experience in the management of Skene's duct cysts (paraurethral cysts) in women.

Materials and Methods: A retrospective chart review of patients who have been undergone surgical treatment for paraurethral cyst between 2002 and 2012 was performed. A total of 85 women were diagnosed with paraurethral cyst over a 10-year period. The paraurethral cysts were detected at vaginal examination. Evaluations consisted of urine analysis and culture and urinary tract ultrasound. The first 20 cases underwent cystourethroscopy as well. All patients underwent surgical incision, drainage and marsupialization of the cyst. They were followed up for evidence of any complications and recurrence.

Results: The mean follow up time was 5.5 years. Totally, 83 patients (97.6%) were cured. There were two cases of recurrence which were treated with second surgical attempt.

Conclusion: Most paraurethral cysts in women may be diagnosed by history and physical examination alone. Simple incision and marsupialization of the female paraurethral cyst was effective in more than 97% of our patients, without recurrence.

Keywords: genital diseases; female; cysts; diagnosis; surgery; treatment outcome; urethral diseases.

INTRODUCTION

Skene's glands, or paraurethral glands, are bilateral, prostate homologues which are, located at the bottom of the distal urethra.^(1,2) Their role is to secrete a mucoid material, which helps to lubricate the urethral meatus.⁽³⁾ Obstruction of the ducts leads to the formation of cyst.⁽¹⁾ A paraurethral cyst presents as a small, cystic mass, just lateral or inferolateral to the urethral meatus. Although the etiology of ductal obstruction is unknown in neonates in adults, paraurethral cysts may be caused by infection and inflammation.^(1,4) Disorders of the Skene's glands are rare during the prepubertal period. When a cyst or abscess occurs, women in the third or fourth decade of their life are most affected.⁽⁵⁾ As Skene's ducts are embryologically derived from the urogenital sinus, these cysts are lined by stratified squamous epithelium.⁽¹⁾ Presenting symptoms include a palpable or visible mass, pain, dyspareunia, a distorted voiding stream and vaginal discharge. Paraurethral cysts may be totally asymptomatic and are usually discovered during routine pelvic examination.⁽⁶⁾ The management of paraurethral cysts is controversial.⁽⁷⁻⁹⁾ In this article, we report our clinical experience with the diagnosis and management of paraurethral cysts.

MATERIALS AND METHODS

A retrospective chart review of patients who have been undergone surgical treatment of paraurethral cyst in between 2002 and 2012 was performed. During a 10-year

period, more than 100 cases of paraurethral cysts have been presented to our clinic, some of which were referred by gynecologists or other urologists. The medical records of all patients were reviewed. In most cases, diagnosis was based on the patient's history and physical examination. The lesions were assessed for location, mobility, tenderness and consistency. Urine analysis, urine culture and urinary tract ultrasound were also done in all patients. Conservative treatments were unsuccessful in all patients. According to the medical records, cystourethroscopy has been performed in the first 20 cases to rule out urethral diverticulum before surgery.

The cysts were inferolateral to the urethral meatus, displacing it to the other side (**Figure 1**). The patients were operated as outpatient, under intravenous sedation or local anesthesia. At the start of the procedure, a urethral Foley catheter was inserted. Paraurethral cysts were incised, drained (**Figure 2**) and marsupialized by four separated 4-0 chromic sutures (**Figure 3**). The anterior cyst wall was sent for pathological examination and the posterior cyst wall remained in situ (**Figure 4**). The Foley catheter was removed at the end of the procedure.

Patients were examined postoperatively and then followed up annually for evidence of any recurrence. At each clinical visit, they were asked questions regarding any symptoms related to the cyst, voiding abnormality and sexual function.

Urology and Nephrology Research Center, Labbafinejad Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

* Correspondence: Urology and Nephrology Research Center, Labbafinejad Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Tell: +98 21 22567222; Fax: +98 21 22567282. E-mail: azdaneshpajoo@yahoo.com.

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Figure 1. The cyst has displaced urethral meatus to the other site.



Figure 2. Incision and drainage of paraurethral cyst.

RESULTS

Only 85 out of 100 patients, who had marsupialization of paraurethral cyst, were eligible to enroll in this study. Mean age was 33.2 years (20-77 years). Of study subjects 76 were multiparous and nine were nulliparous. The size of paraurethral cysts ranged from 0.5 to 4.5 cm. The most common symptom was the sensation of a mass [63 (74%)]. Other symptoms were irritative urinary symptoms in 42 (49%), dyspareunia in 24 (28%) and obstructive voiding symptoms in 11 patients (13%). The mean operation time was 10 min (range, 6-15 min). The operation was uneventful, with no postoperative complications. The patients were followed up for an average of 5.5 years (6 months to 9 years).

A total of 83 patients (97.6%) were cured, while remaining two developed recurrence of cysts after 2 and 4 years. The second attempt of surgical marsupialization was successful and uneventful as well.

In all the specimens pathological examination revealed benign cyst walls, lined with transitional or stratified squamous epithelium (**Figure 5**). All cultures of the drained mucous secretions were sterile.

DISCUSSION

Benign cystic lesions of the vagina are frequently encountered in gynecological and urological practice. True cystic lesions of the vagina originate from vaginal tissues, but lesions arising from the urethra and surrounding tissues may present as cystic lesions in the vagina as well.⁽¹⁾ The differential diagnosis of vaginal wall masses are; cysts with embryonic origin (Mullerian cysts, Gartner's duct cysts, Skene's duct cysts, Bartholin's duct cysts, vaginal adenosis, cysts of canal of Nuck), cysts with urethral origin (urethral caruncle, urethral diverticulum), epidermal inclusion cysts, endometriosis, ectopic ureterocele and pelvic organ prolapse. Skene's gland cysts are very rare, the lesion typically arising secondary to the obstruction of the duct. The cysts usually present as mass lesions with associated pain, dyspareunia, dysuria and distorted voiding stream.⁽³⁾

Blaivas and colleagues reported a diagnosis of paraurethral masses in 4% of their patient sample population, and most masses were urethral diverticula (84%). Paraurethral cysts were less commonly diagnosed, in 7% of patients.⁽¹⁰⁾ Cross and colleagues examined 140 asymptomatic wom-



Figure 3. Marsupialization of cyst.



Figure 4. Anterior cyst wall.

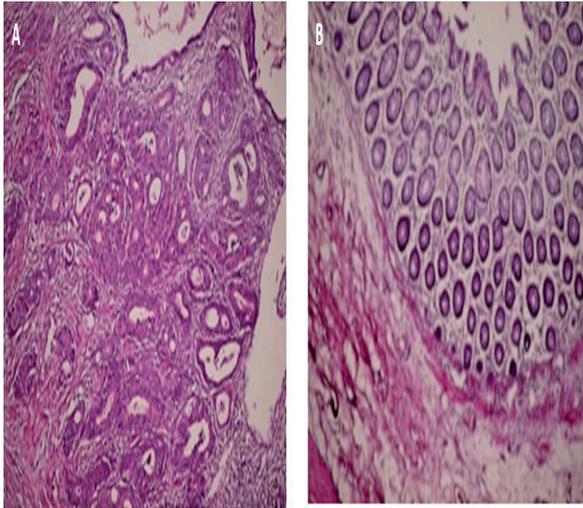


Figure 5. Pathological characteristics of benign paraurethral cyst.

en (mean age 41 years) by using endovaginal and perineal sonography. A proportion of 2.9% of cases revealed asymptomatic paraurethral cystic structures lying lateral to the urethra, while the communication with the urethra was not convincingly demonstrated in any of the cases.⁽¹¹⁾ There are very few studies in the literature describing the evaluation and management of paraurethral cysts in adult women.⁽⁷⁾ We reported our first experience with 25 cases of paraurethral cysts during a 7 years interval, between 1995 and 2001.⁽⁶⁾ Therefore, this is the second report from the same center with more patients and longer follow-up period. In our study, most of the patients were multiparous (76 vs. 9), which indicates multiparity as a risk factor for paraurethral cyst. Most of the cases were in the fourth and fifth decades of life. However, a few were in the post-menopausal period (4 patients, 4.7%).

The position of the cyst is very important in physical examination. The most common location of the Mullerian cyst is along the anterolateral aspect of the vagina. Gartner's duct cysts are almost always located along the lateral wall of vagina. Bartholin's duct cysts are in the lateral introitus, medial to the labia minora. Cysts of the canal of Nuck are generally found in the upper edge of the labia majora or inguinal canal. The preferred region occurrence vaginal adenosis is in the upper third of the vagina, primarily along the anterior wall. Epidermal inclusion cysts are found at previous sites of trauma.

The most important differential diagnosis of paraurethral cyst is the urethral diverticulum (UD). Most urethral diverticula are located ventrally over the middle and proximal portions of the urethra, corresponding to the area of the anterior vaginal wall 1 to 3 cm inside the introitus.⁽¹²⁾ Patients with UD most commonly have anterior vaginal wall tenderness, with or without a concomitant palpable suburethral mass. Pressure on the mass may demonstrate expressible purulent or bloody discharge from the UD or meatus, and firmness of the area may indicate a diverticular stone or neoplasm.⁽¹³⁾ Skene's duct cysts are adjacent to the urethra and inferior or lateral to the urethral meatus. Differentiation from UD can often be made during physical examination, because these lesions are located relatively distally on the urethra, often distorting the urethral

meatus as compared with UD, which most commonly occur over the mid and proximal urethra.

After such large number of cases reported in our center, we now believe that the preliminary diagnosis of paraurethral cysts can be easily made by physical examination in most cases. Nevertheless, cystourethroscopy still remains necessary to diagnosis. Also, our findings have no impact on the treatment planning. There was no need to perform a complete urological imaging palette (intravenous urography, voiding cystourethrogram, and magnetic resonance imaging), and perhaps these evaluations should be reserved for more complicated cysts, or cysts located at the proximal or mid part of the urethra.

According to the literature, there is no consensus on the treatment of paraurethral cysts. Conservative treatment or needle aspiration is an appropriate option in the neonates,^(4,14) while surgical excision is an option if the cyst recurs or fails to resolve within a few months.⁽¹⁵⁾ In adults, several methods of management have been recommended, including waiting for spontaneous rupture, needle aspiration, marsupialization and complete excision of the cyst.^(7-9,16) Complete excision of the paraurethral cyst holds the risk of urethral injury or weakening the tiny muscle fibers around the urethra. Martin and colleagues reported the complete excision of the paraurethral cyst in four patients. Two out of the four cases had urethral injury, which was surgically repaired and the Foley catheter remained in place for 1 week to preserve the urethra.⁽¹⁰⁾ Lucioni and colleagues reported complete periurethral cyst excision in six patients, yielding an average recurrence free outcome with follow-up duration of 29 months. They also left in place the Foley catheter for 24-48 hours due to close dissection around the urethra.⁽¹⁷⁾ Urinary incontinence, urethro-vaginal fistula and urethral stricture represent the other complications associated with the complete excision of paraurethral cysts.

We treated all the patients by simple marsupialization of the cysts. All symptoms were completely resolved after surgery and there was no complication such as hematoma, pain, infection, scar formation and dyspareunia. In our first study, we reported simple marsupialization of paraurethral cysts as a safe and effective procedure. In the present study, we confirm the effectiveness of this procedure on a larger population and with longer follow-up.

CONCLUSION

According to our knowledge, this is the largest case series with the largest follow-up ever published concerning female paraurethral cysts. We demonstrated that paraurethral cysts are benign lesions with excellent response to simple marsupialization procedure.

CONFLICT OF INTEREST

None declared.

REFERENCES

1. Eilber KS, Raz S. Benign cystic lesions of the vagina: a literature review. *J Urol.* 2003;170:717-22.
2. Flamini MA, Barbeito CG, Gimeno EJ, Portiansky EL. Morphological characterization of

- the female prostate (Skene's gland or paraurethral gland) of *Lagostomus maximus maximus*. *Ann Anat.* 2002;184:341-5.
3. Anderson SR. Benign vulvovaginal cysts. *Diag Histop.* 2010;16:495-9.
 4. Soyer T, Aydemir E, Atmaca E. Paraurethral cysts in female newborns: role of maternal estrogens. *J Ped Adol Gynecol.* 2007;20:249-51.
 5. Nickles SW, Burgis JT, Menon S, Bacon JL. Prepubertal Skene's abscess. *J Ped Adol Gynecol.* 2009;22:e21-2.
 6. Sharifi-Aghdas F, Ghaderian N. Female paraurethral cysts: experience of 25 cases. *BJU Int.* 2004;93:353-6.
 7. Isen K, Utku V, Atilgan I, Kutun Y. Experience with the diagnosis and management of paraurethral cysts in adult women. *Can J Urol.* 2008;15:4169-73.
 8. Imamverdiev SB, Bakhyshev AA. Surgical treatment of paraurethral cysts in women. *Urol (Moscow).* 2009;2:39-41.
 9. Yilmaz Y, Celik IH, Dizdar EA, et al. Paraurethral cyst in two female newborns: Which therapy option?. *Scand J Urol Nephrol.* 2012;46:78-80.
 10. Blaiivas JG, Flisser AJ, Bleustein CB, Panagopoulos G. Periurethral masses: etiology and diagnosis in a large series of women. *Obst Gynecol.* 2004;103:842-7.
 11. Cross JJ, Fynes M, Berman L, Perera D. Prevalence of cystic paraurethral structures in asymptomatic women at endovaginal and perineal sonography. *Clin Radiol.* 2001;56:575-8.
 12. Eric S, Rovner MD. Bladder and female urethral diverticula. In: WEIN AJ, editor. *Campbell's urology*. 10th ed. Philadelphia: Saunders; 2012. p. 2262-89.
 13. Hsiao KC, Kobashi KC. Urethral Diverticulum and Fistula. In: Cardoz L, Staskin DR, editors. *Text Fem Urol Urogynecol*. 3th ed. London: Informa healthcare; 2010. p. 971-90.
 14. Fujimoto T, Suwa T, Ishii N, Kabe K. Paraurethral cyst in female newborn: is surgery always advocated? *J Ped Surg.* 2007;42:400-3.
 15. Badalyan V, Burgula S, Schwartz RH. Congenital paraurethral cysts in two newborn girls: differential diagnosis, management strategies, and spontaneous resolution. *J Ped Adol Gynecol.* 2012;25:e1-4.
 16. Busto ML, Barguti I, Andraca AZ, Gómez IR, Castañón LB. Cyst of the skene's gland: report of four cases and bibliographic review. *Arch Urol.* 2010;63:238-42.
 17. Lucioni A, Rapp DE, Gong EM, Fedunok P, Bales GT. Diagnosis and management of periurethral cysts. *Urol Int.* 2007;78:121-5.