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Experiences with the management of paraurethral cysts in adult women

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Introduction. Paraurethral cysts may be acquired or congenital pathology, and are rarely encountered in urogynecologic practice. Therefore, no consensus on management of paraurethral cyst could be reached. We aimed to report our experience on the management of paraurethral cysts in adult women.
Material and methods. A retrospective chart review was conducted on adult women diagnosed with paraurethral cysts between 2011 and 2012. Patients' complaints, parity, physical signs, diagnostic tests and the obtained findings, surgical intervention, duration of follow–up period, complications, recurrence and histologic examination of the cysts wall were evaluated in the patients included.
Results. Ten adult women, aged 23–48 years (mean: 41 years) with paraurethral cysts between 2011 and 2012 were identified. All patients were multiparous. The patients' complaints included palpable mass, dyspareunia, and dysuria. All patients underwent preoperative urethrocystoscopy. All the cysts were solitary and in dimension of 1 to 3.5 cm and localized in the distal urethra. All patients underwent surgical excision. The mean follow–up period was 8 months (range: 6–12 months). Neither complications nor recurrences were observed. Histopathological examination showed that 5 cysts were lined with squamous epithelium, 2 were lined with transitional epithelium, and 3 were lined with both types of epithelium.
Conclusions. Paraurethral cysts may be symptomatic and routine urological examinations are sufficient for diagnosis without using advanced imaging technique. In such symptomatic adult patients, partial surgical resection combined with fulguration can be performed effectively without complications. This treatment modality seems exceptional according to the literature.

Key Words: complication ‹› management ‹› paraurethral cyst ‹› recurrence

INTRODUCTION

Paraurethral cysts may be either acquired or a congenital pathology, although a clear distinction often is difficult [1, 2]. Congenital paraurethral cysts arise from the various embryological components and genitourinary remnants. Acquired inclusion cysts of the surface epithelium are generally secondary to the trauma of childbirth or are caused by iatrogenic surgical trauma. Microscopically, the cysts are usually lined by stratified squamous epithelium and may contain caseous or purulent materials [2].

Paraurethral cysts are classified as acquired or congenital, despite the challenging nature of a clear primary differential diagnosis. Congenital paraurethral cysts originate from various embryonic components and remnants of the vagina and urethra [2]. Until week 8 of embryonic development, both Müllerian ducts merge at the distal (paramesonephric), and then the uterus is lined with pseudostratified columnar (glandular) epithelium, and the cervix and vagina develop. Neonatal and infantile paraurethral cysts have been reported [3]. In contrast, their relatively benign nature and appearance in women

probably explains the paucity of such reports in urogynecologic publications. Most vaginal cysts can be classified as epithelial inclusion, Müllerian, mesonephric (Gartner duct), and urothelial (Skene duct), in addition to other rare types [2]. They may be confused with urethral diverticula. The protocol for diagnosis and management of these lesions is still unclear [4, 5]. We aimed to report our experience on the management of paraurethral cysts in adult women.

MATERIALS AND METHODS

A retrospective chart review was conducted on adult women who presented to the outpatient clinic of our urology department between 2011 and 2012 and were diagnosed with paraurethral cysts and subsequently treated. Patients' complaints, parity, physical signs, diagnostic tests or intervention and the obtained findings, surgical intervention, duration of follow–up period, complications, recurrence and histologic examination of the cysts wall were evaluated.

RESULTS

Ten adult women, aged 23–48 years (mean: 41 years) with paraurethral cysts who presented to the outpatient clinic of our urology department between 2011 and 2012 were identified. All patients were multiparous and symptomatic. The patients' complaints included palpable mass, dyspareunia, and dysuria. Routine blood tests, urinalysis, and urine cultures were performed in all patients, as well as transabdominal ultrasonography. All the patients underwent preoperative urethrocystoscopy under general anesthesia and no pathology was observed in these interventions. All the cysts were solitary with a dimension of 1 to 3.5 cm and were localized in the distal urethra, distorting the external meatus toward to anterior vaginal wall (Figure 1). All patients underwent surgical excision. A urethral Foley catheter was inserted, and in 9 of the 10 patients, instead of complete excision, the cyst wall under the vaginal mucosa was excised (Figure 2) and the wall beneath the urethra was cauterized. In 1 patient a complete excision was performed. The urethral catheter was removed after the procedure and all of the patients were discharged with full recovery. Urinary complaints were completely ameliorated in all cases. The mean follow–up period was 8 months (range: 6–12 months). Neither complications nor recurrences were observed during follow–up period.

Histopathological examination showed that 5 cysts were lined with squamous epithelium, 2 were lined with transitional epithelium, and 3 were lined with both types of epithelium. Patients' characteristics' are shown at table I.

DISCUSSION

Paraurethral cysts are usually asymptomatic and frequently detected incidentally during routine pelvic examination; however, patients can present with complaints of a visible or palpable cyst (according to size), pain, dyspareunia, dysuria, distorted urinary outflow, or vaginal discharge [6]. In most cases, diagnosis can be made on simple examination. On physical examination, the localization, mobility, sensitivity, surface properties (smooth or rough), and stiffness (cystic or solid) of the lesion

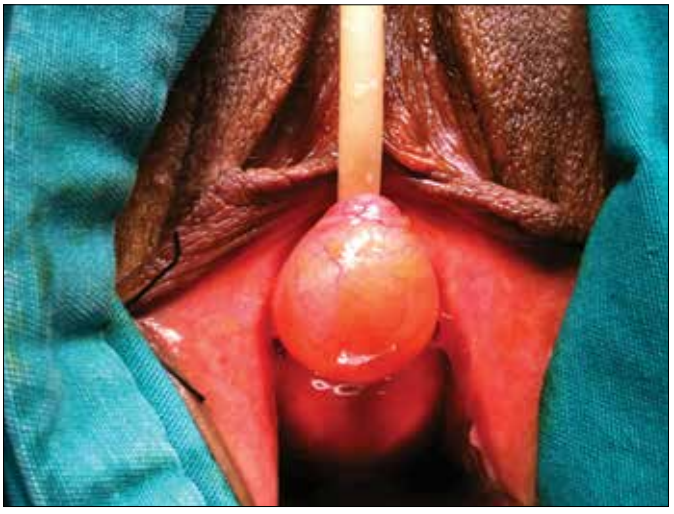

Figure 1. *The paraurethral cyst was distorting the external meatus.*

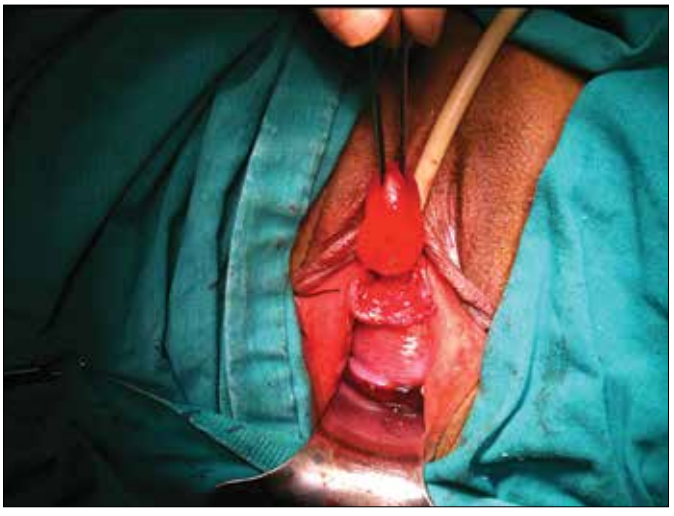

Figure 2. *Complete excision of the paraurethral cyst.*

Table 1. *Patient characterics*

Case	Age	Size (cm)	Cyst Location	Epithelial Lining	Dominant symptom	Parity
1.	23	2	Lateral to urethral meatus	Squamous epithelium	Palpable mass, dyspareuna	Multiparous
2.	48	3	Inferior to urethral meatus	Transitional epithelium	Palpable mass, dysuria dyspareuna,	Multiparous
3.	45	3.5	Lateral to urethral meatus	Squamous+ transitional epithelium	Palpable mass, dysuria, dyspareuna	Multiparous
4.	44	2	Inferolateral to urethral meatus	Transitional epithelium	Palpable mass, dysuria, dyspareuna	Multiparous
5.	41	2.5	Lateral to urethral meatus	Squamous epithelium	Palpable mass, dysuria,	Multiparous
6.	35	1	Lateral to urethral meatus	Squamous+ transitional epithelium	Dyspareuna	Multiparous
7.	42	1.5	Lateral to urethral meatus	Squamous epithelium	Dyspareuna	Multiparous
8.	47	2	Inferior to urethral meatus	Squamous epithelium	Palpable mass, dysuria	Multiparous
9.	39	1.5	Inferior to urethral meatus	Squamous+ transitional epithelium	Dysuria	Multiparous
10.	46	2	Lateral to urethral meatus	Squamous epithelium	Palpable mass, dysuria	Multiparous

should be determined. Malignancy should always be a consideration [7]. For the diagnosis of paraurethral interlabial cysts, patient history and physical examination are usually sufficient; however, for more detailed evaluation of the lesion ultrasonography, voiding cystourethrogram (VCUG), computerized tomography (CT), or magnetic resonance imaging (MRI) can also be used [2].

Normally, the Wolffian (mesonephric) ducts are regressed in females and their remnants form the Gartner's duct, epoophoron, and paraophoron. Starting from week 12 of intrauterine development, the squamous epithelial plate, which originates from the urogenital (UG) sinus, begins to grow upwards and the original pseudostratified columnar epithelium is replaced by squamous mucosa. In addition to the inferior vagina, Skene's glands and Bartholin's glands are derivatives of the UG sinus [7, 8].

As the Skene's ducts originate from the UG sinus embryologically, these cysts are lined with stratified squamous epithelium [9]. Although clinically significant, Skene's ducts cysts are rare. When these cysts are >2 cm patients frequently present with urinary symptoms and complain of obstructive or irritative voiding symptoms [10]. It is extremely important to determine whether or not the vaginal cyst is of urethral origin, for excision without a urethral catheter and in the absence of postoperative urethral drainage can lead to the development of an urethrovaginal fistula. In patients who present with a mass at the anterior vaginal wall, the etiology of the mass may not be discernable initially. The differential diagnosis should primarily include prolapsing ectopic ureterocele, as well as Müllerian remnant cyst, vaginal wall inclusion cyst, urethral/vaginal neoplasia, prolapsed urethra, urethral diverticulum, and paraurethral cyst [2, 11, 12]. We discussed each of these lesions separately in the following sections.

Müllerian cysts

The female reproductive system develops primarily from Müllerian ducts. During the process of squamous UG epithelium replacing Müllerian epithelium (pseudostratified columnar epithelium), Müllerian epithelial tissue can persist and, as a result, vaginal cysts can develop. Müllerian duct cysts can originate anywhere in the most proximal portion of the vagina [7]. They are larger than other cysts and therefore are more often symptomatic. Patients present with a visible or palpable mass, dyspareunia, voiding disorder, vaginal discharge, and pain [13]. The epithelium lining the cyst is columnar and produces endocervical mucus [14].

Vaginal wall inclusion cysts

Acquired inclusion cysts of the surface epithelium are the most common cystic vaginal lesion; it is thought that they are often secondary to delivery trauma or develop as a result of iatrogenic surgical trauma, such as that which occurs during episiotomy [2, 7].

Urethral diverticulum

Although the prevalence of urethral diverticula in the general population remains unknown, some series

have reported rates of 1–6% in adult females. In addition, its pathophysiology and etiology remain topics of debate. Urethral diverticula probably develop as a result of the rupture of infected periurethral glands and cysts into the urethral lumen. The most frequent causative microorganisms are *E. coli*, *gonococci*, and Chlamydia [2]. McNally reported that most diverticula are the result of delivery trauma [15]; however, 15–20% of females with diverticula are nulliparous [16]. On the other hand, surgical excision or marsupialization is suggested for symptomatic patients [2, 11, 12]. In our experience with 10 women, exicision of the cyst, if possible, is the best treatment option. If marsupialization was done, fulguration of the remnant mucosa would be the preferred treatment method. We have not seen any recurrence in our series with this method. However, we fulgurated the wall beneath the urethra after the excision of the cyst wall under the vaginal mucosa. There were no instances of recurrence in the fulgurated cases in which resection was not performed on the cyst portion beneath the urethra, which indicates that the risk of an attenuated urethra should not be taken for complete excision. This treatment modality seems exceptional according to the literature on the management of paraurethral cyst in adult women.

CONCLUSIONS

Paraurethral cysts may be symptomatic and routine urological examinations with urethrocystoscopy are sufficient for diagnosis of these benign lesions without using advanced imaging technique. In symptomatic adult patients with paraurethral cysts, partial surgical resection combined with fulguration can be performed effectively without any complications or recurrence.

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