CASE REPORT

THE PATIENT
62-year-old woman

SIGNS & SYMPTOMS
– Dysuria
– Dyspareunia
– Urinary incontinence

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THE CASE
A 62-year-old postmenopausal woman presented to the clinic as a new patient for her annual physical examination. She reported a 9-year history of symptoms including dysuria, post-void dribbling, dyspareunia, and urinary incontinence on review of systems. Her physical examination revealed an anterior vaginal wall bulge (**FIGURE**). Results of a urinalysis were negative. The patient was referred to Urology for further evaluation.

THE DIAGNOSIS
A pelvic magnetic resonance imaging (MRI) scan revealed a large periurethral diverticulum with a horseshoe shape.

DISCUSSION
Urethral diverticulum is a permanent sac-like cavity projecting into the periurethral fascia arising from the posterior urethral lumen.[1] It is a rare condition that affects fewer than 20 per 1 million women per year.[2] Urethral diverticulum can range from 1 cm to 8 cm in diameter and is located in the mid or distal urethra.[1,3]

Women are more likely than men to develop urethral diverticulum, and it can manifest at any age, usually in the third through seventh decade.[4,5] It was once thought to be more common in Black women, although the literature does not support this.[6] Black women are 3 times more likely to be operated on than White women to treat urethral diverticula.[7]

Unknown origin. Most cases of urethral diverticulum are acquired; the etiology is uncertain.[8,9] The assumption is that urethral diverticulum occurs as a result of repeated infection of the periurethral glands with subsequent obstruction, abscess formation, and chronic inflammation.[1,2,4] Childbirth trauma, iatrogenic causes, and urethral instrumentation have also been implicated.[3,4] In rare cases of congenital urethral diverticula, the diverticula are thought to be remnants of Gartner duct cysts, and yet, incidence in the pediatric population is low.[8]

FIGURE
Physical exam revealed a bulge on the anterior vaginal wall

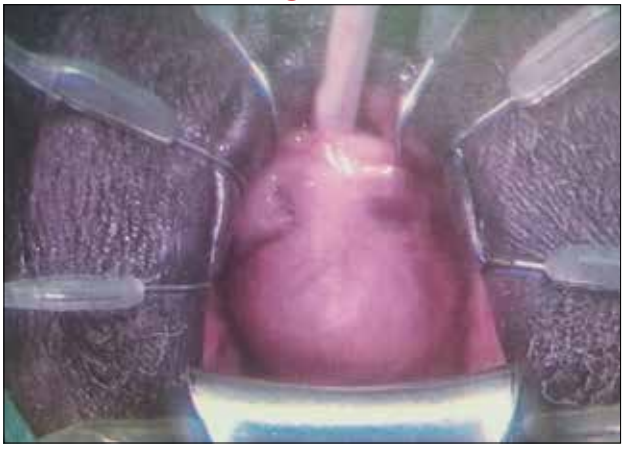

IMAGE COURTESY OF JENELLE FOOTE, MD, FACS

Diagnosis is confirmed through physical exam and imaging

The urethral diverticulum manifests anteriorly and palpation of the anterior vaginal wall may reveal a painful mass.[10] A split-speculum is used for careful inspection and palpation of the anterior vaginal wall.[9] If the diverticulum is found to be firm on palpation, or there is bloody urethral drainage, malignancy (although rare) must be ruled out.[4,5] Refer such patients to a urologist or urogynecologist.

Radiologic imaging (eg, ultrasound, voiding cystourethrography [VCUG], and MRI) is useful in detecting the size, location, and extent of the diverticulum, revealing the relationship to surrounding tissues, and providing insights for appropriate surgical management.[3,4,9] Ultrasound, which is usually readily available, noninvasive, and less expensive, can be considered for initial screening of suspected urethral diverticulum.[3,11] A postvoid MRI is recommended when a urethral diverticulum is highly suspected.[11,12] The MRI, with or without endoluminal coil, is considered the gold standard; it is a favorable complement to the work-up and offers the most diagnostic value.[3,4] According to a single-institution study, the MRI was 100% sensitive and specific in diagnosing urethral diverticulum.[12] However, the limitation of the MRI lies in its cost and lack of availability in some countries.[13]

Nonspecific symptoms may lead to misdiagnosis. The symptoms associated with urethral diverticulum are diverse and linked to several differential diagnoses (**TABLE**).[3,4,12] The most common signs and symptoms are pelvic pain, urethral mass, dyspareunia, dysuria, urinary incontinence, and post-void dribbling—all of which are considered nonspecific.[3,10,11] These nonspecific symptoms (or even an absence of symptoms), along with a physician's lack of familiarity with urethral diverticulum, can result in a misdiagnosis or even a delayed diagnosis (up to 5.2 years).[3,10]

Managing symptoms vs preventing recurrence

Conservative management with antibiotics, anticholinergics, and/or observation is acceptable for patients with mild symptoms and those who are pregnant or who have a current infection or serious comorbidities that preclude surgery.[3,9] Complete excision of the urethral diverticulum with reconstruction is considered the most effective surgical management for symptom relief and recurrence prevention.[3,4,11,14]

Our patient underwent a successful transvaginal suburethral diverticulectomy.

TABLE

Differential diagnoses of urethral diverticulum[3,4,12]

- Cystocele
- Endometriosis of the vaginal vault
- Gartner duct abnormalities
- Infected cyst of Skene
- Inflammatory pseudotumor
- Interstitial cystitis
- Leiomyoma
- Periurethral scarring
- Skene gland abnormalities
- Urethral carcinoma
- Urethral caruncle
- Urethral prolapse
- Urethral syndrome
- Urethrovaginal fistula
- Urgency-frequency syndrome
- Urinary tract infection
- Vaginal wall cysts

THE TAKEAWAY

The diagnosis of female urethral diverticulum is often delayed or misdiagnosed because symptoms are diverse and nonspecific. One should have a high degree of suspicion for urethral diverticulum in patients with dysuria, dyspareunia, pelvic pain, urinary incontinence, and irritative voiding symptoms who are not responding to conservative management. Ultrasound is an appropriate first-line imaging modality. However, a pelvic MRI is the most sensitive and specific in diagnosing urethral diverticulum.[12] JFP

CONTINUED

The MRI, with or without endoluminal coil, is considered the gold standard in diagnosing urethral diverticulum.

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REFERENCES

1. Billow M, James R, Resnick K, et al. An unusual presentation of a urethral diverticulum as a vaginal wall mass: a case report. *J Med Case Rep*. 2013;7:171. doi: 10.1186/1752-1947-7-171
2. El-Nashar SA, Bacon MM, Kim-Fine S, et al. Incidence of female urethral diverticulum: a population-based analysis and literature review. *Int Urogynecol J*. 2014;25:73-79. doi: 10.1007/s00192-013-2155-2
3. Cameron AP. Urethral diverticulum in the female: a meta-analysis of modern series. *Minerva Ginecol*. 2016;68:186-210.
4. Greiman AK, Rolef J, Rovner ES. Urethral diverticulum: a systematic review. *Arab J Urol*. 2019;17:49-57. doi: 10.1080/2090598X.2019.1589748
5. Allen D, Mishra V, Pepper W, et al. A single-center experience of symptomatic male urethral diverticula. *Urology*. 2007;70:650-653. doi: 10.1016/j.urology.2007.06.1111
6. O'Connor E, Iatropoulou D, Hashimoto S, et al. Urethral diverticulum carcinoma in females—a case series and review of the English and Japanese literature. *Transl Androl Urol*. 2018;7:703-729. doi: 10.21037/tau.2018.07.08
7. Burrows LJ, Howden NL, Meyn L, et al. Surgical procedures for urethral diverticula in women in the United States, 1979-1997. *Int Urogynecol J Pelvic Floor Dysfunct*. 2005;16:158-161. doi: 10.1007/s00192-004-1145-9
8. Riyach O, Ahsaini M, Tazi MF, et al. Female urethral diverticulum: cases report and literature. *Ann Surg Innov Res*. 2014;8:1. doi: 10.1186/1750-1164-8-1
9. Antosh DD, Gutman RE. Diagnosis and management of female urethral diverticulum. *Female Pelvic Med Reconstr Surg*. 2011;17:264-271. doi: 10.1097/SPV.0b013e318234a242
10. Romanzi LJ, Groutz A, Blaivas JG. Urethral diverticulum in women: diverse presentations resulting in diagnostic delay and mismanagement. *J Urol*. 2000;164:428-433.
11. Reeves FA, Inman RD, Chapple CR. Management of symptomatic urethral diverticula in women: a single-centre experience. *Eur Urol*. 2014;66:164-172. doi: 10.1016/j.eururo.2014.02.041
12. Dwarkasing RS, Dinkelaar W, Hop WCJ, et al. MRI evaluation of urethral diverticula and differential diagnosis in symptomatic women. *AJR Am J Roentgenol*. 2011;197:676-682. doi: 10.2214/AJR.10.6144
13. Porten S, Kielb S. Diagnosis of female diverticula using magnetic resonance imaging. *Adv Urol*. 2008;2008:213516. doi: 10.1155/2008/213516
14. Ockrim JL, Allen DJ, Shah PJ, et al. A tertiary experience of urethral diverticulectomy: diagnosis, imaging and surgical outcomes. *BJU Int*. 2009;103:1550-1554. doi: 10.1111/j.1464-410X.2009.08348.x

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CHALLENGES TO IMPLEMENTATION

Timolol's systemic adverse effects require caution

Systemic beta-blocker effects (eg, bradycardia, hypotension, drowsiness, and bronchospasm) from topical timolol have been reported. Caution should be used when prescribing timolol for patients with current cardiovascular and pulmonary conditions. JFP

References

1. Kurian A, Reghunadhan I, Thilak P, et al. Short-term efficacy and safety of topical β-blockers (timolol maleate ophthalmic solution, 0.5%) in acute migraine: a randomized crossover trial. *JAMA Ophthalmol*. 2020;138:1160-1166. doi: 10.1001/jamaophthalmol.2020.3676
2. Global Burden of Disease Study 2013 Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015;386:743-800. doi: 10.1016/S0140-6736(15)60692-4
3. Yeh WZ, Blizzard L, Taylor BV. What is the actual prevalence of migraine? *Brain Behav*. 2018;8:e00950. doi: 10.1002/brb3.950
4. Leonardi M, Raggi A. Burden of migraine: international perspectives. *Neurol Sci*. 2013;34(suppl 1):S117-S118. doi: 10.1007/s10072-013-1387-8
5. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd edition (beta version). *Cephalalgia*. 2013;33:629-808. doi: 10.1177/0333102413485658
6. Ubrogepant. GoodRx. Accessed May 23, 2022. www.goodrx.com/ubrogepant
7. Orr SL, Friedman BW, Christie S, et al. Management of adults with acute migraine in the emergency department: the American Headache Society evidence assessment of parenteral pharmacotherapies. *Headache*. 2016;56:911-940. doi: 10.1111/head.12835
8. Migliazzo CV, Hagan JC III. Beta blocker eye drops for treatment of acute migraine. *Mo Med*. 2014;111:283-288.
9. Cossack M, Nabrinsky E, Turner H, et al. Timolol eyedrops in the treatment of acute migraine attacks: a randomized crossover study. *JAMA Neurol*. 2018;75:1024-1025. doi: 10.1001/jamaneurol.2018.0970
10. Timolol. GoodRx. Accessed May 23, 2022. www.goodrx.com/timolol