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CASE REPORT

A Rare Case of Female Urethral Diverticulum

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Abstract

Background: *Urethral Diverticulum (DU) is a varied and challenging case of pelvic surgery because the diagnosis is difficult to make. Symptoms that appear in women vary, ranging from incidental findings, lumps or swelling, and pain in the vagina, as well as discharge from the urethra with a periurethral mass.*
Objective: *In this report, we report a case of Urethral Diverticulum (DU) in a 32-year-old woman who complained of a painful lump in her genitals. This patient underwent transvaginal urethral diverticulectomy and successfully resolved the symptoms of Urethral Diverticulum (DU) he experienced.*
Case report: *Management of Urethral Diverticulum (DU) in this report, namely by history taking, physical examination, supporting examination consisting of transvaginal and transperineal ultrasound, as well as cystourethroscopy before excision and reconstruction of the urethral diverticulectomy is carried out on this patient.*
Results: *This patient had a successful transvaginal urethral diverticulectomy, with no early post-surgical complications found.*
Conclusion: *ReUrethral Diverticulum (DU) cing the rate of problems following surgery is possible by adhering to the excision and reconstruction principles of urethral diverticulectomy.*

Keywords: *Urethral Diverticulum (DU), pelvic surgery, transvaginal urethral diverticulectomy*

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INTRODUCTION

Urethral diverticulum (DU) is a protrusion of the urethral lumen in the form of a periurethral cyst structure into the surrounding connective tissue covered by periurethral fascia, usually connected to the urethra via an ostium and often filled with urine. DU is a rare condition recorded in the literature in the 19th century, with an incidence of 1 – 6%.[1–3]

Urethral diverticulum (DU) is a case of pelvic surgery that is varied and challenging because the diagnosis is difficult to make.[4] The symptoms that appear in women vary, ranging from incidental findings, bulging, or feeling of swelling and pain in the vagina, as well as discharge from the urethra with a periurethral mass. Other symptoms are urinary tract infections, dyspareunia, urinary incontinence, and malignancy.[5]

About 1–6% of Urethral diverticulum (DU) patients have malignancies, which are frequently identified as squamous cell carcinoma, ca urothelial cancer, and adenocarcinoma.6 In addition, there are anatomical variations in women with Urethral diverticulum (DU) , making the surgical approaches for Urethral diverticulum (DU) repair also varied and not identical to each other.[4] Here, we report a case of Urethral diverticulum (DU) in a woman who complained of a painful lump in the genitals.

CASE REPORT

A 32-year-old woman with a diagnosis of a posterior urethral mass visited the RSUP Dr. M. Djamil Padang Urogynecology Polyclinic after being referred by a regional private hospital. The patient's primary complaint was a tumour that had been protruding from his genitalia for ten days. A mass the size of an adult fingertip that is still capable of being inserted into the vaginal introitus. In addition, the patient reported that for two months, a yellowish fluid had been flowing out of the vagina, appearing like sand when the patient peed, and coming out when the patient coughed.

The patient has a history of heavy weightlifting, and she gave birth to two babies on her own, the largest of which weighed three thousand grams. Based on the findings of the physical examination of the genitalia, the examination revealed a reddish mass, the size of an adult fingertip, smooth and free of erosion, originating from the anterior wall of the vagina.

A hyperemic tumor mass the size of an adult fingertip was discovered on the anterior vaginal wall upon inspection. There is also Albus flour, which has a yellowish color. After using a vaginal toucher, the anterior vaginal wall had a palpable mass with a firm substance, soreness, and no discernible mass in the adnexa. Levator and anal sphincter muscle tone assessment revealed TLA: 3 and TSA: 3. Urine levels were found to be 140 cc spontaneously and 30 cc residually, with negative results from provocation and cough tests.

Transvaginal ultrasound showed an anteflexed uterus measuring 5.98 x 2.98 x 5.85cm, with an endometrial thickness of 2.49 mm (Fig. 1). Concurrently, a hypoechoic picture under the pubic symphysis was obtained using transperineal ultrasound. This image was well-defined and merged with the urethra, providing the impression of a possible urethral diverticulum (Fig. 2).

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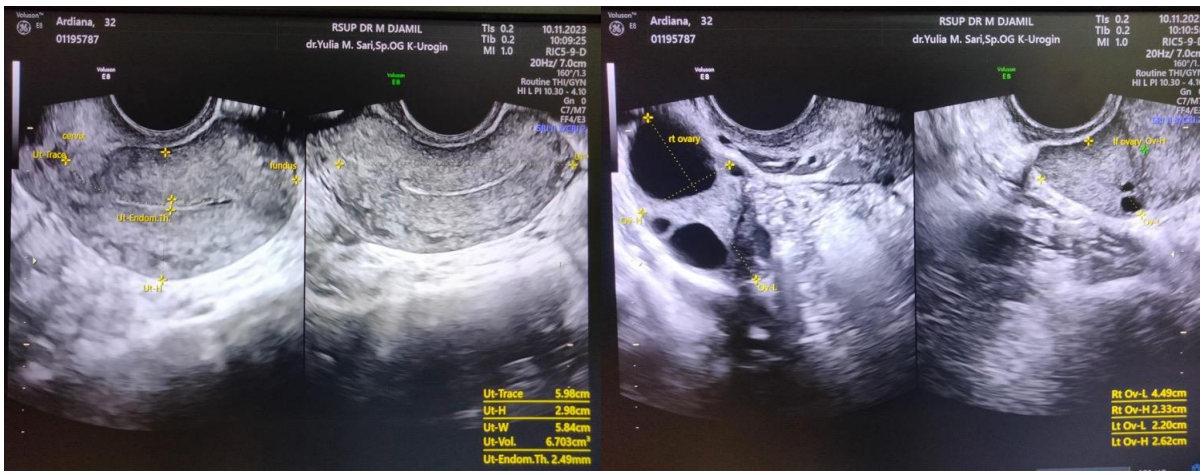


Figure. 1. Transvaginal ultrasound

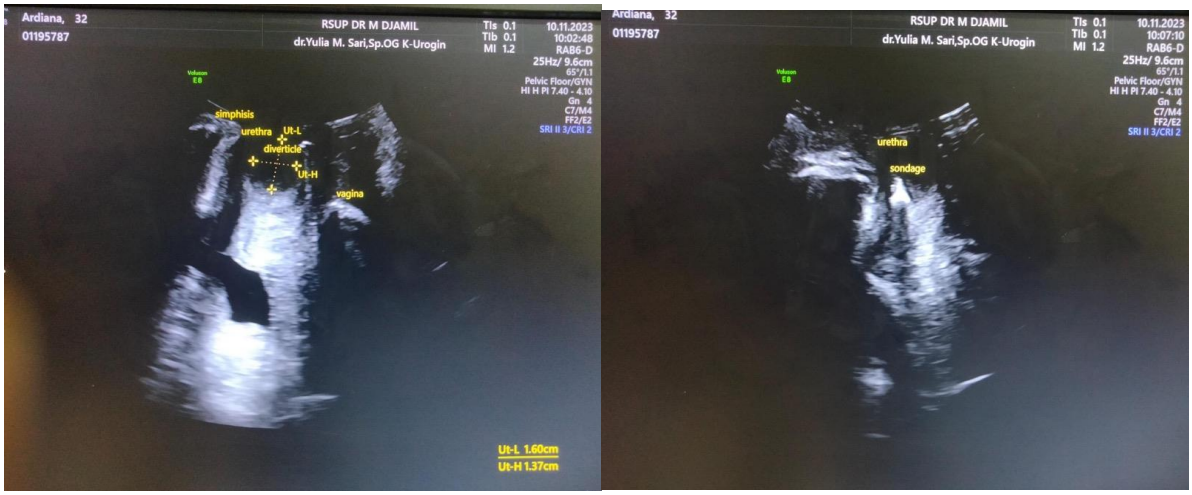


Figure. 2. Transperineal ultrasound

Diagnostic cystoscopy revealed the presence of a urethral diverticulum in the distal 1.5 cm of the urethra with a size of 1x1.5x1 cm. The right and left ureteral openings are normal, the jet stream is positive, there is no hypervascularization in the bladder, the bladder dome is clear (Fig. 3).

Hydrodissection of the anterior vaginal mucosa was performed in the area of the diverticulum. U incision in the anterior vaginal mucosa, then proceed with sharp dissection of the anterior vaginal mucosa until the U flap is mobile enough (Fig. 3).

Transverse incision of the puboyrthralis fascia, then continued with sharp dissection until the fascia is mobile enough. A lump appears, the impression of a urethral diverticulum. A diverticulectomy was performed.

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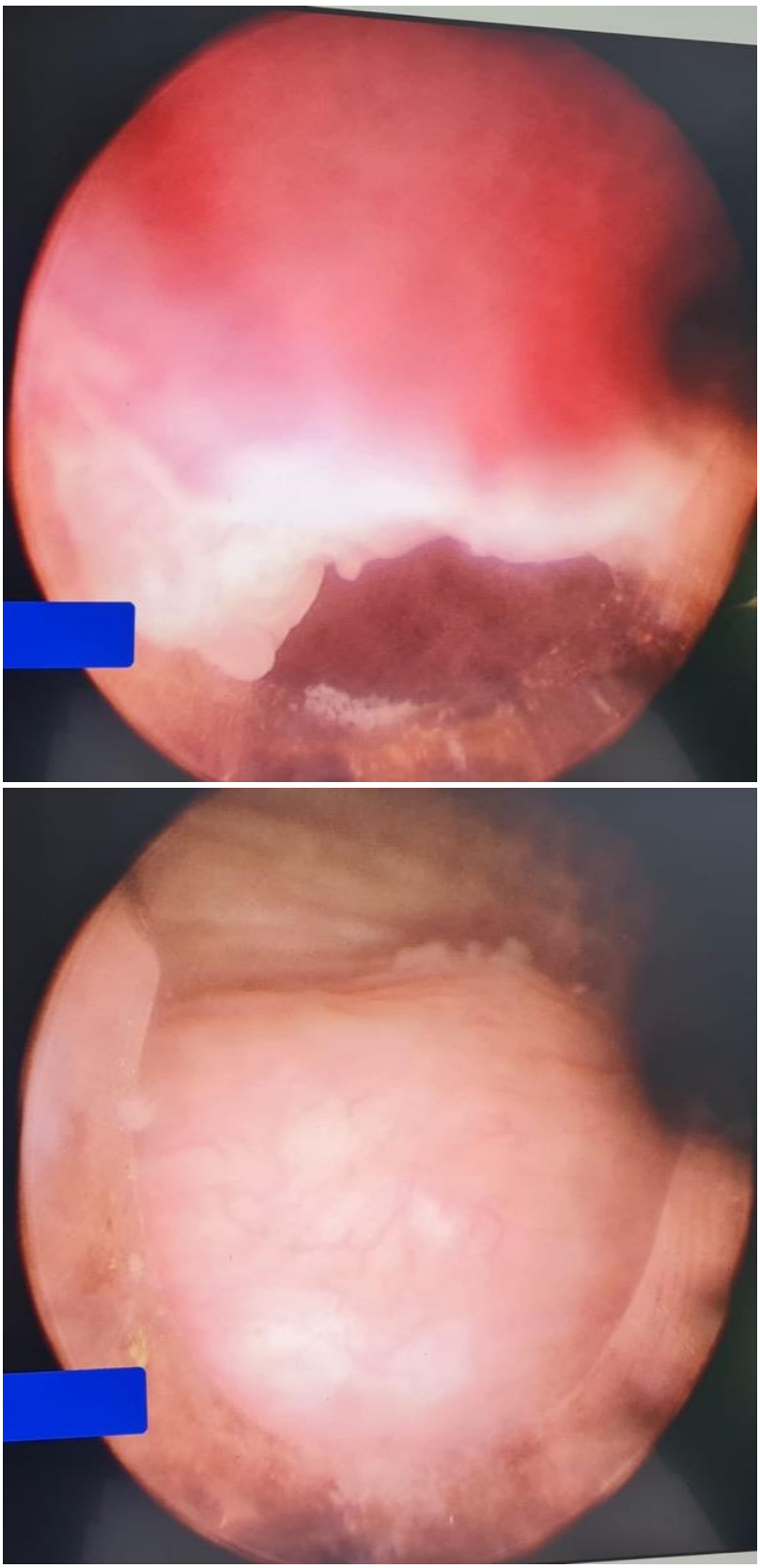
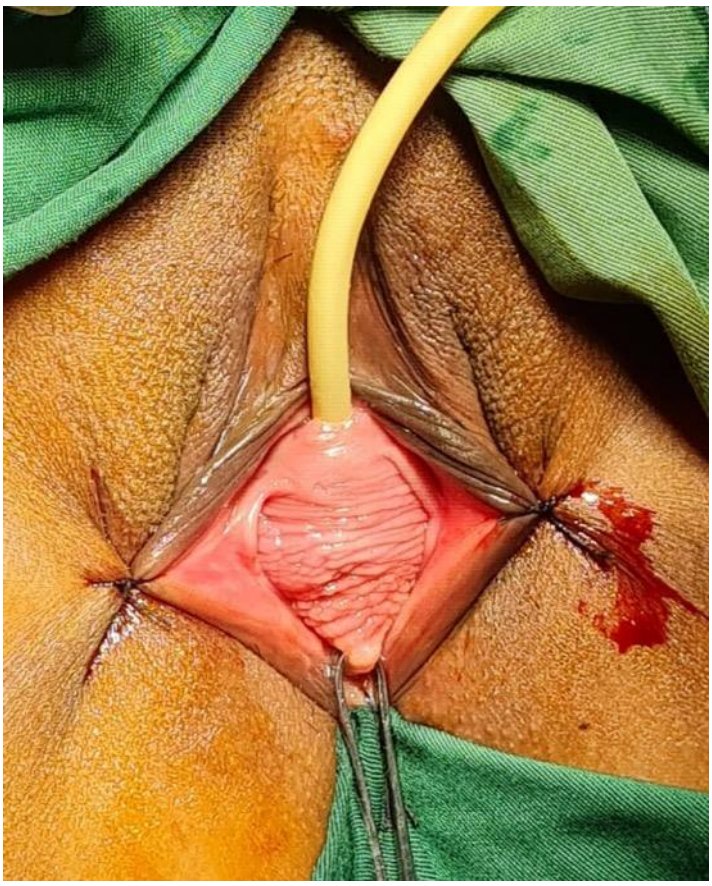
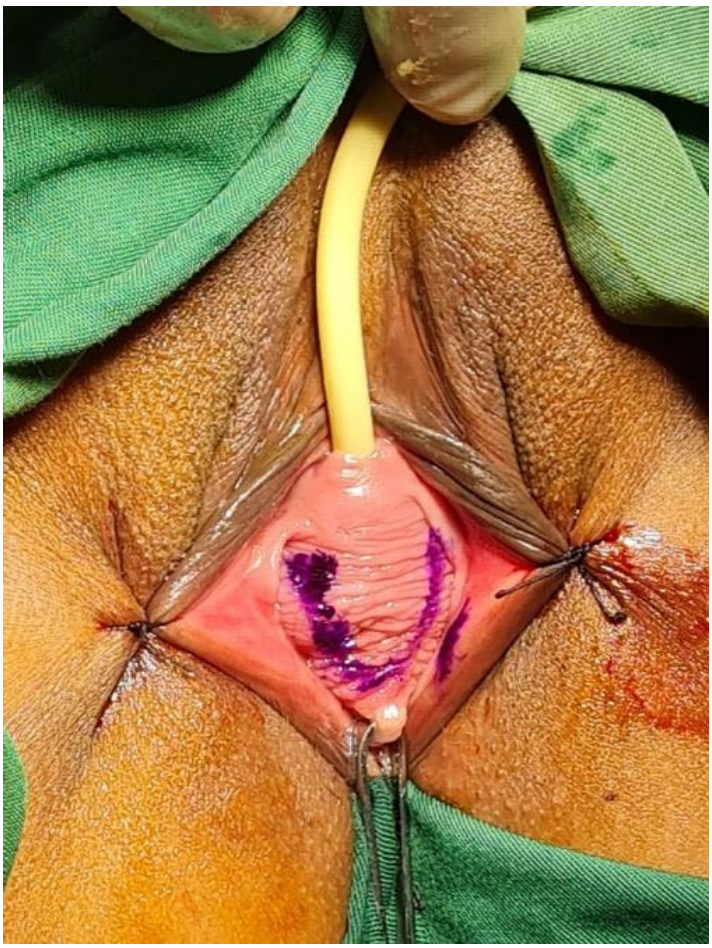


Fig. 3. Sistoskopi

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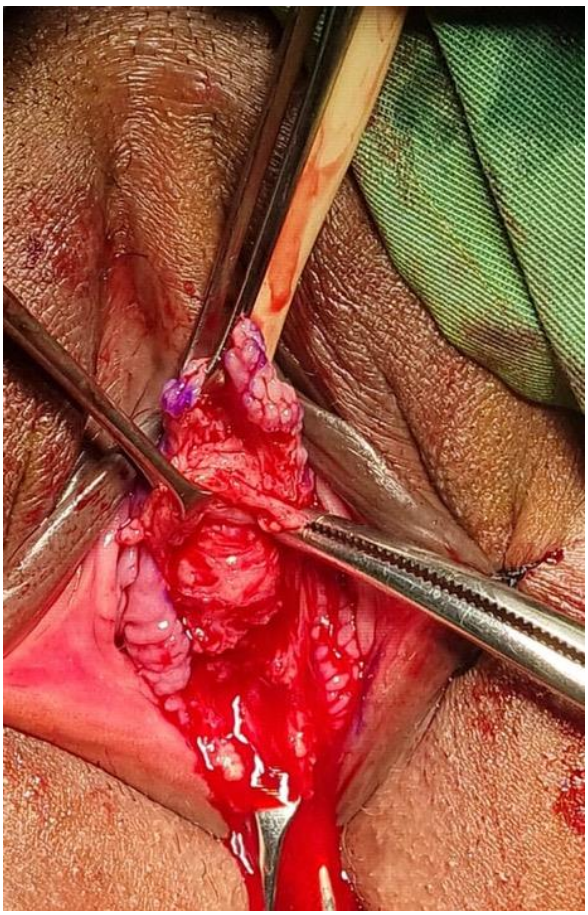
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Fig. 3. Diverticulectomy

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RESULT AND DISCUSSION

Urethral diverticulum (DU) in women is a rare and unique clinical entity with an annual incidence of 17.9 per 1,000,000 (0.02%). DU is a congenital or acquired disease.[7] DU in some cases occurs in nulliparous patients in up to around 20 -31% of cases.[8,9]

Urethral diverticulum (DU) is believed to arise due to repeated obstruction, infection, and subsequent rupture of the periurethral glands into the lumen of the urethra, resulting in an epithelial cavity associated with the urethra.[5,10] The development of Urethral diverticulum (DU) is known to be influenced by iatrogenic damage to the urethra, as evidenced by the 20% of women who have a history of prior urethral surgery, urethral dilatation, and traumatic labor, such as second-stage assisted labor, which results in the urethral mucosa herniating through the muscle layers surrounding the urethra.[3,11,12] Agents injected periurethral for the treatment of stress urinary incontinence can trigger periurethral cyst formation with symptoms and radiographic features similar to Urethral diverticulum (DU) . Additionally, periurethral bulking agents have been hypothesized to cause accumulation of glandular secretions, infection, and the development of Urethral diverticulum (DU) .[13,14]

Dysuria, dyspareunia, and dribbling (post-void) are the three hallmark clinical presentations of Urethral diverticulum (DU) . However, only 5% of Urethral diverticulum (DU) patients have this classic triad.[17] The most frequent clinical presentations are vaginal masses, lower urinary tract disorders such as urgency, frequency, and dysuria, and recurrent UTIs. About a third of DU patients experience recurrent UTIs, usually due to urine stasis. [8,9,15–17] About 4–32% of DU patients have dribbling (post-voiding), while between 12 and 24% of individuals have dyspareunia.[8,9,18] However, 10 – 20% of Urethral diverticulum (DU) patients are asymptomatic with lesions discovered during physical examination or supporting imaging.[19]

When a Urethral diverticulum (DU) patient undergoes a physical examination, a tender anterior urethral mass can be palpated. The location of DU is usually on the anterior vaginal wall, approximately 1 – 3 cm proximal to the urethral meatus, and can extend more proximally to the neck of the urinary bladder. The displaced urethral meatus is suspected to be an abscess of the Skene's gland and not Urethral diverticulum (DU) . Masses in DU can be palpated distally, resulting in urine or purulent material or debris being released, but this is not pathognomonic of DU.[4,5,20] Masses on the anterior vaginal wall that are hard can indicate the presence of calculus or malignancy along with Urethral diverticulum (DU) . Vaginal wall atrophy, due to lack of estrogenization of the vaginal walls, must also be assessed, which can make surgery difficult.[4,5]

The differential diagnosis of Urethral diverticulum (DU) is other periurethral masses, such as vaginal wall cysts, leiomyoma, abnormal Skene's glands, Gartner's ducts, prolapse, and caruncles in the urethra. [5] Therefore, to plan surgical treatment, supporting examinations are needed.

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a. Urine studies

A urinalysis and culture should be obtained to evaluate for Urethral diverticulum (DU) , even while on antibiotic therapy. Urine must be sterile before any surgical procedure. E. coli is most often found in DU patients, other gram-negative bacteria, such as N. gonorrhea or Chlamydia.[18,21] In patients with urinary problems, hematuria, or suspicion of malignancy, urine cytology needs to be performed.[4,5]

b. Cystourethroscopy

Cystourethroscopy to locate the Urethral diverticulum (DU) ostium and identify the underlying cause of more obstructive and irritative voiding symptoms. For the best evaluation of lower urinary tract problems, a flexible optical lens cystoscope should be employed. You can see the Urethral diverticulum (DU) ostia at four and eight o'clock. It is still possible to make a diagnosis even if the DU ostia is not visible. There are reports of variations in the Urethral diverticulum (DU) ostia's visualization in 15–89% of cases.[2,22–25]

c. Imaging studies

There is no gold standard imaging modality for Urethral diverticulum (DU) cases in women. The selection is based on availability, cost, and the presence of a local radiologist. Imaging studies are important to evaluate Urethral diverticulum (DU) for adhesions to the neck of the urinary bladder, the location of the Urethral diverticulum (DU) , the presence of stones in the urinary bladder, or a mass along with the DU that may indicate malignancy.[4] Modalities that can be used to evaluate Urethral diverticulum (DU) are Voiding cystourethrogram (VCUG), USG, and MRI.

Transperineal and transvaginal ultrasound have a sensitivity of 95 – 100% and are useful intraoperatively for identifying Urethral diverticulum (DU) that are difficult to dissect.[2,22,26] The newest ultrasound technique, namely transurethral with contrast, has a sensitivity of 95% and a specificity of 100% for the diagnosis of DU.[29] VCUG offers visualization ofUrethral diverticulum (DU) when the ostium is patent with a sensitivity of 67 – 95%, but this examination is invasive and uncomfortable for the patient.[2,27]

MRI is the most optimal examination for diagnosis and surgical planning for Urethral diverticulum (DU) patients. Excellent soft tissue contrast on MRI allows accurate elucidation of the anatomy of the urethra and its supporting structures and has become the “gold standard” for the diagnosis of UD. MRI can depict the ostium in 85% of cases.[28,29]

d. Urodynamics

Urethral pressure profilometry (UPP) to assess Urethral diverticulum (DU) patients, the typical characteristic found is a biphasic pattern or a decrease in pressure at the level of the Urethral diverticulum (DU) location because urine is collected in the DU.[30,31] 20 - 50% of female Urethral diverticulum (DU) patients also have stress urinary incontinence (SUI). Urodynamics helps assess the urodynamics of stress urine incontinence or detrusor function, as well as in differentiating or elucidating whether or not SUI is caused by post-void dribbling Urethral diverticulum (DU) .[8,32,33] In addition, Urethral diverticulum (DU) can result in obstruction symptoms, which are seen with SUI

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on urodynamics evaluation, because of a mass pressing on the bladder's outflow.[34] The combination of urodynamics examination with VCUG to evaluate lower urinary tract disorders can reduce the number of urethral catheterizations and discomfort during the examination.[33]

Management of Urethral diverticulum (DU) consists of surgical excision, namely transvaginal urethral diverticulectomy and urethral reconstruction.[16] Indications for Urethral diverticulum (DU) surgery include recurrent symptoms of urinary disorders, pelvic pain, dyspareunia, and UTI. In postmenopausal individuals, topical estrogen cream administered a few weeks before surgery helps to improve the quality of vaginal tissue.[5] Because some patients who have had surgery and reconstruction report a remission of their SUI symptoms without requiring SUI management techniques, SUI may be a modern finding in Urethral diverticulum (DU) patients.[5] Nevertheless, 7–16% of patients may experience SUI de novo following DU surgery; this increases the risk, particularly if the DU mass is larger than 3 cm, resulting in a more proximal location. Additionally, if the Urethral diverticulum (DU) mass has a circular configuration, a more proximal incision with a potential for urethral sphincter injury results. The SUI surgical technique used during Urethral diverticulum (DU) surgery is still debatable in the interim.[3,22,32,35–38] Some surgeons do it in stages, but some recommend simultaneous installation of a pubovaginal sling. It has been proven to be safe and effective for treating SUI during urethral diverticulectomy.[5,15,33,39,40] However, the addition of this procedure has been reported to increase the risk of urinary dysfunction, urinary retention, and postoperative UTI in addition to prolonging the operation time.[34] Of note, The use of synthetic mid urethral slings is not recommended because it causes erosion and infection of the urethra.[41,42]

The principles of diverticulectomy excision and repair techniques consist of:

1. Dissection of anterior vaginal wall flaps (midline vs Inverted “U” vs Inverted “T”)
2. Preservation of the periurethral fascia
3. Mobilization of the urethral diverticulum from the surrounding tissue
4. Identification and excision of the diverticular Os
5. Excision of the entire urethral diverticular wall
6. Watertight urethral closure
7. Multilayer closure with non-overlapping suture lines with absorbable suture
8. Bladder drainage with urethral catheter and/or suprapubic tube

When the Urethral diverticulum (DU) mass is greater than 3 cm or more, an inverted "U" incision is recommended since it can be extended proximally to the urinary bladder's neck. For easier dissection, saline injection is injected along the incision line.[4] Other less invasive surgical techniques or alternatives to diverculectomy include fulguration, endoscopic unroofing, marsupialization, incision, and obliteration using polytetrafluoroethylene or oxidized cellulose. Patients who prefer not to undergo significant reconstruction and have a more distal Urethral diverticulum (DU) mass may choose to have marsupialization of the Urethral diverticulum (DU) into the vagina by a ventral urethral incision, commonly referred to as the Spence-Duckett surgery.[43–47]

In Urethral diverticulum (DU) patients with pregnancy or with severe symptoms or infection, excision and repair diverculectomy should be postponed until a transvaginal incision is made directly

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into the Urethral diverticulum (DU) to create a temporary uretrovaginal fistula that passes through the Urethral diverticulum (DU) cavity, until excision and repair diverculectomy can be performed.[5]

After surgery, Urethral diverticulum (DU) patients receive postoperative care that includes replacing their tampon and continuing their antibiotic treatment for another 24 hours. Laxatives are used to soften feces and ease the tension associated with defecating, while anticholinergics are administered to lessen spasms in the muscles of the bladder. Antibiotics are administered to Urethral diverticulum (DU) patients with a history of recurrent UTIs until the urethral catheter is withdrawn. Patients with postoperative Urethral diverticulum (DU) have VCUG on the 10th, 14th, or 14th, 21st day following surgery to assess for extravasation. Every one to two weeks, VCUG is repeated if extravasation is evident, until improvement is seen. Conservative treatment for extravasation may result in improvement in a matter of weeks. For six months, patients should refrain from engaging in any vaginal activity.[4,5,48]

After surgical intervention, recurrence is observed at 2–13%, at which point it is fixed again. A history of multiple Urethral diverticulum (DU), proximal location, radiotherapy, or prior pelvic surgery are risk factors for recurrence. Recurrent Urethral diverticulum (DU) can also result from trauma from parturition or from new infections. Incomplete Urethral diverticulum (DU) removal, insufficient urethral suturing, residue in the postoperative dead space, and other technical issues might lead to Urethral diverticulum (DU) recurrence. Because of the presence of surgical scars and challenging-to-identify anatomical alterations, repeat urethral diverticulectomy carries unique challenges.[2,3,15,22]

After surgery, complications can occur in two categories: early complications and late (delayed) complications. Urinary retention (0 – 9%), SUI (3.8 – 33%), and UTI (0 – 39%) were the early consequences.[2,3,15,22] Urethral stricture, a late or delayed consequence, was recorded in 0–5.2% of instances; urethrovaginal fistula, a significant complication, was documented in 0.9–8.3% of cases.[2,15,24,49] Distal urethral necrosis, urethra damage, vaginal scarring, and vaginal constriction leading to dyspareunia are uncommon side effects.[49] Postoperative problems should be minimized by preservation of the periurethral fascia, vascularization of the anterior vaginal wall flap, multilayer sutures that do not overlap, appropriate hemostasis, and infection control.[5]

CONCLUSION

Management of Urethral Diverticulum (DU) begins with analysis of symptom information from the right patient, thereby raising a high suspicion of the presence of Urethral Diverticulum (DU) . Carry out appropriate physical and supporting examinations, to produce an accurate diagnosis. Supporting examinations in Urethral Diverticulum (DU) patients also serve as a guide for planning the intervention that will be carried out. Carrying out thorough surgical preparations, as well as adhering to the principles of surgical excision and reconstruction of Urethral Diverticulum (DU) , will proce Urethral Diverticulum (DU) satisfactory outcomes and minimal complications.

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