

Case Report

Complex And Complicated Urethral Diverticulum In Female Patient

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 OPEN ACCESS

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Received: 17-09-2025

Accepted: 06-10-2025

Available online: 20-10-2025

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Medical and Pharmaceutical Research

ABSTRACT

Female urethral diverticulum is often overlooked and frequently misdiagnosed because of unawareness of the condition. Urethral diverticulum (UD) is a rare but significant cause of recurrent urinary tract symptoms in females. Its variable presentation often leads to delayed diagnosis. We present two cases of urethral diverticulum with lower urinary tract symptoms and recurrent urinary infections. Study revealed a complex multiloculated urethral diverticulum. Patients underwent successful surgical excision with urethroplasty. Postoperative recovery was uneventful.

Keywords: Complex, Urethral Diverticulum, asymptomatic.

INTRODUCTION

Female urethral diverticulum (UD) is an epithelial-lined sac that communicates with the urethra and is most frequently diagnosed in women aged 30–60 years. Symptoms range from asymptomatic cases to the classic triad of post-void dribbling, dysuria, and dyspareunia. MRI is the imaging modality of choice due to its superior soft tissue resolution and ability to define the anatomy for surgical planning.

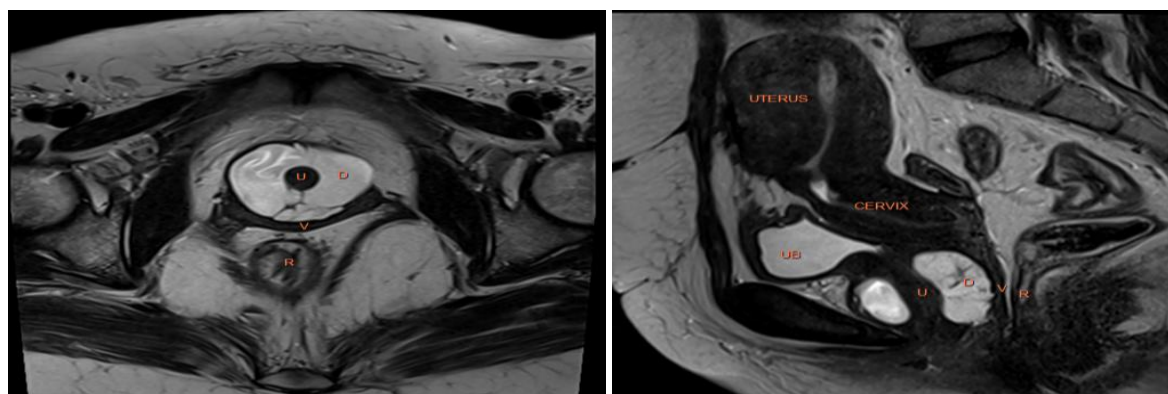
CASE REPORT:

Case 1:

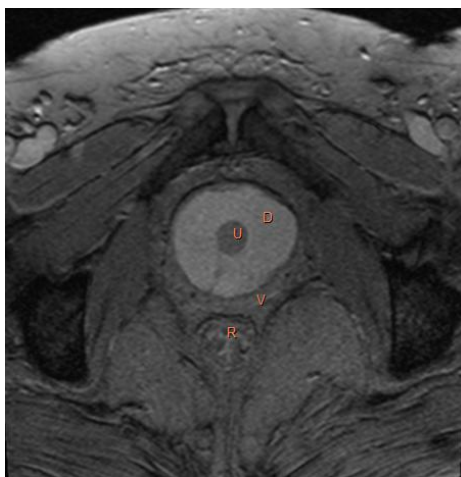
A 36-year-old female presented with recurrent urinary tract infections. Physical examination was conducted and revealed a palpable, mobile, soft mass on the anterior vaginal wall. Ultrasonography of abdomen and pelvis shows large cystic lesion anterior to the vagina.

Plain and post Contrast MRI pelvis shows a well-defined, lobulated, and multiloculated T2 hyperintense cystic lesion measuring 4.1 x 4.1 x 3.3 cm (AP x TR x CC) surrounding the mid and distal urethra. It is seen Inferior to the urinary bladder neck, superior to urethral opening and anterior to the vagina with peripheral post-contrast enhancement with thin enhancing septae within. There is extension of excreted contrast into the lesion on delayed images.

These findings were suggestive of a urethral diverticulum with cyst formation.



Axial T2 and Sagittal T2 images of pelvis showing anatomical correlation of urethral diverticulum



POST CONTRAST POST VOID T1 FAT SAT image of pelvis shows excreted contrast in urethral diverticulum. U- URETHRA, D- URETHRAL DIVERTICULUM, V- VAGINA, R- RECTUM, UB- URINARY BLADDER

CASE 2

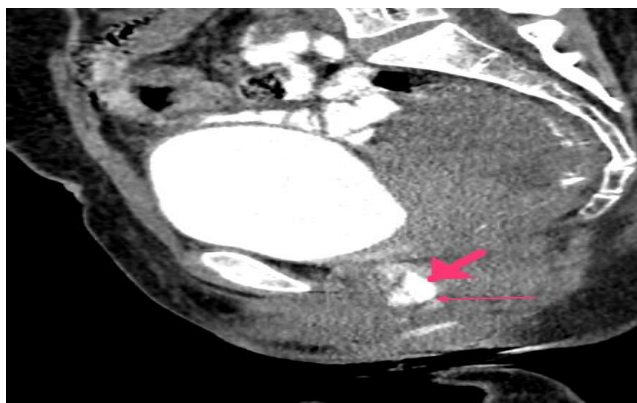
26-year-old female, previously operated for perivaginal cyst, presented with complaints of persistent urinary leakage. Clinical suspicion of urethro-vaginal/ vesico-vaginal fistula. MRI of pelvis was done outside preoperatively.

On CT scan there is well-defined, multiloculated hypodense cystic lesion with thick peripheral enhancement with thin internal septations of size $3.0 \times 2.6 \times 2.0$ cm (AP $\times$ TR $\times$ CC) surrounding the urethra and anterior to vagina suggestive of urethral diverticulum.

It is filled with excreted contrast from urinary bladder on delayed images $\rightarrow$ indicates communication with urethra. Minimal contrast in vagina on delayed images represents fistulous communication with vagina (urethral diverticulum-vaginal fistula)



Axial post contrast CT image of pelvis shows urethral diverticulum. (U- URETHRA, D- URETHRAL DIVERTICULUM, V- VAGINA, R- RECTUM, UB- URINARY BLADDER)



Delayed post void sagittal image shows excreted contrast in urethral diverticulum (thick arrow). Contrast is also seen in vagina through urethral diverticulum-vaginal fistula (thin arrow).

Both the patients underwent Panurethrocystoscopy with urethral complex diverticulectomy and urethroplasty.

DISCUSSION

Urethral diverticulum (UD) is a localized outpouching of the urethral mucosa into the surrounding tissues, often secondary to repeated infections or trauma. It predominantly occurs in women and may present with dysuria, dyspareunia, post-void dribbling, or urinary incontinence.

Imaging plays a crucial role in diagnosis and preoperative planning. While MRI is considered the gold standard for UD characterization due to superior soft tissue delineation.

CT urography with delayed images can demonstrate communication with the urethra and define the extent of the lesion and fistulous communication.

Case 1 underscores the diagnostic utility of MRI, which provides clear delineation of the diverticulum's size, location, and complexity—crucial for surgical planning.

Case 2 shows failure to diagnose urethral diverticulum on first preoperative MRI and resultant recurrence of diverticulum with fistula formation.

Surgical excision remains the definitive treatment, especially for large, symptomatic, or infected diverticula. Failure to treat may result in recurrent UTIs, incontinence, and rarely, malignancy within the diverticulum.

Differential diagnoses include Bartholin gland cyst, Gartner duct cyst, Skene gland abscess, and periurethral abscess.

CONCLUSION

Urethral diverticulum, though uncommon, should be considered in women with persistent lower urinary tract symptoms or recurrent infections. MRI is the gold standard for diagnosis, and complete surgical excision with urethroplasty offers excellent prognosis with minimal complications.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

Author contribution: All authors have contributed in the manuscript.

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