Urethral Mucinosous Adenocarcinoma in a Female Patient—A Case Report

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Urogynecology 2024;00:00–00

DOI: 10.1097/SPV.0000000000001494

Urethral carcinoma is a rare condition, comprising approximately 0.02% of female cancer types and less than 1% of genitourinary tract malignancies in women.[1] In your classification, approximately 70% are squamous, 20% transitional cells, and only 8–10% adenocarcinomas.[2] Histologically, the adenocarcinomas split into clear cell, resembling genital tract tumors, and columnar/mucinous, resembling endocervical and colonic malignancies.[3]

Location is associated with classification and affects prognosis; distal tumors, mostly squamous, have better outcomes, while proximal ones tend to be urothelial or adenocarcinomas, with worse prognoses.[4] Early symptoms are often vague, resulting in the detection of advanced tumors during clinical presentation.[5] These may manifest as obstructive symptoms, dysuria, urethrorrhagia, urinary frequency, and a palpable mass. Evaluating suspected urethral carcinoma in women involves a comprehensive approach, including physical examination, urethrocystoscopy, computed tomography (CT), pelvic magnetic resonance imaging (MRI), and chest radiography.[2]

After the extensive evaluation, a serious yet manageable condition emerges, warranting definitive curative measures. As it is a rare condition and presents late, the standardization of management of this disease is difficult to determine in most cases. However, for advanced cases, literature supports a combined approach involving chemotherapy, radiation therapy, and surgery.[6]

This article details a rare case of mucinous urethral adenocarcinoma with signet ring cells, showcasing its presentation, diagnosis, treatment, and prognosis. In addition, it aims to enhance awareness among health care professionals about this condition and ensure affected women receive optimal care.

WHY THIS MATTERS

Urethral cancer can initially present as a subtle and minimally symptomatic clinical condition, sometimes even mistaken for urethral diverticula. However, it is a disease with significant severity potential that necessitates early and appropriate treatment. A highly uncommon and challenging case is intricately described by a group of authors with extensive expertise in reconstructive surgery. Discussions regarding diagnosis unravel insights, tips, and surgical treatments aimed at enhancing overall quality of life and predominantly addressing the prognosis concerning tumor location. A report like this holds immense value for the scientific community and serves as a reference for treating new cases, potentially altering the outcome in the lives of many other patients.

CLINICAL CASE

The case is a female patient, 77 years old, without comorbidities or previous surgical procedures with a previous history of an ulcerated lesion on the anterosuperior wall of the vagina visualized in the usual screening colposcopy. Still asymptomatic, she was referred for urological evaluation where a micturating cystourethrogram was requested, showing a patent urethra with a saccular image on the left measuring 0.9 × 0.6 cm, which could correspond to a urethral diverticulum. The patient developed symptoms of

hesitancy and urinary retention with episodes of recurrent urinary infection. An MRI was requested, which demonstrated a predominantly cystic, well-defined formation measuring 42 × 27 × 36 mm with irregular enhancement after contrast injection located in the bladder neck in the urethral path along the anterior wall of the vaginal canal, interrogating the urothelial carcinoma (**Figs. 1A, B**). After this finding on MRI, it was decided that a vaginal biopsy would be performed in the office using ultrasound-guided core needle biopsy of the proximal urethral lesion, which revealed mucinous neoplasia with low-grade dysplasia infiltrating fibroconnective and muscular tissue.

As the investigation progressed, clinical staging was initiated with contrast CT without changes in the chest and heterogeneous hypodense expansive formation with peripheral calcifications occupying the path of the urethra and measuring 6.4 × 3.3 × 2.9 cm in abdominal/pelvic images (**Fig. 2**). The following is a surgical proposal from the urogynecologist and urologists, discussed with the patient who wanted to prioritize her quality of life. The surgery began with the patient positioned in the lithotomy position and a periurethral resection was performed until invasion of the anterior vaginal wall was identified. The resection progressed to the lower portion of the bladder, the patient was placed in the supine position, and a partial cystectomy was performed with excision of the region of the trigone and bladder neck, with cystorrhaphy performed. In addition, a total hysterectomy was performed. To conclude, reconstruction by Mitrofanoff with cecal appendix, bilateral ureteral stents, and protective cystostomy was performed without complications (**Figs. 3A, B**). The margins of the lesion were evaluated by the pathologist during surgery, demonstrating, after

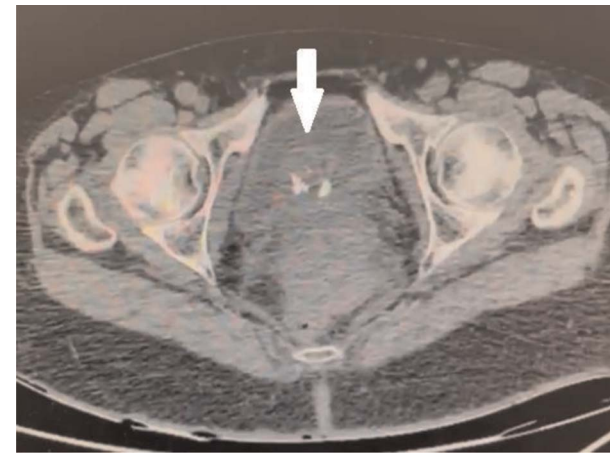
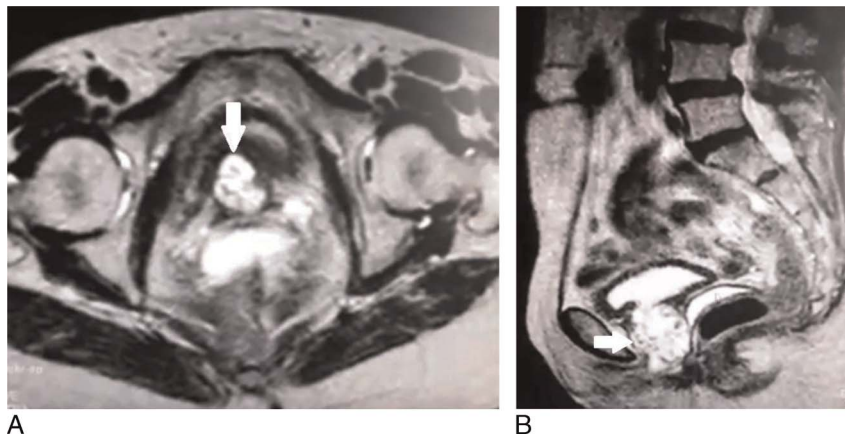


FIGURE 2. Axial CT image of pelvis with arrow indicating urethral tumor. CT, computed tomography.

completion, that they were free of neoplasia. The patient underwent postoperative care without significant complications, being discharged from the hospital after 27 days of hospitalization (**Fig. 4**). This prolonged time is not typical of the surgery performed; however, the patient developed a postoperative paralytic ileus and was treated with conservative measures.

In the postsurgical histopathological report, mucinous adenocarcinoma with signet ring cells measuring 4.5 × 3.0 × 2.5 cm was demonstrated. The specimen was sent for immunohistochemistry, which did not contribute to defining the primary site (CK20 positive, CK7 positive, CDX2 positive, PAX8 negative). The patient was then referred for adjuvant radiation therapy by an assistant oncologist, performing 2 phases. It is worth adding that it was checked that the patient had a previous gastrointestinal endoscopy without changes, to rule out another primary site of this histological type.



A B

FIGURE 1. A. Axial MRI image of pelvis with arrow indicating urethral tumor. B. Sagital MRI image of pelvis with arrow indicating urethral tumor. MRI, magnetic resonance imaging.

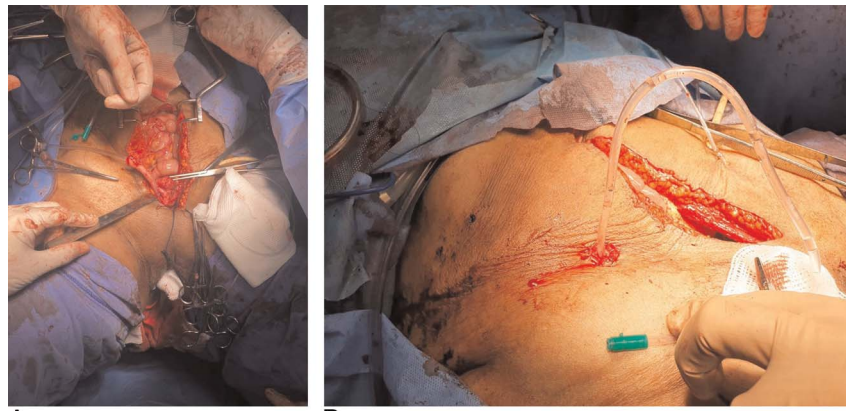


FIGURE 3. A. Picture during reconstruction surgery with Mitrofanoff technique. B. Reconstruction surgery with Mitrofanoff on the patient completed.

The patient has been monitored periodically every 3 months since the surgery with consultations and control imaging examinations. At the moment, approximately 1 year and 2 months after surgery (Fig. 5), the patient is asymptomatic and reported 2 febrile episodes associated with urinary infection that occurred 6 months after the procedure, showing good adaptation to diuresis by Mitrofanoff without any urinary complaints. Follow-up computed tomography without evidence of pelvic lymph node enlargement, demonstrates thickening of the lower third of the vagina and densification of adjacent fat and may

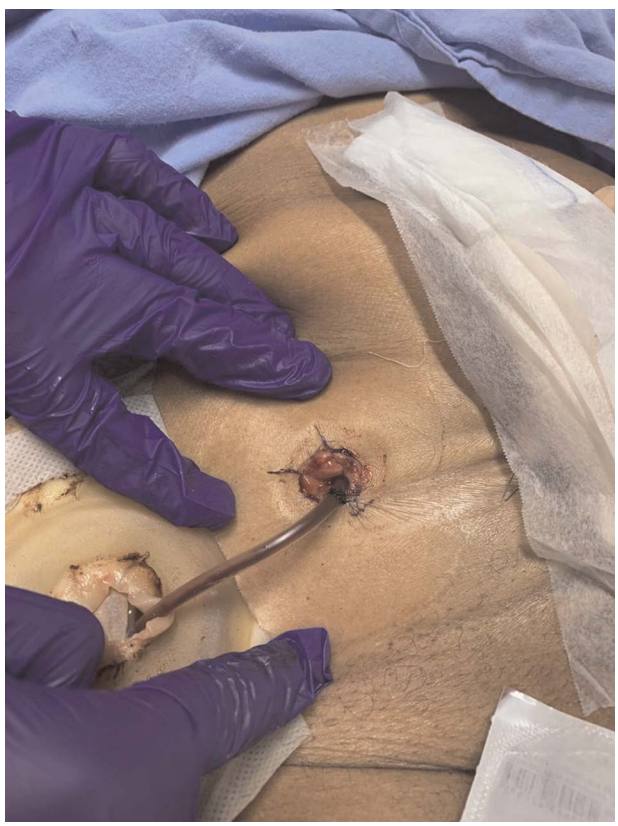


FIGURE 4. Picture showing appearance of the stoma in the postoperative period before hospital discharge.

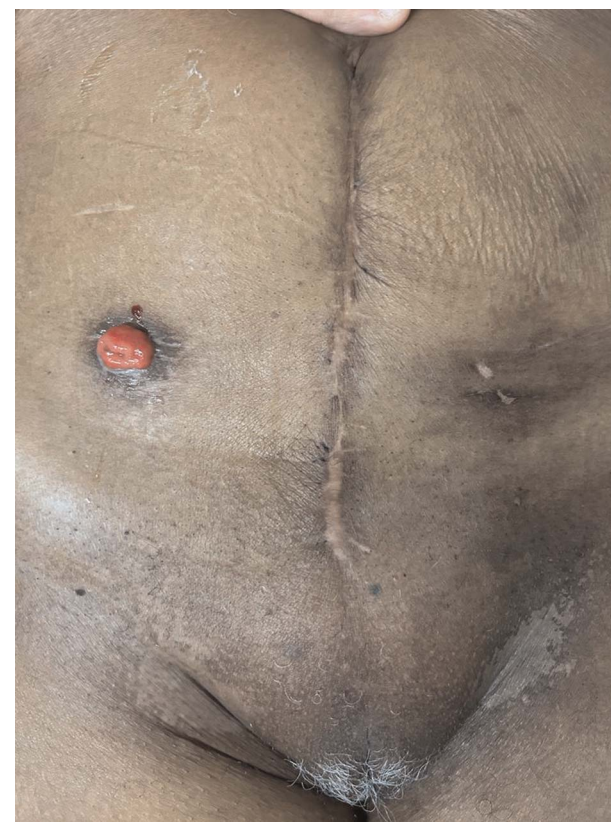


FIGURE 5. Picture showing appearance of the patient's abdomen approximately 1 year and 2 months after surgery.

correspond to surgical manipulation. No signs of secondary injuries in the bone window or chest section were observed.

DISCUSSION

Most urethral carcinoma patients display symptoms upon presentation. These include lower urinary tract issues, bleeding, or a palpable mass. Surprisingly, macroscopic hematuria is uncommon.[7] Healthy middle-aged women without prior urological conditions experiencing urinary retention should raise suspicion.

The short female urethra enables aggressive diseases to extend regionally, posing higher risks of complications. Some cases involve lesions protruding through the urethral meatus or below the vaginal wall mucosa. Disease primarily spreads locally, causing ulcers and reaching the skin and vulva as the tumor advances. When the lesion is proximal, there is the possibility of extending to the posterior portion, reaching the vagina or bladder proximally. Early on, lymphatic spread is uncommon, yet approximately one third have palpable nodules at diagnosis, increasing to half in advanced proximal lesions. Hematogenous dissemination, when ordered by frequency, generally occurs to the lung, liver, bones, and brain, respectively.[8]

In the diagnostic evaluation, MRI stands out as demonstrating high accuracy in the evaluation of local urethral tumors with sensitivity more than 90%. The characteristics of these tumors typically follow a pattern of being hypointense on T1-weighted images and relatively hyperintense on T2. Computed tomography, on the other hand, can demonstrate a urethral mass with soft tissue density.[9] Another imaging method that provides clues to the diagnosis, assists in investigation, or even presents the pathology as an incidental finding is transvaginal ultrasonography. Remembering that to confirm the diagnosis of primary urethral mucinous adenocarcinoma, a biopsy of the lesion is essential, and a metastatic lesion of the intestinal tract or ovaries must be excluded.

Because of the small number of cases studied and the diversity of the disease, the prognoses found are associated more with the location of the lesion than with the different histological subtypes.[7,10] Overall, 55% of urethral carcinomas recur despite treatment and survival remains around just 60% at 10 years.[7] There are reports that squamous cell carcinoma has a lower recurrence rate when compared with adenocarcinoma and transitional cell carcinoma.

For small, superficial, and distal tumors, local excision may be sufficient and commonly generates excellent functional results. For proximal carcinomas, more aggressive as in our reported case, the combination of surgery, chemotherapy, and radiation therapy is recommended for optimal control of local and distant neoplasia.[6] Inguinal lymphadenectomy demonstrates high morbidity without improving survival and, for this reason, is not performed routinely. In some cases of inguinal/pelvic lymphadenopathy without distant metastases or those with regional lymphadenopathy during surveillance, lymph node dissection may be indicated.[8]

However, cases exactly like ours are not found in the literature, which makes it difficult to conduct standardized treatment. Generally, in the presence of urethral carcinoma, as in one case found, anterior pelvic exenteration with reconstruction with neobladder and urinary ostomy is chosen, a rigorous procedure with high morbidity and mortality.[11] Other options seen in another case when the carcinoma is restricted to a urethral diverticulum are diverticulectomy alone, radiation therapy alone, or diverticulectomy with radiation therapy, all 3 modalities with lower disease-free survival compared with previous exenteration.[12]

Another case of clear cell urethral carcinoma with high pathological stage and metastases in regional lymph nodes underwent radiation therapy with 48.2 Gy and adjuvant chemotherapy with 2 cycles of cisplatin in addition to previous exenteration, and after 11 months of follow-up, the patient had no recurrent tumor.[4] It is worth noting that radiation therapy and chemotherapy in addition to surgery are recommended by National Comprehensive Cancer Network guidelines for patients with T2 staging based on limited existing data.[13]

CONCLUSIONS

The knowledge about the characteristics of this extremely rare pathology can avoid mistakes in the diagnosis and allow early treatment of this entity with great malignant potential, sometimes even seen as a diverticulum initially. It is of great value to emphasize the importance of a good periodic physical examination with colposcopy helps identify asymptomatic changes that could otherwise go unnoticed, as well as the biopsy in suspicious lesions and MRI with tests that allow for adequate staging. Upon investigation, it is essentially classified into 2 presentations that reflect prognosis and therapy. The distal tumor, which is typically small and

Simply Stated

In this article, we describe a rare case of mucinous adenocarcinoma of the urethra, specifying the signs and symptoms presented by the patient, details of the diagnosis, treatment, and prognosis. This can be beneficial in enhancing understanding of this pathology to prevent errors and enable appropriate and early treatment.

superficial, with less aggressive surgical treatment and good prognosis while the other is advanced proximal tumors, dependent on multimodal treatment with a less favorable outcome.

ARTICLE INFORMATION

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The authors have declared they have no conflicts of interest.

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