



Case Report

Diagnostic Challenge: Urethral Condyloma Masquerading Urethral Caruncle

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Abstract

The case presented involves a 53-year-old female with a protruding mass initially mistaken for a urethral caruncle but was later diagnosed as urethral condyloma. The patient underwent wide excision of the mass and cystoscopy, confirming the diagnosis. Histopathological analysis revealed characteristics consistent with condyloma acuminatum, a sexually transmitted disease. The importance of accurate evaluation to prevent missed diagnoses of malignancy is emphasized, as urethral carcinoma is rare in females. Sexually transmitted infections are associated with an increased risk of urethral carcinoma, making their consideration during assessment crucial.

Keywords: Female urethral lesions; Urethral caruncles; Urethral carcinoma and HPV

Introduction

Urethral lesions in female patient present a diagnostic challenge, encompassing a range of conditions from benign entities like urethral diverticuli, caruncles, Skene gland cysts, urethral prolapse, and Gartner's duct abnormalities to potentially malignant urethral carcinomas. Thorough evaluation is essential to prevent missed diagnoses of malignancy, as urethral carcinoma accounts for less than 1% of female genitourinary cancers [1]. These lesions can manifest with symptoms such as irritative or obstructive voiding symptoms, recurrent urinary tract infections, purulent and/or bloody urethral discharge, urethral or vaginal pain, and dyspareunia. Additionally, sexually transmitted diseases and viruses should be considered during the assessment, as chronic infections with sexually transmitted pathogens are associated with an increased risk of urethral carcinoma [2].

Urethral caruncles, 90% of urethral masses, originate from the posterior urethral meatus [3]. While the exact cause of urethral caruncles remains uncertain, they are frequently observed as small, asymptomatic lesions. These benign growths are commonly found in hypoestrogenic postmenopausal women, as they are associated with distal urethral prolapse [1]. Histologically, urethral caruncles exhibit hyperplastic squamous epithelium along with vascularity, fibrosis, and inflammation in the submucosal region [3].

In female patients, condyloma acuminatum occur commonly at the vaginal introitus, while they may also be seen at multiple sites in the anogenital epithelium or within the anogenital tract, including the cervix, vagina, urethra, perineum, perianal skin, and anus [1].

Here we present a case of urethral condyloma initially misinterpreted as a urethral caruncle, highlighting the diagnostic challenge.

Case Presentation

A 53-year-old female patient with a medical history of hypertension presented with a protruding mass at the urethral orifice for two months. The patient denied any accompanying symptoms such as dysuria, urine retention, frequency, urgency, or abdominal pain. She had previously visited a local hospital, where she received oral antibiotics with limited effect. Subsequently, the patient sought consultation at our Urology clinic.

Physical examination revealed a solid mass measuring approximately 1.5 cm in diameter at the urethral orifice, suggestive of urethral caruncle. To establish a definitive diagnosis and plan appropriate management, the patient was admitted for resection of the mass and cystoscopy.

Upon admission, laboratory investigations and images were grossly normal while a urine culture identified *Morganella morganii*.

Wide excision of the urethral tumor and cystoscopy were performed. A solid mass measuring approximately 1.5 cm was observed at the inferior border of the urethra (Figure 1). The tumor was excised to a depth of approximately 0.5 cm until healthy urethral mucosa was identified. Cystoscopy revealed an intact proximal urethra with no evidence of tumor.



Figure 1: A 1.5-cm-sized solid at the inferior border of the urethra meatus.

Results

Gross examination of the excised tissue revealed a moist and fleshy mass with colors ranging from pink to fleshy-red. Histopathological analysis demonstrated characteristics consistent with condyloma acuminatum, including parakeratosis, acanthosis, papillomatosis, koilocytosis, and chronic inflammation (Figure 2).

Immunohistochemistry staining for p16 demonstrated a patchy staining pattern, excluding a high-risk HPV-driven process (Figure 2).

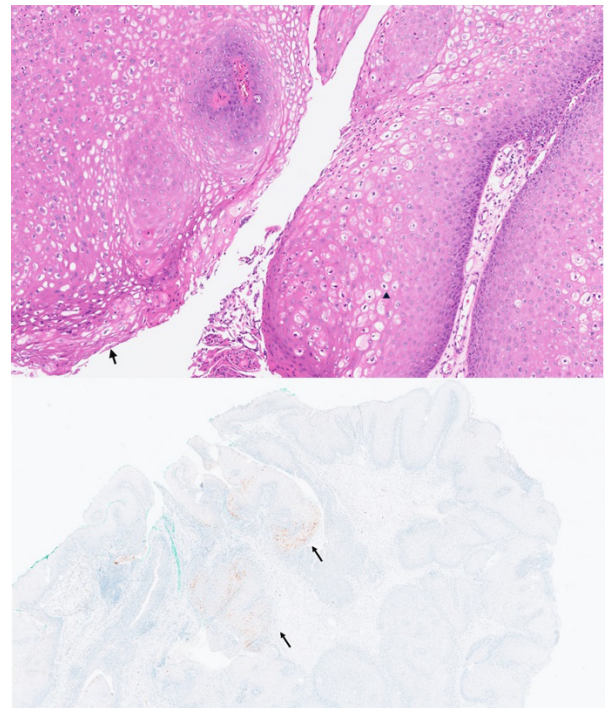


Figure 2: Upper section: Urethral condyloma acuminatum, including parakeratosis (arrow), acanthosis, papillomatosis, koilocytosis (arrowhead), and chronic inflammation. (Hematoxylin and Eosin Staining, original magnification x 100). Lower section: Urethral condyloma acuminatum, patchy staining pattern (arrow), excluding a high-risk HPV-driven process (p16-immunostain, original magnification x 40).

One week later, there was no dysuria nor micturition pain. Her husband did not have any anogenital warts. The patient was referred to our Gynecology Clinic for cervico-vaginal swabs to assess for HPV and further management.

Discussion

Female urethral conditions, encompassing benign and malignant diseases, pose diagnostic challenges due to limited evidence-based guidelines and nonspecific symptoms. Evaluation involves a thorough history, physical examination, and reliable imaging of the female urethra, with accurate recognition of clinical and histopathological features essential for diagnosing and managing urethral caruncles. Urethral caruncles, however, occasionally raising concerns of malignancy in about 10% of cases [4].

Urethral carcinoma is a rare type of cancer, accounting for less than 0.02% of all women's malignancies [5]. Marshall et al. reported that among 376 patients, 1.6% of them initially

diagnosed with urethral caruncle were later identified to have carcinoma [3]. This form of cancer mainly affects postmenopausal women and is linked to risk factors such as chronic urinary tract infections, urethral diverticula, human papillomavirus infection, and proliferative lesions of the urethra. Symptoms include urinary frequency, hematuria, urine retention, and the presence of a palpable urethral mass. The primary subtypes among women with urethral malignancies are squamous cell carcinoma, adenocarcinoma, and urothelial carcinoma. About one-third of cases involve distal tumors, frequently of the squamous type, while the rest affect proximal or panurethral regions. Posterior urethral cancers are typically diagnosed at advanced stages, leading to poorer survival outcomes compared to anterior urethral cancers [5]. However, 30% to 50% of female patients diagnosed with primary urethral carcinoma show evidence of locally advanced disease [1].

Chronic infection with sexually transmitted pathogens, particularly high-risk genital Human Papillomavirus (HPV) strains, has been identified as a predisposing factor for urethral carcinoma. High-risk HPV strains (16,18,31,33,35,39,45,52,56, and 58) are associated with pre-cancerous lesions and squamous cell malignancies in the lower anogenital tract, while HPV types 6 and 11 are oncogenic and responsible to 90% anogenital warts [6].

Secondary urethral carcinomas should also be included in the differential diagnosis though are relatively rare. They often originate from adjacent structures, such as the urinary bladder, cervix, vagina, uterus, and anus, through contiguous extension. In females with a confirmed diagnosis of primary transitional cell carcinoma of the urinary bladder, an estimated 6% to 13% present with involvement of the proximal urethra [7,8]. Notably, anterior urethral seeding can occur because of urethral instrumentation [9]. Besides, it has been reported that intestinal metaplasia, tuberculosis, melanoma, and lymphoma coexist with or mimic urethral caruncles [10].

Conclusion

In summary, female urethral disease diagnosis is complicated by nonspecific signs and unreliable physical examination, requiring imaging for accurate evaluation and management. Condyloma acuminatum in the female urethra is rare and visually similar to other lesions, leading to misdiagnosis. Cystoscopy and surgical excision with pathology reports are vital for definitive diagnosis to avoid inappropriate treatment, especially concerning sexually transmitted diseases and locally advanced malignant tumors.

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Ethical Considerations

Study approval statement

This study protocol was reviewed and approved by Chang Gung Medical Foundation Institutional Review Board, approval number 202301525B0.

Consent to Publish Statement

State whether written informed consent was obtained from participants for publication of the details of their medical case and any accompanying images.

Conflict of Interest

To the best of our understanding, the authors mentioned do not have any conflicts of interest, be it financial or otherwise.

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