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CASE REPORT

A Rare Case of Bladder Tumor: Squamous Cell Papilloma

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Abstract

Squamous cell papilloma of the bladder is an exceedingly rare benign lesion. It is often identified incidentally during imaging studies performed for unrelated reasons and may mimic urothelial carcinoma of the bladder. The definitive diagnosis of this lesion, which can present with varying clinical symptoms, is established through pathological examination. Here, we report a case of squamous cell papilloma in a 56-year-old asymptomatic male patient. The patient underwent cystoscopy after a suspicious lesion was observed on full-abdominal CT imaging, raising concern for a bladder tumor. During cystoscopy, transurethral resection was performed on calcified exophytic lesions observed in the bladder, achieving complete resection of all lesions. Histopathological analysis revealed the lesion to be a squamous cell papilloma, and the patient was placed under follow-up. The etiology and clinical significance of these lesions, which are rarely reported in the literature, remain unclear. In this article, we summarize the case of squamous cell papilloma of the bladder while reviewing the relevant literature. We believe that this report contributes to the literature by emphasizing the importance of accurate pathological evaluation for urologists and preventing overly aggressive treatments for patients.

Keywords: papilloma, squamous, bladder

INTRODUCTION

Bladder lesions are frequently observed, particularly in older individuals. The urothelial lining of the bladder typically gives rise to lesions of urothelial origin, the majority of which are malignant urothelial tumors. Benign lesions are less common, accounting for less than 1% of all bladder tumors (1). Among benign tumors, urothelial papilloma and inverted papilloma are the most commonly encountered. Squamous lesions of the bladder are even rarer. Squamous cell carcinoma represents approximately 3–5% of all malignant bladder tumors (2). However, benign, non-invasive squamous lesions, such as squamous cell papilloma, are exceedingly rare, with only a limited number of cases reported in the literature (3). These tumors are characterized endoscopically by a calcified mass-like appearance and microscopically by benign proliferative lesions composed of papillary cores

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lined with squamous epithelium, devoid of cellular atypia or dysplasia (4). Other rare benign squamous lesions of the bladder include keratinized squamous metaplasia, verrucous squamous hyperplasia, and condyloma acuminatum.

In this report, we present a case of squamous cell papilloma of the bladder, diagnosed following cystoscopy and transurethral resection performed for a suspected bladder tumor.

CASE PRESENTATION

A 56-year-old male patient was referred to the urology outpatient clinic after abdominal computed tomography (CT) performed in the emergency department revealed atrophy in the right kidney. The patient had no active urinary complaints. His medical history was unremarkable except for a previous open cystolithotomy. There were no identifiable risk factors for urothelial cell carcinoma, including no smoking history or occupational exposures to urothelial carcinogens. There was no history of cancer in his family. Physical examination findings were unremarkable. Laboratory tests showed serum creatinine: 1.27 mg/dL, eGFR: 58 mL/min/1.73m^2, glucose: 81 mg/dL, hemoglobin: 13.8 g/dL, PSA: 0.67 ng/mL, and CRP: 1.32 mg/dL. Urinalysis revealed microscopic hematuria without increased inflammatory cells, and urine culture was negative. Abdominal CT imaging revealed minimal atrophy and a millimetric calculus in the mid-portion of the right kidney, as well as suspicious calcified lesions with wall thickening in the anterior bladder wall (Figure 1).

Diagnostic cystoscopy revealed widespread, slightly exophytic, white plaque-like lesions with calcifications on the anterior and posterior bladder wall mucosa (Figure 2). These lesions were considered highly suspicious for urothelial carcinoma. Transurethral resection (TUR) was performed under spinal anesthesia, and all lesions were completely resected. The postoperative course was uneventful, and the patient was discharged on postoperative

Histopathological examination revealed dense keratin lamellae, some with calcifications, along with papillary structures lined with squamous epithelium, some of which were free-floating. In contrast, others were connected to the lamina propria and muscle layer (Figure 3). Mild chronic inflammation and congestion were also seen in the stroma. No mitotic figures, koilocytosis, dysplasia, or stromal invasion were observed. Immunohistochemical analysis showed squamous epithelial cells positive for p63, focally positive for p16, and displaying a wild-type staining pattern for p53. Ki-67 expression was localized to the basal layer with increased levels. These findings were consistent with squamous cell papilloma.

There was no mitosis, koilocytosis, or dysplasia in the epithelium with a distinct granular layer. No stromal invasion was seen.

No additional treatment was considered, and the patient was followed up. The patient's last follow-up was 6 months after resection, and there were no urinary symptoms and no evidence of recurrence of the lesion on CT urography imaging.

DISCUSSION

The majority of bladder lesions originate from the urothelium. Squamous cell lesions are rare and can be either benign or malignant (1). Malignant squamous lesions of the bladder include squamous cell carcinoma, squamous differentiation in urothelial carcinoma, and in situ squamous cell carcinoma (5). Benign squamous lesions include keratinized squamous metaplasia, squamous cell papilloma, verrucous squamous hyperplasia, and condyloma acuminatum.

Squamous cell papilloma localized in the bladder is extremely rare. A review of the literature reveals only three case reports published to date (5,6,7). In a study by Guo et al. (2006), 29 cases of non-invasive squamous lesions of the bladder were examined, five of which were identified as squamous cell papillomas (3). A case of a 74-year-old patient presenting with hematuria and LUTS in 2013 is presented (5). In a case report published in 2022, a case of squamous papilloma accompanied by a bladder stone was treated with TURB (7). The case reported in 2020 involved a 76-year-old woman (6). Sengupta et al. (2021) also reported a case of squamous cell papilloma localized in the urethra (4).

In clinical practice, these lesions can present with atypical symptoms such as hematuria, lower urinary tract symptoms, or suprapubic pain, but they may also be incidentally discovered. Due to its rarity, the etiology of squamous cell

papilloma remains unclear. Risk factors include smoking, exposure to aromatic amines, and a history of bladder stones, as observed in our case (4). In the study conducted by Cheng et al. in 2000, no relationship was found between squamous papilloma and HPV infection (8). However, the relationship between oral squamous papilloma and HPV has been demonstrated in some studies (9).

The differential diagnosis should exclude other benign and malignant lesions of the bladder, primarily urothelial carcinoma. On cystoscopy, squamous cell papilloma typically appears as a calcified mass, which is often indistinguishable from urothelial carcinoma. Diagnosis is established through accurate pathological evaluation of tissue obtained via excisional biopsy or transurethral resection. Histologically, squamous cells are characterized by parallel alignment to the surface, abundant eosinophilic cytoplasm, and a spindle-shaped morphology, whereas urothelial cells typically exhibit moderate clear or basophilic cytoplasm and a perpendicular alignment to the surface. Squamous cell papilloma is described as a papillary, exophytic, non-invasive lesion with extensive keratinization on the surface. Immunohistochemically, p63 positivity and focal p16 positivity are significant for diagnosing squamous papilloma.

Squamous papilloma should be differentially diagnosed with keratinizing squamous metaplasia, which is considered an important risk factor for invasive carcinoma. Keratinizing squamous metaplasia, clinically known as leukoplakia, is a pathologic response to chronic inflammatory stimulation such as from infection, indwelling catheters, stones, and parasite eggs. Marked hyperkeratosis, parakeratosis, and elongation of the rete pegs were present in verrucous squamous hyperplasia. The condyloma would be larger than the papilloma, would have a broader base, and would appear pink-to-red as a result of less keratinization. HPV infection should be ruled out by the absence of morphological koilocytic features or through molecular methods (8). In cases of nuclear atypia, mitotic activity, or irregular cell clusters within the stroma suggestive of invasion, malignant tumors must be considered.

Due to its rarity and limited data in the literature, the clinical significance of squamous cell papilloma remains unclear. It is considered a benign lesion, and recurrence is believed to be rare following surgical excision (3). In the study conducted by Guo et al., 5 cases of squamous papilloma were identified and followed up for 21 months, with recurrence observed in only one case (3). In the case reported by Takei et al., recurrence was observed in the third month, but no recurrence was noted in the following 2.5 years (6). In the case reported by Miliaras et al., no recurrence was observed after 6 months of follow-up, while the follow-up duration in the case reported by Mohamed et al. was not specified (5,7). In the case of urethral squamous papilloma, no recurrence was observed after 9 months of follow-up (4). The paucity of reported cases and the short follow-up periods makes it challenging to establish follow-up recommendations.

In conclusion, squamous cell papilloma of the bladder is a rare benign lesion with characteristic microscopic and immunohistochemical features that mimic malignant bladder tumors endoscopically. Its etiology and clinical significance remain uncertain. This case emphasizes the importance of accurate pathological evaluation for urologists and underscores the need to avoid overly aggressive treatments for patients.

Ethics Approval and Consent to Participate

Our institution (Recep Tayyip Erdoğan University) does not require any ethical approval for reporting individual cases or case series. Our study is following the Declaration of Helsinki. Written informed consent for the publication of identifying images or other personal or clinical details was obtained from the patient. The photographs are completely unidentified, and personal details are not mentioned in the text. The authors are accountable for all aspects of the work and for ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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