Inverted Urothelial Papilloma of the Prostate

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Abstract

Inverted urothelial papilloma (IUP) is a rare, non-invasive tumor of the urinary tract. Although IUP is pretty well described in the bladder, the prostatic urethra remains an uncommon location for its occurrence. Our patient presented with IUP of the prostatic urethra near the verumontanum, which was managed by transurethral resection.

Keywords: Inverted Papilloma; Prostate; Urethra.

Introduction

Inverted urothelial papilloma (IUP) is a benign, endophytic urothelial neoplasm typically occurring in the bladder neck and trigone.[1] It is relatively rare and presents as a noninvasive endophytic lesion, accounting for less than 1% of all urothelial neoplasms. First named and described in 1927 by Paschkis as polypoid adenoma, the term inverted papilloma was introduced by Potts and Hirst in 1963. It affects males predominantly with a male-to-female ratio of 4-7:1.[2] A number of molecular chromosomal and other molecular changes may be seen in inverted urothelial papillomas. The finding of nonrandom inactivation of X chromosomes is well documented, suggesting that inverted papilloma is a clonal neoplasm that arises from a single progenitor cell. In IUP oncogenic hotspot mutations in HRAS, the remaining tumor had an oncogenic KRAS mutation. None of the IUP tumors harbored TERT promoter or FGFR3 mutations. In UP, 8 of 11 tumors had oncogenic KRAS mutations, and two had oncogenic HRAS mutations. There are distinct molecular differences between IUP and urothelial carcinoma (UC). IUP rarely has mutations of FGFR3, homozygous loss of 9p21, or gain of chromosomes 3, 7, and 17, whereas these mutations are frequently seen in UC. In addition, IUP is much less likely to have TERT mutations than UC.[3] Immunohistochemistry can also help distinguish the two entities as IUP is typically negative for CK20 and has a low Ki-67 proliferation index. Positivity for p53 may be seen in a minority of IUP. IUP can recur and be seen in association with UC. Distinguishing IUP from UC can be difficult due to the similarity between the two entities on cystoscopy and histology, as up to 25% of UCs will also have inverted growth. A systematic review conducted by Samson et al. in 2006 identified 21 cases of IUP of the prostatic urethra.[3] Since then, there have been only two reports of IUP at this site in English literature.[4,5] Additionally, the risk of malignant potential, recurrence, and the simultaneous occurrence of urothelial carcinomas remains to be addressed further. We aim to report the first Omani case of IUP of the prostatic urethra, highlighting the clinical presentation, diagnosis, treatment, and follow-up. The patient will be followed up for three Years.

Case Report

A 46-year-old male with hypertension on regular medications presented to our hospital in the outpatient department of urology with a 4-year history of recurrent, painless, frank hematuria. He had a smoking history of one pack per day for 20 years. On examination, he had a normal-sized prostate, which was firm and smooth. The rest of the physical examination was unremarkable. An abdominal ultrasound was done for the patient, which

revealed a cauliflower-like mass measuring 4.5 x 2.2 cm, partially separable from the middle lobe of the prostate. The prostate size was 27 g. Urine cytology showed numerous squamous epithelial cells and some urothelial cells, with abundant neutrophils and a few red blood cells in the background. No malignant cells were identified.

A cystoscopy was performed and confirmed a sizeable polypoidal lesion arising from the left lobe of the prostate near the verumontanum with a narrow stalk showing engorged blood vessels that extended upwards into the bladder, causing outlet obstruction [Figure 1]. During cystoscopy, there was an incidental finding of a distal bulbar urethral stricture. Which was corrected surgically.

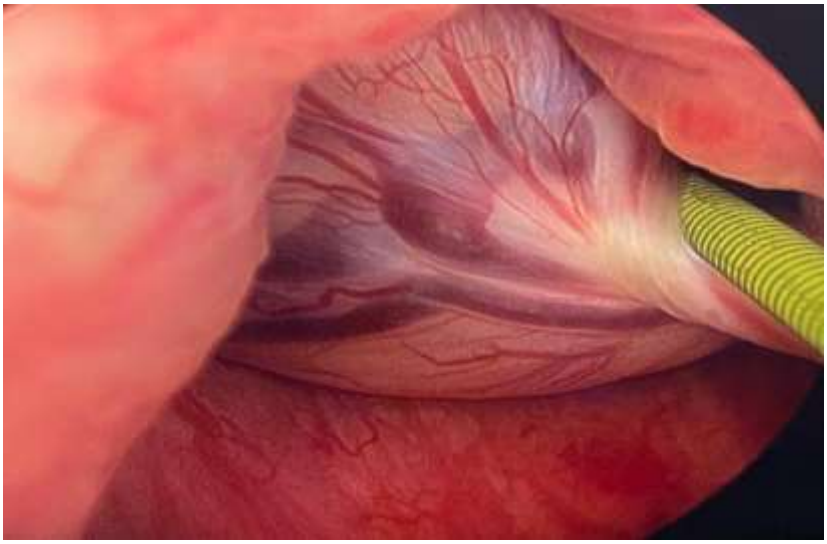
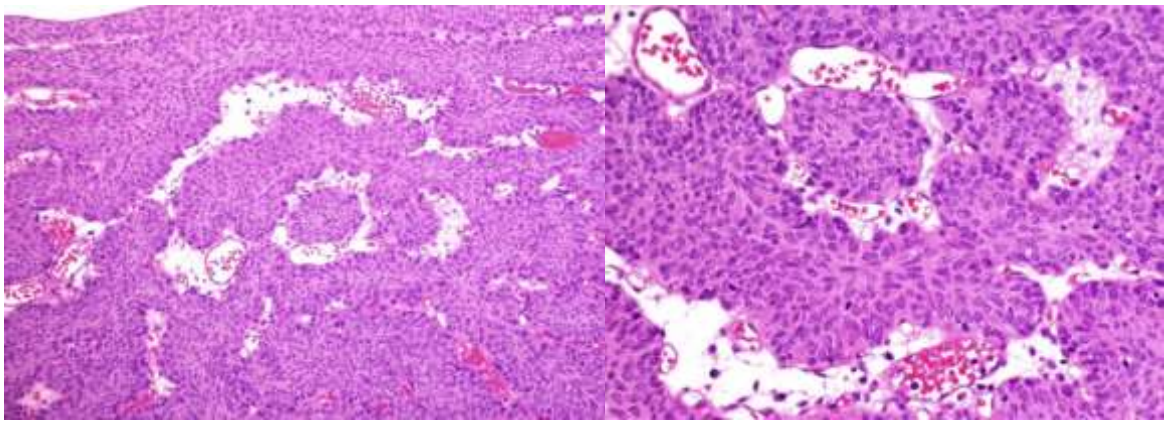


Figure 1: Polypoidal lesion arising from the left lobe of the prostate near the verumontanum with a narrow stalk showing engorged blood vessels that extended upwards into the bladder, causing outlet obstruction.

Transurethral resection of the lesion was done, hemostasis was achieved, and a specimen was obtained and sent for histopathological examination. The histopathological report showed an inverted urothelial papilloma. The sections showed multiple fragments of tissues lined by attenuated urothelium. There was an endophytic lesion composed of trabeculae and cords lined by cells with basal palisading [Figure 2]. No overt atypia or increased mitotic activity was seen. The cells showed CK20, PSA negativity, and focal CK7 expressions [Figure 3]; however, CK 20 is entirely negative [Figure 4]. There was no evidence of malignancy in the sections examined. No prostatic tissue was identified.



a **b**

Figure 2: (a) The lesion shows an invaginating polypoid proliferation of anastomosing cords and trabeculae with peripheral palisading of cells. There is central streaming of urothelial cells. No exophytic components are noted. **(b)** The tumor cells are characterized by small, uniform, and cytologically bland nuclei. A rare mitotic figure is seen.

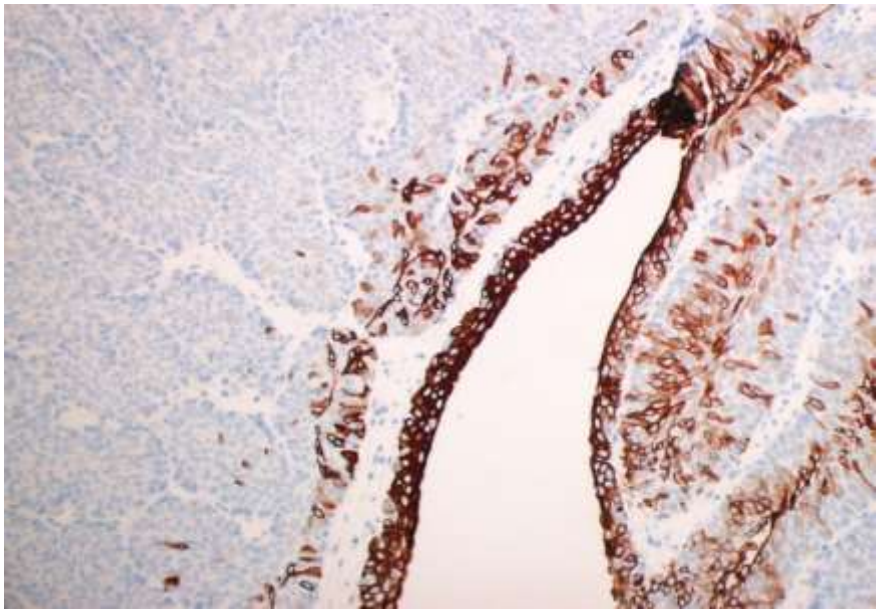


Figure 3: CK 7 IHC stain showing positivity in the surface and focally in the inverted pattern of cells. These features are consistent with an inverted urothelial papilloma.

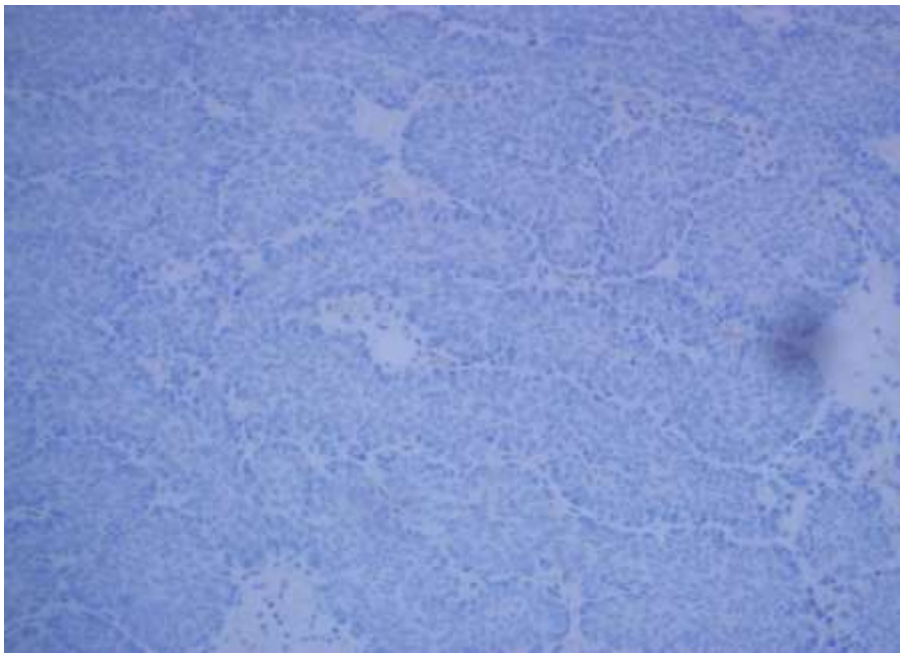


Figure 4: CK20 complete negativity in the inverted papilloma.

The patient will be followed up for the next 3 years, with regular cystoscopies at 6 and 18 months and regular OPD visits. Safety-netting advice was given to visit the closest ED in case of hematuria recurrence. He has not reported hematuria to this date.

Discussion

Inverted urothelial papilloma (IUP) is a rare type of urothelial neoplasm commonly known to occur in the bladder, neck, and trigone and is seldom seen in the prostatic urethra. The tumor occurs predominantly in males during the 6^{th} to 7^{th} decade. Its etiology is attributed to the human papillomavirus, which is known to cause similar inverted papillomas in the nasal cavity.[6]

2006 Samson et al. identified 21 cases of IUP of the prostatic urethra. The mean age of occurrence of IUP in their cases was 65.1 years, and the most common clinical presentations were gross hematuria and bladder outlet obstructive symptoms,[6,7] Similar to our case and one reported in 2014, wherein the case was complicated by acute urinary retention.[4] The age of patients in these cases leaned more towards the 6th to 7th decade. However, the disease can occur at a younger age, as seen with a juvenile patient in 2012,[5] In our case, the patient presented in his 40s. Cystoscopically, the majority of cases had polypoidal growth patterns. Histopathologically, a spectrum of findings was reported previously, ranging from the classic inverted papilloma pattern to cytological atypia found within some lesions. Given the focal nature of the findings within an inverted papilloma pattern, they were not considered malignant. In some cases, concurrent prostatic adenocarcinoma was found in adjacent tissue.[8] Although IUP is considered a benign lesion, whether it harbors malignant potential remains to be answered. Based on prior reports of the synchronous occurrence of IUP with urothelial malignancies, a systematic review conducted by Picozzi et al. concluded that IUP can be considered a risk factor for developing transitional cell carcinoma and that follow-up for 3 years is recommended.[9,10]

Treatment of lesions in the lower urinary tract often requires a conservative approach via transurethral resection,[8] And the same was done in our case. Concerning the recurrence of IUP, specifically at the prostatic urethra, no cases have been reported in the literature. However, studies have shown that IUP recurrence rates at other sites are 1-7%.[8] Thus, most agree that regular follow-up is recommended in all cases of IUP, irrespective of its location in the urinary tract.

Conclusion

Here, we have presented a case of IUP of the prostatic urethra, which is considered a rare location for its occurrence. Effective management can be done by transurethral resection; a follow-up for 2-3 years is recommended for tumor surveillance.

Disclosure

The authors have not received any financial support for publication of this case report. There are no potential conflicts of interest concerning the research,

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