Anterior Urethral Recurrence from an Upper Urinary Tract Urothelial Tumor

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We report a case of a metachronous transitional cell carcinoma (TCC) of the penile urethra in an elderly male after nephroureterectomy. The patient had a history of right nephroureterectomy 18 months previously due to TCC of the upper urinary tract. A solitary urethral recurrence from a TCC of the upper urinary tract is rare. An anterior urethral recurrence of a TCC of the upper urinary tract has not been previously reported in the literature. The prognosis of a metachronous anterior urethral recurrence of an upper-tract TCC is poor. (Korean J Urol 2009;50:718-720)

Key Words: Transitional cell carcinoma, Urethra, Neoplasm metastasis

Patients with upper urinary tract transitional cell carcinoma (TCC) are at risk for development of bladder cancer, with an estimated incidence within 5 years that varies in multiple reports between 15% and 75%. Metachronous TCC of the urethra in a patient with an upper urinary tract tumor is quite rare. Only 1 case of a posterior urethral recurrence has been reported to date. Here we report a case of a metachronous anterior urethral recurrence causing urinary retention from upper-tract TCC.

CASE REPORT

In April 2006, a 76-year-old man presented with acute urinary retention. His urologic history was significant in that he had undergone a right nephroureterectomy 18 months previously due to TCC of the upper urinary tract. Histopathologic findings showed a high-grade TCC (pT1N0M0). The patient had been followed regularly for 15 months without evidence of recurrence until he had urinary retention. Follow-up cystourethroscopy was reported as being within normal limits as recently as 3 months before he presented for urinary retention. The physical examination revealed a 3x1 cm palpable hard mass within the penile urethra. There was no significant palpable inguinal lymphadenopathy. Cystourethroscopy and biopsy revealed a penile urethral TCC that almost filled the urethral lumen.

Abdominal computed tomography (CT) revealed no pelvic lymphadenopathy. A magnetic resonance imaging scan of the penis revealed a focal area of iso-signal intensity on the T1- and a heterogeneous high signal intensity on the T2-weighted images with irregular peripheral enhancement on contrast-enhanced images in the region of the penile urethra (Fig. 1). The patient declined cystourethrectomy and underwent an anterior urethrectomy and perineal urethrostomy, with a 2 cm margin proximal to the palpable tumor (Fig. 2). The intraoperative urethral margins were negative and intraoperative cystoscopy was within normal limits. The patient made an uneventful postoperative recovery. The final pathology report indicated a high-grade TCC invading beyond the muscularis into the periurethral tissue. The resection margins were clear from the tumor. The TNM stage was T3NxMx. The patient underwent 2 cycles of combination chemotherapy involving gemcitabine and cisplatin (GC).

Three months postoperatively, the patient had no evidence of recurrence on chest x-ray, abdominal CT, and cystoscopy. Approximately 6 months postoperatively, the patient complained of hip pain and was found to have multiple bony metastases and lung metastases detected by bone scan and chest CT with no evidence of recurrence on cystourethroscopy and abdominal CT scans. The patient received conservative therapy,
Fig. 1. Magnetic resonance imaging. (A) Sagittal T1-weighted image with gadolinium administration demonstrates the urethral carcinoma (arrow head) replacing the penile urethra without local extension into the corpus cavernosum. (B) Coronal T1-weighted image with gadolinium administration shows an irregular, peripheral, enhanced penile urethral mass (arrow head).

Fig. 2. Gross finding. (A) Resected 9 cm anterior urethra. (B) Intraluminal protruding 3x1 cm mass in the penile urethra.

including radiation therapy and pain control for bony metastases, but died 7 months postoperatively.

**DISCUSSION**

Approximately 80% of all urethral carcinomas are squamous cell cancers, which arise most commonly in the bulbar and penile urethra. TCCs account for 15% of all carcinomas of the male urethra and arise most commonly in the prostatic urethra. Urethral TCC recurrence has been reported in 2-6% of patients with an ileal neobladder reconstruction after radical cystectomy for invasive bladder cancer, and an anterior urethra recurrence of superficial bladder cancer has been reported in 2.6% of cases. Urethral metastasis from other primary sites is quite rare. Metastasis from primary tumors situated in the lung, prostate, lymph glands, skin (malignant melanoma), and colon have been described. Metachronous carcinoma of the urethra from an upper urinary tract tumor, however, is very rare.

Recurrence of TCC of the upper urinary tract to the bladder is relatively common. However, solitary recurrence of TCC of the upper urinary tract to the urethra is extremely rare. Anterior urethral recurrence from a TCC of the upper urinary tract has not been previously reported in the literature. In our case, the recurrence site from the ureteral tumor was the penile urethra. One case of posterior urethral recurrence has been reported previously, and the recurrence site was the prostatic urethra after a nephroureterectomy.

In general, anterior urethral carcinoma is more amenable to surgical control, and the prognosis is better than that of posterior urethral carcinoma, which is often associated with extensive local invasion and distant metastasis. For a tumor infiltrating the corpus spongiosum and localized to the distal half of the penis, a partial penectomy with a 2 cm negative margin proximal to the visible or palpable tumor is generally successful. If the infiltrating tumor is located in the proximal penile urethra or involves the entire urethra, a total penectomy is indicated.

Similar to this case, some authors performed penile-sparing surgery consisting of urethrectomy with sparing of the corpora cavernosa and formation of a perineal urethrostomy for a tumor confined to the spongiosum. To prevent recurrence, our patient received systemic chemotherapy with GC; however, the patient developed multiple bony metastases and lung metastases.
without local recurrence at 6 months and died at 7 months postoperatively.

Urethral recurrence might occur by hematogenous metastasis, and minimal urethral injury from cystoscopic evaluation at regular intervals might be a contributing factor to cancer seeding. Iatrogenic implantation might be a possible etiology for urethral recurrence, but the patient underwent nephro-ureterectomy 18 months previously and no recurrence or metastatic disease was observed during the same period, so the possibility of iatrogenic implantation is decreased. Urethral recurrence from an upper urinary tract urothelial tumor is rare, but is possible and has a poor prognosis.

**REFERENCES**