Ureteral stump transitional cell carcinoma after radical nephrectomy: A case report with review of literature

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Abstract
Primary transitional cell carcinoma (TCC) of the ureter accounts for less than 1% of all malignancies of upper genitourinary tract. Ureteral stump after radical nephrectomy may develop malignancy very rarely, TCC being the commonest. Definite risk exists if the urinary bladder harbored TCC. Presence of TCC of the urinary bladder and persistent urinary tract infections in a nephrectomized patient may indicate closer evaluation.

Key Words: Radical nephrectomy, ureteral carcinoma, ureteral stump

INTRODUCTION

Primary ureteral carcinoma is a rare cancer that accounts for about 1% of all malignancies of the upper genitourinary tract. The most common histological type is transitional cell carcinoma (TCC) (90%). It is a disease of old age with slight male preponderance. Primary tumor in ureteral stump is very rare with less than 30 cases reported in the literature so far.[1-5] Many of the reported cases had previous or coexisting primary bladder tumors. This has lead to the hypothesis of reflux into the ureteral stump with subsequent implantation of tumor cells. We present a patient with a primary urethral stump cancer along with the relevant literature on the subject.

CASE REPORT

A 62-year-old gentleman presented in 1999 with history of right loin pain, the evaluation of which revealed a right renal tumor and left hydronephrosis due to a stricture in the left lower ureter. He had a history of partial gastrectomy done 20 years back for benign gastric ulcer. He subsequently underwent left ureteric stenting followed by right radical nephrectomy in November 1999. The postoperative histopathology revealed a pT2 N0 tumor of clear cell carcinoma grade I [Figure 1]. The ureteric stent was removed with the resolution of left hydronephrosis on follow-up. In June 2000, he presented with painless gross hematuria and cystoscopy revealed papillary TCC on the right lateral wall extending up to bladder neck. The ultrasonography (USG) revealed a bladder tumor with nonvisualization of the right ureteric stump. Transurethral resection of bladder tumor (TURBT) was done and the histopathology revealed TCC grade II Ng intermediate pTa (WHO/SIUP 1998). He subsequently received adjuvant intravesical BCG (weekly instillations for six weeks followed by monthly maintenance instillations for six months from July 2000 to March 2001). In August 2002, he was detected to have recurrence in the bladder at the same site. TURBT was performed in September 2002 with postoperative histopathology revealing papillary TCC grade II pTa. He received adjuvant intravesical BCG until June 2003. Subsequent check cystoscopies revealed no recurrence until November 2004. In November 2004, follow-up cystoscopy revealed a large papillary tumor near right ureteric orifice. The computed tomography (CT) scan and USG showed dilated right ureteric stump with suspected tumor [Figure 2]. Cystoscopic resection of the protruding fronds was done to assess the adjacent bladder mucosa. The tumor was found protruding from the right ureteric orifice but there was no tumor in the bladder. In January 2005, he underwent resection of right ureteric stump with cuff of bladder and pelvic lymphadenectomy. The postoperative period was uneventful. The pathology report showed papillary TCC extending up to muscle, but muscle being free [Figure 3]. The bladder cuff was free of tumor or carcinoma in situ. All pelvic nodes were found to be free of metastasis. Ureteroscopy of the left ureter was done after four
weeks and there was no stricture or any significant pathology.
He is on regular follow up.

DISCUSSION

Primary ureteral stump carcinoma is rare with only about 30
case reports being available to date. Nonetheless, this entity
has generated many discussions on the pathogenesis. Reflux
of tumor-cell-containing urine into stump has been proposed
as a probable mechanism in patients with history of bladder
cancers. However, routine resection of entire ureter at the
time of nephrectomy for benign condition and non-TCC
tumors of kidney is not supported by evidence. Malek et al.
studied the outcome of ureteral stump in 4883 nephrectomies
performed for benign diseases of the kidney between 1935 and
1963.[1] The incidence of symptomatic ureteric stump was
0.86% (42 cases). The incidence of malignant diseases arising
in the ureteral stump was 0.88% of total nephrectomies, but
among the symptomatic stump, the malignancy was found in
9.5% of cases (4 out of 42 cases).

Mullen et al. in his review on 21 cases of ureteral stump
carcinoma, the interval between nephrectomy and ureteral
stump carcinoma was reported as 12 years. Seventy one per cent
of the patients had TCC, 24% being squamous cell carcinoma,
and 5% adenocarcinoma. Around five cases of ureteric stump
squamous cell carcinoma are reported in the literature. They
were associated with ureteric calculi and chronic inflammation
of the stump. Four cases of ureteric stump carcinoma after
nephrectomy for renal cell carcinoma have been reported in
the literature. In another study of 318 consecutive patients
who underwent simple nephrectomy for benign pathology,
eight ureteral stump tumors were detected. The mean interval
between nephrectomy and ureteral stump tumor was 76.5
months. Six of them had TCC and the rest had squamous cell
carcinoma.[2] Hematuria was the major presenting symptom.
Two patients with TCC of the ureteral stump developed bladder
TCC on follow up.[4] The incidence of multiple tumors in the
ureteral stump appears to be higher than with intact ureter
(37% vs. 10%).[5] There are case reports of metastases in the
ureteric stumps following nephrectomy for renal cell carcinoma.

Ureteral stump cancer can be detected on imaging following
persistent symptoms ranging from hematuria to intractable
urinary tract infections. Occasionally, incidental imaging
also picks up a few cases. Micturating cystourethrogram may
detect a dilated ureteric stump with irregular filling defect.
Associated calculi may also be found, especially in squamous
cell carcinoma. Retrograde pyelography, CT scan, and magnetic
resonance imaging apart from ureteroscopy may provide
diagnostic information.[6]

The management of ureteral stump cancer is secondary
ureterectomy with removal of a cuff of bladder with or without
lymph nodal sampling or dissection.[5] Laparoscopic resection
is feasible in symptomatic distended ureteric stump though
its application in malignancy is unclear due to scarcity of the
condition. Laser fulguration and electrocoagulation of the
tumor are other options in high-risk patients.

The prognosis of this rare condition depends on the histological type, grade of the tumor, and occurrence of subsequent bladder tumor. Squamous cell carcinoma generally carries a poor prognosis.

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