Ureteral metastasis is rare, and only a few cases of ureteral metastasis from prostatic carcinoma have been reported. We present a case of ureteral metastasis from prostatic carcinoma that was also associated with a ureteral stone. To our knowledge, this is the second case with a ureteral stone at the site of the metastatic lesion.

**Key Words:** ureteral metastasis, prostatic carcinoma, ureteral stone

(Ureteral metastasis is rare, and fewer than 40 cases of ureteral metastasis from prostatic carcinoma have been reported [1]. We present another case with a true metastatic lesion in the ureter from primary adenocarcinoma of the prostate. Of added interest is that the ureteral metastasis was found accidentally during management of a ureteral stone, and the lesion was at the site of the stone.

**CASE PRESENTATION**

A 54-year-old male was admitted to our hospital due to intermittent gross hematuria for several days in October 2002. Other associated symptoms included voiding difficulty, small caliber of urine flow, frequency, nocturia, and low back pain. No obvious history of urolithiasis was noted. Physical examination revealed mild right costovertebral angle knocking pain, and digital rectal examination showed a moderately enlarged hard prostate with one nodular lesion over the right lobe.

Renal ultrasound showed right hydronephrosis. Serum creatinine was 1.6 mg/100 mL. Excretory urogram revealed delayed renal function on the right side with hydronephrosis, and a right ureteral stone at the level of the fifth lumbar vertebra was suspected. Further antegrade pyelography (Figure 1) and computerized tomography (CT; Figure 2) confirmed these findings. Intraluminal soft-tissue masses beneath the ureteral calculus were also noted on CT. Benign polyps or ureteral tumors were suspected. The serum prostate-specific antigen (PSA) level was 553 ng/mL on admission, so right ureteroscopy and transrectal ultrasound-guided prostatic biopsy were arranged simultaneously. Right middle-third ureteral stenosis was found, and an 8 Fr ureteroscope could not be passed through the lesion. Ureteroscopic and prostatic biopsies were performed. The prostatic biopsy revealed adenocarcinoma of Gleason grade 5+5. Right ureteral mucosa biopsy also showed adenocarcinoma that stained with cytokeratin and PSA. Bone scan demonstrated multiple bone metastases, especially in axial bones and the pelvic cavity.

A few days later, right ureteral segmental resection with ureterolithotomy was accomplished to relieve obstruction. A length of ureter of about 2.5 cm was resected, and the ureteral stone was removed simultaneously. No obvious evidence of direct invasion from the prostatic carcinoma was found during surgery. Two enlarged lymph nodes
were removed during dissection of the ureter and sent for pathologic evaluation. The tumor was located in the middle third of the ureter just beneath the ureteral stone, and it appeared as polypoid lesions with intramural growth with metastasis from adenocarcinoma of the prostate (Figure 3), matching the prostate specimen obtained by previous biopsy. The two enlarged lymph nodes were also positive. Convalescence was uneventful and cyproterone acetate combined with leuprolelin was given. Unfortunately, the patient died 3 months later due to a cerebrovascular accident.

**DISCUSSION**

In 1909, Stow reported the first case of true metastatic involvement of the ureter by a malignancy, a lymphosarcoma [2]. Since then, only a few cases of truly metastatic ureteral lesions have been reported. A true metastasis to the ureter

![Figure 1](image1.jpg) Right antegrade pyelography reveals one radio-opaque ureteral calculus (arrow) at the level of the fifth lumbar vertebra causing obstructive uropathy and multiple bony metastases, especially in the lumbar vertebrae.

![Figure 2](image2.jpg) Non-contrast computerized tomography scan shows one right ureteral calculus with peripheral ureteral wall thickening (arrow).

![Figure 3](image3.jpg) Ureteral tumor: (A) infiltration of hyperchromatic and pleomorphic neoplastic cells without glandular formation similar to the findings of previous prostatic biopsy (hematoxylin & eosin, original magnification × 200); (B) some tumor cells stained with prostate-specific antigen (original magnification × 400).
Ureteral metastasis from prostatic carcinoma

is defined as a malignancy that grows within the ureteral wall and/or within the immediate periureteral lymphatics or tissues without involving the ureter by direct extension or contiguity [3]. The spread from the primary tumor is likely to be hematogenous or lymphatic [1,4,5].

Prostate carcinoma usually metastasizes by direct extension or to retroperitoneal lymph nodes or bone, and true metastatic disease to the ureter from the prostate is rare [3]. To our knowledge, our patient is the second reported case of true ureteral metastasis from prostate adenocarcinoma who presented with an associated ureteral stone [4]. As no obvious history of urolithiasis was noted for this patient, the ureteral stone may have resulted from chronic urine retention in the upper tract by the metastatic lesion, but it may also have been coincidental.

In conclusion, we should not neglect any other abnormality when an obvious lesion is seen during evaluation of the cause of obstructive uropathy. Ureteroscopy combined with biopsy may be needed if aberrations of the upper urinary tract are found by imaging studies in a patient with advanced prostatic adenocarcinoma because ureteral metastasis from prostatic adenocarcinoma may occur, although it is very rare.

REFERENCES

攝護腺癌輸尿管轉移合併輸尿管結石 — 病例報告

劉家駒1 吳文正1 蔡志仁2 周以和1 黃俊雄1
高雄醫學大學附設醫院 1泌尿科 2病理科

恶性腫瘤產生輸尿管轉移是相當罕見的，而從攝護腺癌轉移至輸尿管的情形於文獻上
僅有少數幾個病例報告。我們於此報告另一例由攝護腺癌發生輸尿管轉移的病例。有
趣的是其輸尿管轉移是在處理輸尿管結石時意外發現。據我們所知，此為第二例於轉
移處合併有結石發生之病例報告。因此在評估攝護腺癌合併有阻塞性尿路病變時需額
外小心，如果先前的影像檢查中發現有異常的情形時，輸尿管鏡合併切片檢查也許是
有需要的，因為合併輸尿管轉移的情形有可能發生，儘管其發生率相當低。

關鍵詞：輸尿管轉移，攝護腺癌，輸尿管結石
（高雄醫誌 2004;20:347–50）

收文日期：93年3月24日
接受刊載：93年5月17日
通訊作者：吳文正醫師
高雄醫學大學泌尿科
高雄市十全一路100號