

Tibial Bone Metastasis of Ureteral Transitional Cell Carcinoma with Low Back Pain-A Case Report

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Of the upper urinary tract (UUT) transitional cell carcinomas (TCCs), only about 25% are ureteral TCC. Typical ureteral carcinoma symptoms are painless hematuria and flank pain. Bone metastasis of ureteral cancer is always directly invasive to nearby bone structures such as the spine, pelvis, and hip bone. Distal bone metastasis such as that in the tibial bone, however, is rare.

This report describes a female patient who initially presented with left early stage ureteral transitional cell carcinoma (pT1N0M0) after nephroureterectomy and bladder cuff excision in MK 92. She complained of low back pain and suspected combined radicular pain in MK94. Due to poor response to initial conservative treatment, the patient was eventually diagnosed with right tibial bone metastasis. Three years after surgical intervention chemotherapy to treat the metastasis, follow-up examination revealed stable condition. In clinical practice, accurate differential diagnosis is essential in patients with low back pain and low leg pain, HIVD with radicular pain, and metastatic bone lesions. Detailed patient history and physical and neurological examinations are essential. Further survey for other etiologies is indicated in patients who respond poorly to conservative treatment, particularly those with history of urinary tract cancer.

Key words: Ureteral transitional cell carcinoma, low back pain,
tibial bone metastasis, rehabilitation.

Introduction:

Low back pain, a fairly common disorder, affects 65-80 % of the population, and disc herniations related to low back pain occur in about 5% (Mathews, Mills & Jenkins, 1987; Deyo, Loeser & Bigos, 1990).

Distinguishing between lumbar radicular pain and somatic pain is crucial in the clinical setting.

Upper urinary tract (UUT) transitional cell carcinoma (TCC) is rare, and ureteral TCC accounts for only about 25% of all

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UUT TCCs (Ziya & Emre, 2003). The typical symptoms of urethral carcinoma are painless hematuria and flank pain. The common sites of distant metastatic organs affected by UUT TCC are the liver followed by the lungs and bone. Bone metastasis of urethral cancer is directly invasive to nearby bone structures such as the spine, pelvis, and hip bone. However, distal bone metastasis particularly in the tibial bone is rare.

This report describes a patient with low back pain combined with low leg pain who was eventually diagnosed with tibial bone metastasis of ureteral transitional cell carcinoma.

Case presentation:

A 63-year-old female was diagnosed with early stage left ureteral transitional cell carcinoma (pT1N0M0) with undergoing nephroureterectomy and bladder cuff excision MK 92. She underwent regular urology follow up in the outpatient department (OPD). In MK 94 August, she complained of low back pain for one month and later complained of lower leg pain. A review of her medical history revealed that she first experienced low back pain symptoms after a fall in MK 91 and that the symptoms improved after rehabilitation treatment. Therefore, she was again referred to a rehabilitation program given medication for one month. However, the back pain and right lower leg pain persisted, and she eventually required further survey.

Her clinical symptoms and signs worsened after walking, but they were partially relieved after resting. The patient had no bowel or bladder dysfunction, and no right lower limb numbness. The patient had experienced no morning stiffness or body weight loss in recent months. Physical examination revealed that the muscle power in her right knee extensor, ankle flexor, and upper extensor of the lower leg muscle had mildly decreased to 4 degrees. The bilateral lower extremity muscles were symmetrical and revealed no sign of atrophy. No limitation of movement was noted. No redness, swelling, or local heat in the bilateral lower extremities was noted during examination. Mild knocking pain and tenderness over the middle and lower third of the pre-tibial area was observed. In neurological examination, straight leg raising (SLR) test was positive in the right leg. Bilateral knee jerk examinations were symmetrical, and no abnormal reflexes were observed. Bilateral Babinski signs were negative. No sensory abnormalities were noted.

Due to poor response to conservative treatment and rehabilitation programs after one month in OPD department as well as history of ureteral TCC, lumbar magnetic resonance imaging (MRI) was performed. Only mild disc bulging dehydration was noted at L3-(Fig.1A), and no metastasis tumor was noted over lumbar spine. Plain film of right lower leg was then performed for suspected ureteral cancer metastasis; The plain film (Fig.1B) showed no marked bony

lesions. Three simultaneous urine cytology samples were all negative. Additionally, the patient had recently undergone a 3-phase

bone scan for metastasis tumor survey 3 months previously, and the results were negative.



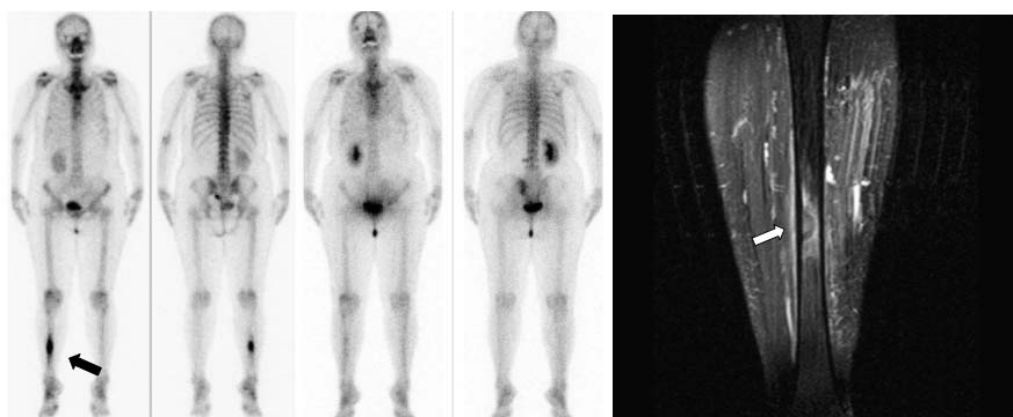
A

B

Fig.1. (A) Lumbar spine MRI: T2-weighted image showing mild bulging at L3-4 and dehydration disc (white arrow) (B) X-ray of right low leg revealing no marked bony lesion

Due to persistent pain in the middle and lower third pre-tibial region, a whole body bone scan was again performed. The whole body bone scan revealed local increased uptake over the middle third of the tibial bone (Fig.2A), a location with low probability of metastasis from ureteral cancer. Due to her ureteral cancer history,

possible tibial bone metastasis could not be excluded. Therefore, lower leg MRI was arranged (Fig.2C). The MRI revealed a bone marrow-replacing lesion with endosteal scalloping at the middle third tibial bone of the right lower leg, and metastatic tumor was suspected.



A

B

C

Fig.2. (A). 3-phase bone scan. Abnormal tracer uptake in the middle third tibial of right lower leg.(black arrow) (B). 3 years post-surgery. (C). MRI of right lower leg. T2-weighted. Bone marrow-replacing lesion with endosteal scalloping at the middle third tibial of right lower leg (white arrow)

The patient was transferred to an orthopedic specialist for tumor excision in MK 94 October. The subsequent pathology (Fig.3B) revealed metastasis from urethral cancer (Fig.3A). After surgical treatment

with bone cement and chemotherapy (Gemcitabine and Cisplatin), her leg pain was resolved, and no recurrence was noted at 3-year follow up (Fig.2B).

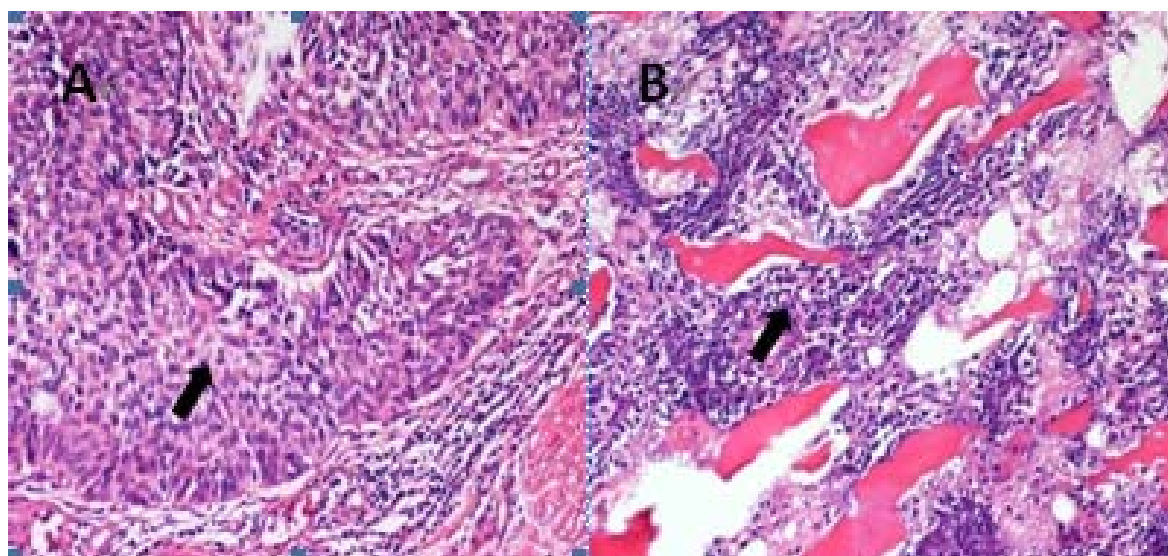


Fig.3. (A). Ureteral transitional cell carcinoma (black arrow) 2 years ago(200X). (B). Tibial bone marrow. Nests of neoplastic cells with pleomorphic, hyperchromatic nuclei arranged in solid pattern (black arrow). A similar pattern was noted in (A) (200X).

Discussion:

Low back pain is a rather common musculoskeletal disorder that affects 65-80 % of the population. The incidence of disc herniation related to low back pain is about 5% (Mathews, 1987), (Deyo, 1990). Distinguishing between lumbar radicular pain and somatic pain is crucial for accurate diagnosis. In clinical settings, the pain sensation is highly subjective and variable and often difficult for patients to describe. Therefore, a detailed patient history as well

as physical and neurologic examinations are essential for accurate diagnosis.

The clinical symptoms of HIVD include radicular pain and sharp dermatomal pain radiating from below the knee. The leg pain is usually worse than that in the back (Annette, George & Jacqueline, 2007). The patient may also experience a tingling sensation in the distal dermatome and increased leg pain upon coughing, sneezing, or straining. Neurological deficit such as reduced muscle strength, sensory loss, or reflex loss are also possible. Metastatic bone

pain is typically a constant, deep, and dull ache which often occurs while sleeping. Patients with metastatic bone disease may have marked pain in the spine, pelvis, or extremities due to weakening of the bone caused by the tumor (G. 2004).

The reported patient experienced a constant, deep, dull pain without significantly increase at night. The leg pain was also aggravated by SLRT and progressed despite medication, modalities, and rest. However, the back pain gradually improved after treatment. Additionally, her pain characteristics did not include radicular pain, which leg pain can be induced by coughing, sneezing, or straining. The pain was not localized in a specific area, unlike the specific band-like distribution of radicular pain. However, the patient did indicate that the painful areas overlapped between the L4 and L5 dermatomes. Advanced HIVD may induce decreased muscle strength. Her reduced muscle power was due to the pain or to the tibial bone weakening caused by the tumor.

The most commonly affected nerve roots are L4/5 and L5/S1; L3/4 is rarely observed in the clinical setting. Clinically, spontaneous pain and SLR test results are used for diagnosis when HIVD with radicular pain is suspected. Currently, the SLR test provides the best specificity (Majlesi, Togay & Unalan, 2008). The reported patient also had a history of injuries sustained in a fall, and the back pain was similar to that associated with her previous spontaneous leg pain. Additionally,

although her lower leg pain was exacerbated by SLRT, the patient did not experience the tingling sensations associated with typical radicular pain. Given the above observations, the patient was initially diagnosed with HIVD with radicular pain. Conservative treatments for HIVD include physical therapy and medication. Some cases may require lumbar traction (Burton, 1981; Fast, 1988). The back pain in this patient gradually subsided after lumbar traction and use of pain medication such as non-steroidal anti-inflammatory drugs (NSAID); however, the lower leg pain responded poorly to modalities such as transcutaneous electrical nerve stimulator (TENS) and NSAID.

Additionally, the patient had recently undergone a 3-phase bone scan for metastasis tumor survey 3 months previously, and the findings were negative. Therefore, the tibial bone metastasis had spread quickly during this 3-month period. Compared to plain X-rays, bone scans are more sensitive and may yield positive findings weeks or even months earlier. The bone scan is valuable for oncologic imaging because of its high sensitivity for lesion detection, its ease in whole body imaging, and its low cost. Its major disadvantage, however, is its lack of fine anatomic detail, which is particularly important in cancer patients with local back pain, radiculopathy, or myelopathy. Nevertheless, bone scan may not be effective for locating metastases in malignant myeloma or in rapidly growing lytic metastases as in the presented patient (Tryciecky, Gottschalk, & Ludema, 1997).

In clinical practice, patients with upper urinary tract TCC should undergo 3-phase bone scan if they have pain with suspected bone origin and elevated alkaline phosphatase.

Of the metastatic cancers, the most common are those of the breast, lung, prostate, and multiple myeloma. Urinary tract system involvement is relatively rare. Common bony metastasis sites are the vertebral column, skull, humerus, ribs, pelvis, and femur, and, in rare cases, the tibial bone. Median survival of patients with bone metastases is 5 months after diagnosis. Survival rates are low: 5% after 5 years and 1% after 10 years (Destombe, Botton & Le, 2007). However, in cancers such as those of the kidney or the colon or in hormone-dependent cancers, effective treatments are available.

Conclusion:

In clinical practice, accurate differential diagnosis is essential in patients presenting with low back pain, low leg pain, HIVD with radicular pain, and metastatic bone lesions. Detailed history and physical and neurological examinations are essential. Additionally, in patients who respond poorly to conservative treatment, further survey for other etiology is indicated, especially in patients with patients with cancer history such as cancer of the urinary tract system, even if recent bone scans have proven negative.

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泌尿道移行上皮細胞癌脛骨轉移痛合併下背痛:病例報告

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上泌尿道的移行上皮癌在臨床上是較為罕見的腫瘤。而輸尿管的移行上皮癌大約佔所有上泌尿道的移行上皮癌的25%。典型的輸尿管的癌症的症狀，以不痛的血尿及腰痛為主。而輸尿管移行上皮癌的骨骼轉移大多以直接侵犯鄰近的脊椎骨、骨盆及髖關節為主。遠端骨骼轉移，像是脛骨轉移在臨床上較為罕見。

本案為一63歲女性，於民國92年因左側早期輸尿管癌(pT1N0M0)接受左腎併膀胱袖口切除術。後來於民國94年，病患抱怨下背痛復發且合併右側下肢出現疼痛及無力，懷疑為椎間盤突出導致神經根壓迫。因此接受保守治療。因為病人復健效果不佳，以及有癌症病史，懷疑脊椎轉移，因此安排一系列檢查，最後證明為轉移自移行上皮細胞癌的腫瘤。在手術及化學治療後，下肢疼痛已改善且追蹤三年無復發。

臨床上當病人有下背痛合併下肢疼痛，需鑑別診斷的疾病，如椎間盤突出合併神經根疼痛或者癌症的骨轉移。臨床上詳細的病史、身體檢查及神經學檢查是很重要的。當病人對於保守治療無效時，必須作進一步的檢查及鑑別診斷。尤其病患有癌症的病史，特別是上泌尿道系統的癌症。

關鍵詞：泌尿道移行上皮細胞癌，下背痛，脛骨轉移，復健

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