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Original scientific paper

Metatarsal Metastasis from Transitional Cell Cancer of the Urinary Bladder

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A B S T R A C T

Urinary bladder cancers can be grouped into three general categories: superficial, invasive and metastatic. Approximately 90% of malignant tumors of the urinary bladder are of epithelial origin and the majority of them are transitional cell carcinomas (TCC). Metastatic spread of urinary bladder cancers usually includes regional lymph nodes, the lung, the liver and the bones. The presence of metastasis tends to correlate with muscular wall invasion as often demonstrated at the initial diagnosis; consequently clinical bladder cancer represents a late phase of the disease. Although skeletal metastases of bladder cancers are rather common, they have been rarely described to occur in distal bones. For that reason, we report metatarsal metastasis from transitional cell cancer of the urinary bladder in a 59-year-old woman.

Key words: *bladder cancer, transitional cell cancer, urinary bladder, metatarsal metastasis*

Introduction

In a study of 107 patients who died of metastatic transitional cell carcinoma (TCC), the most common sites of metastases at necropsy were the lymph nodes, liver, lung, bone and adrenal gland[1] but other much more infrequent metastatic sites such as orbit have also been described[2]. Metastases were documented clinically in multiple-organ sites in one third of patients while solitary metastases

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were present in only 9 patients at necropsy[1]. The mean duration of survival for patients was thirteen months from the diagnosis of the primary tumor[1]. The metastatic lesions were generally evident clinically within eleven months of the primary diagnosis; death ensued usually within three months[1].

Bone metastases in bladder cancer occur rather often. Generally, they indicate a poor prognosis for the patient. Metastases may reach the skeleton by direct invasion from the primary tumor or by extension from the secondary site, such as a lymph node. Direct invasion is usually accompanied by a detectable soft tissue mass, an unusual feature of metastases that occur by haematogenous spread[3] an event far more frequent than lymphatic spread or direct invasion. Here we report a case of TCC of the urinary bladder with isolated primary bone metastasis to the metatarsus.

Case report

A 59-year-old woman was hospitalized at the Department of Urology due to severe haematuria caused by a tumor mass of the urinary bladder. Transurethral resection of the tumor mass was performed immediately after the admittance to the hospital to stop the bleeding. The diagnosis of undifferentiated transitional cell carcinoma was established. Radical cystectomy, adnexectomy and appendectomy were performed followed by uretheroileocutaneostomy after Bricker. The tumor was staged as T4 N0 M0. The pathohistological finding confirmed the diagnosis of undifferentiated transitional cell carcinoma with lymphangiosis carcinomatosa. All the analyzed regional lymph nodes were negative.

After resection, the patient was admitted to the Department of Oncology and Radiotherapy. According to the stage of the tumor our patient underwent chemotherapy in which the regimen with CMV (Cisplatin, Methotrexate and Vinblastine) was used. She sustained the treatment very well with abundant hydration and antiemetics. At that point of time all other examinations (bone scintigraphy, X-rays of lungs, ultrasound of the abdomen and internistic findings) were normal.

One month later, at the beginning of the second cycle of chemotherapy the patient complained of severe pain in the metatarsal part of her left foot. This was edematous, red and livid. X-rays indicated severe, intensive demineralization and bone atrophy with destruction of the majority of the second metatarsal bone probably of secondary nature (Figure 1). A fine needle aspiration cytology of bone

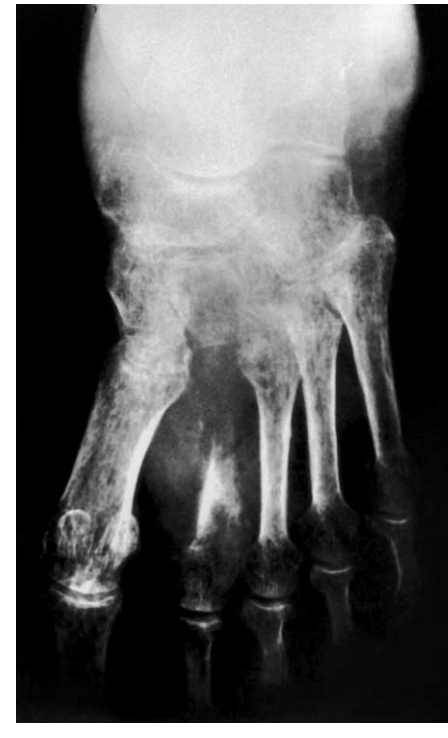

Fig. 1. X-ray of the left foot indicating complete destruction of the majority of the second metatarsal bone.

was performed. Cytology revealed differentiated epithelial cells consisting metastases. Within a month the progression of metastatic disease was evident. X-rays demonstrated the destruction of the second metatarsal bone with a novel destruction of the nearby bone of the tarsus. In the middle part of the left tibial diaphysis osteolitic focuses were also seen at that time. Bone scintigraphy performed 15 days later showed multiple zones of pathological activity in bones of both lower extremities. To relieve the pain the patient was administered palliative radiotherapy of osteolitic regions with megavoltage photons.

In spite of cytostatic therapy and palliative irradiation the disease progressed quickly. Since the patient had complained of severe pains she was treated by strong analgetics, sometimes even narcoanalgetics, antirheumatics and sedatives. Our patient was again hospitalized for symptomatic therapy and one month later, she died due to advanced metastasis.

Discussion

Approximately 90% of malignant tumors of the urinary bladder are of epithelial origin, the vast majority being transitional cell carcinomas (TCC)[4]. The presence of TCC metastases tends to correlate with muscular wall invasion and both are often present at the initial diagnosis[5]. Some other types of urinary bladder carcinomas, which occur more rarely, like superficial papillary tumors, can be present with no evidence of muscle invasion in developed distant metastases[6]. The frequency of metastatic sites is the highest in the lymph nodes, liver, lung, bone and adrenal gland[1,7], while metastases to some others locations like pleura, kidney, peritoneum and intestine occur with a lower incidence[8]. Although skeletal metastases of the bladder cancer are rather common their frequency varies considerably with the type of the primary tumor[9,10]. A recent study has confirmed that bone is the preferred site of metastasis (35%) of TCC outside the pelvis, with the spine being the most common site (40% of metastases)[11]. The multiple metastases of TCC are more frequent than a solitary metastases[1]and can be found in multiple-organ locations affecting the humerus, femur, spine, iliac wing and ribs[11].

Metastases may reach the skeleton by direct invasion from the primary tumor or by extension from the secondary site. True lymphatic spread to the skeleton is rare. Direct invasion is usually accompanied by a detectable soft tissue mass, un unusual feature of metastases that occur by hematogenous spread. The left sides of the vertebral bodies are more frequently affected by direct invasion from the local lymph nodes because the left sided lymph nodes are closer to bone than the right-sided ones[3]. Haematogenous spread is far more frequent than lymphatic spread or direct invasion[3,6]. The venous route, especially Batson's paravertebral plexus, appears to be more important than the arterial route. The distribution of Batson's venous plexus, as well as the overall skeletal vascularity, results in a predilection for haematogenous spread to the axial skeleton[12] and the proximal long bones[3]. But sometimes distal bone metastases of TCC of the bladder are found in knee[12,] tarsus[13] and metatarsus as described in our case. Bone metastases demonstrated either an osteoblastic or a mixed osteolytic-osteoblastic pattern in 47% of the instances[14].

Bone pain in skeletal metastases is frequently the presenting symptom. It may be due to various mechanisms, including the release of chemical mediators, elevated intraosseous pressure and periostal elevation[15]. Pain may also result from pathologic or impeding fracture, particulary in weight-bearing bones[9].

The frequency of skeletal metastases also varies with the methodology used for their detection[9]. It is interesting that histologic type of tumor has no effect on the frequency and location of metastases[8].

Generally, these patients have a poor prognosis and different survival period. In one series, only 4 of 578 patients were free of disease 10 years after the diagnosis of bone disease. Mean survival for patients with all primaries was five months after diagnosis[16] while in the previously mentioned study of 107 patients the mean duration of survival for patients was thirteen months from the diagnosis of the primary tumor[1]. It is interesting that the pathological stage, lymph node metastasis and vascular involvement, but not tumor grade, were significantly useful prognostic factor in patients who underwent radical cystectomy for TCC. In addition, among them only the pathological stage and lymph node metastasis could be used as independent predictors for poor prognosis[17].

Clinicians should be aware of the fact that bone metastasis from transitional cell carcinoma of the urinary bladder is relatively frequent. However, distal osseous lesions are a rare condition usually appearing in the advanced disease as observed in our patient.

REFERENCES

1. BABAIAN, R. J., D. E. JOHNSON, L. LIAMAS, A. G. AYALA, Urology, 16 (1980) 142. — 2. FELIP, E., M. A. ROVIROSA, A. SALUD, F. CAPDEVILA, J. BELLMUNT, J. GIRALT, Urol. Int., 46 (1991) 82. — 3. FISHER, M. S., Radiology, 134 (1980) 631. — 4. MOSTOFI, F. K., L. H. SOBIN, H. TORLONI, Histologic typing of urinary bladder tumors. In: International histological classification of tumors. (World Health Organization, Geneva, 1973). — 5. PROUT, G. R. JR., P. P. GRIFFIN, W. U. SHIPLEY, Cancer, 43 (1979) 2532. — 6. MATTHEWS, P. N., M. MADDEN, K. A. BIDGOOD, C. FISHER, J. Urol., 132 (1984) 904. — 7. FRIEDELL, G. H., R. L. MCCAULEY, J. Urol., 100 (1968) 293. — 8. WALLMEROTH, A., U. WAGNER, H. MOCH, T. C. GASSER, G. SAUTER, M. J. MIHATSCH, Urol. Int., 62 (1999) 69. — 9. ROSENTHAL, D. I., Radiologic diagnosis of bone metastases cancer. In: Proceedings. (Skeletal Complications of Malignancy, Bethesda, 1997). — 10. TABBARA, W. S., A. R. MEHIO, Prog. Clin. Biol. Res., 162A (1984) 145. — 11. PUNYAVORAVUT, V., S. D. NELSON, J. Med. Assoc. Thai, 82 (1999) 839. — 12. ADRIAZOLA SEMINO, M., R. ORTIZ CABRIA, E. GARCIA COBO, E. TEJEDA BANEZ, A. ALONSO VILLALBA, F. ROMERO RODRIGUEZ, Arch. Esp. Urol., 55 (2002) 69. — 13. DUMONTET, C., J. TEBIB, E. NOEL, M. BOUYSSET, F. COLSON, M. BOUVIER, Ann. Radiol. (Paris), 30 (1987) 65. — 14. GOLDMAN, S. M., A. A. FAJARDO, R. C. NARAVAL, J. E. MADEWELL, AJR Am. J. Roentgenol., 132 (1979) 419. — 15. RESNICK, D., G. NIWAYAMA, Skeletal metastases. In: RESNICK, D., G. NIWAYAMA (Eds.): Diagnosis of bone and joint disorders. (Philadelphia, 1988). — 16. ALCALA, Y., I. AZAIS, B. BRIDEON, P. BABIN, P. VANDERMARCO, F. DEBIAS, D. BONTOUX, Revue du Rhumatisme, 62 (1995) 632. — 17. HARA, S., H. MIYAKE, M. FUJISAWA, H. OKADA, S. ARAKAWA, S. KAMIDONO, I. HARA, Jpn. J. Clin. Oncol., 31 (2001) 399.

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METATARZALNA METASTAZA KARCINOMA PRIJELAZNIH STANICA MOKRAĆNOG MJEHURA

S A Ž E T A K

Karcinomi mokraćnog mogu biti grupirani u tri opće kategorije: površni, invazivni i metastatski. Približno 90% malignih tumora mokraćnog mjehura je epitelnog porijekla a većina su karcinomi prijelaznih stanica (KPS). Metastatsko širenje karcinoma mokraćnog mjehura obično uključuje regionalne limfne čvorove, pluća, jetru i kosti. Prisutnost metastaza ima tendenciju korelacije sa invazijom mišićne stjenke što je često pokazano pri početnoj dijagnozi; posljedično tome klinički karcinomi mokraćnog mjehura predstavljaju kasni stadij bolesti. Iako su skeletne metastaze karcinoma mokraćnog mjehura prilično česte, rijetko je opisano da se javljaju u distalnim kostima. Stoga mi opisujemo rijetku metatarzalnu metastazu karcinoma prijelaznih stanica mokraćnog mjehura u 59-godišnje žene.