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Case Report

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Cutaneous Metastases From Transitional Cell Carcinoma of the Renal Pelvis: A Case Report

Mitsuru Komeya[a, c], Tamami Sahoda[a], Shinpei Sugiura[a], Takuto Sawada[a], Kazuo Kitami[a], Youichi Iemoto[b]

Abstract

A 73-year-old female patient presented with left back pain. Computed tomography showed a mass around the left renal hilum and subcutaneous masses in her abdomen. She was referred to our hospital. Retrograde pyelography showed an upper urinary tract obstruction. Urinary cytology of the ureter was negative. Biopsy of the subcutaneous mass was performed, and the pathological findings showed transitional cell carcinoma. She was diagnosed with transitional cell carcinoma of the left renal pelvis with metastasis to the skin (cT4N0M1). She received combination chemotherapy, but the size of her skin lesions was increasing. Three months after admission, she died. Metastasis to the skin from the renal pelvis is very rare; only four cases have been reported. Our case is the first report on transitional cell carcinoma of the renal pelvic metastasizing to only the skin at presentation. We herein summarize this rare metastasis and discuss its clinical features and therapeutic management.

Keywords: Pelvic cancer; Renal pelvis; Transitional cell carcinoma; Cutaneous metastasis

Introduction

Cutaneous metastasis from internal malignancies is uncommon and occurs in 0.7% to 9% of patients with internal cancers. Stephen et al found 124 patients with cutaneous metastases among 12,146 patients with internal malignancies [1]. In the study, only 2 patients had cutaneous metastases from genitourinary malignancies. The rate of cutaneous metastasis from genitourinary malignancies was 0.22%.

More metastases from the urinary bladder than from the renal pelvis have been reported in the literature [2].

Metastasis to the skin from the renal pelvis is very rare, and only four cases have been reported [2-5]. Our case is the first report of transitional cell carcinoma (TCC) of the renal pelvic metastasizing to only the skin at presentation. We herein summarize this rare metastasis and discuss its clinical features and therapeutic management.

Case Report

A 73-year-old female patient presented with left back pain and subcutaneous abdominal nodules. The lesions were tender, firm, and fixed. A computed tomography scan showed a mass around the left renal hilum and subcutaneous abdominal masses (Fig. 1). She was referred to our hospital. Retrograde pyelography showed an obstruction in the upper urinary tract. Urinary cytology of the ureter was negative. Magnetic resonance imaging, gastrointestinal endoscopy, and colorectal endoscopy showed no other abnormalities. Biopsy of a subcutaneous mass was performed. The mass was 1.5 cm in diameter, yellowish-white, solid, and encapsulated (Fig. 2a). Pathological findings showed proliferation of atypical cells infiltrating the subcutaneous fat tissue in

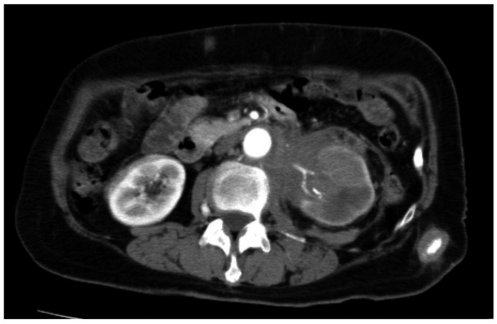

Figure 1. Computed tomography showed a mass around the left renal hilum and subcutaneous abdominal masses.

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[a]Department of Urology, Fujisawa City Hospital, 2-6-1 Fujisawa, Fujisawa, Kanagawa 251-8550, Japan
[b]Department of Pathology, Fujisawa City Hospital, 2-6-1 Fujisawa, Fujisawa, Kanagawa 251-8550, Japan
[c]Corresponding author: Mitsuru Komeya, Department of Urology, Fujisawa City Hospital, 2-6-1 Fujisawa, Fujisawa, Kanagawa 251-8550, Japan. Email: urology_ycu@yahoo.co.jp

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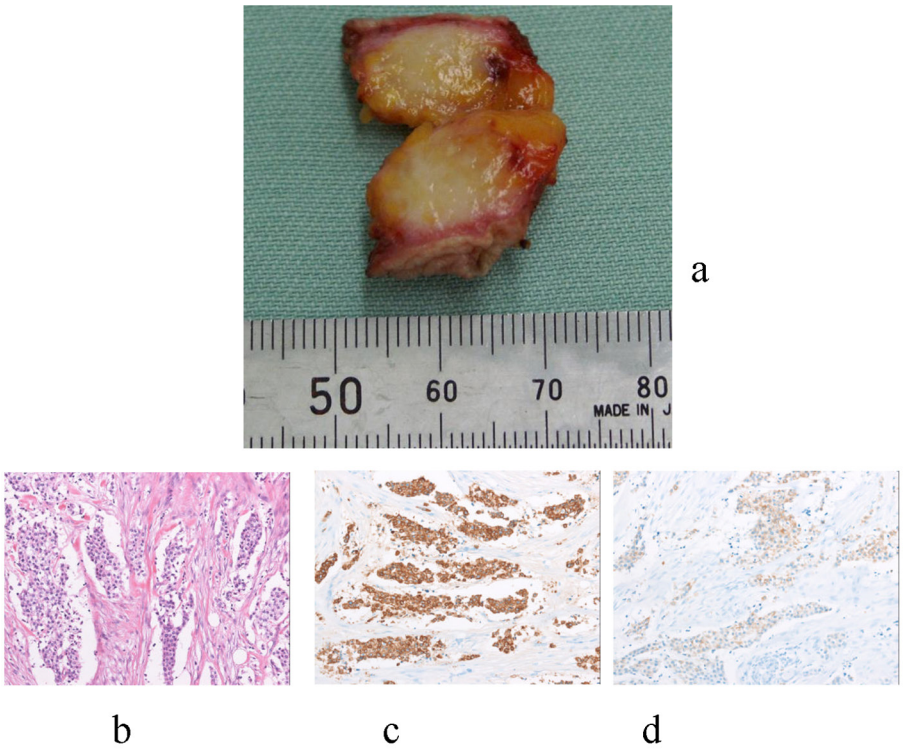

Figure 2. (a) The mass was 1.5 cm in diameter, yellowish-white, solid, and encapsulated; (b) Pathological findings showed a proliferation of atypical cells infiltrating the subcutaneous fat tissue in nests and cords throughout the dermis with no involvement of the overlying epidermis. (H&E staining, × 200); (c) Atypical cells were positive for CK7; (d) Atypical cells were positive for CK20.

nests and cords throughout the dermis with no involvement of the overlying epidermis. These atypical cells were positive for CK7 and CK20 (Fig. 2b, c, d). She was diagnosed with TCC of the left renal pelvis with metastasis to the skin (cT4N0M1).

The patient received combination chemotherapy comprising 30 mg/m^2 methotrexate, 3 mg/m^2 vinblastine, 30 mg/m^2 doxorubicin, and 70 mg/m^2 cisplatin. However, the size of her skin lesions was increasing. Three months after admission, she died.

Table 1. Case Reports of Cutaneous Metastases From Transitional Cell Carcinoma of the Renal Pelvis

Case	Author	Sex	Age	Initial Treatment	Adjuvant Therapy	Duration between surgery and skin metastases (month)
1	Ando et al	male	67	nephroureterectomy	chemotherapy	27
2	Chitale et al	male	68	nephroureterectomy	none	2
3	Zirwas et al	male	43	nephroureterectomy	none	48
4	Lin et al	female	68	nephroureterectomy	chemotherapy + radiation therapy	18
5	our case	female	73	none	none	0

Table 2. Case Reports of Cutaneous Metastases

Case	Appearance of skin metastasis	Distribution of skin metastases	Other metastatic regions	Treatment	Outcome	Follow-up (month)
1	zosteriform	left chest wall	left axillary LN	chemotherapy + radiation therapy	alive	10
2	unknown	back, abdomen, limbs	lung, brain	none	dead	1
3	vascular-appearing nodule	shoulder	sacroiliac area, lung	chemotherapy	unknown	unknown
4	nodular	arm, abdomen	local, liver, left kidney	none	dead	1
5	nodular	abdomen	none	chemotherapy	dead	3

Discussion

Cutaneous metastasis from TCC of the genitourinary system is rare. Most metastases originate from the urinary bladder. The rate of cutaneous metastasis from the urinary bladder ranges from 0.2% to 2.0% [2]. However, the rate from the renal pelvis remains unknown, and only four cases have been reported in the literature [2-5].

We summarized the characteristics of five patients with TCC of the renal pelvis and metastasis to the skin (Table 1, 2). The median age of these patients was 68 years. Three patients were male and two patients were female. Their pathological stage and grade were unclear. Four patients, excluding ours, underwent radical nephroureterectomy before the metastasis to the skin. Two patients received adjuvant therapy, one received chemotherapy, and one received a combination of radiation and chemotherapy. The median interval from surgery to metastasis was 22.5 months (range, 2 - 48 months).

Metastasis to the skin occurs as a result of direct infiltration and lymphatic or hematogenous dissemination. Carcinomas of the breast and oral cavity often involve the locoregional skin through lymphatic routes. Other carcinomas often involve any area of the skin, including sites distant from the primary tumor, as a result of hematogenous dissemination [6].

We did not identify the pathological mechanism of metastasis in our case. However, there were multiple and distant subcutaneous metastases, including in the head. Hematogenous dissemination may play an important role in metastasis.

The pattern of the metastatic skin lesions varied; three were nodules, one was zosteriform metastasis, and one comprised vascular-appearing nodules.

TCC of the renal pelvis metastasized to various areas of the skin, specifically the shoulder, chest, back, abdomen, limbs, and arm.

All patients except ours had multiple metastatic lesions in various organs: the brain, lung, lymph node, liver, and contralateral kidney.

In the present case, we could not obtain specimens from the primary lesions. Immunohistochemical staining was required to determine the primary origin. The differential expression of CK7 and CK20 is useful in the differential diagnosis of various metastatic carcinomas of epithelial origin. TCC commonly demonstrates both CK7 and CK20 positivity [7, 8]. Pancreatic carcinoma, cholangiocarcinoma, and some gastric carcinomas also commonly show co-expression of CK7 and CK20 [8]. These carcinomas must be excluded by diagnostic imaging.

Therapeutic treatment for TCC of the renal pelvis with metastasis to the skin was limited. Two patients received chemotherapy, and one received a combination of radiation and chemotherapy. After the metastasis to the skin was diagnosed, their median survival time was only 2 months (range, 1 - 10 months). Skin metastases may be a sign of a poor prognosis. However, one patient who received chemotherapy and radiation therapy remained stable for 10 months. Although no effective treatment can be recommended, we may attempt early commencement of chemotherapy because it provides a chance to control disease. If metastatic lesions are localized, additional radiation therapy may be worth consideration.

Unfortunately, if performance status is so bad that patients cannot receive any therapeutic treatment, patients or their families should be informed about their extremely poor prognosis so that they may choose how they spend the rest of their life and receive optimal palliative care.

Conflicts of Interest

None declared.

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