CASE REPORT

Case Study

Cutaneous Renal Cell Carcinoma

CE 1.5 Contact Hours

Emily Reynolds, Kelly Noska

ABSTRACT: Cutaneous renal cell carcinoma is a rare finding in the outpatient dermatology clinic. This case portrays an uncommon presentation of cutaneous metastases and provides an overview of the epidemiology and clinical presentation of cutaneous renal cell carcinoma. It also highlights the need to consider cutaneous metastases as a diagnosis in patients, especially those with known underlying malignancies.

Key words: Cutaneous Metastases, Cutaneous Renal Cell Carcinoma, Skin Malignancy, Skin Manifestations Cancer

CASE PRESENTATION

In February 2013, an 81-year-old man presented to his primary care provider with a palpable right supraclavicular lymph node. His past medical history was significant for hypertension, hyperlipidemia, benign prostatic hyperplasia (BPH), and polymyalgia rheumatica as well as melanoma in situ on the right tibia status post excision in 2011. He underwent fine needle aspiration biopsy of the enlarged lymph node, which was equivocal. Subsequently, a core biopsy was performed in May 2013, which led to the diagnosis of metastatic papillary renal cell carcinoma (RCC). Further workup at that time included a PET CT, which showed metastases to the bilateral supraclavicular, bilateral axillary, mediastinal, and hilar nodes as well as the retroperitoneal, pelvic, and inguinal nodes. The patient was initially treated for his RCC with temsirolimus, but the drug was discontinued because of toxicity, including edema and shortness of breath. He was then given sunitinib, which he continued until the summer of 2014 when the treatment was again changed to axitinib. He was followed closely by oncology, and despite known extensive metastatic disease, the patient's condition had remained stable since the time of diagnosis. There were no significant changes on the repeat PET CT scans from the time of diagnosis in 2013 through April 2015, which showed stable disease without obvious radiologic progression.

During a follow-up with oncology in June 2015, it was noted that the patient had developed nodules within his core biopsy scar on the right supraclavicular area, and he was referred to dermatology for evaluation.

Dermatology Visit 1

The patient was seen initially in the outpatient dermatology clinic in June 2015. He reported that the nodular lesions on the right supraclavicular area had been present for about a year. However, the nodules had recently become firm and tender. The site was otherwise asymptomatic, and he denied any associated itching or bleeding. At the time, the patient denied any other skin lesions or concerns and declined a full skin examination. Therefore, the initial physical examination was limited to the right supraclavicular region and right anterior tibia. Examination revealed a well-healed pink linear surgical scar on the right supraclavicular area with a 4-mm firm dermal papule located on the lateral border of the scar, a 1-cm firm dermal plaque within the central portion of the scar, and a similar-appearing 1-cm firm dermal plaque on the medial border of the scar (Figure 1). Surrounding erythema was noted; however, no fluctuance, warmth, or tenderness was present. The melanoma excision site on the right anterior tibia was well healed without evidence of recurrent pigmentation or nodularity.

A biopsy was recommended from the right supraclavicular area. Differential diagnoses included cutaneous metastatic RCC, metastatic melanoma, cyst, and foreign body reaction. A punch biopsy was taken from the right supraclavicular area within the lateral portion of the scar where the firm papule was noted. He was instructed to return in 2 weeks for suture removal.

The pathology revealed:

Dx: Infiltrative carcinoma with a papillary component, consistent with a clinical history

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FIGURE 1. Punch biopsy of the right supraclavicular area.

of metastatic renal cell carcinoma to skin. Lymphatic (small vessel) invasion present. On immunostaining x 4, the tumor was positive for CK7, PAX8 and PAX2; and it was negative for CK20.

Dermatology Visit 2

When the patient presented 2 weeks later for suture removal, he complained of an itchy rash in the groin that had developed since his last visit to dermatology as well as small bumps on the pelvis and groin that had been present for about a month. He treated the rash initially with over-the-counter antifungal cream at the recommendation of his oncologist with no improvement. He also reported a rash on the left flank, abdomen, and lateral back (Figure 2), which had been present for 6 months and had been examined by his oncologist in the past with the presumed diagnosis of tinea. The patient reported that the flank rash was completely asymptomatic and unchanged over time, which he explained was the reason it went unreported at his initial visit. He had not treated this rash with anything. Review of systems revealed shortness of breath, scrotal edema, and lower extremity edema. Upon questioning, it became clear that the scrotal edema and lower extremity edema were chronic ongoing side effects of his chemotherapy and internal RCC metastases. He had recently been evaluated by urology for the scrotal edema and was referred back to oncology for his shortness of breath and lower extremity edema.

A full skin examination was performed and revealed an erythematous to violaceous, diffuse macular and papular rash with a well-defined border extending from his mid-abdomen across his left flank and to his left posterior trunk slightly crossing the midline. There were several 1- to 2-mm pink to erythematous papules throughout the involved area, mostly along the superior and mid-left flank area. A potassium hydroxide preparation was performed and was negative for hyphae. There was also diffuse macular erythema without scale over the anterior pelvic area (Figures 3 and 4), inguinal folds bilaterally. On the mid to lower pelvis were multiple scattered 2- to 5-mm dusky to dark pink slightly firm smooth papules (Figure 5). A KOH of this area was performed and was also negative. There was no involvement of the gluteal folds. Significant bilateral lower extremity, suprapubic, and scrotal edema was present. There was no scaling or erythema suggestive of dermatophyte infection on the hands or feet bilaterally. There was palpable lymphadenopathy noted in the bilateral axilla, which was consistent with his previous PET/CT findings. Biopsy site on the right supraclavicular area was well approximated without signs of secondary infection and appeared to be healing well. Nodules noted within the medial, lateral, and central portions of the scar, as previously described, remained unchanged.

Differential diagnoses for the rash on the left flank included hypersensitivity reaction (including drug reaction), cutaneous metastases of RCC, and atypical presentation of zoster given the unilateral distribution. The differential diagnoses for the pelvis included cutaneous metastases of RCC, hypersensitivity reaction, and molluscum. Punch biopsies were taken from the left flank and pelvis. The pathology revealed:

Punch biopsy, left flank (Figure 2): Dx: Metastatic carcinoma consistent with metastasis from the patient's known papillary renal carcinoma, present at margin. Note: Immunoperoxidase studies PAX 8 and cytokeratin 7 are positive while cytokeratin 20 and PAX 2 are negative

Punch biopsy, pelvis (Figure 3):

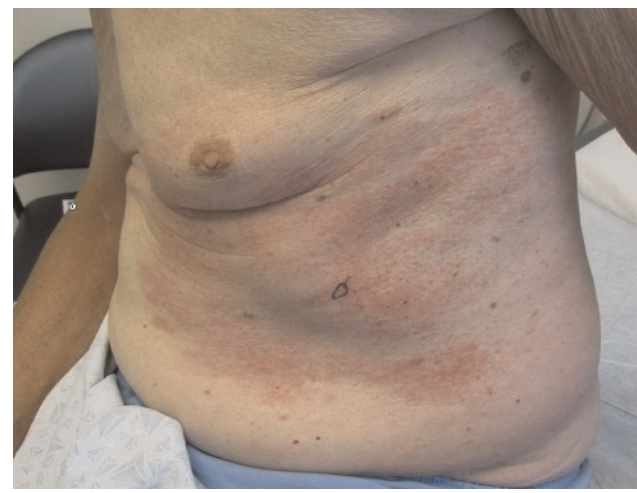

FIGURE 2. Skin, punch biopsy, left flank.

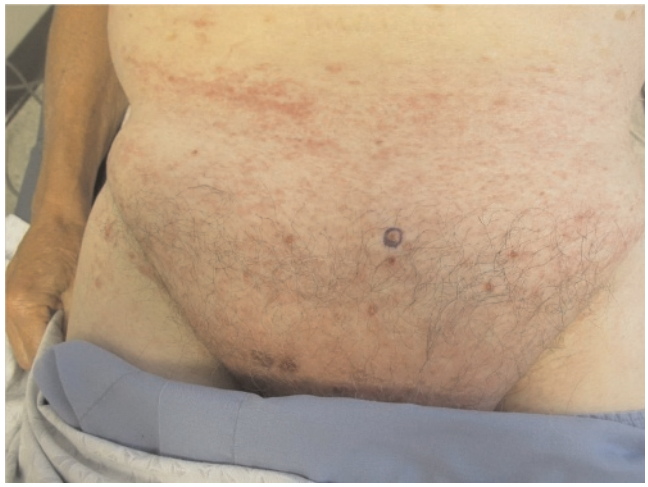

FIGURE 3. Punch biopsy of the pelvis.

Dx: Metastatic carcinoma consistent with metastasis from the patient's known papillary renal carcinoma, present at margin. Note: Immunoperoxidase studies PAX 8 and cytokeratin 7 are positive while cytokeratin 20 and PAX 2 are negative

Management and Outcome

The patient was treated symptomatically with topical emollients and menthol containing anti-itch lotion for associated pruritus, which did provide some relief. The patient was referred back to oncology for management of widespread cutaneous metastases and worsening disease despite stable findings on PET CT. The patient's treatment was stopped because of disease progression, and he was eventually transitioned to hospice care.

BACKGROUND AND CLINICAL PRESENTATION OVERVIEW

According to the National Cancer Institute, RCC ranks as the ninth most common cancer and makes up 3.7% of all cancers in the United States. It is twice as prevalent in men between the ages of 50 and 70 years and will account for 14,000 deaths in 2015 (Howlander et al., 2015). At the time of diagnosis, many patients already have metastatic disease, mostly to internal organs. However, cutaneous RCC is relatively rare and occurs in only about 3%–6% of all patients with renal cell cancer (Koga et al., 2000; Molgó, Abarzúa, Giesen, & González, 2015; Williams & Heaney, 1994). Furthermore, cutaneous metastases can easily be overlooked as the clinical presentation often mimics other skin disorders such as basal cell carcinoma or pyogenic granuloma (Nibhoria, Tiwana, Kaur, & Kumar, 2014). The most common site for cutaneous RCC metastases is debatable. Dorairajan et al. (1999) found that the scalp was the most typical site of cutaneous RCC metastases in 50% of cases. However, Koga et al. (2000) reported that 40% of cutaneous metastases occurred on the trunk, followed by the 25.3% to the scalp. The neck and extremities are also common sites. By and large, cutaneous RCC found at the time of diagnosis of primary disease or cutaneous findings as the initial presenting complaint is extremely rare (Dorairajan et al., 1999).

The clinical presentation of cutaneous RCC is typically a single lesion, commonly in the form of a violaceous nodule, papule, plaque, or polypoid lesion. It often is mistaken for a pyogenic granuloma, a hemangioma, or a basal cell carcinoma (Kassam, Tiong, Nigar, & Kumar, 2013; Molgó et al., 2015).

Metastatic cutaneous RCC has been described after nephrectomy in 20%–50% of cases and as many as 9 years after nephrectomy and treatment of RCC (Terada, 2012). The finding of cutaneous RCC is a poor prognostic indicator. It is a late sign of disease with a relatively low survival rate, on average, of 6–7 months after diagnosis (Dorairajan et al., 1999; Mahmoudi, Kamyab, & Daneshpazhooh, 2012; Molgó et al., 2015).

DISCUSSION

The case study described above was a unique presentation of cutaneous RCC. This patient showed widespread extensive cutaneous involvement with multiple morphologies. It is most common for patients to present with a single lesion on one area of the body. This patient had both a macular, papular, and nodular component on his clavicle, groin, and trunk. On review of literature, there were no other case study presentations of cutaneous RCC identified with a similar extensive involvement. This case highlights the importance of considering cutaneous metastases of an underlying malignancy, especially in patients who have an active or past diagnosis of cancer. In this case, the groin rash was initially treated by his oncology team with a topical antifungal. This is understandable given that he also had significant scrotal swelling as a side effect of his prior immunotherapy and general decompensation,

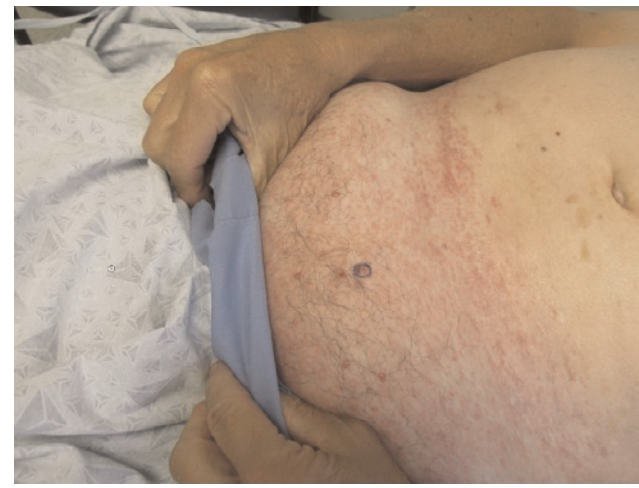

FIGURE 4. Anterior pelvis macular papular rash.

FIGURE 5. Close up of the dusky to pink firm, smooth papules on the pelvis.

which further complicated the clinical presentation. However, when the rash did not respond to antifungal treatment as expected, expanding the differential to include other diagnoses including cutaneous metastases in at-risk patients is an important consideration. This case is also a reminder of the importance of asking patients with diagnoses of internal malignancies about any rashes, skin lesions, or skin changes during their routine skin examinations and follow-up visits. In addition, the significance of performing a full skin examination and the additional findings that may be easily hidden by clothing is illustrated in this case study. The patient initially denied the presence of any skin problems other than the lesions within his scar on his first dermatologic examination. Upon returning to the clinic, he admitted to having lesions in the groin area for a month and a rash on the flank for about 6 months. An earlier discovery of his cutaneous involvement would most definitely not have changed his overall prognosis or treatment course. However, in the case of an otherwise healthy patient, an early cutaneous metastasis discovery could be life altering. ■

REFERENCES

Dorairajan, L., Hemal, A., Aron, M., Rajeev, T., Nair, M., Seth, A., … Gupta, N. (1999). Cutaneous metastases in renal cell carcinoma. *Urologia Internationalis*, *63*, 164–167.

Kassam, K., Tiong, E., Nigar, E., … Kumar, M. (2013). Case report: Exophytic parietal skin metastases of renal cell carcinoma. *Case Reports in Dermatological Medicine*, *2013*, 196016. Retrieved from http://dx.doi.org/10.1155/2013/196016

Koga, S., Tsuda, S., Nishikido, M., Matsuya, F., Saito, Y., … Kanetake, H. (2000). Renal cell carcinoma metastatic to the skin. *Anticancer Research*, *20*(3B), 1939–1940.

Mahmoudi, H. R., Kamyab, K., & Daneshpazhooh, M. (2012). Cutaneous metastasis of renal cell carcinoma: A case report. *Dermatology Online Journal*, *18*(5), 12.

Molgó, M., Abarzúa, Á., Giesen, L., & González, S. (2015). Nasal tumoral lesion: Challenge. Cutaneous metastasis of renal cell carcinoma. *American Journal of Dermatopathology*, *37*(5), 405.

Nibhoria, S., Tiwana, K., Kaur, M., & Kumar, S. (2014). A Clinicopathological and immunohistochemical correlation in cutaneous metastases from internal malignancies: A five-year study. *Journal of Skin Cancer*, *2014*, 793937. http://dx.doi.org/10.1155/2014/793937

Terada, T. (2012). Cutaneous metastasis of renal cell carcinoma: A report of two cases. *International Journal of Clinical and Experimental Pathology*, *5*(2), 175–178. www.ijcep.com /ISSN: 1936-2625/IJCEP1201006.

Williams, J. C., & Heaney, J. A. (1994). Metastatic renal cell carcinoma presenting as a skin nodule: Case report and review of the literature. *Journal of Urology*, *152*(6, Pt. 1), 2094–2095.