Coexistent metastatic melanoma of the kidney with unknown primary and renal cell carcinoma

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SUMMARY

In this report, we present an African-American female patient who presented with haematuria to her primary care physician. The symptoms persisted and coexistent metastatic spindle cell-type melanoma of the kidney and renal cell carcinoma were discovered on further evaluation. No primary site for melanoma was identified. Despite aggressive treatment with ipilimumab, the patient's disease progressed quickly. The patient opted for palliative care and was referred to a hospice. Coexistent melanoma and renal cell carcinoma is exceedingly rare. Melanoma itself is rare in the African-American population. However, when it does present, it usually is at an advanced stage, as was the case in our patient. Since no primary tumour site for melanoma was found and the diagnosis was made after the tumour had metastasised, we think this case highlights the importance of cutaneous cancer surveillance in the non-Caucasian population. Earlier identification of melanoma in this population will help to improve outcomes.

BACKGROUND

Coexistent melanoma and renal cell carcinoma (RCC) are exceedingly rare. When observed, it has been reported in the Caucasian population. In this report, we present an elderly African-American female patient with coexistent metastatic spindle cell-type melanoma of the kidney and renal cell carcinoma. Since no primary tumour site for melanoma was found and the diagnosis was made after the tumour had metastasised, this case highlights the importance of cutaneous cancer surveillance in the non-Caucasian population. Earlier identification of melanoma in this population will help to improve outcomes. Moreover, it shows the need to identify other genetic and environmental aetiologies that might be important in malignant melanoma (MM) in non-Caucasian populations. These studies will provide biomarkers for earlier diagnosis and also drug targets for better treatment of MM in the non-Caucasian population.

CASE PRESENTATION

Our patient was an African-American female patient who presented to her primary care physician with a 3-week history of gross haematuria. Antibiotics were prescribed for presumed urinary tract infection. However, her symptoms persisted and she was noted to have a palpable abdominal mass on follow-up.

INVESTIGATIONS

On abdominal and pelvic imaging with CT scan, the patient was found to have lesions in the right kidney

and in the liver that were suspected for malignancy. Ultrasound imaging of the right kidney revealed an 8.8×8.0×9.0 cm right lateral mass with peripheral hypervascularity and a 7.1×6.1×6.5 cm mass in the right mid-pole (see figure 1). Immunohistochemical evaluation of biopsy specimens from the two sites revealed two distinct neoplasms. The right lateral mass was positive for tumour markers consistent with primary renal cell carcinoma: CK7, CD10 and CK20 (see figure 2). The right medial mass was positive for Mart/Mel, a marker for malignant melanoma (see figure 3). In addition, melanoma metastasis was found on the liver biopsy specimen, which displayed Mart/Mel and S100 positivity. Ophthalmological and dermatological evaluations were performed to identify a primary melanoma site. A subcutaneous nodule on the right medial shin was discovered on full-body skin exam. Spindled melanocytes that stained positively for S100, consistent with melanoma, were observed on histopathological examination. However, this lesion was not thought to be the primary site because it did not have an epidermal connection.

OUTCOME AND FOLLOW-UP

Despite aggressive treatment with ipilimumab, the patient's disease progressed quickly within weeks and the patient opted for palliative care and was referred to a hospice.

DISCUSSION

MM arises from uncontrolled proliferation of melanocytes and accounts for an estimated 2% of all

Figure 1 CT scan of the abdomen and pelvis revealing two renal masses.

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Figure 2 Right lateral renal mass histology consistent with primary renal cell carcinoma. (A) H&E, $\times 20$, (B) CD10, $\times 20$ and (C) CK7, $\times 20$.

Figure 3 Right medial renal mass histology consistent with metastatic melanoma. (A) H&E, $\times 20$ and (B) Mart/Mel, $\times 20$.

cancers. It is known that patients with melanoma have a higher risk of developing cutaneous malignancies (both melanoma and non-melanoma skin cancers) as well as non-cutaneous malignancies.^{1–3} However, the development of both melanoma and RCC in the same patient is a rare event.⁴ Previous studies have showed rates of MM+RCC of 0.5% in patients with MM and 1% in patients with RCC.⁵

Coexistence of multiple tumours may be due to a genetic mutation that predisposes to malignancies or a defective immune system.⁶ Previous reports of coexistence of MM and RCC suggest that it is seen in the Caucasian population who are also at higher risk for developing cutaneous malignancies: those with lighter skin and eye colour, red hair, sun-sensitivity and a family history.⁵ Our patient, an African-American female patient was not of this demographic, did not have a family history of melanoma or renal cell carcinoma, nor was she immunocompromised. Thus, it is likely that our patient had heterogeneous aetiologies leading to the development of melanoma and renal cell carcinoma.

Melanoma is rare in the African-American population, but when identified, it is usually at a very advanced stage, as was the case in our patient.⁴ Since no primary tumour site for MM was found and the diagnosis was made when the tumour had already metastasised, this case highlights the importance of cutaneous cancer surveillance in the non-Caucasian population. Moreover, it underscores the need to find genetic and environmental aetiologies that might be important in the development of melanoma in the non-Caucasian population. These studies may provide specific biomarkers to aid in the earlier diagnosis or lead to the identification new drug targets, which will improve outcomes of melanoma in the non-Caucasian population.

Learning points

- ▶ Though less common, when melanoma presents in the African-American population it tends to be more aggressive and is detected at later stages, leading to high mortality rates.
- ▶ Cutaneous cancer surveillance in the non-Caucasian population is important to diagnose melanoma at earlier stages to improve patient outcomes.
- ▶ There is a need to find more specific biomarkers in cases of coexistent tumours like metastatic melanoma and renal cell carcinoma.

Competing interests None.

Patient consent Obtained.

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