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Cutaneous Metastasis of Renal Cell Carcinoma to the Cheek: A Case Report and Literature Review

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Conflict of interest: None declared

Patient: Male, 72-year-old
Final Diagnosis: Renal cell carcinoma
Symptoms: Mass
Medication: —
Clinical Procedure: —
Specialty: Surgery

Objective: Unusual clinical course

Background: Cutaneous metastasis of renal cell carcinoma is exceedingly rare, and there are few described cases of metastasis to the skin of the head and neck region. Most of these cases describe metastases to the scalp, but some cases of metastases to the face and neck have been reported.

Case Report: A 72-year-old man presented to the Surgery Clinic with a chief complaint of a lesion that had grown on his left cheek over a period of about 3 months. A punch biopsy revealed the mass to be metastatic renal cell carcinoma, clear-cell subtype. The patient had already had a nephrectomy for primary tumor control. Due to the advanced disease process, the patient elected for palliative care.

Conclusions: Cutaneous presentations of renal cell carcinoma in the head and neck are exceptionally rare, and metastases to the face are less common than metastases to the scalp. When this disease process does occur, it often presents as a raised mass of between 1 and 3 cm with a red, red-purple, or red-blue color. Patient history often reveals a relatively rapid growth process of their facial lesion. This case highlights the fact that malignancies may manifest several years after initial primary resection.

Keywords: Carcinoma, Renal Cell • General Surgery • Head and Neck Neoplasms • Neoplasm Metastasis • Surgery, Oral • Surgery, Plastic

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Background

Renal cell carcinoma (RCC) is the most common type of primary renal cancer, and clear-cell is the most common subtype. However, cutaneous metastasis is exceedingly rare, and there are only a few case reports of metastasis to the skin of the head and neck region. Most of these cases describe metastases to the scalp, but some cases of metastases to the face and neck have been reported. This case report aims to describe the etiology of this unusual lesion and provide background on this particular manifestation.

Case Report

A 72-year-old man with a past medical history of type 2 diabetes, hypertension, hyperlipidemia, prostate cancer treated with radical prostatectomy, and known clear-cell RCC presented to the Surgery Clinic with a chief complaint of a mass on his left face. He was a lifelong nonsmoker and nondrinker. Three years prior to this visit, the RCC was treated with radical left nephrectomy, which was an R0 (negative margin) resection. The primary tumor was found to be 6×7×8 cm, unifocal, with extension into the renal sinus. The primary tumor had very irregular nuclei, with large and prominent nucleoli, for a Fuhrman nuclear grade of G3, with focal (<5%) grade G4 due to a small area of bizarre and multilobed nuclei. Two years later, the patient developed metastases to the lungs, which were treated with bilateral video-assisted thoracoscopic surgery with wedge resection, also with negative margins. A year later, he presented to the clinic with the above chief concern.

Further patient questioning revealed that the mass had been present for about 3 months, with a gradual increase in size. In addition, physical examination revealed 2 masses (5×4 cm and 2.5×2 cm) in his right gluteal region and a 2×2 cm lesion in the left humerus. The lesions were nonfriable cutaneous nodules with no overlying skin changes. On head and neck examination, a dome-shaped indurated mass of approximately 2×2 cm was seen involving the skin overlying the left maxilla and zygomatic regions. The inferior region of the mass was friable, and the entire mass had a reddish tinge. There was no surrounding erythema, and the patient denied pain or paresthesia in this area (Figures 1, 2). The appearance of the lesion was similar to several descriptions of RCC cutaneous metastasis described in other case reports. The mass was biopsied via the punch technique, and histopathological examination showed metastatic RCC, clear-cell subtype, as evidenced by large cells with prominent nucleoli, clear cytoplasm, and distinct, thin cell borders arranged in nests and tubules (Figures 3, 4).

A subsequent positron emission tomography scan showed disseminated hypermetabolic pulmonary metastatic disease



Figure 1. Frontal view of the lesion. The lesion was approximately 2×2 cm, dome-shaped, with a reddish tinge and friable tissue, especially on the inferior aspect of the lesion.



Figure 2. Close-up view of the lesion.

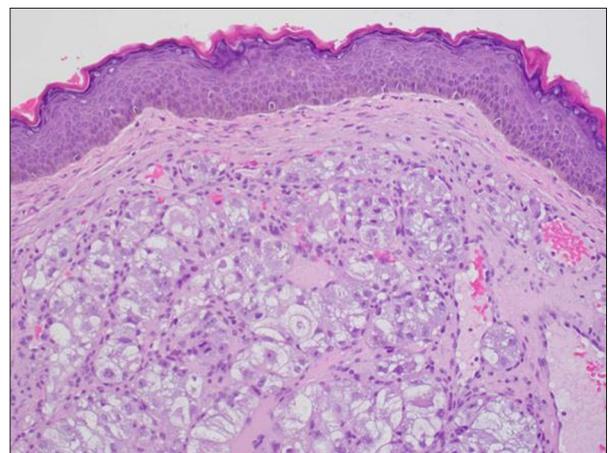


Figure 3. Skin punch biopsies with large cells with prominent nucleoli, clear cytoplasm, and distinct, thin cell borders arranged in nests and tubules, consistent with clear-cell renal cell carcinoma, ×20 magnification. The primary tumor was found to have very irregular nuclei, with large and prominent nucleoli.

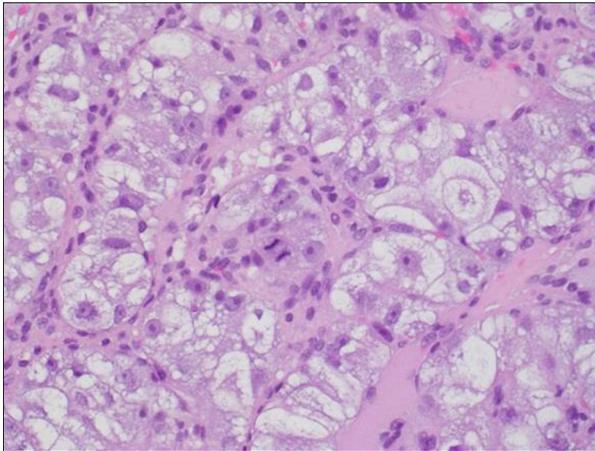


Figure 4. Skin punch biopsies with large cells with prominent nucleoli, clear cytoplasm, and distinct, thin cell borders arranged in nests and tubules, consistent with clear-cell renal cell carcinoma, $\times 40$ magnification. The primary tumor was found to have very irregular nuclei, with large and prominent nucleoli.

with innumerable bilateral pulmonary nodules, hypermetabolic left pleural soft tissue thickening with associated destruction of the left posterior eighth rib consistent with metastatic disease, and uptake in the above lesions. Given the findings, the malignancy was staged as pT3aNxM1, with an International Metastatic RCC Database Consortium risk score of intermediate. The oncology team initially offered chemotherapy with axitinib and pembrolizumab, which are both targeted chemotherapy medications. However, due to the advanced nature of his condition, the patient elected for palliative care services. He died approximately 6 months later.

Discussion

RCC represents 2-3% of solid malignancies and represents between 80% and 90% of primary renal tumors in adult patients [1-3]. As stated above, clear-cell is the most common subtype of RCC [1]. Metastasis is not uncommon, and due to the deep location of the primary tumor, the malignancy may only be diagnosed after it has invaded local or distant structures. Around one-third of patients with RCC first present with metastatic disease [4]. A study of 11 157 patients with metastatic RCC found the most common sites of metastasis to be, in descending order, lung (found in 45.2% of patients), bone (29.5%), lymph nodes (21.8%), liver (20.3%), adrenal gland (8.9%), and brain (8.1%) [5].

Cutaneous metastasis of RCC is rare, with a reported incidence of 3.4% of all RCC metastasis sites [6]. With regard to the head and neck, a report on 111 cases of RCC that metastasized to this region found, in descending order, the most common sites of

metastases to be sinonasal, cervical lymph node, skin, tongue, parotid, and thyroid [7]. Of cutaneous metastases to the head and neck, lesions manifest themselves most often in the scalp and neck, as has been reported in the literature and is seen on review of similar case reports [2-4,8-13]. In a case series at a single institution, 10 of 306 cases of RCC were found to be cutaneous metastases. Five of 10 presented in the scalp, and none in the face [13].

In the cases of cutaneous RCC to the head and neck region that we reviewed, most lesions were found to be shades of red, purple, blue, or a combination of the 3, although brown has also been reported [2-4,8-10,13-16]. The range of size was 0.5-4.5 cm. Most cases of cutaneous metastasis of RCC are reported to occur in men and are of the clear-cell subtype, as was the case with our patient [16].

Depending on the presentation, treatment of RCC may include surgical resection, targeted chemotherapy/radiotherapy, or palliative care [2,4,8,10]. Unfortunately, the average lifespan of patients who present with RCC skin metastases is approximately 6 months [2,10]. However, there has been a report of several disease-free years after first presentation of facial cutaneous RCC metastasis. The hypothesis in this case was that the patient presented with only 1 cutaneous metastasis and was swiftly treated [4].

The fact that our patient's lesion appeared several years after his nephrectomy is important. An implication of this case is that clinicians must be cognizant that malignancies may manifest several years after primary resection. With regard to RCC and cutaneous facial metastases, future research may investigate the timing of resection in relation to primary presentation.

While cutaneous lesions of the face are common, clinicians must be aware of certain features that may be signs of a more serious disease process. Characteristics that may help to determine the etiology of a lesion include recent growth, pigmentation, and areas of high probability. Several types of cutaneous lesions occur on the face, and as such, the differential diagnosis of our patient's lesion was broad prior to biopsy. Common benign lesions of the skin include acrochordon, cherry angioma, dermatofibroma, epidermal inclusion cyst, keratoacanthoma, lipoma, pyogenic granuloma, sebaceous hyperplasia, and seborrheic keratosis [17]. Common malignant lesions of the skin include basal cell carcinoma, squamous cell carcinoma, and melanoma [18]. Merkel cell carcinoma is a neuroendocrine tumor that is worth mentioning. It has a similar appearance to the lesion seen in our patient (rapid growth, painless, firm, shiny, and flesh to bluish-red color), with approximately 1 in 3 cases presenting in the head and neck [19]. Given our patient's past medical history of prostate cancer, metastasis from prostate malignancy was also a possibility. One reported

case describes metastatic prostate cancer presenting as an asymptomatic neck mass. However, such cases are exceedingly rare and manifest in the lymph nodes rather than the cutaneous tissue [20].

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Conclusions

Cutaneous presentations of renal cell carcinoma in the head and neck are exceedingly rare, and metastases to the face are less common than metastases to the scalp. When this disease process does occur, it typically presents as a raised mass of between 1 and 4 cm in size, with a red, purple, or blue color, or some combination thereof. This disease process has been shown to have a male predominance and most often occurs with the clear-cell subtype.