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Case Report

Metastatic laryngeal carcinoma mimicking eruptive keratoacanthomas: report of keratoacanthoma-like cutaneous metastases in a radiation port

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Abstract

Metastatic skin lesions from a primary squamous cell carcinoma of the head and neck have only been reported in 1%–2% of these patients. Hence, skin metastases from laryngeal carcinoma are uncommon. Also, cutaneous metastases clinically presenting as a keratoacanthoma are rare. We describe cutaneous metastases in a radiation port clinically mimicking eruptive keratoacanthomas. Using the PubMed database, an extensive literature search was performed using the keywords cancer, carcinoma, keratoacanthoma, laryngeal, metastases, metastasis, metastatic, mimicking, port, radiation, radiotherapy, radiation, skin, visceral. We were able to summarize the features of patients with keratoacanthoma-like cutaneous metastases and discuss radiation port cutaneous metastases. Cutaneous metastases can be the initial manifestation of a previously undiagnosed malignancy or can present in a patient with an established diagnosis of cancer. Our patient not only developed skin metastases that mimicked eruptive keratoacanthomas, but to the best of our knowledge, is the first individual to develop radiation port cutaneous metastasis from a primary laryngeal carcinoma. The development of cutaneous metastases in an area of skin that has been treated with radiation therapy may result from the treatment altering and/or injuring the site, thereby making it more susceptible to another condition, such as metastatic skin tumors. In patients with an established diagnosis of visceral malignancy, the appearance of new keratoacanthoma-like lesions should prompt the clinician to consider a biopsy in order to establish or exclude the possibility of a cutaneous metastasis.

Key words: skin cancer; metastatic carcinoma; keratoacanthoma; laryngeal; skin metastases; radiotherapy metastases

Introduction

Cutaneous metastases from laryngeal carcinoma are uncommon [1,2]. Indeed, metastatic skin lesions from a primary squamous cell carcinoma of the head and neck have only been reported in 1%–2% of these patients [3]. Similarly, cutaneous metastases clinically presenting as either a solitary keratoacanthoma or multiple keratoacanthomas are rare [4-6]. We describe a man with laryngeal carcinoma who developed cutaneous metastases in his radiation port that clinically mimicked eruptive

keratoacanthomas. We summarize the features of patients with keratoacanthoma-like cutaneous metastases and discuss radiation port cutaneous metastases.

Case synopsis

A 68-year-old man presented with painful enlarging skin lesions of 3 months duration on his neck and chest that would often bleed and drain purulent material. Nine months earlier he had been diagnosed with laryngeal squamous cell carcinoma. Initial management included a laryngectomy with radical neck dissection. He was receiving radiation therapy when the skin lesions appeared.

Cutaneous examination showed erythema that outlined the distribution of his radiation port. Within the radiotherapy area, which extended from the right side of his face to his mid chest, more than 10 flesh-colored to red nodules were noted. Several of the nodules were ulcerated. Some of the nodules were crateriform with keratin-filled central areas clinically suggestive of keratoacanthomas (Figure 1).

Microscopic examination of a biopsy specimen from a keratin-filled ulcerated nodule on his right chest showed aggregates of metastatic keratinizing squamous cells, extending from the deep reticular dermis to the papillary dermis without attachment to the overlying epidermis (Figure 2). Correlation of the clinical presentation and the pathology findings was diagnostic for multiple cutaneous metastases, morphologically mimicking keratoacanthoma, from a primary laryngeal squamous cell carcinoma.



Figure 1 (a and b). Distant (a) and closer (b) view of the face, neck and chest of a man with laryngeal carcinoma who is receiving radiation therapy. In addition to erythema that demarcates the boundaries and treatment area of his radiation port, there are numerous keratin-filled crateriform nodules, some with central ulceration and necrosis, scattered over these affected areas.

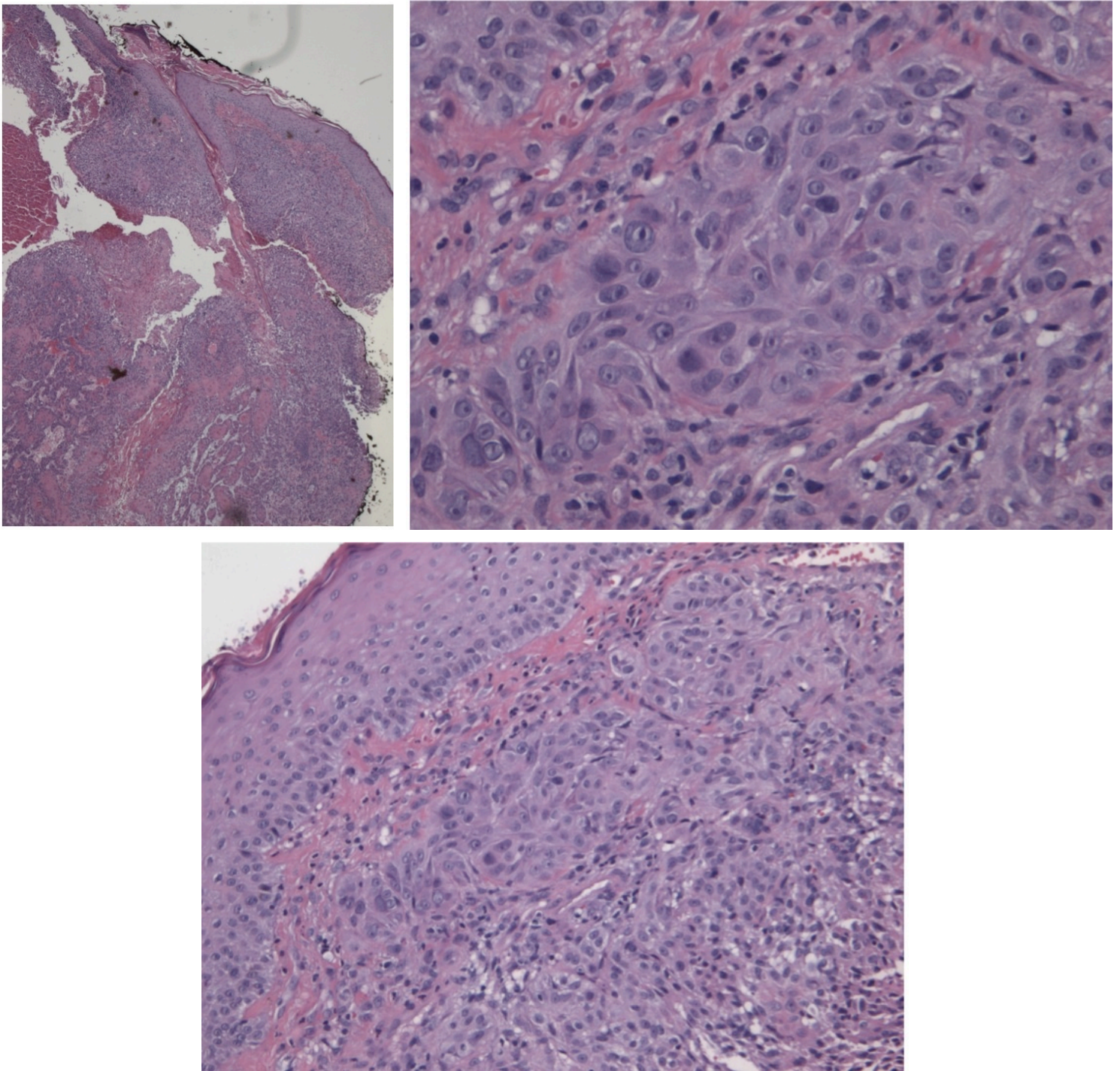


Figure 2 (a, b, and c). Low (a), medium (b), and high (c) magnification views of metastatic laryngeal squamous cell carcinoma: Low magnification (a) shows orthokeratosis and mild acanthosis of the epidermis with flattening of the rete ridges. There is perivascular lymphocytic inflammation in the papillary dermis. Extending from the deep reticular dermis to the papillary dermis are aggregates of metastatic tumor cells. Medium magnification (b) shows the tumor cells in the dermis, without attachment to the overlying epidermis; they consist of metastatic keratinizing squamous cells. High magnification (c) shows that the metastatic squamous cell carcinoma consists of cells with large and atypical nuclei (hematoxylin and eosin: a, X4; b, X10; and c, X20).

Discussion

Cutaneous metastases can be the initial manifestation of a previously undiagnosed malignancy or can present in a patient with an established diagnosis of cancer—either as progressive and treatment-refractory tumor or as an initial presentation of unsuspected recurrence of the neoplasm. Cutaneous metastases may develop via three possible mechanisms: direct extension owing to contiguous spread through tissue planes, local spread through dermal lymphatics with resultant implantation in the skin, and distant metastases as a result of hematogenous spread [4]. Cutaneous metastases from laryngeal carcinoma may present as non-tender firm nodules or sclerodermoid lesions; alternatively, they may mimic an inflammatory process [1]. Given our patient's history, in addition to coexisting radiation dermatitis, the differential diagnosis of his new skin lesions included not only eruptive keratoacanthomas, but also cutaneous metastases.

Cutaneous metastases mimicking keratoacanthoma are rare and have previously been described in only ten individuals. Including our patient, the individuals ranged from 53 to 79 years of age, the majority being men. In most of the individuals, the lesions were solitary, located on the lip, and associated with lung cancer. Cutaneous metastasis was the initial presentation in two patients. However, in the majority of individuals—similar to our patient—the keratoacanthoma-like metastases appeared within 3 to 24 months after the diagnosis of their visceral malignancy [4-6].

Similar to idiopathic keratoacanthomas, keratoacanthoma-like cutaneous metastases also presents with a rapid growth rate. It also portends a poor prognosis [6]. In the previously reported cases, 2 patients died within 2 months of presenting and 3 were being treated for progressive disease [4-6]. Only one patient was survived at 43 month follow up. Our patient is currently receiving palliative radiation therapy.

Multiple cutaneous metastases mimicking generalized eruptive keratoacanthomas of Grzybowski has only been described in a patient with metastatic melanoma [7,8]. The individual presented with numerous erythematous, crateriform nodules, some with central ulceration and crust. The figure legend accompanying a clinical photograph noted that the metastases presented "...as a keratoacanthomatous-like eruption on the trunk and upper extremity" [8]. The location of cutaneous metastases in our patient is likely to be related to the origin of his primary tumor, the location of his radiation port creating an immunocompromised cutaneous zone, or both.

Radiation port cutaneous metastases may be more common than the published literature would suggest. This phenomenon is most commonly observed in women with breast cancer in whom part of their management has included radiotherapy. However, metastases within the radiation port have also been observed in patients with other solid tumors originating from the anal, cervical, nasopharyngeal, gastric, uterine, and vulvar regions [9]. To the best of our knowledge, radiation port cutaneous metastasis from primary laryngeal carcinoma has not previously been described. The development of cutaneous metastases in the skin area treated with radiation therapy is postulated to be caused by the treatment altering and/or injuring the site, thereby making it more susceptible to another condition, such as metastatic skin tumors [9].

The immunocompromised district was originally described by Rucco et al [10] as an altered immune reaction, infection, or tumor in an area of skin that had been selectively targeted and immunologically changed secondary to either a reduction or induction of local effective immunity. The immunocompromised zone encompasses three types of skin responses: isomorphic, isotopic, and isoradiotopic [11]. When a preexisting cutaneous dermatosis occurs in a localized area with diminished resistance to disease, this is referred to as an isomorphic response [12]. An isotopic response, as originally described by Wolf and coauthors in 1995, relates to the development of a new cutaneous condition at the location of a previous and unrelated skin disease [13]. When ionizing radiation therapy is the source of injury to the skin, as in our patient, the subsequent isomorphic phenomenon that occurs is referred to as an isoradiotopic response [12,14,15].

Conclusion

Cutaneous metastases mimicking a keratoacanthoma are uncommon. Our patient with laryngeal carcinoma is unique. He developed cutaneous metastases in his radiation port that clinically mimicked eruptive keratoacanthomas. In patients with an established diagnosis of a head and neck visceral malignancy, the appearance of new keratoacanthoma-like lesions should prompt the clinician to consider a biopsy of the lesion in order to establish or exclude the possibility of a cutaneous metastasis.

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