



Skin Metastasis of Laryngeal Carcinoma Presenting as Multiple Eruptive Nodules

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Abstract

Metastasis of head and neck squamous cell carcinoma (SCC) to the skin of this region is extremely rare and reported in 1–2% of cases. The cutaneous metastases of head and neck cancers often present as multiple papulonodular lesions; however, sporadic cases of solitary or multiple keratoacanthoma-like lesions are reported. We describe a rare case of cutaneous metastases of laryngeal SCC presenting as multiple eruptive keratoacanthoma-like lesions with concomitant scrofuloderma in an area of previous radiotherapy.

Keywords Laryngeal neoplasms · Neoplasm metastasis · Scrofuloderma

Introduction

Metastasis of head and neck squamous cell carcinoma (SCC) to the skin of the head and neck is extremely rare and reported in 1–2% of cases [1]. Cutaneous metastases are most commonly observed on the trunk, and involvement of the face is exceptional [2]. Multiple papulonodular lesions are the most common presentation; however, sporadic cases of solitary or multiple keratoacanthoma-like lesions are described [3]. We report a rare case of metastatic laryngeal SCC presenting as multiple eruptive keratoacanthoma-like lesions of the skin with concomitant scrofuloderma in an area previously treated with radiotherapy.

Case Presentation

A 58-year-old woman received an in-hospital dermatology consult for newly developed papulonodular lesions of her face. She was previously admitted to the infectious disease unit due to a recent fever and draining ulcer of the lower neck. Her past medical history was significant for laryngeal SCC that was diagnosed 2 years prior and treated by chemoradiotherapy. A year following her cancer diagnosis, the patient had a palliative tracheostomy for severe dyspnea. Her condition was stable until 2 weeks prior to presentation when she developed a fever and tender, fluctuant mass of the lower neck. The mass further progressed into an ulcer with drainage. Based on these clinical findings as well as a positive tuberculin test, the patient was admitted to the infectious disease unit with the impression of scrofuloderma. One week after admission, papulonodular lesions appeared on her face, and a dermatology consultation was requested.

Cutaneous examination revealed multiple papulonodular lesions, some with central crusting, on the right side of the face, particularly localized to the neck and chin. The lesions ranged in size from 5 to 10 mm and resembled keratoacanthomas (Fig. 1). A discharging ulcer measuring 4 cm in diameter was present in the right lower triangle of neck.

A biopsy of a keratoacanthoma-like lesion of the chin was performed. Microscopic examination revealed large malignant cells with abundant eosinophilic cytoplasm, variable keratinization, and vesicular nuclei. These findings were

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Fig. 1 Multiple papulonodular lesions with central crusting in some lesions on the right side of the face

compatible with a poorly differentiated SCC (Fig. 2). Immunohistochemical stains showed strong positivity for CK5/6 and p63, confirming the diagnosis (Fig. 3).

On hospital admission, laboratory tests showed leukocytosis ($1470/\text{mm}^3$) and anemia (RBC $4.10 \times 10^6/\mu\text{l}$, HGB 11.0 g/dl). The levels of D-dimers, ESR, CRP, and LDH were elevated. Both PPD and interferon gamma release assays were positive. The neck lesion was also positive for *Mycobacterium tuberculosis* by polymerase-based chain reaction testing.

Unfortunately, the patient expired 10 days after admission in the infectious disease unit due to acute respiratory distress syndrome.

Discussion

Cutaneous metastases are uncommon, especially from internal organs, but their prevalence has increased due to longer patient survival with increasingly effective oncologic therapies [4]. Their presence portends a poor prognosis and, rarely, they may be the presenting sign of an internal malignancy [5]. The primary sites for SCC metastases in the head and neck region vary and include the oral cavity, oropharynx, supraglottic region, glottis, and hypopharynx [6]. Additional cases of skin metastases of head and neck cancers are summarized in Table 1.

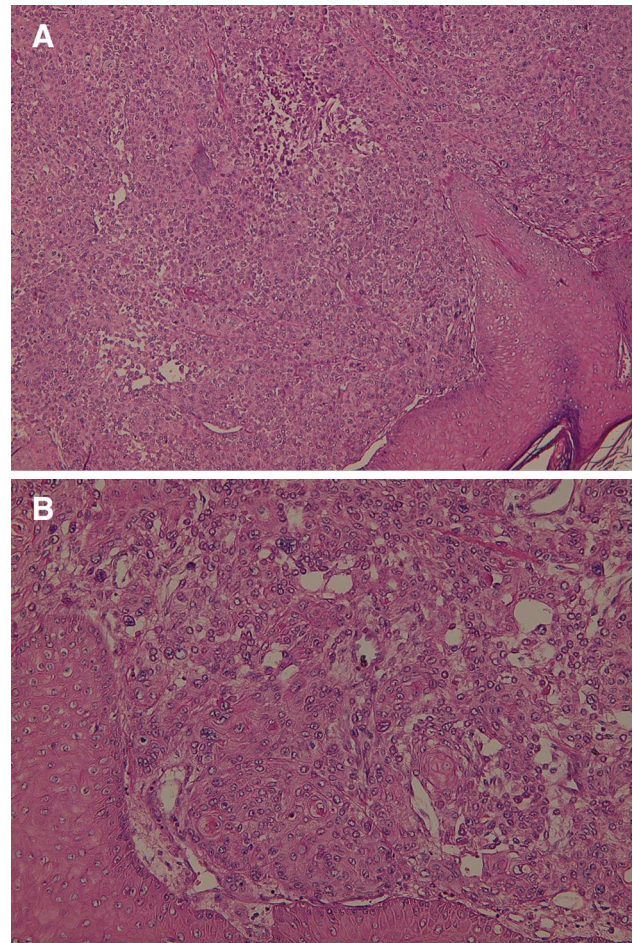


Fig. 2 **a** Low power $\times 100$ H&E staining; **b** High power $\times 400$ H&E staining: Large malignant cells with abundant eosinophilic cytoplasm, variable keratinization, and vesicular nuclei compatible with a poorly differentiated SCC

Breast carcinoma and melanoma most frequently metastasize to the skin in female patients while melanoma and carcinomas of the head and neck, lung, and colon are the most frequent sources of cutaneous metastases in men [7]. Among the common malignancies, breast carcinoma is the most likely and prostate carcinoma is the least likely to metastasize to the skin. Some of the less common carcinomas (e.g. renal cell carcinoma) also have a propensity for cutaneous metastases [7].

For tumors of the larynx, the most common sites of metastasis include lung, bone, and esophagus [8]. Involvement of the mediastinum, liver, and/or brain is less common [8]. Cutaneous metastasis from laryngeal cancer is uncommon and only a few cases are reported [9]. Most cases were in older males aged 58 to 75 and usually occurred within 2 years of the cancer diagnosis [10].

Skin metastases due to laryngeal carcinoma may appear as sclerodermoid lesions, non-tender firm nodules, or an

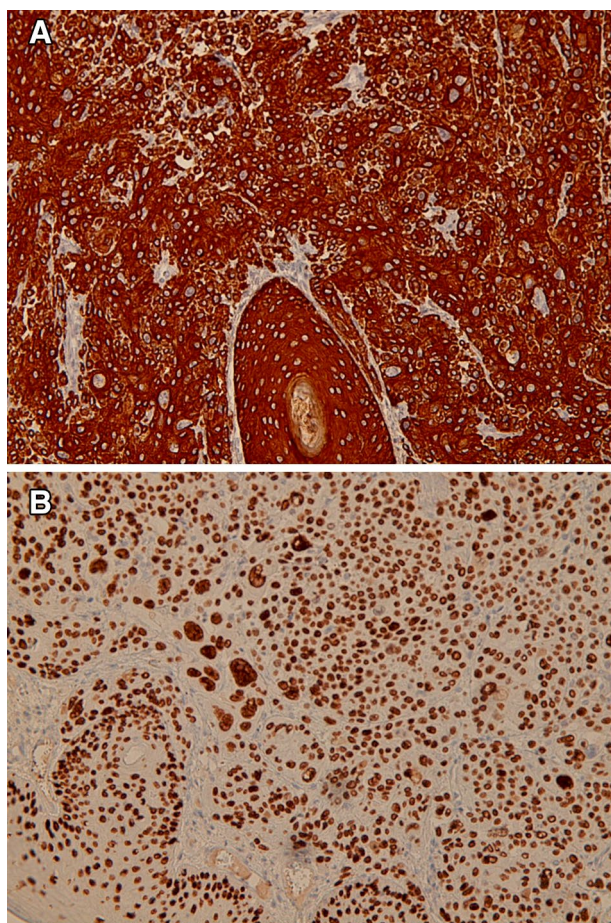


Fig. 3 Diffuse and strong positivity of tumor cells for CK5/6 (a) and P63 (b) supporting the diagnosis of SCC ($\times 200$)

inflammatory-like process [1]. They may be multiple or solitary painless nodules anywhere on the body but usually involve the head and neck region and/or trunk [11]. Additionally, cutaneous metastases may appear as keratoacanthoma-like lesions. The rapid growth of these lesions mimics idiopathic keratoacanthoma [3]. Other types of lesions, such as ulceroproliferative nodules, are also reported as the presentation of skin metastasis from SCC malignancies [9].

Cutaneous metastases in a radiation port from primary laryngeal carcinoma, similar to our patient, have been reported [1]. It is postulated that radiotherapy increases vulnerability of the region to other conditions such as cutaneous metastases or opportunistic infections. Ruocco et al. reported multiple “opportunistic” disorders including infectious, neoplastic, and immune processes which arose in an immunocompromised zone, such as an irradiated area, in a study in 2009 [12]. Even after the skin became clinically normal and the causative etiology resolved, the irradiated region remains permanently compromised [13]. The area with immunologic changes is referred to as an immunocompromised cutaneous district due to this phenomenon [14].

With increasing numbers of human papillomavirus (HPV)-mediated head and neck cancers, it is noteworthy to address the role of HPV in the progression of metastasis. It is reported that HPV-mediated SCCs of this region involve a greater number of sub sites and metastatic sites. Furthermore, metastases occur later after chemotherapy as compared to HPV negative disease [15].

Regardless of the origin, cutaneous metastasis carries a poor prognosis, hence treatment aims to relieve patients’ symptoms and improve their quality of life [6].

Table 1 Previously reported cases of “head neck cancer” metastasizing to skin

Year of publication	Age (years)/sex	Metastasis location	Type of lesion	Histopathological differential diagnosis	Underlying condition	Treatment	First author name reference number
2014	68 Male	Neck and chest	Keratoacanthoma-like cutaneous metastases	Metastatic SCC	Laryngeal SCC	Palliative therapy	Ellis [1]
2019	55 Male	Right hand and right forearm	Ulceroproliferative nodules with edema	Metastatic SCC	Supraglottic laryngeal cancer	Palliative radiotherapy	Trehan [9]
2019	65 Male	Chest wall	Ulceroproliferative nodules	Metastatic SCC	SCC of hypopharynx	Palliative therapy	Niharika [16]
1988	56 Male	Forehead and left arm	Reddish-purple nodules	Metastatic SCC	Laryngeal SCC	Palliative therapy	Veraldi [8]
2013	74 Male	Nasal tip	Round, discrete and painless nodules	Metastatic SCC	Hypopharyngeal Carcinoma	Chemotherapy, operation and radiation	Shindo [17]

Conclusion

Cutaneous metastasis of head and neck SCC is rare. We report the first case in which skin metastasis and scrofuloderma occurred simultaneously in a radiotherapy port. Due to the high prevalence of laryngeal cancers, we emphasize the importance of diagnosing cutaneous metastasis in infrequent sites.

Compliance with Ethical Standards

Conflict of interest The authors report no conflict of interest.

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