Case report

Multiple cutaneous metastases of oesophageal squamous cell carcinoma that mimic keratoacanthoma

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Abstract

Cutaneous metastases are a rare finding, and therefore frequently neglected. Among the possible clinical patterns of presentation, keratoacanthoma-like lesions are very infrequent and can be misrepresentative of the true diagnosis. We report a case of multiple cutaneous metastases of oesophageal squamous cell carcinoma affecting the scalp and neck that mimic keratoacanthoma. In spite of the typical clinical presentation, pathological findings corroborated the diagnosis of moderately differentiated squamous cell carcinoma. This case raises the possibility of such a clinical presentation being caused by haematogenous dissemination of distant site visceral tumours. Therefore, the differential diagnosis of multiple keratoacanthoma-like lesions should include metastases of distant site visceral malignancies.

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Introduction

Cutaneous metastases in patients with visceral tumours are rare, and therefore may be neglected. According to the literature, the prevalence of cutaneous metastases varies from 0.7% to 9%, and it has poor prognosis. Neoplasms that more often metastasize to the skin are those from the breasts, lungs, colon, and rectum. There are only a few reports of cutaneous dissemination of oesophageal cancers, with a prevalence of only 0.074%.

Clinical presentation of cutaneous metastatic lesions is variable, and they can manifest as erythematous papules, subcutaneous nodules, areas of alopecia (similar to alopecia areata), erysipeloid or zosteriform lesions, angiomatous lesions (mimicking pyogenic granuloma), and, more rarely, keratoacanthoma-like lesions.

Keratoacanthomas, first described in 1889 by Jonathan Hutchinson, are epithelial tumours of uncertain behaviour that are histologically similar to squamous cell carcinomas of the skin. Most commonly, they appear on sun-exposed areas in older patients. The typical clinical presentation is an erythematous solitary nodule with a keratin-filled centre and a rapid growth rate, usually of 4–6 weeks. Most keratoacanthomas spontaneously involute within a period of 6 months.

The morphologic evolution pattern of keratoacanthomas is characterized by 3 stages: proliferative (a firm, round, erythematous papule, that displays rapid growth), mature (an erythematous nodule with a crateriform keratin-filled center), and resolving (occurs in weeks to months, with loss of the central keratin plug and leaves a hypochromic and slightly depressed scar). There are only a few reports of metastatic skin lesions mimicking keratoacanthoma. Consequently, the study of their presentation and evolution is difficult.

Case report

A 62-year-old Caucasian man who currently smoked was referred to our plastic surgery clinic because of a 4-month history of a lesion on the scalp with rapid growth. Subsequently, other similar lesions developed on his scalp and neck. Physical examination revealed firm, nodular, erythematous lesions with a keratinized centre; the largest one had a 3 cm diameter (Figure 1).

The patient had recently received neoadjuvant radiotherapy (25 sessions) and chemotherapy (5 weekly carbotaxol cycles) for moderately differentiated squamous cell carcinoma of the oesophagus.

![Figure 1. Patient with oesophageal carcinoma presenting with metastatic cutaneous lesions mimicking keratoacanthomas.](image-url)
Given the clinical diagnosis of keratoacanthoma, surgical excision of two lesions was performed. Histopathology revealed a nodular dermal based proliferation of atypical squamous cells and carcinomatous vascular emboli at peritumoral dermis. Lesion from mental region shows no connection with the overlying epidermis and compromises dermis, hypodermis and subjacent superficial striated muscle. Overlying epidermis showed flattened rete ridges and no signs of in situ carcinoma (Figure 2). Lesion from submental region was centrally ulcerated, with a crateriform architecture and compromises dermis, hypodermis and a local subjacent lymph node (Figure 3). Clinicopathologic correlation was consistent with metastatic moderately differentiated squamous cell carcinoma.

After re-staging of the disease, surgical treatment of the primary site was contraindicated because of the diagnosis of cutaneous metastases, and therefore the patient received only palliative treatment. The patient died 2 months after the first visit to the plastic surgery clinic.

Discussion

The identification of cutaneous metastases is important because their presence may indicate treatment failure or recurrence of an allegedly treated cancer.\textsuperscript{1,4} They are rarely the initial presentation of an undiagnosed primary tumour. Lookingbill\textsuperscript{8} retrospectively examined 7316 patients with metastatic disease and found that 5% developed lesions on their skin. Among these, only 0.8% had cutaneous lesions that were the first manifestation of an unknown primary site malignancy.

Figure 2. Squamous cell carcinoma from oesophagus metastasized to mental region skin: no connection with the overlying epidermis which shows flattened rete ridges and no signs of in situ carcinoma.
Oesophageal cancer has one of the highest mortality rates of all malignant neoplasms. The American Cancer Society estimates that there will be 16,980 newly diagnosed cases and 15,590 deaths in the United States in 2015.\textsuperscript{9} Metastatic oesophageal cancer usually involves the cervical and celiac lymph nodes, liver, and lungs. The skin is a site of metastases in only 1% of all oesophageal cancer metastases.\textsuperscript{2,10} In a study of 4020 patients with cutaneous metastases, only 3 cases were of oesophageal origin.\textsuperscript{2} Quint\textsuperscript{6} reviewed 838 cases of carcinoma of the oesophagus and found only 2 cases with skin involvement.

In the literature, only 12 cases of cutaneous metastases mimicking keratoacanthoma have been reported, with only 2 cases consisting of multiple lesions (Table 1). The present case has features other than those described by Ellis,\textsuperscript{11} which presented multiple keratoacanthoma-like metastases from a laryngeal carcinoma. The aforementioned patient developed lesions within the area that received radiotherapy. As discussed by the authors, radiotherapy could have enhanced the development of metastases by altering the immune response of the skin and facilitating the nesting of cancer cells.\textsuperscript{11} In contrast, the present case demonstrated the development of a similar pattern of lesions in distant and otherwise uninjured sites, likely due to haematogenous spread. The invasion of the superficial lymph node by the carcinoma in the submental region could have been owing to either previous local skin metastasis (because the skin tumour was much larger than the lymph node) or focal invasion of the nodal parenchyma or the lymphatic parenchyma (because there were afferent lymphatic vessels with carcinomatous embolus inside nodal capsule), or both (Figure 3). No lymph node was detected in the biopsy from mental region, favouring a haematogenous spread to this site.

The observed pattern of the lesions should also be differentiated from previously known conditions of multiple keratoacanthomas, such as Muir–Torre syndrome, generalized eruptive keratoacanthomas of Grzybowski, and Ferguson Smith type multiple keratoacanthomas.\textsuperscript{12}

In individuals affected by Muir–Torre syndrome, sebaceous tumours are observed in association with visceral malignancies (usually from digestive, genitourinary or lung origin).\textsuperscript{13} In the Ferguson-Smith type, reported in some families of Scottish origin, there is an autosomal-dominant inheritance pattern and the presence of hundreds of lesions.\textsuperscript{12} The generalized eruptive keratoacanthomas of Grzybowski are characterized by the presence of hundreds to thousands of tiny keratotic lesions, especially in sun-exposed areas, and they have eventual mucosal involvement.\textsuperscript{12}

The histological findings observed in metastatic lesions are generally similar to those in the primary site tumour. This is also true for keratoacanthoma-like lesions.\textsuperscript{4} In the present case, samples from the oesophageal and keratoacanthoma-like lesions both showed features of moderately differentiated squamous cell carcinoma. Unlike the usual aspect of a keratoacanthoma, the metastatic lesions from this case showed deep extension beyond the sweat glands, and more pronounced cell pleomorphism and architectural irregularities, along with the presence of vascular carcinomatous emboli (Figures 2–3).
Reingold reported an average survival of 3 months after the development of cutaneous metastases, and most reported cases of keratoacanthoma-like metastatic lesions have a similar outcome. The longer survival of our patient could have been due to a partial response to the neoadjuvant radiotherapy.

**Conclusion**

The observation of multiple keratoacanthoma-like lesions should prompt the differential diagnosis of cutaneous metastases. The reported case exemplifies the possibility of such a presentation pattern being caused by haematogenous dissemination distant from a primary tumour site. Consequently, in patients with no previous diagnosis of malignancy, a thorough evaluation should be performed to exclude visceral tumours.

**Disclosure**

There are no financial interests or conflicts of interest involved in this paper.

**References**