

A Rare Cause of Zosteriform Distribution of Cutaneous Lesions: Case Report with Literature Review

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Abstract

Cutaneous metastasis can arise from an internal malignancy or due to primary malignant skin tumors. Most metastases present as painless dermal or subcutaneous nodules with intact epidermis. A zosteriform pattern of metastasis is rare, with only a few cases reported in the medical literature. Here, we report a case of a 71-year-old man who presented to our clinic with a one-month history of progressive, painful, fast-spreading, unilateral multiple ulcerative nodules over his left chest, initially misdiagnosed as herpes zoster. He had a history of left index finger squamous cell carcinoma (SCC) treated via ray amputation, lymph node resection, and radiation. A skin biopsy of an ulcerative nodule revealed findings consistent with metastatic SCC. Unfortunately, the patient died before appropriate treatment could be initiated.

Keywords: Skin Cancers; Metastasis; Differential Diagnosis; Squamous Cell Carcinoma; Herpes Zoster; Case Report.

Introduction

Metastatic skin cancer is a rare complication in patients with internal or cutaneous malignancy.¹ It is an important clue to tumor progression, or may even constitute the first manifestation of malignancy.² Among the various possible topographic patterns of cutaneous metastasis, those that follow a dermatomal distribution and resemble herpes zoster (HZ) lesions are rarely reported.³⁻⁶ Here, we report a patient who presented to our dermatology clinic in 2021 with a zosteriform pattern of metastatic squamous cell carcinoma (SCC), initially misdiagnosed as HZ lesions.

To the best of our knowledge, this is the first case to be reported in Oman and Arab world with SCC metastasizing in a zosteriform pattern.

Case Report

A 71-year-old male patient presented to our dermatology clinic with a one-month history of progressive, painful, fast-spreading, unilateral skin lesions over the left chest region. He had a history of known hypertension and left index finger SCC treated via post-ray amputation, left axillary and supraclavicular lymph node resection, and radiation therapy. His initial histology report showed moderately differentiated SCC arising from overlying dysplastic epithelium. PET scan done initially and showed: soft tissue mass lesion involving cutaneous, subcutaneous and muscular plane of mid and proximal phalanx of left index finger, first and second metacarpophalangeal joints are metabolically active and suggestive of primary cutaneous malignancy. Metastasis to left axillary lymph node noted and no distant metastasis. Clinical examination revealed erythematous, nodular skin lesions with central crater-like ulcerations extending from the mid-back to the chest, along the left T4–T6 dermatomes [Figures 1A to C].



Figure 1: Clinical photographs of the torso of a 71-year-old man with (a) multiple hard nodules with a left-side dermatomal distribution along T4–T6, not crossing the midline, and (b and c) ulcerating nodules with a central crater-like appearance and healthy-looking granulation tissue, without any evidence of discharge or active infection.

Prior to presentation, the patient reported being seen at a local health center, wherein he was diagnosed with HZ and received a seven-day course of 1,000 mg of valacyclovir three times daily, with no improvement. A skin biopsy of one of the ulcerative nodules showed invasive nests and sheets of oval-to-polygonal cells separated by collagen, with a few squamous pearls and evidence of single-cell keratinization [Figures 2A and B]. In addition, the cells stained positive for p63 and epithelial membrane antigen [Figure 2C]. As a result, the patient was diagnosed with cutaneous metastasis of the primary SCC; unfortunately, he deteriorated quickly before medication could be initiated and died within a month of diagnosis.

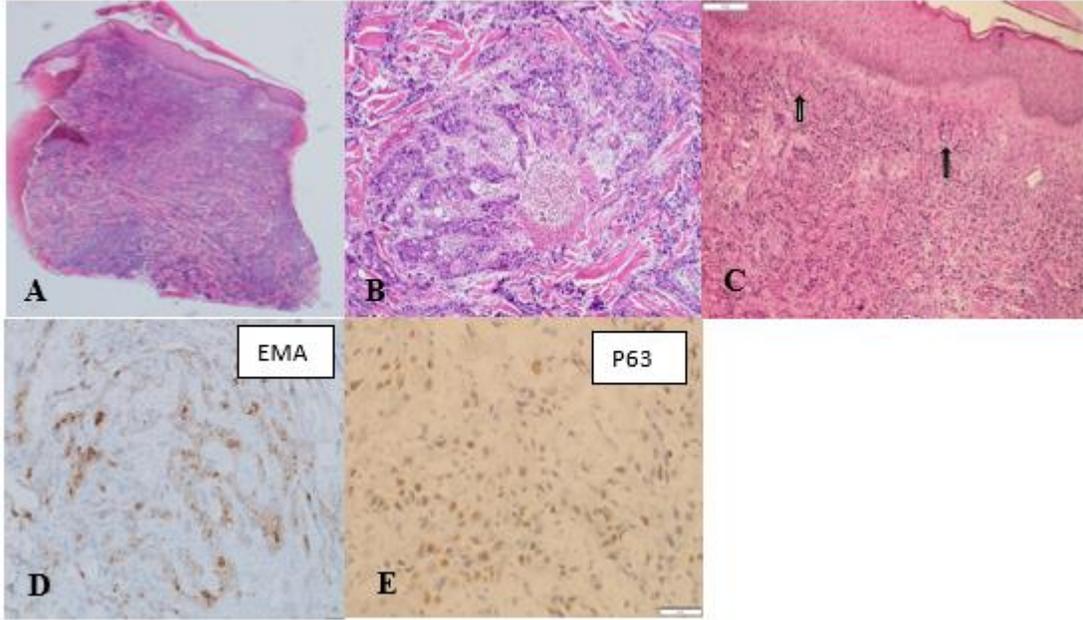


Figure 2: (a and b) invasive nest and sheets of oval to polygonal cells separated by collagen (original magnification = 5 ×, 20 ×, respectively). (c) Few epithelial pearls (arrows) (original magnification = 10 ×). (d) EMA positive (e) P63 positive (original magnification = 20 ×).

Discussion

Cutaneous metastases have been reported in approximately 0.7–9% of all cancers, most commonly arising from lung cancer in men and breast cancer in women.^{1,2} Those arising from primary malignant skin tumors represent 2% of all skin malignancies.¹ Cutaneous SCCs are usually treated by surgical excision, with fewer than 4% metastasizing to other sites.^{7,8} Metastatic disease has been linked to several risk factors, such as male gender, immunosuppression, and age exceeding 80 years. Additionally, tumor-related factors contributing to metastasis include a diameter exceeding 2.0 cm, perineuronal or deep tissue infiltration, destructive bone involvement, desmoplastic characteristics, and inadequate tumor differentiation.⁹⁻¹¹

Many patterns of cutaneous metastasis have been described, with the most frequent being the presence of multiple nodules.¹² Less commonly observed patterns include alopecia neoplastica or erysipeloid/inflammatory, sclerodermoid, and bullous forms.⁶ Zosteriform distribution is another, extremely rare pattern of cutaneous metastasis, with only a few cases reported.³⁻⁶ This pattern of metastasis has two main aspects: one is its morphology, in which the lesions resemble herpetic vesicles, and the other is its dermatomal distribution. Indeed, many cases with this pattern are initially misdiagnosed as herpes zoster and treated with antiviral medications, much like the current case.^{13,14} A zosteriform pattern of metastatic cutaneous SCC may also be misdiagnosed as shingles.¹¹ In most reported cases, the zosteriform metastatic pattern usually follows a previous diagnosis of malignancy; however, in some cases, it has preceded the diagnosis of the primary tumor.^{15,16}

Upon extensive review of the literature, we identified eight cases showing a zosteriform distribution of cutaneous metastasis from primary cutaneous SCC, including our own [Table 1].^{11,15-20} Metastatic skin lesions originating from primary skin cancers other than SCC were excluded. The age and gender of the affected patients, site of the primary tumor, presentation of the metastatic lesions, location of the skin lesions, and presence of pain are summarized in the table. The most common clinical presentation in these cases was nodules, with the chest wall being the most common site of the metastatic skin lesions.^{15-17,19,20} Most metastases developed on the same side of the body as the primary cancer.^{11,17,18} Spontaneous pain was reported in four cases, where they were initially misdiagnosed as HZ and treated with oral or intravenous acyclovir.^{11,17,19}

Table 1: Literature review of reported cases of metastatic squamous cell carcinoma with zosteriform distribution from the primary tumor.^{11,15-20}

Author and year of report	Gender	Age (years)	Immune status	Site of primary tumor	Site of cutaneous metastases	Clinical presentation	Pain
Buecker & Ratz (1984) ¹⁵	Male	65	Immunocompromised (renal transplant)	Lower lip	Right upper extremity to the right chest	Nodule	Unknown
Shafqat <i>et al.</i> (1998) ²⁰	Male	31	Immunocompromised (renal transplant)	Lower lip and dorsum of the right hand	Left anterior chest	Nodule and papule	Unknown
Fearfield <i>et al.</i> (2000) ¹⁹	Male	56	Immunocompromised (HIV)	Right eyelid and anterior chest	Left chest	Vesicles and ulcers	Yes
Kato <i>et al.</i> (2001) ¹⁷	Female	72	Immunocompromised (radiation)	Lateral side of the right knee	Right hip and thigh, along the L1–L3 dermatomes	Ulcerated nodules, papule, and vesicle	Yes
Bauzá <i>et al.</i> (2002) ¹⁸	Female	71	Immunocompetent	Right buttock	Right groin, buttock, and outer aspect of right leg	Nodule and papules	Unknown
Kishan & Rao (2013) ¹⁶	Female	70	Immunocompetent	Ulcer on hard palate of the oral cavity	Left neck, on the C3 dermatome	Nodule, papulovesicles	No
Crevier-Sorbo <i>et al.</i> (2021) ¹¹	Male	59	Immunocompetent	Right ring finger	Right axilla to the midline, along the T3 and T4 dermatomes	Papule with crusting and ulceration	Yes
Current case (2021)	Male	71	Immunocompromised (radiation)	Left index	Left back to anterior chest, along the T4–T6 dermatomes	Ulcerated nodule and papule	Yes

The exact mechanism for this pattern of metastasis is still unknown. Various theories have been proposed, including hematogenous, lymphatic, and neural dissemination, surgical implantation, direct invasion from underlying structures, and Koebnerization at the site of a previous infection.^{11,16,21-23} Overall, the diagnosis requires a high index of suspicion in patients with a history of skin cancer or other malignancies who present with zoster-like lesions.

Conclusion

The possibility of metastatic carcinoma should be considered in any patient with a previous history of internal or cutaneous malignancy who presents with a zosteriform skin eruption. As the clinical appearance of the lesions frequently makes diagnosis difficult, a skin biopsy is essential for confirmation.

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