

## Case Report

# Paraneoplastic Pemphigus in a Man with Spindle Cell Sarcoma of the Left Mediastinum

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## Abstract

The intractable and unique mucocutaneous manifestations can be the initial characteristics of malignancy. Mediastinal spindle cell sarcoma-related paraneoplastic pemphigus is very rare. We report a 63 year-old man who developed generalized bullous lesions abruptly. Series of studies revealed a spindle cell sarcoma near the left border of the heart. After surgical resection of the tumor, systemic chemotherapy, and low-dose oral glucocorticoids, the mucocutaneous symptoms improved. This rare case alerts us that when encountering an intractable mucocutaneous disease such as pemphigus, an occult neoplasm should always be taken into consideration for a possible etiological factor.

## Keywords

- Pemphigus
- Spindle cell sarcoma
- Paraneoplastic syndrome

## INTRODUCTION

The association of bullous skin lesions such as pemphigus with malignancy has been sporadically reported in a variety of settings [1-5]. We have seen an old man developing refractory generalized bullous lesions abruptly, who was subsequently demonstrated to have a spindle cell sarcoma near the left border of the heart. The pemphigus lesions responded well to surgical resection of the mediastinal tumor, systemic chemotherapy, and low-dose oral glucocorticoid. The underlying etiologies of the pemphigus including malignancies are discussed in this report.

## CASE REPORT

A 63-year-old man, who had been otherwise healthy except with well controlled hypertension and diabetes mellitus (DM), developed polymorphous rash and bullae in the palms, soles, and torso, as well as painful stomatitis with vesicles in the oral mucosa and lips (Figure 1) within one month. There was no shortness of breath, chest pain, or febrile episode. Careful history taking failed to demonstrate precipitating factors to these lesions. The genitourinary tract and the eyes were spared. A diagnosis of pemphigus skin lesion was soon reached in a local hospital. Because short-term prednisolone and azathioprine could not control the symptoms, he was referred to this hospital for further evaluation.

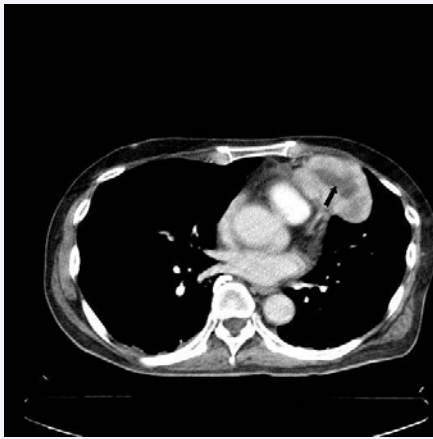
A chest radiograph and a computerized tomographic (CT) scan revealed a hypervascular tumor (60x 55x 34mm), with central necrosis, attaching to the pericardium in the left mediastinum (Figure 2). There was no pulmonary parenchymal involvement. The heart was unremarkable as

demonstrated by electrocardiogram & nuclide scan except that the left ventricle wall was slightly hypokinetic. A CT scan-guided biopsy demonstrated spindle cell sarcoma (Figure 3). A skin biopsy revealed keratinocyte necrosis and vacuolar interface dermatitis with supra-basal blisters containing many acantholytic cells, lymphocytes, and neutrophils (Figure 4). Direct immunofluorescence stain showed intense intercellular IgG but not type IV collagen or C3 deposition in epidermis. Autoantibodies to desmoglein-1 & 3 were detected by enzyme linked immunosorbent assays (ELISA).

The initial treatment with intravenous methylprednisolone (80 mg/day) was very effective. However, the skin lesions deteriorated when the dose of methylprednisolone was



**Figure 1** Multiple vesicles, blisters and crusts on the lips, perioral/cheek skin and oral mucosa were noted on the initial evaluation.



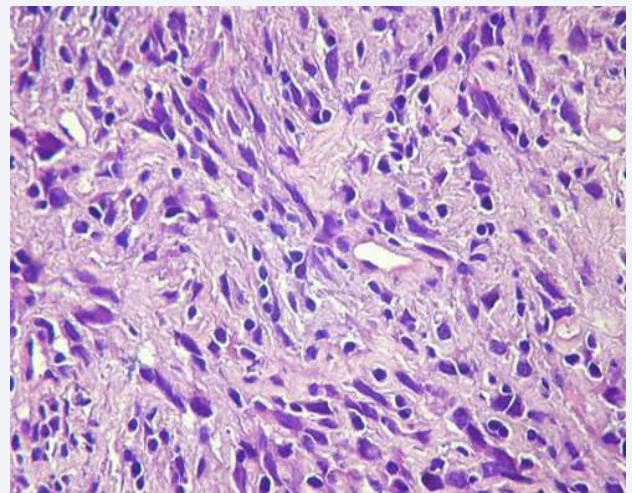
**Figure 2** A hyper-vascular tumor (arrow), 60x55x34 mm in size, in left anterior mediastinum was demonstrated by CT scan. The nodule had a central necrosis and attached to the pericardium and the anterior visceral pleura. Several small lymphadenopathies were also present at the left lower paratracheal and subcarinal region.

tapered to 20 mg/day. Then, a moderate to high intravenous dose of methylprednisolone (60 mg/day) was restarted two months later, together with a careful dressing & skin care in the burn center. Because of the refractoriness of skin lesions to conservative treatments, he eventually agreed to receive surgical intervention to remove the tumor. Systemic chemotherapy with gemcitabine and cisplatin was started after surgical removal of the tumor. Interestingly, the mucocutaneous lesions were gradually getting improved after the surgical procedure as well as medications and could be ultimately controlled only by 5-10 mg/day of oral methylprednisolone without evidence of recurrence. According to Curth's criteria [6] for the diagnosis of cutaneous paraneoplastic syndromes, our patient was in keeping with four of six requirements in that 1. Both conditions began simultaneously (neoplasia and pemphigus); 2. Treatment of the neoplasia resulted in regression of the skin lesion (i.e., development of a parallel course); 3. The pemphigus dermatosis is not common in the general population; and 4. There is a high frequency of association between both conditions (named paraneoplastic pemphigus). Thus, we considered the initial mucocutaneous manifestations in this particular patient were fulfilling the criteria for "paraneoplastic pemphigus". Unfortunately, he was lost to follow up since the initial successful treatment.

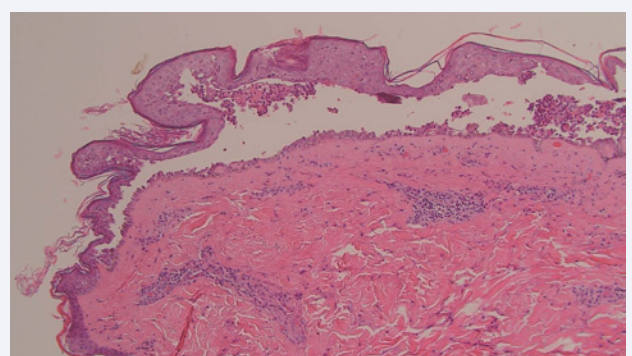
## DISCUSSION

Pemphigus skin lesion is an autoimmune blistering disease characterized clinically, by flaccid intraepidermal blisters as well as erosions of the skin and mucous membrane, and histologically, by acantholysis. Several cases of paraneoplastic pemphigus have been described in the literature [7-9]. They appeared as pemphigus vulgaris, erythema multiforme or unusual bullous diseases. Our patient fulfilled 2 major and 2 minor criteria for the neoplasm-related pemphigus modified by Camisa et al [5]. These included polymorphous mucocutaneous eruptions/concurrent internal neoplasm, peri-lesional intercellular immunoreactions (as shown by direct immunofluorescence)/acantholysis (as shown by H& E stain), respectively.

Non-Hodgkin's lymphoma, chronic lymphocytic leukemia, Castleman's disease, malignant & benign thymoma, poorly differentiated sarcoma, Waldenström's macroglobulinemia, inflammatory fibrosarcoma, round-cell lipoma, Hodgkin's disease, and T-cell lymphoma may occur with pemphigus [1-5,7-10]. The only reported association of spindle cell tumor with pemphigus was a fatal case with extensive mucocutaneous bullae and skin erosions. In that particular patient, the primary tumor was a lobulated spindle cell thymoma [11]. The histopathological feature of our patient's sarcoma was similar to that particular case. Patients with neoplasm-associated pemphigus often present with depressed cellular immunity and exaggerated autoantibody destruction against the skin, refractory to treatments with glucocorticoids or cytotoxic drugs. This unusual patient has taught us that occult malignant tumor should always be taken into consideration as a possible etiological factor for intractable mucocutaneous manifestation, such as pemphigus skin lesion.



**Figure 3** Extensive infiltration of fibro adipose tissue in the mediastinum by neoplastic spindle cells (H & E, original magnification X 400).



**Figure 4** Epidermis shows a suprabasal blister containing many acantholytic cells, lymphocytes, and neutrophils. The blister base is lined by basal keratinocytes that attach to the basement membrane zone like a "row of tombstones". The overlying epidermis shows focal spongiosis and focal neutrophil exocytosis. In the upper dermis, there is a mild perivascular lymphohistiocyte infiltration admixed with some eosinophils (H & E, original magnification X 400).

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## Cite this article

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