# Erythematous Tumour Above the Right Clavicula: A Quiz

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A 71-year-old female patient was referred to our clinic with a growing mass above the right clavicula. The patient reported having noticed initial skin changes 4 weeks prior to the first presentation to our department. Upon suspicion of herpes zoster, she had been unsuccessfully treated with brivudine for 7 days 3 weeks previously. The patient reported experiencing itching. She denied experiencing nocturnal sweating, fatigue, weight loss or fever. Physical examination showed a large dark-red, tender tumour above the right clavicula, surrounded by small erythematous papules (Fig. 1). An ultrasound examination of the tumour demonstrated its pronounced vascularization, its infiltration to the subcutis, and the presence of numerous enlarged locoregional lymph nodes. Chest X-ray examination revealed a large middle mediastinal mass as well as further suspicious pulmonary nodules.

*What is your diagnosis?* See next page for answer.

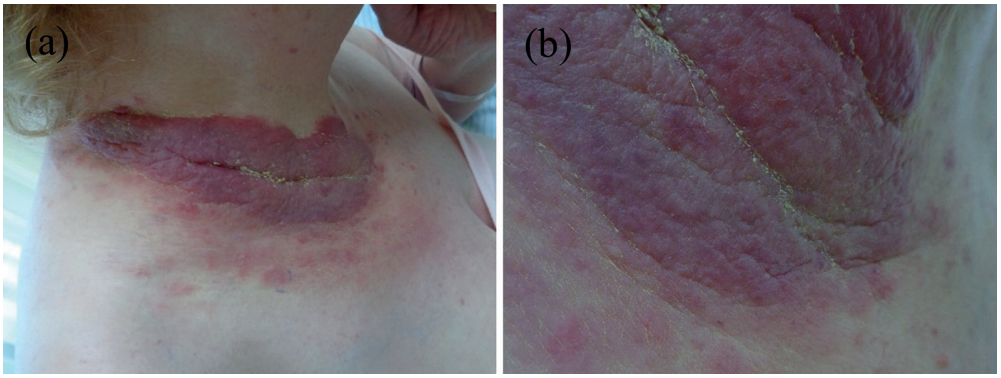


**Fig. 1.** (a) Large erythematous tumour above the right clavicula with surrounding erythematous papules. Yellow remnants of an ointment the patient had applied to reduce itching. (b) Close-up view.

## ANSWERS TO QUIZ

### Erythematous Tumour Above the Right Clavicula: A Commentary

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***Diagnosis:*** **Cutaneous metastasis as presenting manifestation of pulmonary lung adenocarcinoma**

A diagnostic biopsy revealed the massive presence of large, pleomorphic tumour cells in the dermis and in lymphatic vessels (Fig. 2a, b). Subsequent immunostaining demonstrated positivity for pan-cytokeratin AE 1/3, cytokeratin 7 (Fig. 2c), carcinoembryogenic antigen (CEA) and nuclear staining for thyroid transcription factor 1 (TTF-1) (Fig. 2d), leading to the diagnosis of cutaneous infiltration of an adenocarcinoma. The positivity for TTF-1 and CEA in addition to the morphology of the tumour cells favoured the diagnosis of an adenocarcinoma of the lung over a (non-medullary) differentiated thyroid carcinoma. Upon receipt of the ultrasound and chest X-ray results, the patient was transferred to the pulmonary department where a non-small cell adenocarcinoma of the lung was diagnosed by histopathological examination of tissue obtained through a bronchoscopy. Immunohistochemistry revealed a high PD-L1 expression, while genomic testing identified an activating mutation in the *KRAS* gene, the latter being the most frequent gain-of-function alteration in patients with lung adenocarcinoma in Western countries and the target of new anti-cancer strategies (1). Cancer staging with a computed tomography (CT) scan revealed further suspicious nodules in the liver and the left adrenal gland. Chemotherapy with carboplatin combined with pemetrexed and the anti-PD1 antibody pembrolizumab was initiated for 4 cycles. A subsequent CT scan 2 months after the beginning of the treatment showed a partial remission of the metastatic adenocarcinoma. The patient is currently on a maintenance therapy with pembrolizumab and pemetrexed.

Lung cancer remains the leading cause of cancer death worldwide (2). Cutaneous metastases are reported in approximately 1–12% of patients with lung cancer. They may originate from all histological types of lung cancer and are most commonly painless (3). Skin metastases usually develop in patients with advanced disease and, very rarely, they constitute the presenting lesion of the malignancy (4). Cutaneous metastases have an inconsistent clinical appearance, ranging from erythematous papules to nodules or, more rarely, plaques and, not infrequently, they can imitate benign skin diseases (5). Histopathologically, cutaneous metastases show a dense infiltrate of tumour cells in the dermis, occasionally with extension into the subcutaneous tissue (6). Epidermotropism of neoplastic cells is rare (7). Massive invasion and occlusion of dermal lymphatic vessels by tumour cells is seen in cutaneous lymphangitis carcinomatosa, a rare form of skin metastasis (8–10). Clinically, lymphangitis carcinomatosa may present as an eruption that often closely resembles an eczema, erysipelas or herpes zoster, which is why the correct diagnosis is often delayed (8, 10).

Clinicians therefore should be alert in cases of cutaneous tumours or infiltrates in patients with a high risk or a history of cancer. An early biopsy is indispensable for urgent diagnosis and initiation of treatment.

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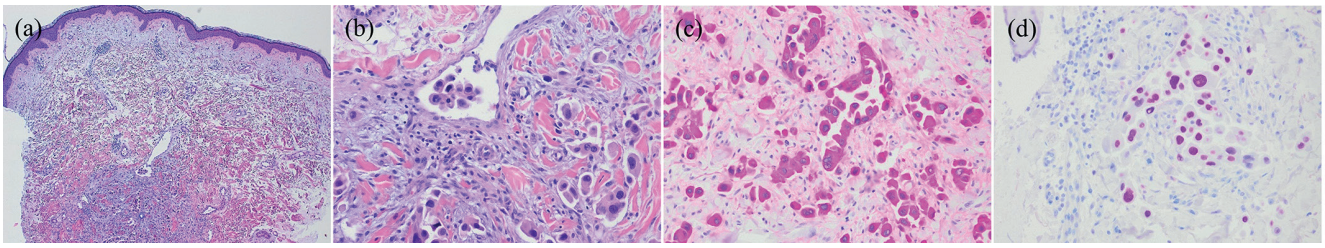


**Fig. 2.** (a) The skin biopsy showed large, pleomorphic tumour cells in the dermis and in lymphatic vessels (haematoxylin and eosin (H&E) staining). (b) High magnification demonstrated the profuse invasion of lymphatic vessels by tumour cells. The tumour cells were positive for (c) cytokeratin 7, (d) thyroid transcription factor 1 (TTF-1), and carcinoembryogenic antigen (CEA) (not shown).