Cutaneous Metastases from Lung Adenocarcinoma

Yu Wang¹,² and Ruzeng Xue¹,²

¹Department of Dermatology, Dermatology Hospital, Southern Medical University, Guangzhou, China
²Department of Dermatology, Guangdong Provincial Dermatology Hospital, Guangzhou, China

Correspondence should be addressed to Ruzeng Xue; xueruzeng@163.com

Received 6 July 2020; Accepted 3 August 2020; Published 12 August 2020

1. Introduction

Lung cancer can metastasize to almost all organs but more often invades the hilar nodes, liver, adrenal glands, bones, and brain [1]. The incidence of lung cancer with metastases to the skin varies between 1–12% [1]. A lung cancer metastasis is usually classified only as adenocarcinoma, squamous cell carcinoma (SCC), or undifferentiated carcinoma. Until the 1980s, SCC was reported as the most common type of lung cancer. However, adenocarcinoma has replaced SCC as the most common lung cancer subtype, especially in women and in never-smokers. Sun et al. reported that the type of adenocarcinoma was 3.4 times more frequent than that of SCC [2]. Skin metastases can appear on any cutaneous surface, and the most common sites are the chest, abdomen, head, and neck [3, 4]. Cutaneous metastases have various manifestations, such as single papules/nodules or multiple lesions on anywhere of the skin, while other rare forms may show plaque-like lesions, erysipelas-like papules, zosteriform lesions, and scars [3, 5].

2. Case Presentation

A forty-nine-year-old nonsmoker female was admitted to our department with multiple painful papules localized on the left breast. They appeared eruptively for about 10 days and initially diagnosed as herpes zoster in another hospital. The patient had been diagnosed as lung adenocarcinoma at the department of oncology one year ago. Skin biopsy revealed blue nodular lesions in the dermis, composed of clustered heterogeneous tumor cells with glandular formation. Immunohistochemical stains confirmed the diagnosis of metastatic lung adenocarcinoma.
3. Discussion

Skin metastases suggest the progression of primary cancer and portend a poor clinical prognosis. Skin metastases from lung cancer are rare. The percentage of patients with lung cancer that develops cutaneous metastases ranges from 1 to 12 percent [1]. It is seen more often in men than in women [6]. It does not show any specific presentation. It is often painless and less likely to be noticed, making it more difficult to be diagnosed correctly, which may delay treatment. Although described cases show that metastatic nodules are painless, our patient showed severe pain. The presence of zosteriform painful vesicle-like lesions really mimics herpes zoster clinically in our case.

The mechanisms determining the metastasis of lung cancer in skin remain unknown. Pathogenesis is suggested to be by lymphovascular invasion, with poor differentiation and upper lobe tumors increasing the risk [7]. Usually, skin metastasis develops after initial diagnosis of the primary malignancy and late in the course of the disease. Occasionally, skin lesions that arise from lung cancer may develop before the primary tumor is recognized. In our case,
skin metastases occurred during the immunotherapy. Histology shows most commonly adenocarcinoma and then squamous/small-cell followed by large-cell carcinoma [1]. Immunohistochemical markers are useful for the identification of the primary cancer or when a shorter differential is desired. Anti-TTF is both sensitive and specific for primary adenocarcinomas, bronchioalveolar carcinomas, and small-cell carcinomas when thyroid primary is excluded [8]. CK7+ and CK20− are sensitive but not specific for primary adenocarcinomas and bronchioalveolar carcinomas. The CK7+/CK20− tumors usually include the lung, breast, endometrium, ovary, thyroid, salivary gland, and mesothelioma [8, 9].

Treatment of a single solitary skin lesion usually includes surgery alone or combined with chemotherapy, and/or radiation. If lesions are more disseminated, chemotherapy is the primary option but may elicit an inadequate response [10]. Radiation can also be used alone and/or in combination with chemotherapy, and/or surgery. However, despite the combination of radiotherapy and chemotherapy, patients with lung cancer developing cutaneous metastases have a poor outcome. Mean survival is short, usually 5 to 6 months after diagnosis of cutaneous metastasis [1].

Conflicts of Interest

The authors declare they have no conflicts of interest.

Acknowledgments

This work was supported by a grant from the National Natural Science Foundation of China (81903200).

References

[1] T. W. Mollet, C. A. Garcia, and G. Koester, “Skin metastases from lung cancer,” Dermatology Online Journal, vol. 15, no. 5, 2009.
[2] S. Sun, J. H. Schiller, and A. F. Gazdar, "Lung cancer in never smokers-a different disease," Nature Reviews Cancer, vol. 7, no. 10, pp. 778–790, 2007.
[3] S. Dreizen, H. M. Dhingra, D. F. Chiuten, T. Umsawasdi, and M. Valdivieso, “Cutaneous and subcutaneous metastases of lung cancer,” Postgraduate Medicine, vol. 80, no. 8, pp. 111–116, 1986.
[4] M. Khaja, D. Mundt, R. A. Dudekula et al., “Lung cancer presenting as skin metastasis of the back and hand: a case series and literature review,” Case Reports in Oncology, vol. 12, no. 2, pp. 480–487, 2019.
[5] W. T. McSweeney and K. Tan, “Cutaneous metastases as a presenting sign of metastatic NSCLC,” Journal of Surgical Case Reports, vol. 2019, no. 10, 2019.
[6] M. H. Brownstein and E. B. Helwig, "Metastatic tumors of the skin," Cancer, vol. 29, no. 5, pp. 1298–1307, 1972.
[7] R. B. McGrath, S. P. Flood, and R. Casey, "Cutaneous metastases in non-small cell lung cancer," BMJ Case Reports, vol. 2014, 2014.
[8] V. Jerome Marson, J. Mazieres, O. Groussard et al., “Expression of TTF-1 and cytokeratins in primary and secondary epithelial lung tumours: correlation with histological type and grade,” Histopathology, vol. 45, no. 2, pp. 125–134, 2004.
[9] R. Koca, Y. Ustundag, E. Kargi, G. Numanoglu, and H. C. Altinyazar, "A case with widespread cutaneous metastases of unknown primary origin: grave prognostic finding in cancer," Dermatology Online Journal, vol. 11, no. 1, p. 16, 2005.
[10] N. A. Babacan, S. Kilickap, S. Sene et al., “A case of multifocal skin metastases from lung cancer presenting with vasculitic-type cutaneous nodule,” Indian Journal of Dermatology, vol. 60, p. 213, 2015.