

Case Report

Lung Tumor Skin Metastasis: Case Report of a Solitary Cutaneous Ulcerated Lesion as Initial Manifestation of Lung Carcinoma

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Keywords

Lung · Cancer · Skin · Metastasis · Surgery

Abstract

Lung cancer has the highest cancer incidence, and it is the most common cause of cancer death worldwide. Cutaneous metastases are infrequent compared to hilar nodes, adrenal glands, liver, brain, and bones. However, unusual skin lesions in patients at high risk of lung cancer should be regarded carefully to rule out a metastatic manifestation of an occult primary site tumor. Surgical excision, or incisional biopsy when the former is deemed unfeasible, should be performed to allow histopathological examination in case of occult primary site. In patients affected by advanced lung tumors, surgical excision could be beneficial in terms of pain control and improvement of the quality of life. We report a case of a solitary large skin lesion as an early manifestation of a lung adenocarcinoma.

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Published by S. Karger AG, Basel

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Introduction

Lung cancer has the highest cancer incidence worldwide with more than 1.8 million new cases per year. It is the most common cause of cancer death, with almost 1.8 million deaths and 18% of total cancer mortality in 2020 [1]. Appropriate cancer screening is still in development, as opposed to widely accepted and standardized screening for colorectal and breast cancer [2]. Therefore, patients often seek medical attention in an advanced stage when the disease becomes symptomatic. Frequent metastatic sites are hilar nodes, adrenal glands, liver, brain, and bone. Skin metastases are uncommon and generally associated with advanced lung cancer and poor prognosis; they must be ruled out in the case of patients presenting with a skin lesion and a history of smoking or previously diagnosed lung cancer [3]. We report the case of an 82-year-old patient with a neglected bleeding skin lesion.

Case Report

An 82-year-old man was admitted to our department with a single ulcerated skin lesion on the left thoracolumbar zone. The patient quit smoking 10 years earlier, following a history of 50 years of smoking 20 cigarettes per day (1 pack-year). He had a history of hypertension and a previously known stable 41-mm abdominal aortic aneurysm in surveillance. The patient reported the lesion had appeared 4 months before admittance, at first as a minute, pea-like plain lesion. The rapid growth and the ulceration of the skin following regular dressing brought the patient to seek medical advice from a general practitioner. An ultrasound of the lesion described it as highly vascularized, hypoechoic, with an initial invasion of the underneath muscle. It was first treated with topical agents and an incision and drainage as an outpatient in a local clinic. When the patient was admitted, there was no evidence of respiratory symptoms, nor fatigue or anorexia. On physical examination, the swelling presented as a round elevated nodule, measuring approximately 50 mm in diameter, surrounded by erythematous brownish skin, prone to bleeding from a central ulcerated area (shown in Fig. 1). A contrast-enhanced computed tomography was performed, revealing an infiltrating subcarinal neoplasm (42 × 29 × 50 mm) distorting the middle bronchus and dislocating the esophagus to the left (shown in Fig. 2). The computed tomography also documented the already known subcutaneous tissue nodule located in the left hemithorax; two parenchymal thickenings located in the superior segment of the right lower lobe adjacent to the pleura; and a thyroid right lobe focal hypodense lesion (10 mm). A thyroid ultrasound was performed, showing a non-suspicious nodule. PFT was normal, bronchoscopy showed an 80% stenosis of the middle bronchus, but bronchoalveolar lavage could not confirm the cytological diagnosis of pulmonary neoplasm; biopsy was deemed unsafe during the endoscopy. Tumor markers: thymidine kinase and β_2 microglobulin were in the range, 11.0 U/L, and 4.28 mg/L, respectively.

Following multidisciplinary evaluation, the cutaneous lesion was surgically excised with a z-plasty, and a lung adenocarcinoma metastasis was confirmed on the histological and immunochemical findings (CK7+, CK20–, TTF1–, Napsin A–, CDX-2–, Ki67 60%). The case was referred to oncologists, and the patient began chemotherapy shortly after. Ultimately, the patient was unfortunately lost on follow-up after 2 months, and we were unable to collect further information.

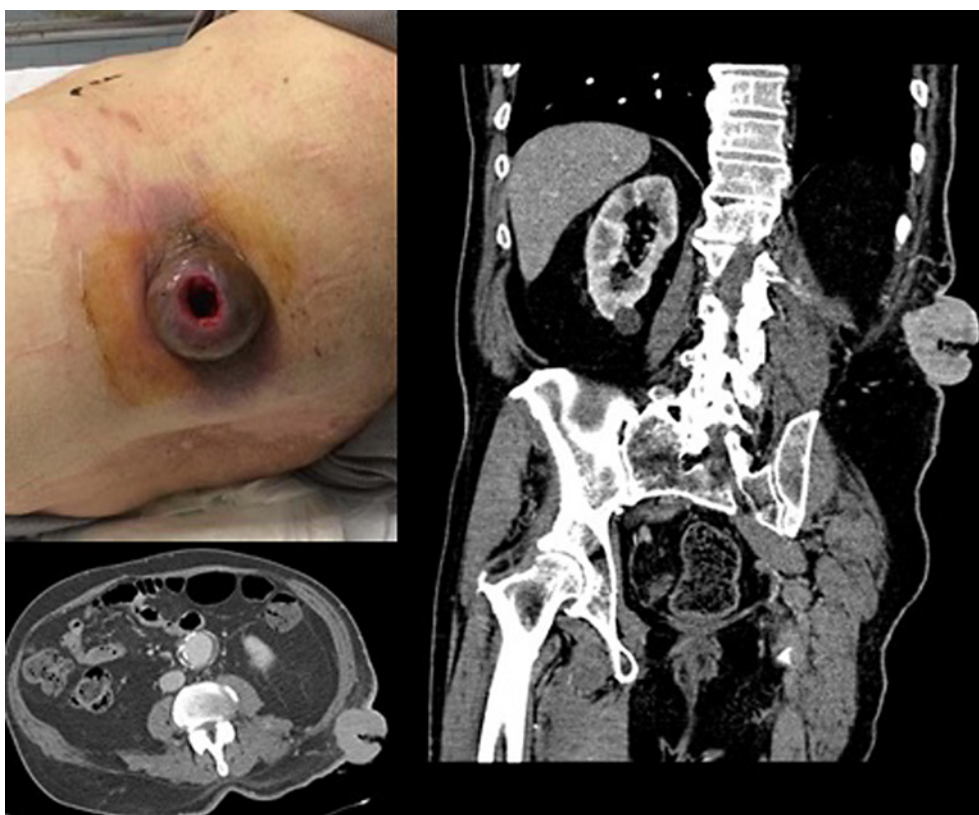


Fig. 1. Top left image: cutaneous ulcerated lesion. Bottom left image: skin metastasis as seen on portal venous phase contrast-enhanced CT. Right image: skin metastasis, arterial phase CECT. CT, computed tomography.

Discussion

Cutaneous lesions are seldom observed as the first site of cancer metastasis; indeed, they are not infrequent in an advanced stage. In about half the cases, the primary tumor is melanoma, followed by breast and nasopharyngeal cancer [4].

In a 2022 population-based study, lung cancers were the most common tumors metastasized to uncommon sites at diagnosis [5]. The incidence of lung cancer skin metastasis is reported to be less than 1 in 10 patients [6, 7], whether as the initial manifestation of an occult primary tumor [8, 9] or as a clinical sign of progression of a known neoplasm [10]. The most common histology is non-small cell lung cancer, adenocarcinoma, and squamocellular carcinoma. It is usually described as a round and painless lesion, ranging from 0.5 cm to 7.0 cm, solitary or multiple, located on the scalp, trunk, or limbs [7]. Zosteriform metastases and metastases located at the puncture site of a peripherally inserted central catheter have been anecdotally reported [11, 12]. A 2012 retrospective analysis by Song et al. [13] described a poor life expectancy for patients with cutaneous metastasis as an initial manifestation of non-small cell lung cancer.

Identification of cutaneous manifestation of cancer can be challenging, especially in the occurrence of carcinomas of unknown primary sites. Atypical skin lesions must be thoroughly evaluated in patients with multiple risk factors like smoking history, radon exposure, and family history [14]. Nonetheless, especially in patients with an occult primary tumor, characteristics are often deceptive and can lead to a delayed diagnosis. In most retrospective studies, skin manifestations are often associated with other organ metastases [7]. Treatment and management may vary according to the staging of the primary tumor, the location, and the

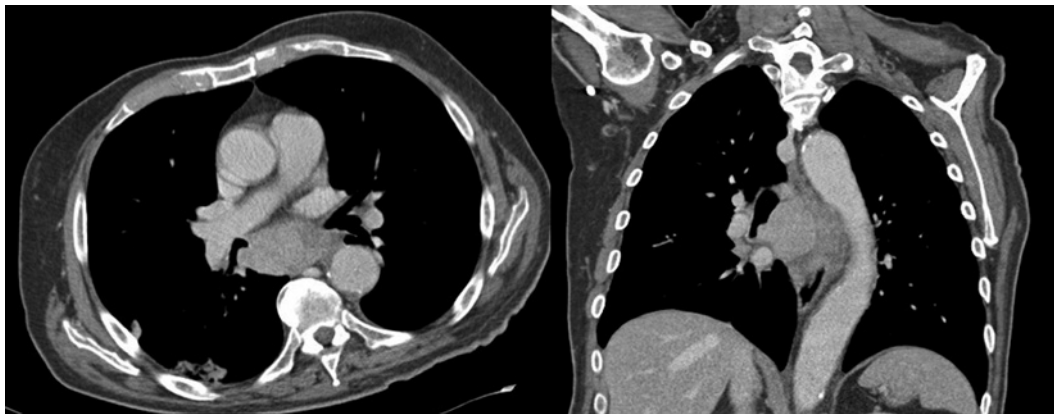


Fig. 2. Mediastinal neoplasm distorting the middle bronchus and dislocating the esophagus as seen in venous phase.

characteristics of the metastatic lesion. While dermal manifestations of carcinomas of unknown primary sites are usually surgically resected to allow histopathological examination, skin metastases in advanced stage lung cancer can be either excised or treated with systemic or local chemotherapy (electrochemotherapy) [15]. Albeit not having a proven positive effect on survival or a curative role, mainly for lack of a sufficiently large group of patients [7, 16], surgical resection can be beneficial in terms of quality of life and pain reduction [17].

Conclusion

Cutaneous metastases are a rare manifestation of lung cancer, usually associated with advanced-stage disease, and they should be taken into consideration and ruled out in patients with risk factors or known history of lung neoplasm. Excisional biopsy is deemed appropriate to confirm the diagnosis and seek a curative or palliative intent of the primary tumor, granted the location and characteristics allow for a safe procedure. Nonetheless, extrathoracic metastases are still associated with poor oncological outcomes.

Statement of Ethics

Ethical approval is not required for this case report in accordance with local or national guidelines. Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Funding Sources

No funding was received for this study.

Author Contributions

Anna Esposito, Giampaolo Galiffa, Claudia Donello, Paolo Urciuoli, Federico Maria Mongardini, and Andrea Biancucci provided the material for the study. Francesco Sammartino, Francesco Falbo, Dimitri Krizzuk, and Paolo Urciuoli were responsible for concept and design of the study. Drafting and modifications: Francesco Falbo e Dimitri Krizzuk. All authors revised and approved the final manuscript.

Data Availability Statement

All data generated or analyzed during this study are included in this article. Further inquiries can be directed to the corresponding author.

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