

Cutaneous metastasis of squamous cell carcinoma of the lung

Abstract

Background: Cutaneous metastases are an uncommon manifestation of internal malignancy and typically indicate advanced systemic disease. Lung cancer is among the most common primary sources of cutaneous metastases in men; however, cutaneous spread from pulmonary squamous cell carcinoma (SCC) occurs less frequently than from adenocarcinoma. Histopathologic evaluation with immunohistochemical (IHC) staining is essential for establishing the diagnosis and identifying the primary tumor source.

Case presentation: A 68-year-old male with biopsy-proven stage IV pulmonary SCC and radiographically identified brain and liver metastases presented with a progressively enlarging, friable lesion on the left lateral chin that had been present for four months. The lesion was painless but bled regularly. Physical examination demonstrated a 1.7-cm pink, firm, and exophytic nodule. Punch biopsy revealed metastatic carcinoma consistent with cutaneous metastasis from pulmonary SCC. IHC staining of both the primary lung tumor and the cutaneous lesion demonstrated an identical profile: CK7 positive, p40 positive, and TTF-1 negative. The patient subsequently underwent surgical excision of the lesion with negative margins on final pathology.

Discussion: Cutaneous metastases from lung SCC are rare and generally signify disseminated disease with a poor prognosis. Clinical presentation often includes rapidly enlarging dermal or subcutaneous nodules that may mimic benign or primary cutaneous lesions. In this case, biopsy and IHC analysis were critical in confirming the metastatic nature of the lesion and establishing its pulmonary origin. The matching immunophenotype between the primary and metastatic lesions supported the diagnosis of cutaneous spread from lung SCC.

Conclusion: This case highlights the importance of maintaining suspicion for cutaneous metastasis in patients with known lung malignancies who develop new or enlarging skin lesions. Skin biopsy with IHC staining provides a reliable method for confirming the diagnosis and identifying the primary tumor source. Recognition of cutaneous metastases is clinically significant because it reflects advanced disease and carries important prognostic implications.

Keywords: squamous cell carcinoma, cutaneous lesions, skin biopsy, dermatology, surgical excision

Volume 10 Issue 3 - 2026

Alexandra Thornton,¹ Nicholas Thornton²¹Plastic Surgery, University of Texas Health Science Center at San Antonio, USA²Sports Medicine, Burke Rehabilitation Hospital, USA

Correspondence: Nicholas Thornton MD, Burke Rehabilitation Hospital, 785 Mamaroneck Ave, White Plains, NY 10605, USA, Tel 808-379-8266

Received: June 20, 2026 | **Published:** July 14, 2026

Introduction

Cutaneous metastases (CMs) are neoplastic infiltrations of the skin that originate from a distant internal malignancy. While relatively uncommon, their occurrence carries significant clinical importance as a marker of advanced, disseminated disease. The reported incidence of CMs ranges broadly from 0.7% to 9% of all cancer patients, accounting for approximately 2% of all skin tumors.^{1,2} Their prevalence appears to be rising in parallel with the improved survival of patients with solid malignancies, underscoring the growing relevance of this diagnosis in modern oncology.³

Lung cancer is among the most common primary sources of cutaneous metastases, particularly in male patients. It is reported to be the leading cause of skin metastasis in men with non-melanoma solid tumors, with an incidence between 1.8% and 11.8%.² Among the histologic subtypes of lung cancer, adenocarcinoma carries a higher propensity for cutaneous spread, while squamous cell carcinoma (SCC) exhibits a comparatively lower frequency of this behavior.^{4,5} Cutaneous metastases most often present as firm, painless dermal or subdermal nodules that increase rapidly in size and may occasionally

ulcerate or bleed.^{3,6} The head and neck region, chest, and abdomen are the most frequently reported cutaneous sites of involvement.⁷

In most cases, CMs arise as an evolution of a known primary tumor; however, in approximately 7.8% of cases, they may represent the first clinical sign of an underlying internal malignancy.^{7,8} Regardless of timing, their presence almost universally signals stage III or IV disease and is associated with a poor prognosis. Reported median survival following diagnosis of cutaneous metastasis is approximately 7.98 months, with most studies citing an average survival of three to six months for lung cancer specifically.^{2,9}

Histopathologic confirmation via skin biopsy is essential for diagnosis, and immunohistochemical (IHC) staining plays a central role in identifying the primary tumor origin. For lung SCC, the immunoprofile of p40 positivity and TTF-1 negativity is considered the criterion standard for distinguishing SCC from adenocarcinoma and other subtypes of non-small cell lung carcinoma.^{10,11} CK7 expression may additionally support carcinomatous origin, though it is not specific to lung SCC alone.¹⁰

We present a case of a 68-year-old male with Stage IV lung SCC who developed a cutaneous metastasis to the face. This case highlights the importance of dermatologic evaluation in patients with advanced lung malignancy, the diagnostic utility of skin biopsy with IHC profiling, and the clinical significance of cutaneous metastases as a prognostic finding.

Case presentation

A 68 year-old male presented to dermatology with a growing chin lesion for four months. He had a past medical history significant for biopsy proven Stage IV squamous cell carcinoma (SCC) of the lung with non-biopsy proven metastases to the brain and liver for which he was receiving radiation therapy. He received his first of six planned doses of Carboplatin, Pembrolizumab, and Paclitaxel, which was subsequently discontinued until completion of radiation therapy. Additional medications included a prednisone taper for the brain metastases and sulfamethoxazole/trimethoprim for immunosuppression prophylaxis. He reported that the lesion was not painful but would bleed regularly and was increasing in size. On the current exam, a 1.7cm pink, firm, friable, nodule was noted on the left lateral chin. A 4mm punch biopsy was obtained from the central area of lesion on the chin. Bleeding was controlled with electrocautery and the biopsy site was filled with Surgifoam gel packing.

Histopathologic examination of the punch biopsy demonstrated an epidermal ulcer with an underlying pandermal infiltrate of atypical epithelial cells arranged in irregular lobules and cords (Figure 1). High-power examination demonstrated marked pleomorphism with variation in nuclear and cellular size, prominent nucleoli, hyperchromasia, apoptotic cells, abundant mitotic figures, and intercellular bridges consistent with squamous differentiation (Figure 2).

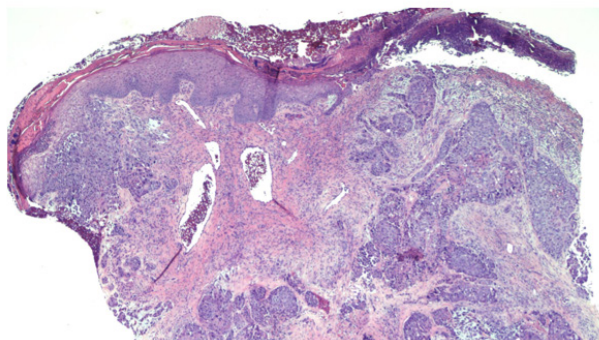


Figure 1 Low-power (40×) photomicrograph of the punch biopsy specimen demonstrating an epidermal ulcer with an underlying pandermal infiltrate of atypical epithelial cells arranged in irregular lobules and cords.

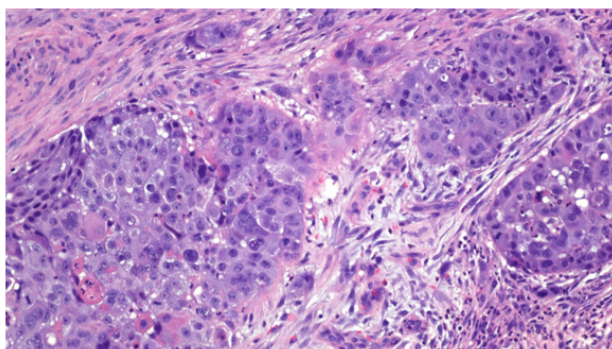


Figure 2 High-power (200×) photomicrograph demonstrating atypical squamous epithelial cells with marked pleomorphism, hyperchromasia,

prominent nucleoli, apoptotic bodies, abundant mitotic figures, and intercellular bridges consistent with squamous differentiation.

A noncontrast CT of the chest demonstrated a left hilar mass encasing the left main pulmonary artery and compressing the left lower lobe bronchus with complete postobstructive collapse. Some hilar and mediastinal lymph nodes were noted. There were scattered bilateral calcified and noncalcified lung nodules, and the findings were concerning for malignancy. Subsequent endobronchial biopsy of the left lower lobe confirmed squamous cell carcinoma, with immunostains notable for CK7 positive, p40 positive, and TTF-1 negative.

Punch biopsy pathology of the left chin returned metastatic carcinoma consistent with cutaneous metastasis of lung squamous cell carcinoma. Immunohistochemical staining demonstrated diffuse positivity for CK7 (Figure 3), diffuse nuclear positivity for p40 (Figure 4), and absence of TTF-1 staining (Figure 5). The cutaneous lesion demonstrated the same immunostain profile as the primary pulmonary tumor: CK7 positive, p40 positive, and TTF-1 negative. The patient subsequently underwent surgical excision of the 1.7 cm exophytic mass with 0.2 cm margins. Final pathology demonstrated scar and residual metastatic squamous cell carcinoma with margins appearing free of tumor, and the wound was closed primarily.

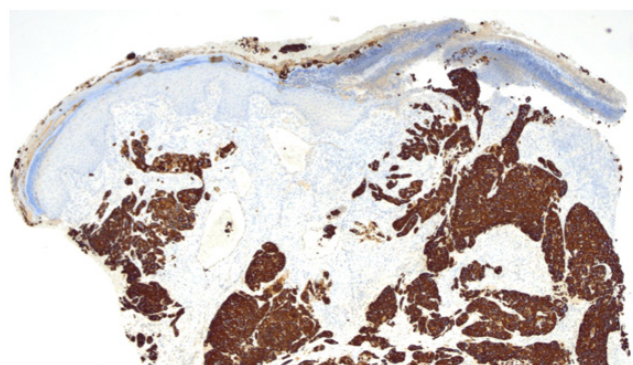


Figure 3 Immunohistochemical staining demonstrating diffuse positivity for cytokeratin 7 (CK7) within the metastatic tumor cells.

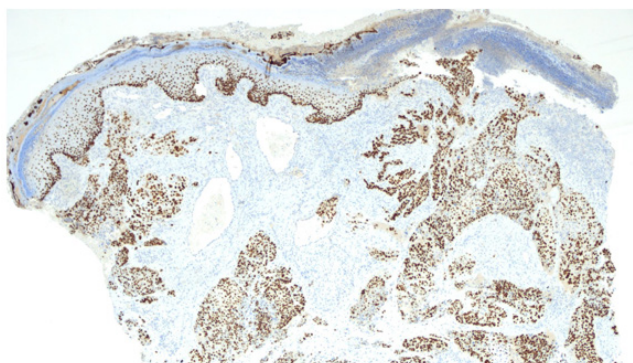


Figure 4 Immunohistochemical staining demonstrating diffuse nuclear positivity for p40 within the metastatic tumor cells, supporting squamous differentiation.

Discussion

This case illustrates a rare but clinically important presentation: cutaneous metastasis of pulmonary SCC to the chin in a patient with known Stage IV lung malignancy. Cutaneous metastases from lung cancer are uncommon, with a reported overall occurrence between 0.22% and 12% of lung cancer cases, and squamous cell carcinoma

represents a less frequent source of skin metastasis compared to adenocarcinoma or large cell carcinoma.^{4,5,6} A 25-year retrospective study found that among patients with lung cancer and confirmed cutaneous metastases, adenocarcinoma was the predominant histologic subtype (63.6%), followed by squamous cell carcinoma (18.2%).⁵

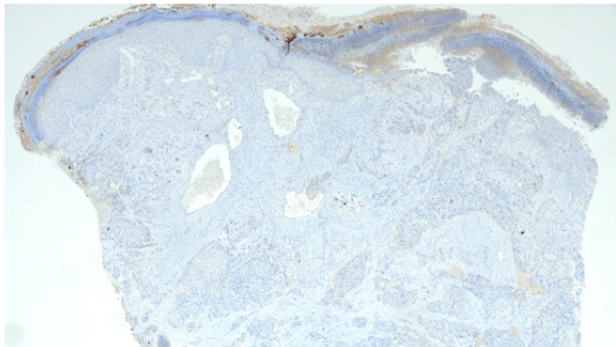


Figure 5 Immunohistochemical staining demonstrating absence of thyroid transcription factor-1 (TTF-1) expression within the metastatic tumor cells.

The clinical appearance of cutaneous metastases from lung cancer is typically that of solitary or multiple firm, painless dermal nodules that enlarge progressively, sometimes exhibiting ulceration or friability, as seen in this patient.^{3,6} The head and neck represent one of the most commonly affected regions, consistent with the chin location in this case. A retrospective analysis by Marcoval et al.,¹² of 30 patients with cutaneous metastases from lung carcinoma found that the most frequent clinical presentation was a solitary nodule, and the most common anatomical site was the head.¹² Bleeding, as reported by our patient, is less commonly noted in the literature but may reflect the friable and vascular nature of the exophytic metastatic lesion.

The diagnostic workup in this case relied heavily on immunohistochemistry. The combination of CK7 positivity, p40 positivity, and TTF-1 negativity is characteristic of pulmonary squamous cell carcinoma and served to link the cutaneous lesion to the known primary lung tumor. TTF-1 and p40 are considered the criterion standard pair for subtyping non-small cell lung carcinoma (NSCLC): TTF-1 is highly sensitive and specific for adenocarcinoma, while p40 — an isoform of p63 — has high sensitivity and specificity for SCC and is preferred over p63 for this purpose.^{10,11} TTF-1 negativity in SCC of the lung is a consistent and well-validated finding.¹³ Importantly, the identical immunoprofile between the primary endobronchial biopsy and the cutaneous biopsy strengthened the diagnosis of metastatic spread rather than a second primary tumor.

The pathophysiology of cutaneous metastasis involves hematogenous or lymphatic spread, direct extension, or seeding via surgical procedures.⁹ In lung cancer, hematogenous dissemination is most common, which may account for the distal location of the chin lesion relative to the primary intrathoracic tumor. Immunosuppression, as present in this patient secondary to corticosteroid therapy and recent chemotherapy, may further facilitate tumor dissemination and implantation in the skin.

Surgical excision was performed in this case, resulting in clear margins, which represents a reasonable palliative approach for symptomatic or isolated cutaneous metastases. However, the primary driver of prognosis is the underlying systemic disease. The presence of cutaneous metastases typically signifies advanced (stage III/IV) disease with concomitant visceral involvement and carries a median

survival of less than eight months; lung cancer-specific data suggest an average survival of three to five months following skin metastasis diagnosis.^{2,9,14} In this patient, the concurrent brain and liver metastases further underscore the advanced and disseminated nature of his disease.

This case reinforces several important clinical lessons. Physicians should maintain a high index of suspicion for cutaneous metastasis in patients with known internal malignancies presenting with new or growing skin nodules, particularly in the head and neck region. Additionally, punch biopsy with IHC is an accessible and highly informative diagnostic tool that can confirm or reveal the primary source of metastatic disease. Cutaneous metastases from lung SCC, while rare, can present with atypical features such as bleeding or an exophytic morphology that may not immediately suggest metastatic disease.

Conclusion

We present a case of cutaneous metastasis from Stage IV pulmonary squamous cell carcinoma to the face, confirmed by immunohistochemical staining (CK7+, p40+, TTF-1-) and managed with surgical excision with clear margins. This case highlights the diagnostic utility of skin biopsy with IHC in identifying the primary source of cutaneous metastases and underscores the prognostic significance of this finding in the setting of advanced lung malignancy. Clinicians should remain vigilant for cutaneous metastases in patients with known lung SCC, as early identification facilitates timely palliative intervention and informed prognostic counseling.

Acknowledgments

None.

Conflicts of interest

The authors declare there is no conflicts of interest.

Funding

None.

References

1. Krathen RA, Orengo IF, Rosen T. Cutaneous metastasis: a meta-analysis of data. *South Med J*. 2003;96(2):164–167.
2. Iorga PG, Dragomirescu A, Scurtu LG, et al. An update on cutaneous metastases of internal malignancies. *Medicina (Kaunas)*. 2025;61(9):1570.
3. Nashan D, Müller ML, Braun-Falco M, et al. Cutaneous metastases of visceral tumors: a review. *J Cancer Res Clin Oncol*. 2009;135(1):1–14.
4. Haryati H, Tanjung E. Squamous cell lung cancer with cutaneous metastases: a case report. *Indonesian Journal of Cancer*. 2025;19(1):119–123.
5. Natal RM, Marcos Oliveira M, Amaral A, et al. A survival analysis of cutaneous metastases in lung cancer: a 25-year experience. *Pneumon*. 2022;35(4):28.
6. Sghier AB, Samba S, Bouabid M, et al. Cutaneous metastasis of lung cancer: case report. *Radiol Case Rep*. 2024;19(3):1208–1210.
7. Lookingbill DP, Spangler N, Sexton FM. Skin involvement as the presenting sign of internal carcinoma. *J Am Acad Dermatol*. 1990;22(1):19–26.
8. McSweeney WT, Tan K. Cutaneous metastases as a presenting sign of metastatic NSCLC. *J Surg Case Reports*. 2019;2019(10):rjz279.

9. Komurcugil I, Arslan Z, Bal ZI, et al. Cutaneous metastases different clinical presentations: case series and review of the literature. *Dermatol Reports*. 2022;15(1):9553.
10. Yatabe Y, Dacic S, Borczuk AC, et al. Best practices recommendations for diagnostic immunohistochemistry in lung cancer. *J Thorac Oncol*. 2019;14(3):377–407.
11. Agrawal M, Goyal V, Arya A, et al. Diagnostic utility of TTF-1 and P40 immunohistochemical markers for subtyping of non-small cell lung carcinoma. *JMSH*. 2023;9(1):37–42.
12. Marcoval J, Penín RM, Llatjós R, et al. Cutaneous metastasis from lung cancer: retrospective analysis of 30 patients. *Australas J Dermatol*. 2012;53(4):288–290.
13. Jafarian AH, Gharib M, Roshan NM, et al. The diagnostic value of TTF-1, P63, HMWK, CK7, and CD56 immunostaining in the classification of lung carcinoma. *Iran J Pathol*. 2018;13(1):31–38.
14. Sanaa K, Zahra MF. Skin metastases of lung carcinoma. *Pan Afr Med J*. 2015;21:13.