The New Journal of Urology
eISSN 3023-6940
doi: https://doi.org/10.33719/nju1815459

CASE REPORT

Scrotal Skin Metastasis of Lung Adenocarcinoma: A Rare Case Report

Erdem Orman [1], Görkem Akça [1 *], Hakkı Uzun [1], Recep Bedir [2], Selim Yazar [1]

[1] Department of Urology, Faculty of Medicine, Recep Tayyip Erdogan University, Rize, Türkiye

[2] Department of Pathology, Faculty of Medicine, Recep Tayyip Erdogan University, Rize, Türkiye

Submitted: *2025-11-01*
Accepted: *2026-09-09*

Corresponding Author;
Görkem Akça MD, PhD
Address: Department of Urology, Faculty of Medicine, Recep Tayyip Erdoğan University, Rize, Türkiye
E-mail: gorkem.akca@erdogan.edu.tr

ORCID
E.O. 0000-0003-1422-7137
G.A. 0000-0002-7019-4264
H.U. 0000-0002-5189-3166
R.B. 0000-0001-8247-3781
S.Y. 0000-0002-9843-9008

Abstract

Scrotal skin metastasis is extremely rare, predominantly originating from urogenital or gastrointestinal malignancies. Lung adenocarcinoma metastasis to the scrotum has been reported in only a limited number of cases in the literature. A 71-year-old male with a known diagnosis of lung adenocarcinoma presented with a progressively enlarging, painless 3 x 3 cm nodular mass in the right hemiscrotum. Histopathological and immunohistochemical examination confirmed metastatic pulmonary adenocarcinoma (TTF-1+, CK7+, P40-). The patient declined systemic therapy and experienced rapid disease progression, dying three months after the diagnosis of scrotal metastasis. This case highlights that metastatic disease should be considered in the differential diagnosis of scrotal lesions in patients with known malignancy, and underscores the value of immunohistochemistry in establishing the diagnosis.

Keywords: lung neoplasms, scrotal skin metastasis, cutaneous metastasis, lung adenocarcinoma

INTRODUCTION

Although cutaneous metastases may occur in advanced malignancies, scrotal skin involvement is exceptionally rare and most commonly originates from urogenital or gastrointestinal tumors. Scrotal tumors include squamous cell carcinoma, Paget's disease, basal cell carcinoma, sarcomas, malignant melanoma, and metastatic tumors (1,2). While the overall incidence of cutaneous metastasis in all cancers is approximately 10%, metastasis to the scrotal skin is exceedingly rare, with a reported incidence of approximately 0.02% (3). Scrotal skin metastases most commonly arise from urogenital and gastrointestinal malignancies, whereas lung-origin metastases have been reported in a limited number of cases in the literature (4).

Herein, we report a rare case of scrotal skin metastasis originating from lung adenocarcinoma, and discuss its clinical, histopathological, and diagnostic features.

Cite; Orman E, Akca G, Uzun H, Bedir R, Yazar S. Scrotal Skin Metastasis of Lung Adenocarcinoma: A Rare Case Report. New J Urol. 2026;21(3):170–174.
doi: https://doi.org/10.33719/nju1815459

This work is licensed under a Creative Commons Attribution 4.0 (CC-BY) International License. © *Copyright remains with the authors.*

CASE REPORT

A 71-year-old male patient was referred to the Urology outpatient clinic by the Dermatology department for a painless scrotal skin lesion that had progressively increased in size.

Physical examination revealed a painless, mobile nodular lesion measuring approximately 3 × 3 cm in the right hemiscrotum (Figure 1). On palpation, the lesion was confined to the subcutaneous level, and the testis and epididymis were normal. The lesion surface was erythematous with signs of superficial infection, and no inguinal lymphadenopathy was detected.

His medical history included hypertension, essential thrombocytosis, lung cancer, and transurethral resection of the prostate (TURP) performed approximately 10 years prior. He had quit smoking 7 years ago, with a 45-pack-year smoking history. His oncologic history was as follows: in December 2024, a non-contrast chest CT performed for cough and dyspnea had revealed an irregularly marginated primary mass measuring 37 × 24 mm in the right upper lobe (Figure 2). F-18 FDG PET/CT performed for staging had demonstrated increased activity in the right hilar, paratracheal, and supraclavicular lymph nodes, with metastatic involvement of the skull base, C1 vertebra, right 4th rib, left iliac bone, and acetabular region. An interventional radiology-guided lung biopsy had been reported as non-small cell lung carcinoma (NSCLC); the histomorphological and immunohistochemical findings (TTF-1+, CK7+, P40−) were consistent with poorly differentiated adenocarcinoma. Systemic chemotherapy recommended by medical oncology had been declined, and a total of 15 sessions of palliative radiotherapy had been administered between December 2024 and January 2025. The scrotal skin lesion had appeared approximately 3–4 months after this lung cancer diagnosis.

Given the patient's known history of lung cancer, metastasis was strongly suspected. Scrotal ultrasonography performed to assess the depth of the lesion and testicular invasion revealed normal testicular parenchyma; the lesion was reported to be confined to the skin and subcutaneous tissues without extension to deeper structures. Magnetic resonance imaging was not deemed necessary.

Figure 1. A nodular mass measuring approximately 3 × 3 cm was observed on the right side of the scrotum during physical examination.

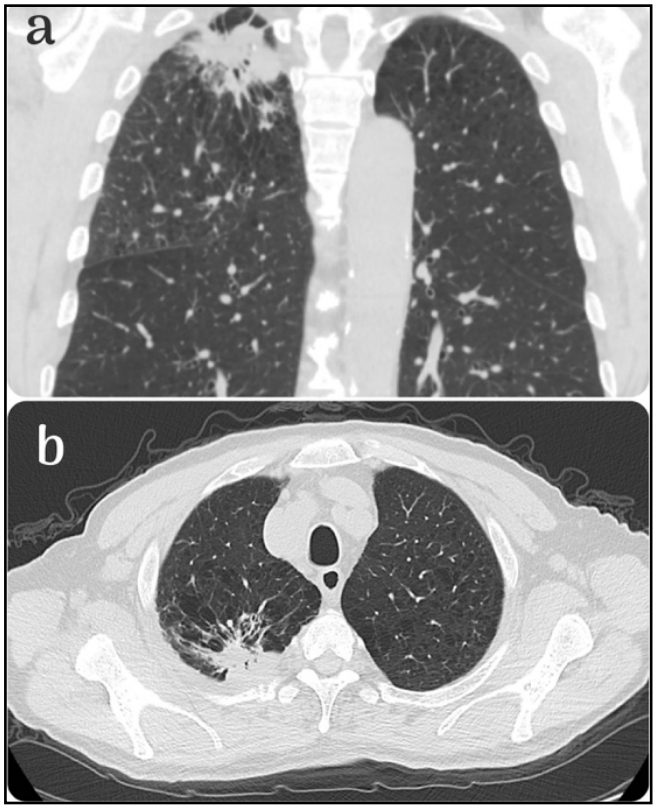

Figure 2. Chest CT demonstrates an irregular soft tissue mass measuring approximately 37 × 24 mm located in the posterior segment of the right upper lobe, showing pleural-based invasion of the 4th rib (primary lesion). *(a) Coronal section, (b) Axial section.*

Excisional biopsy was preferred over punch or incisional biopsy due to the size of the lesion (3 × 3 cm), which allowed complete removal while simultaneously providing the entire specimen for histopathological evaluation. After written informed consent was obtained, including consent for publication, the lesion was excised under local anesthesia (Figure 3).

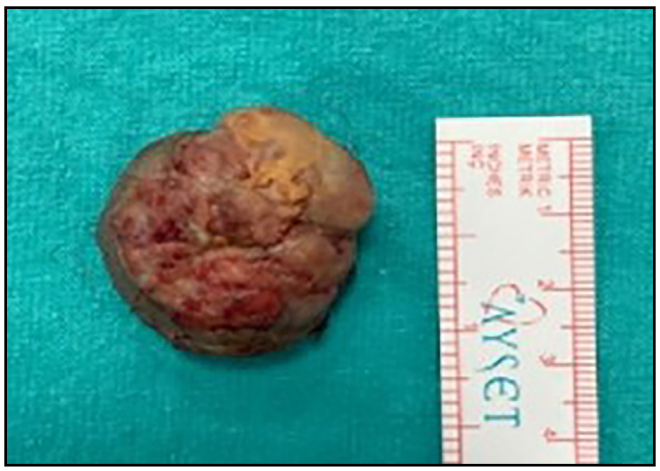

Figure 3. Appearance of the excised scrotal mass.

Following excision, the wound was closed primarily, and postoperative healing was uneventful.

Pathological examination revealed that the specimen was immunohistochemically diffusely positive for Cytokeratin-7 (CK7) and TTF-1, and negative for p40, S-100, SOX-10, and HMB-45. Microscopically, atypical epithelial cells with large hyperchromatic nuclei and prominent nucleoli were observed forming small irregular glandular structures, ulcerating the surface epidermis and infiltrating the subcutaneous adipose tissue. These morphological and immunohistochemical findings were consistent with metastatic lung adenocarcinoma, and correlated with the primary lung biopsy findings, which demonstrated the same immunophenotype (TTF-1+, CK7+, P40–) (Figure 4). The tumor base was located 1 mm from the surgical margin, while the lateral surgical margins were tumor-free. The patient was referred to the Pulmonology and Medical Oncology departments for reevaluation of oncological treatment options. Systemic therapy was again recommended; however, the patient declined for the second time. No local recurrence was observed at the excision site. The patient died approximately 3 months after the diagnosis of scrotal skin metastasis due to progression of the primary disease.

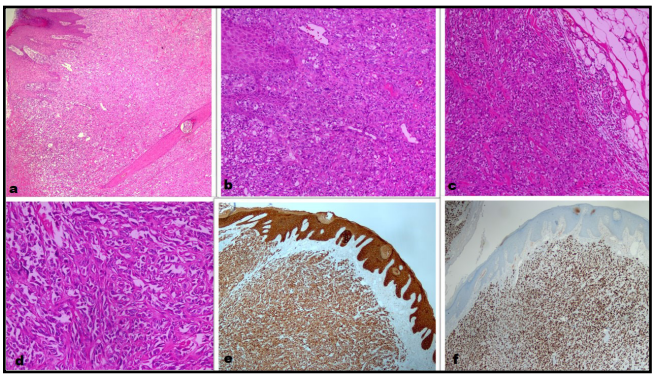

Figure 4. (a,b) Tumor infiltration was observed under the skin (H&E ×40, H&E ×100), (c) The tumor spreads to the subcutaneous fat tissue (H&E ×100), (d) The tumor consists of atypical epithelial cells that form small irregular glandular structures with large hyperchromatic nuclei and prominent nucleoli (H&E ×100), (e) Diffuse positive staining with CK7 was observed in the tumor, (f) Diffuse positive staining with TTF-1 was observed in the tumor.

DISCUSSION

Although most lesions of the scrotal skin are benign, primary malignancies and metastatic foci should be considered in the differential diagnosis. In the study by Hoyt et al. (4), one of the most comprehensive reviews in the literature, 29 patients with scrotal cutaneous metastasis were evaluated; it was reported that primary foci most commonly originated from the urogenital system (44%), gastrointestinal system (37%), and lung (13%).

Lung cancer is one of the leading causes of cancer-related deaths worldwide and frequently metastasizes to the brain, bone, liver, and adrenal glands (5). Cutaneous metastases are rarer, being reported in approximately 1–12% of patients with lung cancer (6,7). While they typically occur in the chest, neck, head, and abdominal regions, scrotal skin involvement is uncommonly reported (8).

In the literature, a case reported by Coussa-Koniski et al. (8), described metastatic involvement of the scrotal wall in a patient with primary lung adenocarcinoma, emphasizing that most such cases indicate advanced systemic disease. Similarly, the study by Molina Garrido et al. (7), highlighted that cutaneous metastasis as the initial finding of lung cancer is rare (0.8%), typically indicating advanced disease and associated with short survival. Given the limited number of reported

cases, this report contributes additional clinicopathological evidence regarding atypical cutaneous dissemination patterns of lung adenocarcinoma.

In this case, the development of a scrotal lesion approximately 3–4 months after the diagnosis of lung adenocarcinoma suggests a relatively early onset of metastasis. This may be an important indicator of the aggressive course of the disease.

Cutaneous metastases typically present as painless, elevated, erythematous, or nodular lesions and may occasionally exhibit ulceration. Similarly, in this case, there was a painless, elevated nodular lesion on the right side of the scrotum. The differential diagnosis of scrotal skin lesions includes hidradenoma, poroma, basal cell carcinoma, squamous cell carcinoma, and pilomatricoma; however, in patients with a known history of malignancy, metastatic involvement should always be considered. Given the patient's known history of lung adenocarcinoma, an excisional biopsy was performed with suspicion of metastasis.

Histopathological and immunohistochemical evaluations are of great importance in the diagnosis of cutaneous metastases. In particular, TTF-1 (Thyroid Transcription Factor-1) positivity is a sensitive and relatively specific marker for lung-origin adenocarcinomas, although it should be interpreted within the full clinical and immunohistochemical context. CK7 positivity can also be observed in lung, breast, and gynecological adenocarcinomas, while p40 negativity helps exclude squamous cell carcinoma. In this case, the diffuse positivity of TTF-1 and CK7, and the negativity of p40, S-100, SOX-10, and HMB-45 confirmed that the lesion was metastatic adenocarcinoma of pulmonary origin.

Several mechanisms have been proposed for the pathogenesis of cutaneous metastases. The most commonly accepted include hematogenous dissemination, lymphatic dissemination, and direct invasion (4). The rich lymphatic network of the scrotum, particularly its close association with inguinal lymph nodes, may facilitate this process. In this case, the confinement of the lesion to the subcutaneous level without invasion of deeper structures, combined with the widespread bone and lymph node metastases already present at initial staging, may suggest hematogenous dissemination as a possible metastatic pathway. Additionally, it is thought that retrograde venous flow and valveless venous systems such as Batson's plexus may play a role in transporting cells to atypical metastatic sites, particularly in lung and gastrointestinal tumors (9).

In this case, no local recurrence was observed despite the close deep surgical margin (1 mm), and palliative follow-up was maintained. Cutaneous metastases are generally associated with poor prognosis. The mean survival time in cutaneous metastases originating from lung cancer is reported to range between 3–6 months (10). Similarly, in this case, consistent with the survival time reported in the literature, the patient died 3 months after the diagnosis of scrotal skin metastasis. Therefore, early recognition of such lesions is important for planning palliative approaches and preserving quality of life.

CONCLUSION

To conclude, scrotal skin metastasis is extremely rare and usually indicates advanced systemic disease. In patients with lung adenocarcinoma, any newly developing scrotal lesion should raise suspicion for metastatic involvement.

Conflict of Interest: The authors, declare that there are no conflicts of interest regarding this case report.

Informed Consent: Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

Funding/Financial Disclosure: The authors declared that this study received no financial support.

Ethical Approval: Ethical approval was not required for this single case report in accordance with institutional policy. Written informed consent was obtained from the patient.

Author Contributions:
Concept and Design: E.O, G.A, H.U
Supervision: G.A, E.O
Data Collection and/or Analysis: S.Y, R.B, E.O
Analysis and/or Interpretation: E.O, G.A, S.Y
Literature Search: E.O, R.B, S.Y
Writing: E.O, G.A
Critical Review: H.U, E.O

REFERENCES

1. Žulpaitė G, Žulpaitė R, Vėželis A. Scrotal squamous cell carcinoma: a case report. J Surg Case Rep. 2023;2023(3):rjad128. https://doi.org/10.1093/jscr/rjad128
2. Zhu Y, Ye DW. Preneoplastic and primary scrotal cancer: updates on pathogenesis and diagnostic evaluation. Urol Clin North Am. 2016;43:523–530.
3. Lookingbill DP, Spangler N, Helm KF. Cutaneous metastases in patients with metastatic carcinoma: a retrospective study of 4020 patients. J Am Acad Dermatol. 1993;29:228–236.
4. Hoyt BS, Cohen PR. Cutaneous scrotal metastasis: origins and clinical characteristics of visceral malignancies that metastasize to the scrotum. Int J Dermatol. 2013;52(4):398–403. https://doi.org/10.1111/j.1365-4632.2012.05717.x
5. Hess KR, Varadhachary GR, Taylor SH, Wei W, Raber MN, Lenzi R, et al. Metastatic patterns in adenocarcinoma. Cancer. 2006;106(7):1624–1633. https://doi.org/10.1002/cncr.21778
6. Terashima T, Kanazawa M. Lung cancer with skin metastasis. Chest. 1994;106(5):1448–1450. https://doi.org/10.1378/chest.106.5.1448
7. Molina Garrido MJ, Ponce CG, Soto Martínez JL, et al. Cutaneous metastases of lung cancer. Clin Transl Oncol. 2006;8(5):330–333. https://doi.org/10.1007/s12094-006-0178-6
8. Coussa-Koniski ML, Maalouf PA, Raad NE, Bejjani NA. Scrotal wall metastasis from a primary lung adenocarcinoma. Respir Med Case Rep. 2015;15:77–79. https://doi.org/10.1016/j.rmcr.2015.05.002
9. Brook RC, et al. Batson's plexus and retrograde venous spread of malignancy: a pictorial review. Cancer Imaging. 2014;14(Suppl 1):P40. https://doi.org/10.1186/1470-7330-14-S1-P40
10. Hidaka T, Ishii Y, Kitamura S. Clinical features of skin metastasis from lung cancer. Intern Med. 1996;35(6):459–462. https://doi.org/10.2169/internalmedicine.35.459