
Sarcomatoid lung carcinoma presenting as alopecia neoplastica

Sir,

The primary tumors most commonly metastasizing to the scalp are lung cancer (23.53%), followed by colorectal (11.76%) cancers.¹ Scalp metastases usually present as solitary or multiple nodules or plaques and rarely as alopecia neoplastica.² Sarcomatoid carcinomas are a group of poorly differentiated non-small cell lung carcinomas that contain a component of sarcoma or sarcoma-like differentiation. Five subtypes representing a morphologic continuum are currently recognized: pleomorphic carcinoma, spindle cell carcinoma, giant cell carcinoma, carcinosarcoma, and pulmonary blastoma.³ Here, we present a very rare case of sarcomatoid carcinoma of the lung presenting as alopecia neoplastica. We were unable to find any previous reports of the same.

A 32-year-old man was referred with multiple painful nodules over the face and scalp with alopecia [Figure 1]. On examination there were multiple skin colored firm/firm tender nodules of size 2x2 cm to 5x4 cm with overlying non cicatricial/non cicatricial alopecia. Hepatomegaly was found on abdominal examination but there was no peripheral lymphadenopathy. While in the ward the patient developed excruciating headache, but there was no focal neurological deficit. We proceeded with the clinical possibilities of adnexal tumors and cutaneous metastases from an unknown primary malignancy.

Routine investigations were within normal limits except for the raised ESR (64 mm/1st hour). Chest X-ray showed mediastinal widening while ultrasonography of the abdomen revealed calcified foci in the liver and enlarged periportal lymph nodes. Fine needle aspiration cytology from the cutaneous nodule showed atypical spindle-shaped cells suggestive of invasive carcinoma. For confirmation, we

obtained a punch biopsy of the lesion for histopathology and immunohistochemistry. Contrast-enhanced computed tomography revealed the primary tumor as a bronchogenic carcinoma in the posterior basal segment of right lower lobe with metastases in the lung parenchyma, mediastinal lymph nodes, liver, pancreas, and brain.

Histopathology of the skin lesion showed metastatic deposits in the dermis from a high-grade malignant neoplasm with cells of epithelial and spindle cell morphology [Figure 2]. On immunohistochemistry, the cells were positive for cytokeratin and vimentin, and negative for thyroid transcription factor-1 (TTF-1) suggestive of metastasis from sarcomatoid lung carcinoma. Patient was referred to the oncology department where he was treated with cranial irradiation followed



Figure 1: Multiple nodules over scalp with non-scarring alopecia

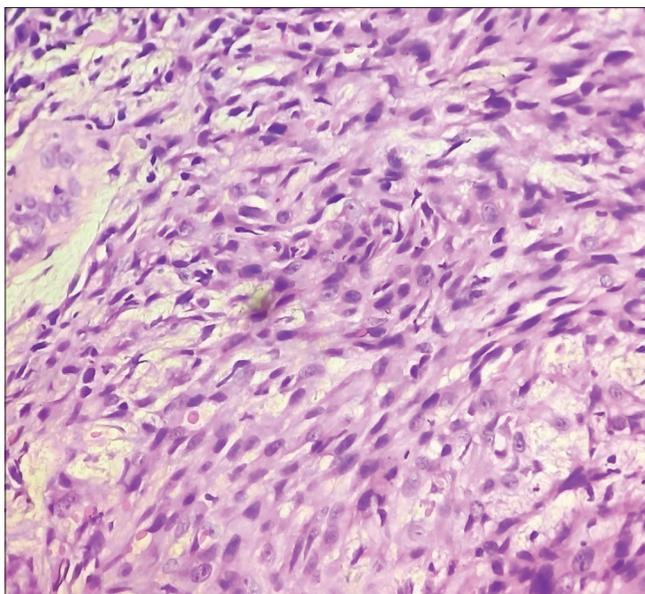


Figure 2: Histopathology of the scalp biopsy showing pleomorphic cells of epithelial and spindle cell morphology (H and E, ×400)

by chemotherapy. Unfortunately, the patient succumbed after the second cycle of chemotherapy.

Sarcomatoid carcinomas are a group of poorly differentiated non-small cell lung carcinomas with an average age at diagnosis of 60 years. Males are four times more commonly affected, and tobacco smoking is the major risk factor.³ Though our patient was a heavy smoker with 15 pack years, he was exceptionally young, had no obvious cough or any abnormal lung related signs or symptoms. He originally presented with alopecia neoplastica, which was of nonscarring type. His lesions were remarkable by the presence of non scarring alopecia and tenderness which is unusual as the most common manifestation of scalp metastasis is nontender nodules.⁴

Alopecia neoplastica usually manifests as a single or multiple areas of cicatricial alopecia, however, rarely it can simulate alopecia areata, as in our case.^{2,4,5} The lesions may have a red-pink color and can evolve from a smooth to an uneven surface with peripheral telangiectasias.⁵ Diagnosis of alopecia neoplastica can be confirmed on histologic examination; the dermis is fibrotic with metastatic cells in the reticular dermis or subcutis. The tumor cells may line up in single rows between fibrotic collagen, a finding known as “Indian filing.” There is also loss of the pilosebaceous units.⁵ The exact mechanism of alopecia neoplastica is unclear. Fibrosis caused by stromal response or release of cytokines by the tumor cells is proposed to be the probable cause. Factors independent of fibrosis, such as tumor invasion of the hair sheaths, may also play a role in the development of alopecia as there are reports of regrowth of hair in alopecic areas after effective cancer treatment.⁴ Archer and Smith had reported a case of alopecia neoplastica secondary to breast carcinoma in whom hair was regrown after treatment with tamoxifen.⁶ However, in some patients despite chemotherapy, no hair regrowth was observed, as in a gastric carcinoma patient reported by Kim *et al.*⁴

The primary malignancy was identified during contrast-enhanced computed tomography scanning and confirmed by the

histopathological and immunohistochemistry studies. The histological features and positive cytokeratin and vimentin are indicative of sarcomatoid carcinoma. Terada have previously reported a case of sarcomatoid carcinoma of the lung presenting with cutaneous metastasis on chest.⁷

Undetermined primary tumor accounted for approximately one-third of all metastatic scalp tumors in a study by Chiu *et al.*, indicating that the underlying primary tumor might be poorly differentiated and highly malignant making no detectable internal primary tumor when scalp biopsy was performed.¹

We report this case to emphasize that careful dermatological examination can provide clues to accurate diagnosis. Moreover, skin provides an easily accessible tissue which can help in diagnosing occult malignancy if seen by a skilled dermatologist and pathologist.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

**Naveena Jose, Celine Machiyanicall Isac,
Sobhanakumari Kunjumani, Letha Vilasiniamma¹**

Departments of Dermatology and Venereology and ¹Pathology,
Government Medical College, Kottayam, Kerala, India

Correspondence: Dr. Naveena Jose,
Department of Dermatology and Venereology, Government Medical
College, Kottayam, Kerala, India.
E-mail: naveenajosem@gmail.com

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Letters to the Editor

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