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Small Cell Lung Carcinoma with Overt Cutaneous Metastasis; Unusual Case

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Authors' contributions

This work was carried out in collaboration between all authors. Author ZY designed the study, and authors ZY and VT wrote the first draft of the manuscript. Authors GC and YY managed the literature searches, analyses of the study. Author GO performed the pathological analysis and author UU contributed to the design and interpretation of the study. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Small cell lung carcinoma is a rapidly progressive neuroendocrine tumor having a poor prognosis. It is considered as a systemic disease, because it has diffuse involvement, distant organ metastasis, and regional lymphatic involvement at the time of initial diagnosis. While small cell lung carcinomahas a lot of metastasis to bone, liver, surrenal and other hemithorax in the onset of disease, cutaneous metastasis are rarely seen. Skin metastasis are encountered in lower than 0.5% of the patients with metastatic diseases. In this article, we aimed to present a case of small cell lung carcinoma with cutaneous metastasis which is rarely seen in the literature.

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1. INTRODUCTİON

Small cell lung carcinoma (SCLC) is a progressive tumor having a poor prognosis. Itaccounts for 15-25% of lung cancers. SCLC is distinguished from non-small cell lung cancer (NSCLC) by its rapid doubling time, high growth fraction, and the early development of widespread metastases. Also the profile of molecular and genetic alterations considerably differs between SCLC and NSCLC. Alterations of both the Rb and Tp53 genes are most likely to be important and early events in the development of SCLC, whereas alterations of the EGFR signaling pathway play significant and important roles in NSCLC carcinogenesis. The biological behavior and phenotype of the respective types of lung cancer would be attributable to these molecular and genetic alterations, but also reflect the difference in the ability of their precursor cells [1]. Although SCLC is highly responsive to chemotherapy and radiotherapy, the disease usually relapses within two years despite treatment.Survival in the advanced stage is one to three months without treatment. On the other hand, life expectancy with the medical therapy is mean 14-16 months at limited disease, 8-11 months at advance stage. Survival is fairly low at long period. In these patients, 5-year survival rate is about 4% [2]. It is considered as a systemic disease, because ofmetastasizing to distant organ at early stage. The rates of organ metastasis of SCLC are 27-41% for bone, 21-27% for liver, 5-31% for surrenal gland, and 1-12% for other hemithorax. The rate of soft tissue metastasis is about 5% [3]. Other types of lung cancer cause cutaneous metastasis only in the 1.5-2.6% of the patients [4]. Inthisreport, wedescribed an unusualcase of SCLC metastasizing to left mandibular posterior area at the time of initialdiagnosis.

2. CASE PRESENTATİON

A 58-year-old man, a heavysmoker (50 pack/year), was referred to our pulmonary diseases department with a shorthistory of dyspnea, loss of weight, anorexia and pleuritic pain. He had a copious purulent sputum and a pain at back and left hip. Patient's medical history reveals no significant feature. Chest X-ray revealed right hilar mass and a right lower lobe infiltration. Bronchoscopy planned for further evaluation and demonstrated a whitish mucosalin filtrations at the intermediate bronchus. Multiple biopsy was carried out from these lesions. Bronchial washing sproved negative for malignant cells. Pathological examination of the biopsy was reported as a SCLC. We obtained the results compatible with diffuse bone metastasis in bone scintigraphy, and pathological signal alterations in thoracal ve lumbarvertebraes in MRI images. Any other organ involvement were not determined in the investigation with computerized tomograpy. In the physical examination, there was a 5 cm, hemorrhagic, erythematous, multi-lobulated, firm, fibrotic lesion at left mandibular posterior region (Fig. 1). The pathological result of punch biopsy taken from the lesion reported as a metastatic SCLC. He died due to respiratory insufficiency with additional bone and cutaneous metastases within four months after diagnosis.

3. DISCUSSION

Small cell lung carcinoma is a rapidly progressive, neuroendocrine tumor having a poor prognosis. SCLC is quite mortal and most patients die within one year after the diagnosis. Patients survive only for one to three months without treatment [5]. SCLC may be presented with paraneoplastic syndromes, superior-vena cava syndromes, compressions to the spinal cord and, rarely, cutaneous metastases [5]. SCLC have a high doubling time, therefore it grows very rapidly. It can be said that it is systemic disease because of distant metastasis in early stage [6]. As mention in the literature, our patient having cutaneous metastasis did not accept the therapy and diedin four months after the diagnosis.

Lung ancer is the second most common cause of death, and the most frequent involvement sites are upper trunk, abdomen and head and neck [7]. Stephan Paget published the 'seed and soil' hypothesis to explain the non-random pattern of metastasis [8]. He reported that outcome of metastasis was not due to chance, but that certain tumour cells (seed) have specific affinity for the milieu of certain organs (soil).Endothelial cells in the vasculature of different organs express different cell-surface receptors and growth factors that influence the phenotype of metastases that develop there. So metastasis formed only when tumour cells and targeted organ were compatible [8]. Recently, this hypothesis discussed by other studies [9,10].

Skin metastasis is not usually expected as a first sign of internal malignancy. Clinically, skin metastases may be presented as nodules, ulceration, bullae, cellulitis-like lesions or fibrotic processes [11]. Terashima et al. [12] and Hidaka et al. [13] reported skin metastases in a few cases with small cell lung cancer. In the pathological examination of the multilobulated, ulcerative, erytematous and hemorrhagic lesion that our patient has during the diagnosis of SCLC, the results obtained were similar with that in the bronch biopsy. There with,it is considered as cutaneous metastasis of SCLC (Figs. 2a, b, c). Many tumours are heterogeneous and contain numerous subpopulations of cells that have different biological characteristics. Like primer neoplasm, metastases can have a unicellular or multicellular origin. In our case bone metastasis was detected but we could not assessed and compared pathologically to skin metastasis due to absence of patient's consent.

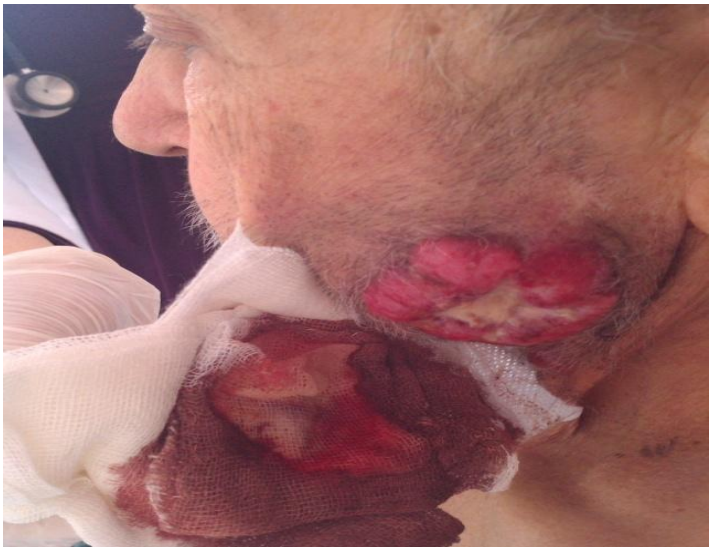

Fig. 1. Five centimeters diameter, hemorrhagic, erythematous, and multi-lobulated firm, fibrotic lesion on the left mandibular area

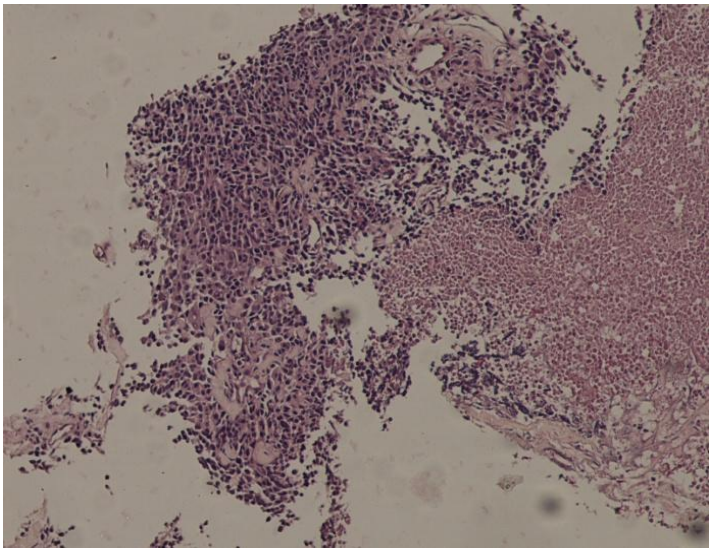

Fig. 2a. Small cell carcinoma. The tumor cells have little cytoplasm and finely dispersed nuclear chromatin. Nucleoliare not readily evident (H/E, 10x)

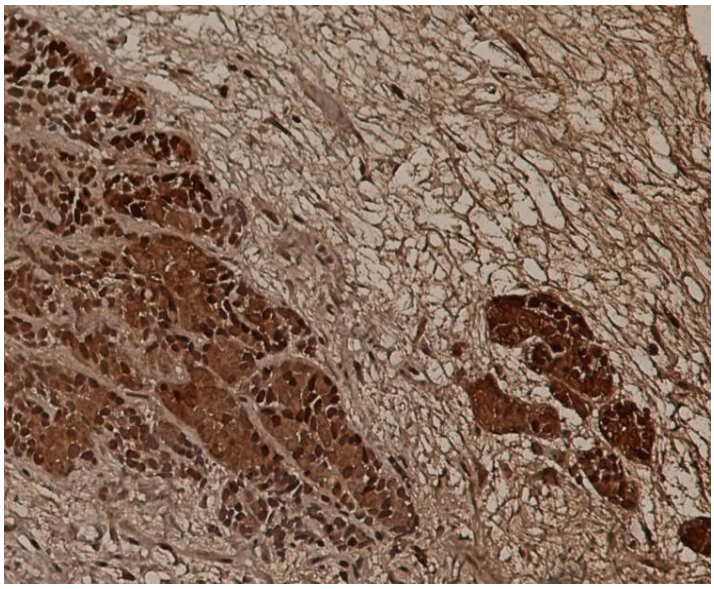

Fig. 2b. NSE staining is positive in small cell carcinoma (NSE, 20x)

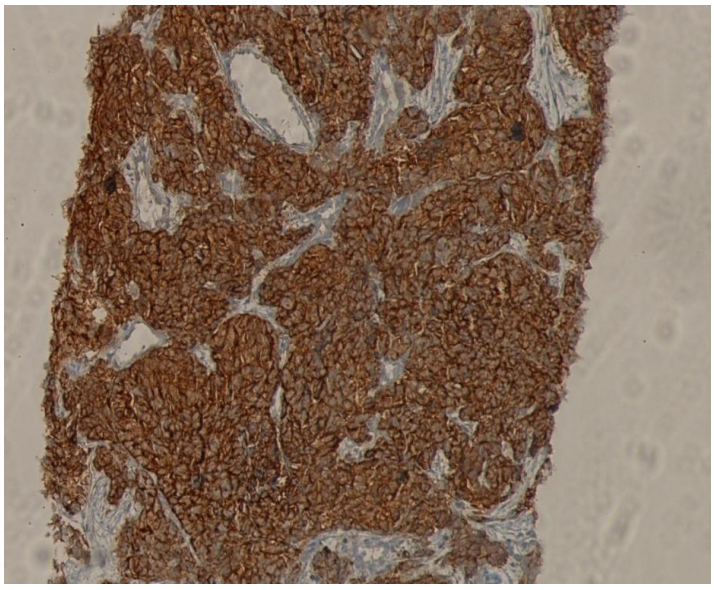

Fig. 2c. Synaptophysin, which is the marker of neuroendocrine tumor, ispositive in small cell carcinoma (Synaptophysin, 10x)

Generally, cutaneous metastases are predictors of metastatic disease. Diagnosis may be delayed by several months, unless spreading to other regions such as the lung and liver or the skin lesion grows rapidly [14]. We learned in the patient's anamnesis that he has an initially nodular and reddish, later erythematous and bleeding lesion for a long time on the posterior of his mandibula before onset of complaints of pleuritic and bone pain and purulent sputum. We think that the diagnosis was delayed for a few months because of no additional systemic complaints.

4. CONCLUSION

In conclusion, such cutaneous lesions should be evaluated carefully for early diagnosis, even though cutaneous metastasis in SCLC has a poor prognosis.

The study was approved by the Ethics Committee of Abant Izzet Baysal University Medical Centre.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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