



## OLGU SUNUMU

F.Ü.Sağ.Bil.Tıp.Derg.  
2017; 31 (1): 45 - 46  
<http://www.fusabil.org>

### Intraventricular Brain Metastasis from Small Cell Lung Cancer: A Rare Case Report \*

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Small cell lung cancer (SCLC) is a rapidly progressing malignancy with a poor survival rate. It is a very chemo sensitive disease. Its prognosis is poor due to its tendency to early relapses and metastases. SCLC frequently metastasizes to lymph nodes, adrenal glands, liver, bone, brain and pleura. Cerebral parenchymal metastases are common but intraventricular metastasis is rare. In this article we present a case of a man diagnosed with SCLC who developed multiple parenchymal and intraventricular brain metastases.

**Key Words:** Lung cancer, metastasis, intraventricular, computed tomography, magnetic resonance imaging

#### Küçük Hücreli Akciğer Kanserinin İntraventriküler Beyin Metastazı: Nadir Bir Olgu

Küçük hücreli akciğer kanseri (KHAK), kötü sürveye sahip, hızlı progresyon gösteren bir malignitedir. Çok kemosenitif bir hastalıktır. Erken nüks etme ve metastaz eğilimi nedeniyle prognozu kötüdür. KHAK sıklıkla lenf düğümleri, karaciğer, adrenal bezler, kemik, beyin ve plevraya metastaz yapar. Serebral parankimal metastazlar sıktır, ancak intraventriküler metastaz nadirdir. Bu olguda, KHAK tanısı konan bir erkek olguda, multipl parankimal ve intraventriküler beyin metastazı gelişimi sunuldu.

**Anahtar Kelimeler:** Akciğer kanseri, metastaz, intraventriküler, bilgisayarlı tomografi, manyetik rezonans görüntüleme

#### Giriş

Small cell lung cancer (SCLC) accounts for 15-20% of all lung cancers (1). At diagnosis, approximately 30% of patients are confined to the tumor hemithorax, mediastinum or supraclavicular lymph nodes. SCLC tends to spread widely at the time of diagnosis. Lymph nodes, liver, adrenal glands, bone, brain, and pleura are common localization of metastases. Cerebral parenchymal metastases are common, but intraventricular metastasis is rare (2). SCLC is more sensitive to chemotherapy and radiation therapy than other lung cancers; however, it is difficult to perform a treatment. Computerized Tomography (CT) and Magnetic Resonance Imaging (MRI) are useful diagnostic methods for detecting intracranial metastases.

#### Case Report

A 44-year-old male patient with SCLC was admitted to our hospital with evidence of headache, drowsiness, vomiting, and severe neurological symptoms. Contrast enhanced CT of the brain revealed multiple parenchymal lesion with intraventricular mass (Figure 1). Contrast enhanced MRI of brain showed multiple enhanced solid mass with enhanced lesion in the anterior horn of left lateral ventricle without hydrocephalus (Figure 2a-c). The biggest lesion affected the right thalamus (4x3 cm). These lesions were associated mild edema. There were other similar lesions and also multiple nodules in the frontal ventricular wall. The CT and MRI images suggested a diagnosis of a mass at the brain and ventricle. Radiological findings were compatible multiple cerebral and intraventricular metastasis in the widely metastatic patient. High doses of steroids were started but his mental status got worse. The patient died 15 days after without any chance of other treatments.

#### Discussion

SCLC accounts for about 16-20% of lung carcinomas (1). It has the most aggressive clinical course from pulmonary tumor types and has an average survival of only 2 to 4 months after diagnosis. Symptoms can be seen from local invasion or compression of adjacent thoracic structures, esophageal compression causing

**Geliş Tarihi** : 07.02.2017  
**Kabul Tarihi** : 19.04.2017

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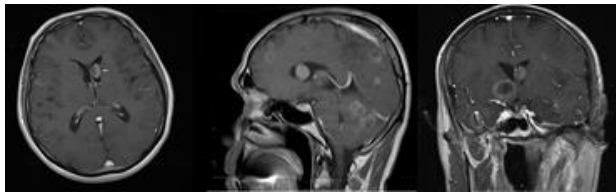
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\* 37. Ulusal Radyoloji Kongresi PS-017, 1-5 Kasım 2016, Antalya/TÜRKİYE.

dysphagia, compression to the laryngeal nerves causing hoarseness, or compression to the superior vena cava may lead facial edema and distension of the superficial veins of neck and head. Symptoms may also be present from distant metastases and include neurologic deficit or personality changes duo to brain metastases or pain duo to bone metastases.



**Figure 1.** Contrast enhanced axial brain CT revealed intraventricular mass (Arrow).



**Figure 2.** a-c. Axial enhanced MRI of brain showed multiple solid mass with enhanced lesion in the anterior horn of left lateral ventricle (arrow) (a), sagittal image (b), coronal image (c).

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Brain metastasis is the most common intracranial neoplasia, seen in 8-10% of cancer cases. It is an important cause of cancer-related morbidity and mortality in the world.

SCLC has increased risk for early hematogeneous spread, especially to the brain (3).

Brain metastases are present in 24% of patients when brain MRI is included during the staging evaluation (4, 5). If most patients live long enough, brain metastasis will eventually develop. Parenchymal metastases are more frequent, but intraventricular spread of SCLC is rare (2).

In general, intraventricular spread from epithelial malignancies occurs in less than 5% of cancer patients. Kidney, breast, gastric, pituitary, thyroid or bladder carcinomas, lung or colon adenocarcinomas, lymphomas and melanomas can be made metastasis (6). These patients will not have a chance for any radical therapy. Most of them will survive only one month or less without any treatment (7). Treatment options for patients are determined by histology, stage, general health and patient comorbidity.

Radiotherapy may improve neurocognitive function shortly after treatment in a particular group of patients with neurological disorders. Prophylactic cranial irradiation (PCI) is now part of the standard treatment (8)