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Case Report

Small cell lung cancer with brain metastases under long-term primary control

Uzun süreli primeri kontrol altında beyin metastazlı küçük hücreli akciğer kanseri

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ABSTRACT

Small cell lung cancer (SCLC) mean overall survival (OS) of patients with extensive disease without treatment is 2-4 months. Chemotherapy is the main treatment in extensive disease. Radiotherapy is used for palliation of symptoms due to local or metastatic disease, while surgery for primary mass is rarely used. Case was presented with complaint of vomiting for 20 days, and an intracranial mass was detected in the brain imaging taken due to loss of strength in lower extremities. A 19x15 mm nodule was found in the lower lobe of the right lung. Fine needle aspiration biopsy was performed, and pathological evaluation of biopsy was reported as small cell lung carcinoma. Treatment was planned according to diagnosis of extensive small cell lung cancer. The patient immediately underwent palliative cranial radiotherapy due to the loss of strength in lower extremities. Subsequently, chemotherapy were started. SCLC is a poorly differentiated neuroendocrine carcinoma with clinical, pathological, and molecular characteristics that are distinct from those of non-small cell lung cancer (NSCLC). First-line treatment, although having serious toxicity risk, is also useful in patients with poor performance status compared to NSCLC. SCLC should be treated primarily with chemotherapy in extensive disease, and radiotherapy or surgery should be preferred for palliative treatment for distant organ metastases. It should be kept in mind that small nodules can also metastasize, and even if the disease is metastatic, local treatments can contribute to survival.

Keywords: Local therapy; small cell lung cancer; survival

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Öz

Küçük hücreli akciğer kanserinde (KHAC) yaygın hastalıkta ve tedavisiz kalan hastalarda mortalite süresi ortalama 2-4 aydır. Yaygın hastalık evresinde ana tedavi seçimi kemoterapidir. Radyoterapi lokal veya metastatik hastalığa bağlı semptomların hafifletilmesi için palyatif kullanılırken, primer kitle için cerrahi nadiren kullanılır. Olgu 20 gündür olan kusma şikayeti ile tetkik edilirken alt ekstremitelerde kuvvet kaybı başlaması üzerine çekilen beyin görüntülemede intrakranial kitle tespit edilmiş Toraks bt de, sağ akciğer alt lobda 19x15 mm nodul tesbit edilmiş.Nodulden yapılan ince iğne aspirasyon biyopsi sonucu küçük hücreli akciğer karsinomu olarak geldi. Yaygın evre küçük hücreli akciğer kanseri tanısı ile tedavi planı yapıldı. Kuvvet kaybı olmasından dolayı öncelikle beyine palyatif radyoteroapi verildi. Kemoterapi başlandı. Vakanın takip sırasında tekrarlayan nüksleri olmasına ragmen yerinde kullanılan radyoterapi ve kemoterapi seçenekleri ile 32 aylık sağkalım sağlandı. KHAK , küçük hücreli olmayan akciğer kanserinden farklı olarak , klinik, patolojik ve moleküler özelliklere sahip, farklılaşmış bir nöroendokrin karsinomdur. KHAK , kemo-duyarlı bir malignitedir, bu nedenle BT görüntülemesinde ve semptomlarda ve sonuçlarda dikkate değer iyileşmeler sağlanır. Birinci basamak tedavi, ciddi toksisite riskine sahip olmasına rağmen, KHDAK ile karşılaştırıldığında performans durumu kötü olan hastalarda da yararlıdır. Hastaların çoğu (% 60-70), klinik olarak yaygın evre hastalıkla başvurur. KHAK, yaygın hastalıkta öncelikle kemoterapi ile tedavi edilmelidir ve uzak organ metastazlarında palyatif tedavi için radyoterapi veya cerrahi tercih edilmelidir. Vakada; küçük nodullerin de metastaz yapabileceği, hastalık yaygın evrede olsa dahi, lokal hastalığa yönelik tedavilerin surveye katkı sağlayabileceği akılda tutulmalıdır.

Anahtar Kelimeler: Lokal tedavi ; küçük hücreli akciğer kanseri; sağ kalım

Introduction

Small cell lung cancer (SCLC) is subgroup of pulmonary neuroendocrine tumors. It is staged as limited or extensive disease. The mean overall survival (OS) of patients with extensive disease without treatment is 2-4 months. Patients usually present with metastatic disease. The presenting symptoms of metastatic disease include abdominal pain, bone pain, nausea, vomiting, anorexia, weight loss or focal neurological deficits.

Since SCLC is chemo-sensitive, many treatment strategies are aimed to prolonging disease-free and overall survival. Chemotherapy is the main treatment in extensive disease. Most patients respond to first-line chemotherapy, but still the OS is 12 months in extensive disease. Radiotherapy is used for palliation of symptoms due to local or metastatic disease, while surgery for primary mass is rarely used.

Herein, we wanted to report our case, who presented with extensive disease at the time of diagnosis. Also, we wanted to emphasize how well-timed combination of chemoradiotherapy contributed to patient's survival.

Case report

A 55-year-old female patient was presented with complaint of vomiting for 20 days, and an intracranial mass was detected in the brain imaging taken due to loss of strength in lower extremities. The mass was considered as a metastatic lesion and thoracoabdominal computed tomography (CT) was performed for assessment of primary origin of malignity. A 19x15 mm nodule was found in the lower lobe of the right lung. Fine needle aspiration biopsy was performed, and pathological evaluation of biopsy was reported as small cell lung carcinoma. Treatment was planned according to diagnosis of extensive small cell lung cancer. The patient immediately underwent palliative cranial radiotherapy due to the loss of strength in lower extremities. Subsequently, cisplatin 75 mg/m2 day 1 and etoposide 100 mg/m2 days 1,2,3 regimen were started. Primary malign lesion and brain metastasis regression was achieved after 6 cycles of chemotherapy, then primary radiotherapy was started. After 9 months follow-up, the patient underwent CyberKnife treatment and cisplatin-etoposide regimen was restarted due to upsized brain metastasis. The patient received 5 cycles of chemotherapy. New metastatic lesions were detected in the brain screening of patient after 5 cycles of chemotherapy. CyberKnife treatment and weekly irinotecan regimen 60 mg/m2 was started for the new brain metastasis. The primary lesion was found stable in screening at the fifth month under treatment, however the brain metastasis progressed, and neurosurgery was planned.

As a result, the patient achieved a 32-months survival with repeated cycles of chemotherapy, radiotherapy, and neurosurgery.

Discussion

SCLC is a poorly differentiated neuroendocrine carcinoma with clinical, pathological, and molecular characteristics that are distinct from those of non-small cell lung cancer (NSCLC). SCLC is an aggressive disease characterized by rapid growth and early metastatic spread to regional lymph nodes, and distant metastasis1.

More than 90% of patients with SCLC are elderly, and current or past heavy smokers. The risk of this disease increases with prolonged and excessive smoking,2 however rare cases have been reported in people who have never smoked 3.

The time between the onset of symptoms and diagnosis in SCLC is shorter than in NSCLC, but clinical findings are similar. The most frequent symptoms are cough, wheeze, dyspnea, hemoptysis caused by local intrapulmonary tumor growth, pain, fatigue, anorexia, and neurological complaints caused by distant spread, and paraneoplastic syndromes4. Peripheral metastatic sites are brain, liver, adrenal glands, bone, and bone marrow. Staging of SCLC is classified as limited or extensive disease by the 'Veterans Administration Lung Cancer Working Group' (VALCSG). Approximately 1/3 of the patients have limited disease4. In limited disease, unilateral hemithorax is involved and a single tolerable area of radiotherapy may involve the lesion . Extensive disease includes cases with malignant pleural or pericardial effusion, lesions requiring more than one single radiotherapy treatment field, or lesions other than and distant organ metastasis. Approximately 10% of patients present with brain metastasis at the time of initial diagnosis, and 40% to 50% of patients develop brain metastasis during disease course 5.

SCLC is very chemo-sensitive malignity, therefore rapid responses can be obtained with CT leading to remarkable improvements in symptoms and outcomes. First-line treatment, although having serious toxicity risk, is also useful in patients with poor performance status compared to NSCLC5. Most (60–70%) patients present with clinically obvious extensive-stage disease. These patients have median survival of 7–12 months and the survival rate at 5 years is 2%; among patients with limited-stage disease, median survival is about 23 months and the survival rate at 5 years is 12–17%.6,7. Patients with extensive disease undergoing combination chemotherapy have a complete-response rate of more than 20% and median survival longer than 7 months; in addition, disease free survival rate in these patients at 5 years is 2% 6. Our case achieved a 32 months survival unlike literature.

Most patients with small-cell lung cancer relapse within a year of starting treatment. The likelihood of response to subsequent therapy can be predicted based on the response to previous therapy and the duration of drug-free interval. Patients not responding to previous therapy or relapsed within 3 months of completion of therapy are considered refractory, whereas those responded to previous treatment or relapsed at least 3 months later after completion of therapy are considered sensitive.8,9. In extensive disease, 4-6 cycles of cisplatin-etoposide regimen is used as the standard initial treatment10. Single agent irinotecan, susceptible and resistant, has been studied and demonstrated its activity in relapsed SCLC 10. The standard treatment for patients presenting with multiple brain metastases is whole brain irradiation10. It has been observed that whole brain irradiation impairs neurological functions in recurrent brain metastases during follow-up10. Therefore, stereotactic radiosurgery is the best alternative in case of single and small metastatic foci 11. SCLC should be treated primarily with chemotherapy in extensive disease, and radiotherapy or surgery should be preferred for palliative treatment for distant organ metastases.

Conclusion

It should be kept in mind that small nodules can also metastasize, and even if the disease is metastatic, local treatments can contribute to survival.

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