

Review Article

Paraneoplastic Limbic Encephalitis - Case Report

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Keywords

- Paraneoplastic
- Encephalitis
- Cognitive dysfunction
- MRI

Abstract

Introduction: Paraneoplastic limbic encephalitis which is characterized by memory loss, seizure, cognitive dysfunction and psychiatric symptoms is rare disorder associated with remote affect of systemic neoplasms. We herein report a case of paraneoplastic limbic encephalitis associated with lung carcinoma.

Case presentation: A 61 year man was admitted to the neurology clinic with cognitive dysfunction, memory disturbances, hallucinations and orientation problems with sub acute onset. Cerebrospinal fluid biochemistry, cytology and serology showed no abnormality. Magnetic resonance imaging has shown bilateral and prominently on right increase in volume and T2 signal intensity of the hippocampi, suggestive of limbic encephalitis. Computed tomography of the chest revealed a left-sided mass, expanding through the upper lobe posterior segment. Bronchoscopy and pathological analysis provided the diagnosis of lung carcinoma.

Discussion: Here we report a case, which we should be alert about neoplasms associated with paraneoplastic limbic encephalitis, when a patient suffering from unexplained neurological symptoms.

ABBREVIATIONS

PLE: Paraneoplastic Limbic Encephalitis; CSF: Cerebrospinal Fluid

INTRODUCTION

Paraneoplastic syndromes are rare disorders associated with remote affect of systemic neoplasms. Paraneoplastic limbic encephalitis [PLE] which is one of the paraneoplastic syndromes is characterized by memory loss, seizure, cognitive dysfunction and psychiatric symptoms [1]. The pathogenesis is hypothesized to be an immune-mediated response against the nervous system [2]. We herein report a case of PLE associated with lung carcinoma.

CASE PRESENTATION

A 61 year man was admitted to the neurology clinic with cognitive dysfunction, memory disturbances, hallucinations and orientation problems with sub acute onset. In his medical history he had hypertension. Neurological examination findings showed memory impairment, altered mental status and psychiatric symptoms including hallucinations, mood lability. Blood analysis, thyroid function tests, vitamin B12, folic acid, viral markers and tumor markers were normal. Cerebrospinal fluid [CSF] biochemistry, cytology and serology showed no abnormality. Herpes simplex virus, Parvovirus and tuberculosis polymerase chain reaction results were negative for CSF. Mini Mental State Examination score was 22/30. An electroencephalogram examination was normal. Magnetic resonance imaging [MRI]

has shown bilateral and prominently on right increase in volume and T2 signal intensity of the hippocampi. Diffusion weighted sequence showed no abnormality (Figure 1). These findings were suggestive of limbic encephalitis. To investigate neoplasm origins, we planned computed tomography, detailed thyroid examination, urological examination, and peripheral blood smear. Computed tomography of the chest revealed a left-sided mass, expanding through the upper lobe posterior segment (Figure 2). Bronchoscopy and pathological analysis provided the diagnosis of combined lung carcinoma which includes both of small cell and squamous cell carcinoma. Patient referred to oncology unit.

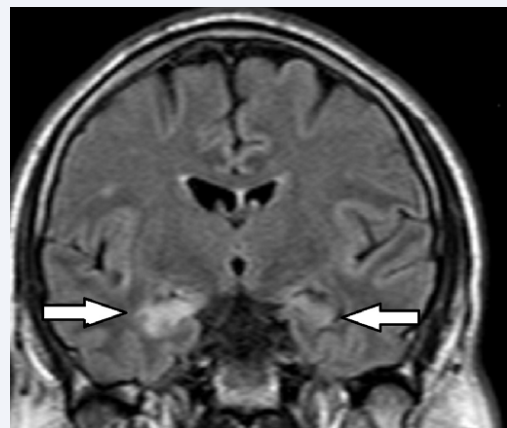


Figure 1 Bilateral T2 signal intensity of the hippocampi.

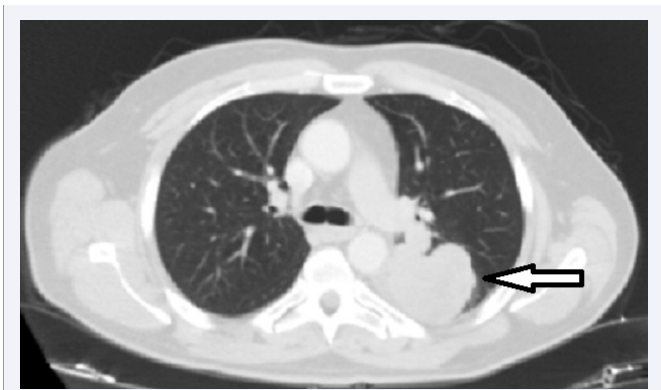


Figure 2 Left-sided mass.

DISCUSSION

Limbic encephalitis is a paraneoplastic disorder usually related with remote effect of small cell lung cancer. Other malignancies associated with limbic encephalitis are, testicular carcinoma, thymoma, Hodgkin lymphoma, and other cancers such as colon, esophagus, breast, ovarian and prostate cancers [3,4].

The etiology has not been cleared yet but it is suggested that autoimmune antibodies against tumor are probably responsible for the development of autoimmune response to central nervous system and limbic region. The existence of anti-neural antibodies in CSF and serum supported this hypothesis. The most related antibody to small cell lung carcinoma is anti-Hu antibody [1,3]. In our case the patient's insurance denied to pay for the serum antibody titer tests so we could not perform it. Instead the diagnosis was based on clinical features and MRI findings. In the literature the diagnosis is still remains challenging [5,6].

MRI findings such as high signal intensity in unilateral or bilateral temporal lobes restricted in the limbic areas on FLAIR and T2 images have high sensitivity for the diagnosis of LE [7]. In this case we have showed MRI abnormalities peculiar to LE. Since

the most related malignancy with LE is small cell lung carcinoma, a chest CT-scan was evaluated and showed a left-sided mass, typical for lung malignancy. A lung biopsy was applied to reveal the nature of the lesion. The pathological diagnosis was combined lung carcinoma.

The primary treatment for LE is surgical resection of the tumor. Immunomodulatory therapy is another eligible treatment for the patients who are not adequate for surgical treatment [8].

In our case the patient went through the chemotherapy treatment. After seven months, the patient passed away due to chemotherapy not responding.

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