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Case Report / Olgu Sunumu

A Rare Cause of Headache and Increased Intracranial Pressure: Primary Leptomeningeal Melanomatosis

Baş Ağrısı ve Artmış İntrakranial Basıncın Nadir Bir Nedeni: Primer Leptomeningeal Melanomatozis

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Summary

Primary leptomeningeal melanomatosis is a rare central nervous system neoplasm originating from leptomeningeal melanocytes. The cases can be presented with focal neurologic deficit, seizure, neuropsychiatric symptoms or increased intracranial pressure symptoms along with encephalitis or meningitis. Diagnosis can be made upon imaging studies, cytopathologic examination of cerebrospinal fluid and biopsy. Biopsy can return false negative since the leptomeningeal involvement is not diffuse. In this study, a case is presented who admitted to hospital with leptomenengitis symptoms such as headache, fever and altered state of consciousness and developed additional neurologic signs after months. First biopsy came out as normal while the second one did as positive. This case has been found worth presenting since this is a tumor of rare existence and the diagnosis was made upon the second biopsy. (Turkish Journal of Neurology 2014; 20:138-140)

Key Words: Primary leptomeningeal melanoma, headache, increased intracranial pressure, leptomenengitis

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Özet

Primer leptomeningeal melanomatozis, leptomeningeal melanositlerden kaynaklanan merkezi sinir sisteminin oldukça nadir görülen bir neoplazmıdır. Ensefalit yada menenjit yanında fokal nörolojik defisit, nöbet, nöropsikiyatrik semptomlar veya kafa içi basınç artışı semptomları ile presente olabilmektedirler. Tanı, görüntüleme teknikleri, beyin omurilik sıvısının sitopatolojik incelemesi ve biyopsi ile konulabilmektedir. Leptomeningial tutulum diffüz olmadığı için biyopsi yanlış negatif çıkabilir. Bu çalışmada baş ağrısı, ateş ve bilinç bulanıklığı gibi genel leptomenenjit kliniği ile baş vuran ve aylar sonra nörolojik ek belirtiler eklenen bir hasta sunuldu. İlk biyopsi normal olarak yorumlanmış ve ikinci biyopsi pozitif olarak saptanmıştır. Oldukça nadir rastlanan bir tümör olduğu ve ikinci biyopsi ile tanı konulabildiği için bu olgu sunulmaya değer görülmüştür. (Türk Nöroloji Dergisi 2014; 20:138-140)

Anahtar Kelimeler: Primer leptomeningeal melanoma, baş ağrısı, intrakranial basınç artışı, leptomenenjit

Çıkar çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemişlerdir.

Introduction

Primary leptomeningeal melanomatosis (PLM), is a rare central nervous system (CNS) neoplasm caused by leptomeningeal melanocytes. Its incidence was reported to be 0.005 in 100.000 people. The patients may show focal neurological deficits, epilepsy, neuropsychiatric symptoms, spinal cord pressure and intracranial hypertension. There can be intradural extramedullar lesions in cervical and thoracic spinal areas (1). Computerized tomography (CT), contrast magnetic resonance (MR) and cerebrospinal fluid

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(CSF) cytology are used in the diagnosis (2). Biopsy is required in cases where the diagnosis cannot be made on clinical, laboratory and radiological findings. Much like our patient, however, a single biopsy might not be sufficient. Due to its rare occurrence, this case where the diagnosis was confirmed on the second biopsy was seen worthy of discussion.

Case

The twenty one year old male patient who came to ER in February 2008 with confusion, vomiting, speech incomprehension, forgetfulness and fever was admitted to the general internal medicine ward. After observing increased pressure, elevated protein levels and lymphocyte dominance in his lumbar puncture, he was referred to our service with a pre-diagnosis of leptomeningitis. The patient was started on antiviral and antiedema treatments. He started having generalized tonic clonic seizures in the second week of his stay and was then started on antiepileptic treatment. In the following period, the patient was discharged upon his request to seek medical care in another facility. He returned after 6 months with auditory and visual hallucinations and left hemiparesis, and was then re-admitted. The patient's medical history was unremarkable except for febrile convulsions when he was a child. His neurological exam was normal in the first visit but at the 6th month revisit, he was conscious, partially cooperative and oriented with dysarthric speech and limited capacity to follow instructions. His left nasolabial sulcus was undefined, his mood was apathetic and his muscle strength was 4/5 on the upper left extremity, and 3/5 on the lower left extremity. He did not have neck stiffness or other meninx irritation findings.

The patient's routine biochemistry, C-reactive protein and erythrocyte sedimentation rate values were normal. There was 34000 103/µL leukocytosis in his hemogram. Cerebrospinal fluid opening pressure was 35 mmH20 in the lumbar puncture (LP) with 100 mg/dl protein and 6 cell/mm3. There was lymphocyte dominance in the CSF microscopy. Blood and CSF cultures showed no reproduction. In the repeated LP, there were no differences between the previous CSF biochemistry parameters.

The patient's cranial MRI showed leptomeningeal and pachymeningeal heavy contrast-holding in the postcontrast axial (Figure 1A) and coronal T1A (Figure 1B) volumes.

Meninx biopsy was planned for the patient who did not show any signs for pachymeningitis. The patient's first biopsy had been evaluated as normal. Later on, however, the patient's neurological state worsened and the biopsy was repeated (at the 8th month of the first consultation). The results of the second biopsy showed nevoid cells with dense melanine pigmentation. Nevoid cells pleomorphic, large, hyperchromatic, with nuclei containing highly discriminable nucleoli and large eosinophilic. Under these findings, the patient was diagnosed with PLM. He was transferred to reanimation service after his general status worsened with loss of consciousness and need for intubation. He was in nonconvulsive status but the case resulted in exitus after 2 months.

Discussion

Characterized as the spreading of malign melanocytes in leptomeninges and Virchow–Robin space, PLM is a rare

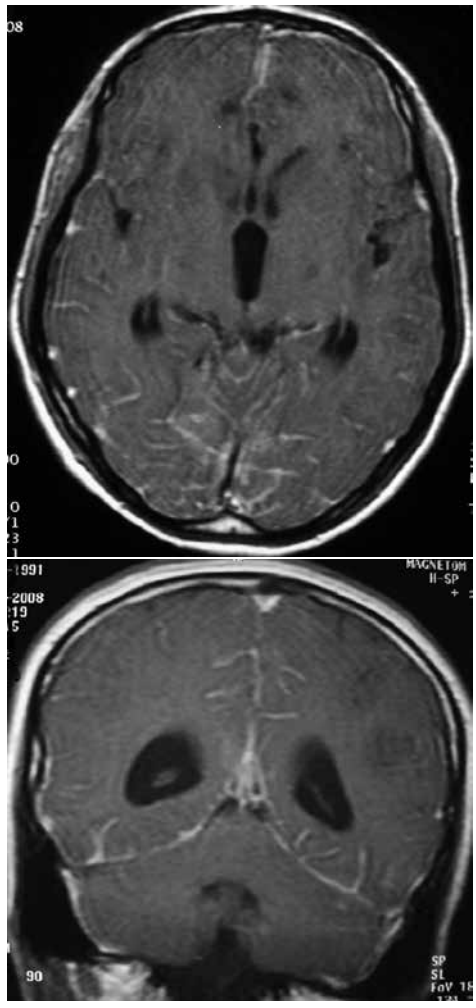

Figure 1. Postcontrast T1-weighted axial (A) and coronal (B) images showing leptomeningeal and pachymeningeal contrast increase especially prominent on both occipital lobes and bilateral parietal lobe parasaggital region sulci

variant of primary malign melanoma. It can be seen as isolated or as neurocutaneous melanosis (3). In addition to focal neurological deficits, subarachnoid bleeding or seizures due to brain, spinal cord and cauda equina pressure, presentations can also include intracranial pressure increase symptoms such as intracranial hy{ertension and hydrocephalus. Dermatological and ophthalmatological exams must also be performed to rule out other accompanying pathologies (1). The diagnosis can be strenghtened by the cytological examination of CSF (2).

Increase CSF opening pressure, elevated CSF protein levels, low glucose and xanthochromia due to melanin-containing cells can be seen in PLM (4,5). In our case's CSF, we detected high protein levels and low glucose without xanthochromia. After starting the patient on antiviral treatment due to infectious meningitis, further studies were conducted due to lack of response to treatment.

The most important test in the diagnosis of PLM is the detection of tumor cells or melanin in macrophages during biopsy (1). In PLM pathology, abnormal mitosis and atypical cytology

that do not propagate to brain parenchyma surrounding low-level lesions are not manifested. The cells may contain oval or spindle-shaped nuclei and small eosinophilic nucleoli, with varying levels of melanin (4,5,6,7,8,9). The reason why the first biopsy was negative could either be the severity of involvement at the time or missing the tumorous cells during the biopsy due to partial involvement. In more malignant lesions, tissue invasion, hemorrhage and coagulation necrosis can also be seen (4,9,10). These may facilitate faster detection of such cases. Due to the development of focal neurological deficit in the clinical observation of our case, dural biopsy was re-conducted.

Primary MSS melanoma is an aggressive tumor causing metastasis in other organs. Patients with PLM, given that there was complete resection and there is no metastasis, have better prognoses than those with secondary malignant melanoma (11). Therefore, early diagnosis is just as important as it is for other types of cancer.

In conclusion, PLM is an extremely rare malignity of MSS that often has bad prognosis. Clinical, laboratory and radiological diagnosis of the disease is difficult just as in our patient. Early diagnosis and complete resection may provide better diagnosis. For that reason, we believe that PLM should be included in the diagnostic workup for patients with headache, followed by neurological deficits, and that the biopsy should be repeated if the close monitoring of the case suggests its necessity.

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