A Case of Cerebral-Cerebellar Tuberculosis with Presented Syncope

Senkop ile Prezente Olan Serebral ve Serebellar Tüberküloz Olgusu

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ABSTRACT Tuberculosis is known as a "great imitator". Many lesions in several tissues which are thought to be non-tuberculosis entities according to their clinical, radiological and labaratory results can finally be diagnosed as tuberculosis. Tuberculosis can resemble granulamatous diseases such as sarcoidosis and malignities, therefore differential diagnosis should be made. Herein we represented our cerebral tuberculosis case whose first complaint was syncope. First evaluation with brain magnetic resonance imaging (MRI) revealed several mass lesions and the patient thought to have metastatic malign disease. Initial evaluation of primary metastatic tumor site with chest x-ray revealed several lesions and raised the probability of a lung cancer. After the assessment of lung lesions the patient was introduced antituberculosis treatment with the diagnosis of smear-negative pulmonary tuberculosis and central nervous system tuberculosis. The histopathologic evaluations of the cerebellar and cerebral lesions are also confirmed the diagnosis. Complete remission was achieved with antituberculosis treatment.

Key Words: Tuberculosis, pulmonary; syncope; lung

ÖZET Tüberkülozun "büyük taklitçi" deyimi ile tanındığı bilinmektedir. Birçok farklı organda, klinik, radyolojik ve diğer laboratuar yöntemler ile elde edilen bulgularda çoğu kez ön planda farklı hastalıklar düşünülmekte ancak kesin tanı tüberküloz ile sonuçlanabilmektedir. Tüberküloz sık olarak sarkoidoz gibi granülamatöz hastalıklar ve malignite ile de karışabilmektedir; dolayısıyla ayırıcı tanı yapılmalıdır. Biz burada ilk başvuru şikayeti bayılma olan bir santral sinir sistemi (SSS) tüberkülozu olgumuzu sunduk. Manyetik rezonans görüntüleme (MRG) ile yapılan ilk değerlendirmede beyinde çok sayıda kitle lezyonu olduğu görüldüğünde, ilk planda malign bir hastalığın multiple beyin metastazı olduğu düşünüldü. Metastatik tümör ön tanısı ile yapılan ilk tetkik olan akciğer grafisinde lezyonlar görülmesi üzerine primer akciğer kanseri de düşünüldü. Serebellar ve serebral lezyonların histopatolojik örneklemesi ve akciğer radyolojik görüntülemesi ile hastaya yayma-negatif akciğer tüberkülozu ve SSS tüberkülozu tanısı konularak antitüberküloz tedavi başlandı. Yeterli süre tedavi sonrası tam remisyon sağlandı.

Anahtar Kelimeler: Tüberküloz, pulmoner; senkop; akciğer

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Neurologic involvement of tuberculosis is divided into three categories: tuberculous meningitis, tuberculoma and spinal tuberculous arachnoiditis.[1-6] Tuberculoma is a solid mass granulation tissue which consists of conglomerated microscopic small tubercules.[3]

Central nervous system (CNS) tuberculosis is a rare clinical entity which forms less than 0.5% of all tuberculosis cases. Therefore, this low frequency of the CNS tuberculosis can lead physicians to a misdiagnosis.[7]

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Here we present a CNS tuberculosis case who presented with syncope and whose prediagnosis was multiple brain metastasis of an unknown origin malign tumor.

CASE REPORT

Twenty four years-old male patient referred to neurology outpatient clinic with the complaints of numbed left arm for two months, and seizures two of which ended with syncope. Patient stated that he couldn't remember the seizure periods. He had neither any diagnosed disease nor medication history. His physical examination including blood pressure and basic laboratory evaluation revealed normal. Second line evaluation was performed with brain magnetic resonance imaging MRI. Four round mass lesions located on left cerebellar hemisphere, right frontal lobe, and right frontoparietal intersection's medial and lateral sides were documented. The lesions were peripherally enhancing and surrounded by white matter edema (Figure 1). According to their radiological features they were reported to be malign metastatic disease. Primary metastatic tumor focus assessment and surgical excisional biopsy were concomitantly performed.

Thoracoabdominal computed tomography revealed mediastinal lymphadenopathies, and "tree-in-bud" sign on the right upper lobe and superior segment of lower lobe of the right lung (Figure 2). Patient was referred to pulmonology service with the initial diagnosis of concomitant lung tuberculosis. Sputum acid-fast microscopy were negative for three sputum samples but histopathological examination of the CNS biopsy specimens by hematoxyline and eosin staining technique revealed the presence of necrotizing granulomatous inflammation and the presence of acid-fast bacilli confirmed by Ziehl Nilsen staining (Figures 3a, b).

After the final diagnosis had been made as CNS tuberculosis, no further evaluation was planned for lung lesions. Antituberculosis treatment initiated immediately. The patient has been received antituberculosis treatment for two months and he has had no seizures in this period. The follow-up and antituberculosis treatment continues within periodic controls.

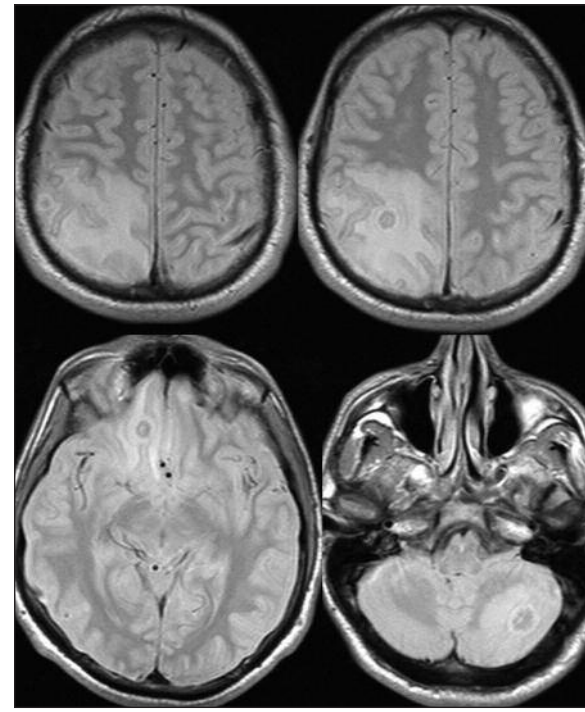

FIGURE 1: Brain MRI, in the left cerebellar hemisphere, in the localization of the right frontal lobe gyrus, medial and lateral parts of the right frontoparietal junction round total of 4 units, environmental style around enhancing mass lesions followed extensive white matter edema.
MRI: Magnetic resonance imaging.

DISCUSSION

CNS tuberculosis incidence is less than 0,5% and this makes the diagnosis challenging. Cerebellar tuberculosis cases can usually be misdiagnosed.[7] The most common form of intracranial tuberculosis is tuberculosis meningitis.[1-6] Tuberculoma is a mass granulation tissue which consists of conglomerated microscopic small tubercules.[3] Intracranial tuberculomas causes neurological disorders.[8] Tuberculomas are seen when bacillus focuses locally spread to brain parenchyma but do not rupture to meninges. Tuberculomas of meninges can mimic meningiomas.[9,10] Tuberculomas can be seen as a granulomatous solid mass in the brain after 15-30% of surgeries.

Although it can be seen at any age, 86% of patients with intracranial tuberculomas are under the age of 25 in developing countries. Similarly, in our country they are frequently detected in young adults and children.[11-14] In the United States, the majority of patients are over the age of 20 and is

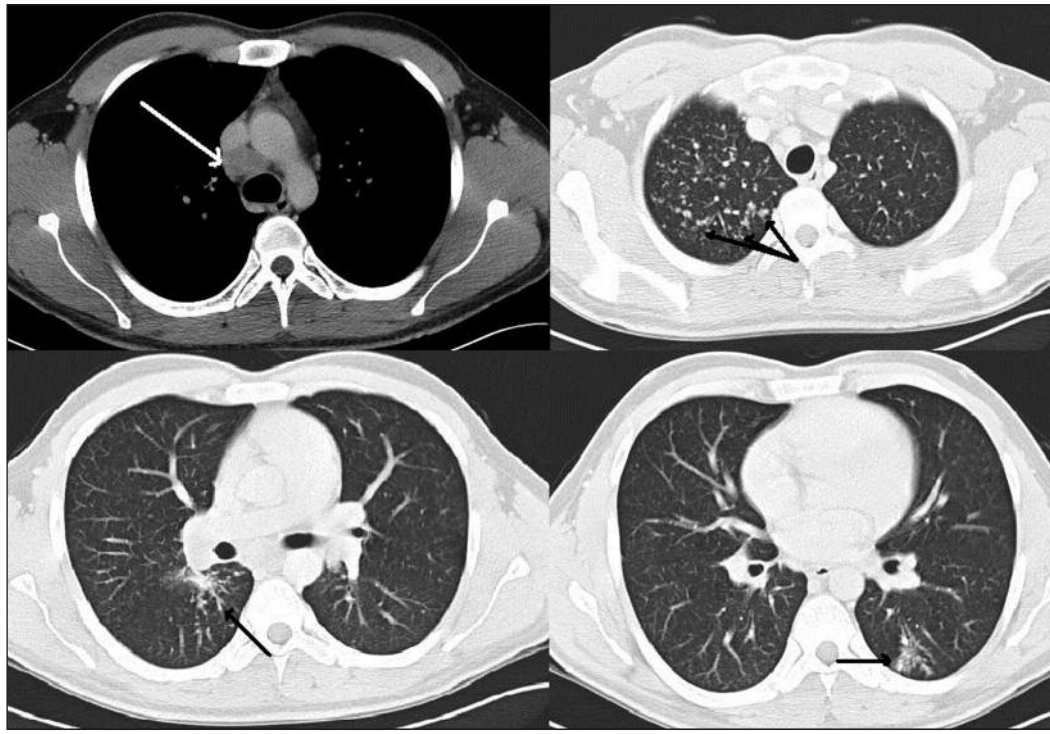

FIGURE 2: Mediastinal lymph nodes in the upper right paratracheal region and segments of the upper lobe of the right lung, the lower lobe superior segment in bud form the dansities.

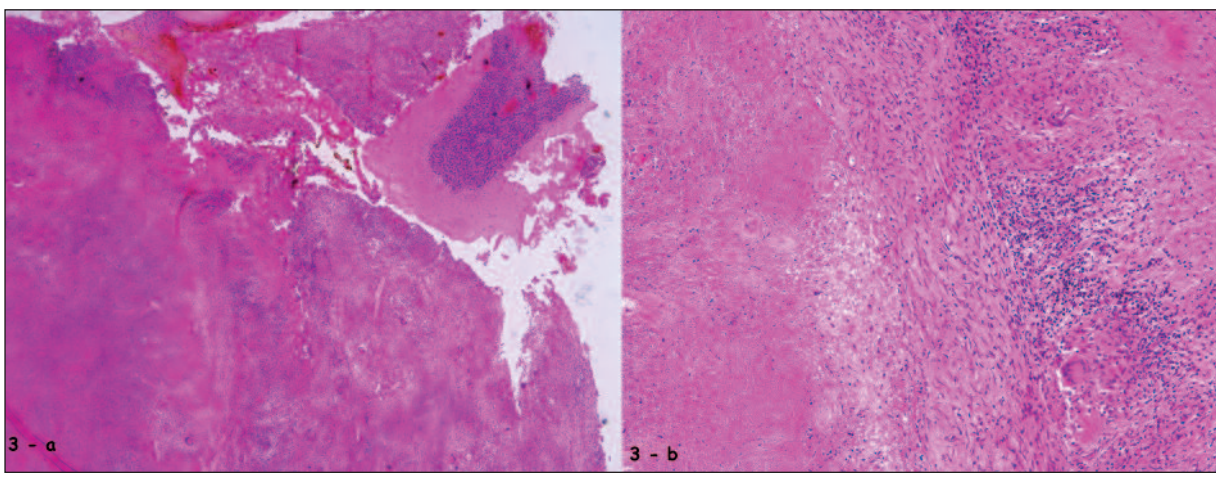

FIGURE 3: a) Normal cerebellum in the upper right corner of the structure being monitored. Granulomatous on the left with areas of necrosis and lymphocytic infiltration around the giant multinucleated cells are selected (HE, x50) **b)** Granulomatous inflammation and multinucleated giant cell formation (HE, x200).

seen as reactivation of dormant disease.[14,15] Patients who have tuberculomas, have history of tuberculosis in most of the published series.[16,17] Our 24-year-old young adult patient and his family had no history of tuberculosis.

Clinical presentation of intracranial tuberculomas may appear in a wide variety of clinical manifestations and there is no typical clinic sign as a reminder of the disease. Seizures frequently seen in patients with intracranial tuberculomas are due to increased intracranial pressure and usually focal neurologic deficits are present.[9,18] The finding of lateralization is not common. Our patient had a history of numbness in his left arm without motor and sensory deficits and seizures which two of them resulted with syncope.

While tuberculin skin test (TST) may be useful, it cannot be used as a marker of disease in the areas where tuberculosis is endemic, as in our country.[19] In tuberculosis meningitis, lymphocytosis, high protein and low glucose content is monitored in cerebrospinal fluid (CSF). On the contrary CSF examination in the diagnosis of intracranial tuberculomas has little diagnostic benefit. Most common abnormality detected in cerebrospinal fluid samples is isolated increases in protein levels. CSF smear examination is not sensitive and negative results do not help physician to rule out the diagnosis of tuberculosis.[1,20,21] CSF findings gave no additional benefit in the final diagnosis of our patient. In the majority of patients (66-73%) there are large necrotic granulomas which have a necrotic center but multiple caseous granulomas can also be seen.[22] In the initial stages of the disease computed tomography (CT) scan reveals low attenuation areas indicating edema and necrosis. When the granuloma formation organized, CT evaluation demonstrates high-attenuation areas, contrast enhancement, calcification, circular growth enhancement, ring-like appearance and varying degrees of peripheral edema. Central part of tuberculomas may be radiolucent or homogeneous due to necrosis.[23] It is known that in the diagnosis of parenchymal tuberculomas, MRI is more sensitive than CT. Tuberculomas are isointense with gray matter on T1-weighted MR images. Lesions show central hyperintensity on T2-weighted series. In some cases, a hypointense ring can be seen on the tuberculoma wall on T2-weighted images. But this view cannot be considered as a classic sign of tuberculosis. Most tuberculomas are surrounded by a high signal collar caused by edema on T2 weighted images.[24,25] In our case four round shaped mass lesions with circumferential enhancing and an extensive white matter edema were documented in the left cerebellar hemisphere. The lesions were located on the right frontal lobe gyrus localization and right frontoparietal junction medial and lateral parts. Radiological appearances of the existing lesions were not typical and thus led us to focus on metastatic malign diseases until the histopathological examination of the surgical specimens were done. Although the patient's thorax radiogram was compatible with pulmonary tuberculosis, CSF findings and sputum acid-fast microscopy (sputum acid-fast microscopy were negative for three samples) neither diagnosed tuberculosis nor excluded malignities until the histopathological examination of the biopsy specimens revealed the presence of necrotizing granulomatous inflammation and the presence of acid-fast bacilli.

In the literature, there is an article showing the extrapulmonary tuberculosis associated with HIV.[26] However our case's HIV serology were negative.

The differential diagnosis of intracranial tuberculomas and other space-occupying lesions in the brain is difficult. A final diagnosis has to be made because of the curability of the diseases. The diagnosis of such cases may be easier with modern imaging methods and multidisciplinary approaches. Early diagnosis of CNS tuberculosis and early treatment with antituberculosis therapy can be lifesaving so tuberculomas should be keep in mind as one cause of intracranial space-occupying lesions in the central nervous system.

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