

# HIV Related Toxoplasmic Encephalitis Mimicking Multiple Metastasis: Case Report

## Multipl Metastazı Taklit Eden HIV İlişkili Toksoplazma Ensefaliti: Olgu Sunumu

### ABSTRACT

We report a case of toxoplasmic encephalitis (TE) in a young woman without prior history of human immunodeficiency virus (HIV) infection. She was referred to our clinic with a diagnosis of multiple metastases following cerebral magnetic resonance imaging (MRI) revealing multiple ring-enhanced mass lesions. She had suffered from headaches for four weeks and there had been new onset of confusion and left hemiparesis. Soon after hospitalization, her neurological status rapidly deteriorated and she was operated for decompression. Pathology examination revealed TE and her blood samples were found to be HIV positive. We conclude that TE should be considered in the differential diagnosis of multiple lesions in sexually active individuals including cases without a prior history of HIV infection.

**KEY WORDS:** AIDS, HIV, Neurosurgery, Toxoplasmic encephalitis

### ÖZ

AİDS tanılı hastalarda en sık intraserebral kitle lezyonu nedeni olarak toksoplazma ensefaliti bildirilmektedir. Patogenezinde latent olan enfeksiyonunun progresif sellüler immünite yetmezliği sonucunda reaktivasyonu rol oynamaktadır. Profilaktik tedavi almayan hastalarda toksoplazma ensefalitinin görülme sıklığının % 50'lere kadar çıktığını belirten yayınlar vardır. Ülkemizde de ilk AİDS vakası 1985'de tanımlanmış ve 2003 yılına gelindiğinde 1000'e yaklaşmıştır. Ancak ülkemizdeki olgu sayısının sosyo-kültürel nedenlerle Sağlık Bakanlığınca bildirilen resmi sayıdan oldukça fazla olduğu düşünülmektedir. Kliniğimizde ilk kez, daha önce HIV pozitifliği bilinmeyen bir hasta post-op dönemde toksoplazma ensefaliti ve AİDS tanısı almış, cerrahiden yarar gören hastanın medikal tedavisine intaniye kliniğince devam edilmiştir. Primeri bilinmeyen multipl kontrast tutan kitlesi bulunan hastalarda HIV pozitifliği ve buna sekonder toksoplazma ensefaliti de araştırılmalı, serolojik yönden pozitif olan hastalarda hızla kemoterapiye başlanılmasının önerildiği akılda tutulmalıdır. Tedaviye yanıt alınamayan ya da tedaviye rağmen kötüleşmesi olan olgularda cerrahi müdahale planlanmalıdır. Dünyada ve ülkemizde insidansının giderek arttığı bildirilen AİDS ve buna sekonder gelişen toksoplazma ensefalitine dikkat çekmek amacıyla olgumuzu sunmayı uygun bulduk.

**ANAHTAR SÖZCÜKLER:** AIDS, Cerrahi, HIV, Toksoplazma ensefaliti

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**INTRODUCTION**

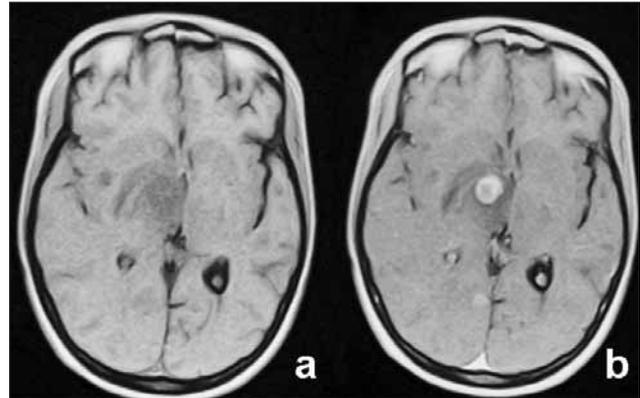
*Toxoplasma gondii* is an intracellular protozoan parasite, and causes cosmopolitan zoonotic infection. Human latent toxoplasmosis occurs in about half the world’s population though most cases are asymptomatic. The prevalence of toxoplasmosis has been reported as 50% in Mexico, 36.7% in Spain, 53.7% in Thailand, and 15% in USA (12). With the advent of the human immunodeficiency virus (HIV) pandemic, toxoplasmic encephalitis (TE) has become one of the most frequent opportunistic infections and the most common cause of focal brain lesions complicating the course of acquired immunodeficiency syndrome (AIDS) (1,3,5,9,14,15). If untreated, TE is uniformly fatal (7,10) and brain involvement remains a major cause of death in AIDS patients (12,17). The clinical onset of TE consists of focal neurological defects such as headache, seizure and hemiparesis (2,13) that may easily mimic those of other neurological diseases. This rare but increasingly common infectious disease must be considered in the differential diagnosis of a patient with neuroimaging findings similar to those of metastatic tumor or brain abscess (11).

**CASE REPORT**

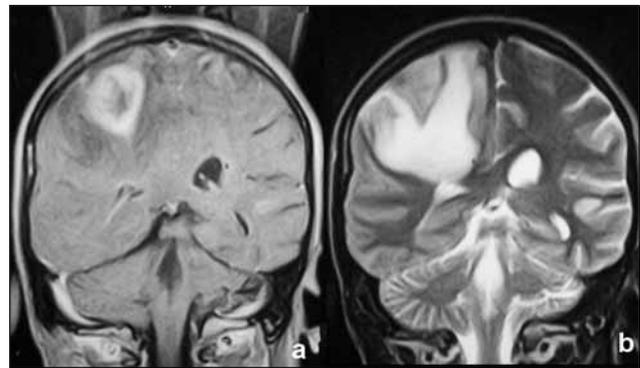
A 27-year-old woman was referred to our clinic with a diagnosis of multiple metastases as her cranial MRI had revealed multiple ring-enhanced mass lesions (Figure-1,2,3,4). She had suffered from headaches for four weeks. Just before her admission to our clinic, new onset of confusion and left hemiparesis had taken place. She was immediately referred to our clinic with the diagnosis of multiple



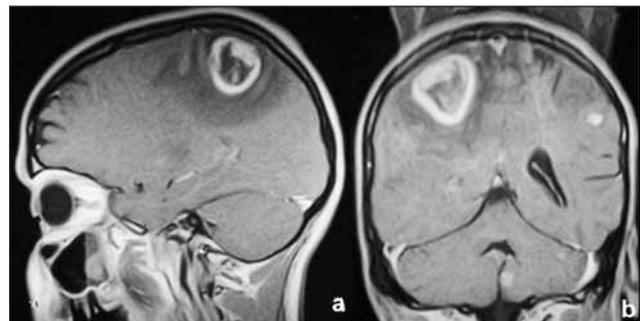
**Figure 1:** T1W MRI showing ring-enhanced mass lesion with IV gadolinium A) in the left occipital lobe B) in the right parietal lobe



**Figure 2:** Ring-enhanced mass lesion in the right thalamus at T1W MRI A) without IV gadolinium B) with IV gadolinium



**Figure 3:** Ring-enhanced mass showing severe edema in the right parietal lobe. A) T1W coronal image with gadolinium B) T2W image



**Figure 4:** Multiple ring-enhanced mass lesions at T1W MRI A) Posterior parietal mass at sagittal image B) Multiple lesions at coronal image

metastases although there was no history of a primary malignancy. On admission she was slightly confused but cooperative. She had mild left hemiparesis. The Glasgow coma scale was determined to be 14. There was no pupil asymmetry and bilateral light and cornea reflexes were found to be positive. She was put on an anti-edema therapy. Laboratory examinations were performed to enable

diagnosis of the multiple cerebral lesions. She had no history of previous primary malignancy or any hematological disorder that should suggest an immune deficiency. Her neurological status continued to deteriorate after her hospitalization, despite the anti-edema therapy. After a brief discussion, she was put on the list for decompression surgery and for definite histological diagnosis. She was operated at the 36th hour of her hospitalization. Post-operatively, her consciousness improved daily. The histological diagnosis was TE and she was also found to be HIV positive by the serology. Anti-biotherapy was immediately arranged for toxoplasma and she was transferred to an infectious diseases clinic as soon as her surgical recovery was complete. She is now on her 2nd year after her diagnosis without any neurological deficit. She is close contact with the microbiology clinic for follow-ups.

### DISCUSSION

According to UNAIDS and the World Health Organization (WHO), an estimated 38.6 million people were living with HIV at the end of 2005 yet the vast majority are unaware of their status. Over the last quarter century, nearly 65 million people were infected with HIV and an estimated 25 million have died of AIDS-related illnesses (16). Misinformation that was common earlier about HIV persists in most of our people. It presents a great danger for HIV/AIDS transmission within Turkish society. The first AIDS case was reported in Turkey in 1985. The history of reported AIDS cases in Turkey started with 2 patients, and AIDS cases increased each year. According to 2002 data, a total of 431 cases were AIDS and 998 were HIV positive. These numbers, however, are only the official numbers of the Ministry of Health and many experts indicate that this figure is far from accurate because of the recording system in Turkey and the fact that HIV has a long asymptomatic period (4).

TE is an opportunistic infection found in at least 5% of patients with AIDS and may be as high as 40% (1,3,14,15). The diagnosis of TE is generally based on the toxoplasma antibody titer, but about 10% of patients with toxoplasmosis related to AIDS show no serum anti-toxoplasma antibody response (11). A negative result therefore does not always exclude TE diagnosis in HIV positive patients. Most common histological findings of TE are mostly nonspecific coagulative necrosis without toxoplasmic cysts (8).

Therefore, a definitive diagnosis even based on the histological findings is sometimes difficult. Brain biopsy is necessary in only a few cases (11). In addition the mortality for brain biopsy in patients with AIDS has been estimated at as high as 10% (6) and this rate is very high compared to other cerebral diseases.

Although our patient was better after the operation, chemotherapy is the treatment of choice for HIV positive patients with TE. Surgery must be considered in rapidly deteriorating patients due to mass effect (1,11).

There have been many reports on the relationship of HIV and TE, mostly published in infectious diseases, immunology, neurology and radiology journals. It is surprising to see just a few papers in the neurosurgical literature although the pathology takes place directly in the cerebrum. A four-case report from Japan in 2000 (11) encouraged us to emphasize this epidemical catastrophic problem.

We conclude that the number of AIDS patients will increase in Turkey as in all over the world in the near future. TE is the most common cerebral mass lesion in patients with AIDS and is associated with high rates of mortality when misdiagnosed or treated late. TE should therefore always be kept in mind by neurosurgeons among the differential diagnoses of multiple ring-enhanced lesions on a cranial CT scan or MRI. Primary therapy is medical while decompressive surgery of these patients may be indicated for those who deteriorate rapidly or are not responsive to medication.

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