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TOXOPLASMA ENCEPHALITIS IN HIV: CASE REPORT

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SUMMARY

In Tanzania, no data are available on the prevalence of brain infection by toxoplasma in HIV-infected patients. A case of a 35-year old man with fulminant toxoplasma encephalitis (TE) is reported for the first time. TE was not suspected clinically in our patient who presented with a one week history of severe headache and treated empirically with antimalarial drugs. TE was diagnosed postmortem histologically by haematoxylin-eosin and immunohistochemical stain with P30 antibody for toxoplasma antigen. The findings in our case support the suggestion that a high index of suspicion for TE should be maintained in HIV-infected patients presenting with focal neurological symptoms. The case highlights the importance of autopsy studies in not only documenting a toxoplasma brain lesion but also in increasing the awareness for its diagnosis in HIV-infected patients in Tanzania and other developing countries.

INTRODUCTION

While toxoplasma infection in most adult patients without human immunodeficiency infection (HIV) is sub-clinical, the infection is associated with high morbidity and mortality in acquired immunodeficiency syndrome (AIDS) patients. It is one of the major causes of death in AIDS patients(1-3). Although toxoplasma encephalitis (TE) is a well recognised and common opportunistic infection in AIDS patients, lack of diagnostic facilities may lead to under-diagnosis in some developing countries. A case of fulminant brain toxoplasmosis in a HIV infected patient in Dar es Salaam, Tanzania is reported.

CASE REPORT

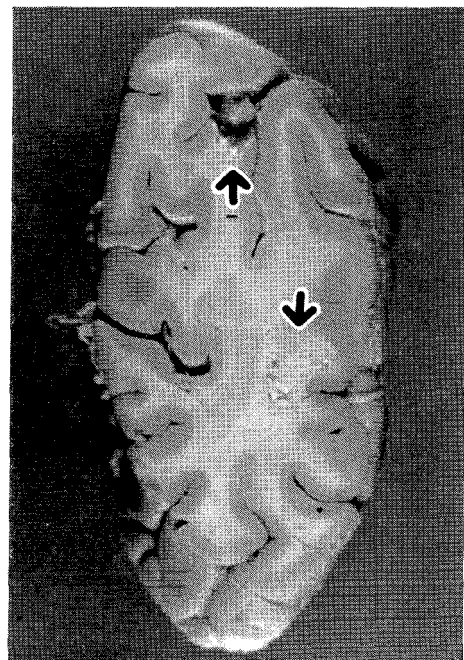
A 35-year-old man who had been complaining of severe headache for one week attended an outpatient clinic in a private hospital and clinical malaria was provisionally diagnosed. Although malaria could not be confirmed as a definitive diagnosis by blood smear, chloroquine and non steroidal anti-inflammatory analgesics were prescribed empirically. At 8 am on the 5th day after his first visit to the clinic, he was found dead on his bed at home. Then he was reported to the police as an unusual death case.

At forensic autopsy, the body of fairly good nutritional status showed slight whitish exudate over the cerebral hemispheres and congested lungs. After two weeks of formalin fixation, coronal sections of the brain revealed two circular lesions of 1.0 x 1.0 x 1.0 cm in the right parietal cortex (Figure 1). Histology by haematoxylin and eosin stain (HE) of these lesions showed areas of necrosis which were surrounded by lipid-laden macrophages and inflammatory cells (Figure 2a). Encysted toxoplasma bradyzoites and free tachyzoites were noted at the periphery of the necrotic lesions (Figure 2b). These lesions were also positive

by immunohistochemical stain with P30 antibody for toxoplasma antigen (Novocastra Laboratories Ltd, UK) using high temperature antigen unmasking technique with diaminobenzine (DAB) chromogen and HE counterstain.

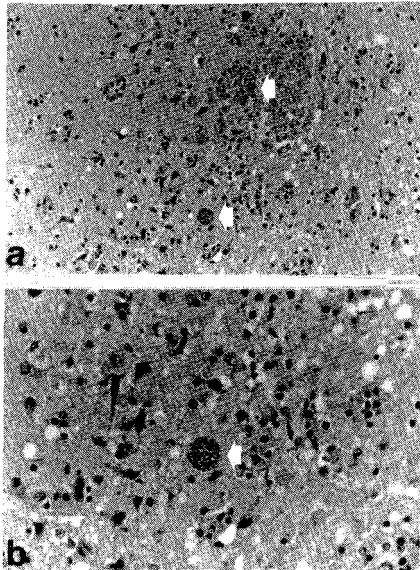
Figure 1

Coronal section of the brain showing a circular lesion (arrows) in the white matter of the right occipital lobe



Figures 2a, 2b

Histopathology of the lesion showing encysted bradyzoites (arrow) and free tachyzoites (arrow), (Haematoxylin and eosin stain; at low (a) and high (b) magnification



He was re-confirmed to have been infected with HIV when his postmortem serum was re-examined by ELISA test and immunofluorescent technique. No other pathology to explain the cause of death was found in the brain and other organs.

DISCUSSION

In Tanzania no data are available on the prevalence of central nervous system (CNS) infection by toxoplasma in HIV-infected patients. This patient is the first case of TE to be reported in Tanzania. However, with a high prevalence of HIV/AIDS disease (10%) in Tanzania(4), we presume that TE may not be uncommon as in other developing countries(2,3). Toxoplasma encephalitis is commonly found in AIDS patients at autopsy and was reported to be the most frequently observed CNS opportunistic infection in India (13%)(3) and Ivory Coast (15%)(2). Further studies will provide the true frequency of TE in Tanzania.

Toxoplasma infection of the brain in HIV-infected patients leads to rapid death especially when proper diagnosis and clinical management are not achieved early in the course of the disease as was illustrated in our case. The diagnosis of TE is sometimes difficult by either clinical symptoms or radiological investigations and therefore specific treatment may not be instituted. Diagnostic capabilities are reduced in developing countries. Tanzania in particular has inadequate and unavailable diagnostic facilities such as magnetic resonance imaging (MRI), computed tomograph (CT) and serological testing

for *Toxoplasma gondii* antibodies. Diagnosis of CNS toxoplasmosis is often incorrect(5). Our case was unfortunate in that TE was not suspected clinically and also CT and MRI imaging were not available. Presumptive therapy should have been instituted in the absence of a cerebral scanner (MRI or CT). Early recognition and initiation of therapy could reduce the mortality associated with TE in immunocompromised patients. Ordinarily patients with AIDS treated for toxoplasmosis usually respond promptly and a biopsy is considered only if there is no response to such medical management(6).

TE is characterised by the formation of focal abscesses that are frequently multiple and often involve the cerebrum near the gray-white matter junction. This specific pattern of lesions was also observed in our patient. Histologically these abscesses showed morphological changes similar to that have been reported(7). HE-stained sections are usually sufficient to establish the diagnosis. The immunoperoxidase method is not only useful for confirmation, but may also give positive results that are negative by HE(8). In our case immunoperoxidase staining with P30 antibody for the *Toxoplasma gondii* antigen gave positive results for the brain sections that were also positive by HE.

The findings in our case support the suggestion that a high index of suspicion for TE should be maintained in HIV-infected patients presenting with neurological symptoms. The case also highlights the importance of autopsy studies in not only documenting a toxoplasma brain lesion but also increasing the awareness for the diagnosis of TE in Tanzania and other developing countries.

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