RIGHT CEREBRAL TEMPORAL TOXOPLASMOSIS MANIFESTED WITH APHASIA

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REZUMAT
Toxoplasmoza cerebrală este cea mai frecventă infectie oportună a sistemului nervos central în pacienții cu SIDA și este in general depistată în ultimele stadii ale unei infectii cu HIV. În acest articol prezentăm cazul unui pacient de 43 de ani care a prezentat o leziune cerebrală, temporală dreaptă, necrotică, evidențiată clinic prin criză de epilepsie generalizată inaugurală, afazie de copreheșiune și cefalee. O opțiune chirurgicală a fost deciză pentru acest pacient pentru a avea histologia leziunii. Pacientul a fost operat sub neuronavigație, utilizând o tehnică clasica de microchirurgie. Examenul anatomopatologic a pus în evidență toxoplasmoza cerebrală, iar examenele complementare de laborator au confirmat seropozitivitate pentru HIV.

Cuvinte cheie: toxoplasmoza, HIV, neuronavigație

ABSTRACT
Cerebral toxoplasmosis is one of the most common opportunistic neurological infections in AIDS patients, and is typically observed in the later stages of human immunodeficiency virus (HIV) infection. We report the case of a 43-year old man who presented a right necrotic temporal lesion, revealed by epileptic seizure, comprehensive aphasia and headaches. A surgical option was decided to have the histology of the lesion. The patient was operated under navigation using classic microsurgical technique. The anatomopathological result showed that the lesion was a cerebral toxoplasmosis. Complementary laboratory examination showed that the patient was seropositive for HIV.

Key Words: toxoplasmosis, HIV, neuronavigation

Cerebral toxoplasmosis is one of the most common opportunistic neurological infections in AIDS patients, and is typically observed in the later stages of human immunodeficiency virus (HIV) infection. We report the case of a 43-year old man who presented a right necrotic temporal lesion, revealed by epileptic seizure, comprehensive aphasia and headaches.

HISTORY
A 43-year-old left-handed man was hospitalised in our department after an initial generalised epileptic seizure followed by language disorders and headaches. After the crisis he presented a comprehensive aphasia, and also dysgraphia. The patient was divorced and lived alone. He presented a cervicobrachial herpes zoster infection three months before, he was a smoker and consumed regularly alcohol.

The CT (computed tomography) head scan and magnetic resonance imaging (MRI) showed a necrotic, right posterior subcortical temporal lesion. The lesion presented peripherical contrast enhancement. (Fig. 1) The fluid-attenuated inversion recovery (FLAIR) MRI sequence revealed the temporal lesion and two other small lesions situated in the frontal lobes. (Fig. 2)
The diffusion-weighted imaging (DWI) MR sequence showed an hyposignal of the lesion eliminating a cerebral pyogenic abscess which usually presents an increased signal in this sequence.3-5 (Fig. 3)

A body CT scan was performed and showed a left infiltrative pulmonary lesion. (Fig 4)

Because of language disorders we also realized a functional MRI which showed a right temporal activation at the anterior part of the lesion. (Fig 5)

The patient preoperative blood sample showed lymphopenia (660/mm³ (11.3%), laboratory normal 1300-4000/mm³) and normal leukocitosys (5850/mm³, laboratory normal 4000-10500/mm³). The rest of blood sample was normal.

A surgical procedure was decided to have histology of the lesion and to ameliorate intracranial hypertension.

We operated the patient with classic microsurgical technique, under neuronavigation to have a precise localisation and also to minimise brain exposure. A small temporal craniotomy was realised and then the lesion was approached at the posterior pole, obtaining a complete resection after an initial intralesional debulking.

We found a necrotic avascular lesion, with no clear limits with the apparently healthy brain tissue. The lesion was totally resected. The postoperative CT scan with and without gadolinium showed no residual lesion. (Fig 6)
The postoperative neurological examination revealed an amelioration of aphasia and headaches. Five days later he was discharged in good condition with no neurological troubles.

Histopathological examination showed a necrotic tissue with cystic and free extra cellular microorganisms evoking a cerebral toxoplasmosis. The patient was readmitted for complementary examination. Viral blood sample showed HIV infection. The patient was seropositive for HIV and seronegative for hepatitis B and C.

The CD3+CD4+ values were 56/mm³ (9%).

He was addressed in another department for therapy against toxoplasmosis (Malocide 50mg/day; Adiadizine 4 g/day; Lederfoline 25 mg/day) and also tritherapy (Truvada once daily, Sustiva 600 mg/day).

The pulmonary image showed an infection. Biological examination of gastric probes revealed infection with Mycobacterium kansasii. A treatment with Ansatipine, Rimifon and Myambutol was started.

DISCUSSION

Toxoplasma gondii infection occurs worldwide and is a common infection in humans. The vast majority of the infected human population remains asymptomatic and some patients present mild symptoms. The reactivation of latent infection occurs in immunocompromised patients causing life-threatening disease, especially encephalitis.\(^2,6\)

Cerebral toxoplasmosis is frequent in the adult HIV population and in 18% represent the initial event of AIDS (acquires immune deficiency syndrome). The prevalence of cerebral toxoplasmosis in AIDS patients is evaluated to 30%\(^,7,8\).

Cerebral toxoplasmosis is one of the most common opportunistic neurological infections in AIDS patients, and is typically observed in the later stages of human immunodeficiency virus (HIV) infection. It also directly related to the prevalence of anti-T. gondii antibodies in the general population.\(^1,2\)
The incidence of toxoplasmosis in HIV patients has decreased after the introduction of highly active antiretroviral therapy (HAART). This incidence varies between 2.2% under HAART and 5.4% under monotherapy.9,10

Toxoplasmosis is the most frequent cause of intracranial mass lesions in patients with AIDS, accounting for 50-70% of all mass lesions in this population. The lesions are usually multiple and small, uniformly ring enhancing, with a predilection for the basal ganglia and junction white and gray matter.6,7,11,12 Non-specific radiological signs such as hydrocephalus were also described by authors in the literature.13

In our case there was only one superficial lesion which enhanced contrast, the other two lesions were visible only in FLAIR sequence.

Differential diagnosis must be made with cerebral metastasis, lymphoma or brain abscess. There is preliminary evidence that MR spectroscopy could be helpful in differentiating toxoplasmosis from lymphoma in HIV patients. MR spectroscopy provides an in vivo chemical assessment of the lesions. In a toxoplasmosis lesion, lactate and lipids are markedly elevated, whereas all other normal brain metabolites are virtually absent. In contrast, lymphoproliferative lesions show mild to moderate increase in lactate and lipids, with preservation of some normal metabolites, but markedly elevated choline, probably because of the increased cellularity.3,14,15

Functional MRI was important and showed activation of language zones anterior to the lesion, so we decided approaching the lesion at the posterior pole. Neuronavigation was effective and necessary permitting us a precise posterior microsurgical approach, avoiding aggravation of preoperative language disorders.

In our case we decided a surgical option to have histology of the lesion and to initiate adequate treatment. A serology of the patient could have been realised preoperatively because of lymphopenia. In this case the diagnosis of the cerebral lesion could have been mad by MR spectroscopy, stereotactic or open biopsy.

In HIV-infected patients, diagnosis of cerebral toxoplasmosis is based on progressive neurological deficits, contrast-enhancing mass lesion on CT or MRI, anti-T.gondii IgG titer serology or successful response, within two weeks, to specific treatment.16 Brain biopsy or surgery is recommended when radiological diagnosis is not clear or in case of progressive radiological image despite adequate treatment. In cases of multiple cerebral lesions in an apparently health patient a rapid biopsy is rapidly necessary to have the histology of the disease.

Many studies have demonstrates the usefulness of PCR on cerebrospinal fluid samples for the diagnosis of cerebral toxoplasmosis. The PCR sensitivity was 80% and the specificity was 98% in the study of Colombo.1

This case reveals the importance of biopsy in case of multiple cerebral lesions. Our case reveals also the importance of functional MRI in patients...
with language disorders, and of neuronavigation for precise and small brain exposure in lesions situated in functional zones. The surgical approach permitted a quick clinical amelioration and a histological diagnosis.

REFERENCES


