

## MESENCEPHALIC TUBERCULOUS ABCESS IN A PATIENT WITH AIDS

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The review of recent published papers demonstrates that a considerable amount of brain abscesses has been associated to opportunist microorganism, such as *Toxoplasma gondii*, *Aspergillus spp.*, *Nocardia spp.*, *Mycobacteria spp.*, *Cryptococcus neoformans* and *Listeria monocytogenes*. Those data reflects the enlarging number of immunocompromised patients (AIDS, post-transplantation) as an important risk group for this condition<sup>1</sup>. The high spread of HIV infection, besides raising tuberculosis prevalence, is an important cause of the considerable proportion of extrapulmonary, disseminated, drug resistant and multi-infection tuberculosis (TB) nowadays<sup>2</sup>. When there is association between HIV and TB infections, central nervous system (CNS) is affected in 5-20% of the cases<sup>3</sup>. The main clinical presentation is TB meningitis in those patients.

Focal TB lesions are rare and may present as tuberculomas and, still more infrequent, as brain abscesses, rare conditions of considerable neurosurgical interest<sup>4,5</sup>.

We report one such case.

### CASE

A 35 years-old woman was admitted in our center after being transferred by another hospital presenting a history of generalized tonic-clonic seizures episodes and a persistent severe holocranial headache. The MRI (Fig 1) realized in the other hospital showed an intracranial expansive mass localized in the right thalamus mesencephalic region.

The neurological examination at admission demonstrated a conscient patient, with right palpebral ptosis and left hemiparesia. She also had a history of multiple sexual partners in the last years. Her laboratorial examination revealed leucopenia (4400 cell/mm<sup>3</sup>) and lymphopenia (616 cell/mm<sup>3</sup>). Chest radiography was normal. Considering the possibility of HIV infection, anti-HIV 1 and 2 tests were realized, both were negative at time of testing. Presenting deterioration of consciousness level, the patient was transferred to the intensive care unit of our hospital. CT scan (Fig 2) was performed and confirmed the previous MRI finding, showing important brain edema and mass effect.

Stereotatic drainage of the lesion was performed, draining

8 mL of pus. Pathological examination of the material revealed HIV, *Mycobacterium tuberculosis* and *Toxoplasma gondii*. Then the patient started treatment with rifampicine, isoniazide, pirazinamide (RIP) for tuberculosis; and sulfadiazine, pirimetamine

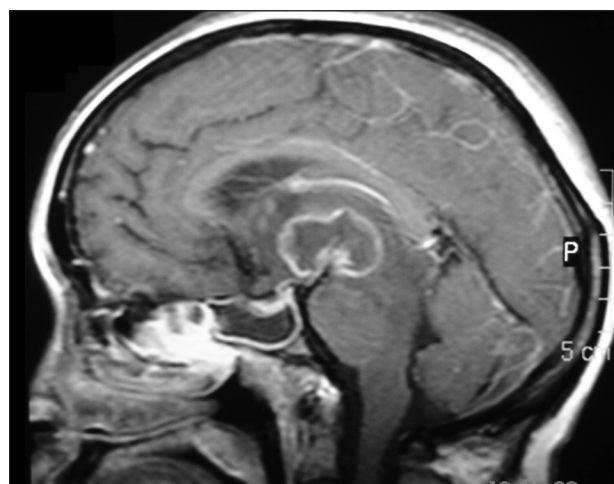


Fig 1. Sagittal T-1 weighted image demonstrates the right thalamus-mesencephalic lesion.

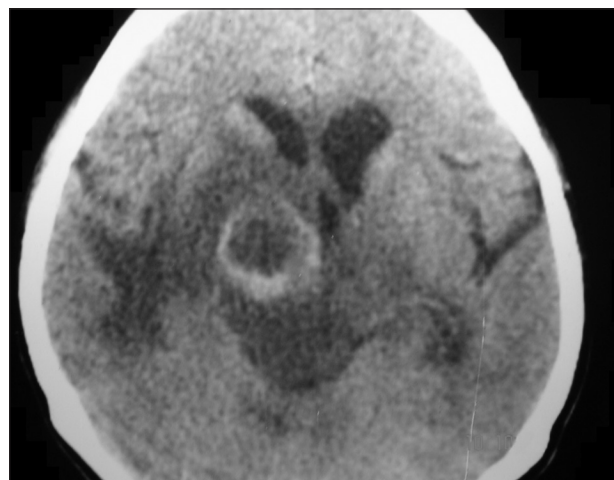


Fig 2. Contrast-enhanced computed tomography scanning demonstrates a single lesion in the right thalamus-mesencephalic region.

### ABSCESO MESENFÁLICO TUBERCULOSO EM PACIENTE COM AIDS

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and folic acid for toxoplasmosis. Corticoid therapy was also utilized in the first days of the RIP treatment. The clinical condition of the patient deteriorated and she presented pulmonary infection and respiratory failure. The patient died seven days after admission.

## DISCUSSION

Before the AIDS era, Whitener reviewed from 1886 to 1978 only 17 cases with etiological diagnosis, and established diagnosis criteria of cerebral tuberculous abscess<sup>6</sup>. Vidal et al.<sup>12</sup>, in accordance with Whitener criteria, reviewed the literature about tuberculous abscesses in HIV infected patients. From 1981 to 2003, only 12 cases were found: three in the USA, three in Spain, one in France and five in Brazil<sup>2</sup>. Three of the cases died: one for toxoplasmosis encephalitis, one for post surgical drainage hematoma and one for gastrointestinal hemorrhage associated to cryptococcal meningitis. Eight patients also presented toxoplasmosis at time of diagnosis.

Focal lesions due to brain tuberculosis have two topathologic aspects of presentation: tuberculoma and abscess. Abscesses are usually single, larger and grow more rapidly than the tuberculomas<sup>7</sup>. Tuberculous abscesses, differently of tuberculomas, have vascular granulation tissue with inflammatory cells similar to pyogenic abscesses. The internal wall of a tuberculous abscess is necrotic while the external surface is fibrous, associated with an inflammatory reaction<sup>3</sup>. The definitive diagnosis of TB brain abscess depends on the following criteria: macroscopic evidence of pus in the abscess cavity, microscopic evidence of acute inflammatory alterations in the abscess walls, and the presence of *M. tuberculosis* or growth on culture<sup>6</sup>. There are other cases of TB brain abscess published, but those do not present such criteria.

Tuberculous brain abscess is usually a subacute illness and the most frequent clinical manifestations are focal signs, headache, fever, seizures and consciousness alterations. The localization of the lesion is essential for determination of the symptoms<sup>8</sup>. There is not a specific site of commitment, but the lesion usually presents in the supratentorial compartment<sup>8</sup>.

Tomographic alterations of the tuberculous abscesses are unspecific for diagnosis in immunodepressed patients. However, there are several imaging characteristics suggestive of CNS tuberculous abscess. Solitary, multiloculated ring-enhancing lesions associated with mass effect and edema should raise the clinical possibility of tuberculous abscess.

The differential diagnosis of tuberculous abscesses is wide, including toxoplasmic encephalitis (the most fre-

quent cause of intracranial mass in AIDS patients), pyogenic brain abscess and CNS primary lymphoma.

In AIDS patients, the presence of intracranial mass allows empirical treatment for cerebral toxoplasmosis. Failure to respond to therapy dictates the need for a diagnostic stereotactic biopsy. Although it may be considered earlier in the presence of a single lesion demonstrated by MRI with negative serology for *T. gondii* or in cases of brain herniation<sup>4</sup>.

Surgical excision and antituberculous treatment are the mainstay in the management of these uncommon lesions<sup>6</sup>. The surgical treatment may be based on the surgical excision of the lesion or stereotactic aspiration of the abscess. Tyson et al. strongly denounced aspiration and suggested that surgical excision should be considered the treatment of choice<sup>9</sup>. However, tuberculous abscesses have been successfully aspirated by some<sup>10</sup>. Stereotactic aspiration is considered the primary modality of treatment for TB abscesses located in deep locations for our team and other authors<sup>11</sup>. It represents a minimally invasive therapeutic and diagnostic approach for such lesions, presenting effective results and the advantage to do not need the classical large craniectomies.

Antituberculous drug treatment and regular follow-up is required in these patients, as there is a possibility of reaccumulation during the treatment.

We consider that the poor outcome of our patient is associated to the volume of the mesencephalic lesion presented, association of multiple infectious agents and delay in medical assistance until the patient arrived in our center.

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