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Brief communication

Solitary tuberculous brain lesions: 24 new cases and a review of the literature

Lésions cérébrales tuberculeuses solitaires : 24 nouveaux cas et revue de la littérature

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ABSTRACT

A solitary tuberculous brain lesion (STBL) can be difficult to distinguish from a glioma, metastasis or other infectious disease, especially from a pyogenic brain abscess. We analyzed the clinical characteristics, diagnostic procedures and outcomes of 24 patients with STBL diagnosed in three centers from France, India and Mexico. We also reviewed 92 STBL cases previously reported in the literature. General symptoms were found in 54% of our patients, including enlarged lymph nodes in 20%. Cerebrospinal fluid was typically abnormal, with

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lymphocytic pleocytosis and a high protein level. The lung CT scan was abnormal in 56% of patients, showing lymphadenopathy or pachipleuritis. Brain MRI or CT was always abnormal, showing contrast-enhanced lesions. Typically, MRI abnormalities were hypointense on T1-weighted sequences, while T2-weighted sequences showed both a peripheral hypersignal and a central hyposignal. The diagnosis was documented microbiologically or supported histologically in 71% of cases. Clinical outcome was good in 83% of cases.

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R É S U M É

Une lésion cérébrale tuberculeuse solitaire (STBL) peut être difficile de distinguer d'une tumeur gliale ou métastatique ou d'autres maladies infectieuses, particulièrement l'abcès cérébral à pyogène. Nous avons analysé les caractéristiques et l'évolution clinique ainsi que les explorations à visée diagnostique chez 24 patients avec STBL diagnostiqués dans trois centres en France, en Inde et au Mexique. Nous avons aussi analysé 92 cas de STBL précédemment rapportés dans la littérature. Des signes généraux ont été trouvés chez 54 % de nos patients, notamment des adénopathies dans 20 % des cas. Typiquement le liquide céphalorachidien était anormal, avec une pleiocytose lymphocytaire et une hyperprotéinorachie. Le scanner pulmonaire était anormal dans 56 % de patients, montrant des adénopathies ou des anomalies parenchymateuses. L'IRM ou scanner cérébral étaient toujours anormaux, retrouvant des lésions prenant le contraste. Typiquement l'IRM montrait des anomalies hypointenses sur les séquences T1; sur les séquences T2 la lésion apparaissait hyperintense en périphérie et hypointense au centre. Le diagnostic a été affirmé sur le plan microbiologique ou histologique dans 71 % de cas. L'évolution clinique était bonne dans 83 % des cas.

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1. Introduction

Central nervous system (CNS) tuberculosis (TBC) occurs in about 1% of all patients with tuberculosis [1]. Tuberculomas (TB) and tuberculous brain abscesses (TBA) may occur with or without meningitis [2] and represent up to 40% of intracranial mass lesions in developing countries [3]. Tuberculomas and TBA may be difficult to distinguish from one another on clinical, laboratory and radiological grounds [4,5] and are pooled under the acronym STBL, for solitary tuberculous brain lesions. Solitary tuberculous brain lesions can mimic primary and metastatic neoplasms [6–8], fungal granulomas and other ring-enhancing lesions, such as pyogenic bacterial abscesses, neurocysticercosis and toxoplasmosis [9,10]. Some patients referred to surgeons for presumed brain tumors in fact have a STBL [11–13].

It is important to distinguish between STBL and brain neoplasms, such as glioblastoma and solitary brain metastases, because of their different management and prognosis. Delayed treatment can be highly prejudicial for STBL patients, who potentially have a good long-term outlook.

To address this issue, we retrospectively analyzed a series of patients with newly diagnosed STBL, focusing on clinical characteristics, diagnostic clues, and outcome. We also reviewed the literature on STBL.

2. Patients and methods

We studied patients diagnosed with STBL over a five-year period in three centers: the neurology department of Pitié-Salpêtrière Hospital in Paris (France), the Department of Infectious Diseases, Instituto Nacional de Neurología y Neurocirugía Manuel Velasco Suárez Mexico (Mexico), and the Postgraduate Institute of Medical Sciences in Lucknow (India). Inclusion criteria were:

- brain MRI or CT findings compatible with STBL;
- microbiological confirmation of tuberculosis;
- characteristic pathological findings on a brain or peripheral biopsy specimen;
- or clinical improvement after anti-tuberculous treatment.

Patients who were less than 17 years of age, those who were immunodepressed (including HIV-seropositive patients), and those who had an underlying chronic disease (such as a chronic autoimmune disorder or cancer), a mixed focal lesion combining STBL and a tumor, or a cystic lesion, were not included in the study. Demographic data, the medical history, clinical features, biological data, neuroradiological findings and treatment efficacy were collected from the patients'

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