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RESEARCH ARTICLE

TUBERCULOUS MENINGOENCEPHALITIS COMPLICATED BY TUBERCULOUS ABSCESSES IN AN IMMUNOCOMPETENT INFANT: A CASE REPORT

O. Maïga[1], J. El Himer[1], A.O Traoré[2], S. Mghar[1], K. El Fakiri[1], N. Rada[1], G. Draiss[1], Said Younouss[2] and M. Bouskraoui[1]

1. Department of Pediatrics A. Child Mother Hospital. CHU Mohammed VI. Marrakech.
2. Department of Pediatrics Reanimation. Child Mother Hospital. CHU Mohammed VI. Marrakech.

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Abstract

Central nervous system tuberculosis is a major cause of morbidity and mortality in developing countries. Intracranial tuberculoma is rare and is one of the most serious cases of tuberculosis. We report a case of tuberculous meningoencephalitis complicated by tuberculous abscesses, in a 10-month-old boy with angina and otorrhea 42 days ago. A CT scan of the brain and Rochers TDM showed aggressive bilateral otomastoiditis, more marked on the left, multiple left supratentorial brain formations with subfactorial and temporal involvement in relation to abscesses. Mycobacterium tuberculosis was isolated in the CSF fluid and in the brain pus after surgical drainage. Good clinical and radiological improvement was observed after surgery and treatment with corticosteroids and antituberculosis drugs.

Introduction:-

Central nervous system tuberculosis is a major cause of morbidity and mortality in developing countries. Intracranial tuberculoma is rare and is one of the most severe cases of tuberculosis [1]. Giant intracranial tuberculomas are rarer but important differential for space-occupying intracranial lesions causing focal neurological deficits depending on anatomical location and size [2]. Mortality from CNS disease, mainly related to tuberculous meningitis, is observed in children under 13 years of age at 42.2% [3].diseases (SLE) malignant tumours, chemotherapy andimmunosuppression.

Observation:-

This is a 13-month-old infant vaccinated with BCG and a history of bilateral antibiotic-resistant otomastoiditis, presenting with partial right tonic-clonic convulsions with eye revulsions without other associated signs. The whole evolving in a context of fever at 39°C and alteration of the general state (asthenia, anorexia). The evolution was marked by a consciousness disturbance associated with intracranial hypertension (ICHT) signs such as an attack on the cranial peers in the form of right facial paralysis and bilateral convergent strabismus, a macrocrania with dilated epicranial veins, a bulging anterior fontanel and generalized hypotonia. Clinical examination found an obnubilated patient with a Glasgow sign of 9/15, febrile at 38.5°C, normotensive at 80/40 mmHg. A Brain CT scan and Rochers TDM was ordered and showed aggressive bilateral otomastoiditis, more marked on the left, multiple left supratentorial brain formations with subfactorial and temporal involvement in relation to abscesses **(Figure 1)**. The patient was admitted directly to the neurosurgery department for management where he underwent drainage of the

Corresponding Author:- O. Maïga
Address:- Department of Pediatrics A. Child Mother Hospital. CHU Mohammed VI. Marrakech.

abscesses with pus collection and CSF which isolated Mycobacterium tuberculosis. He was hospitalised and intubated in the pediatric intensive care unit for 24 hours, but underwent a surgical revision due to the worsening of the clinical picture and another cerebral CT scan was performed (**Figure 2)**, which showed radiological improvement. The infectious work-up was positive with a predominantly lymphocytic hyperleukocytosis and a very high CRP of 115 mg/l (19 times normal). Ionogram and blood glucose were normal. Cerebrospinal fluid analysis revealed (clear appearance, leukocytes 1/mm3, red blood cells 71/mm3, normo proteinorachy 0.31, normo glucorachy 0.59 mmol/l, sterile culture, PCR positive for Mycobacterium tuberculosis). After recovery of the culture of the samples, anti-bacillary drugs (2RHZE/10 HR) and corticosteroid therapy for 4 weeks. The evolution was marked by a drain removal after 7 days, HTIC signs disappearance but with a strabismus persistence, a 1 kg weight gain on a 10 days post-drainage. The extension work-up was performed as a chest X-ray came back normal, tuberculin intradermal reaction (TID) was negative, BK research in sterile sputum, HIV serology negative, normal eye fundus.

Moreover, no tuberculosis patients were found during the family investigation.

Figure 1:- Cerebral CT**:** multiple left supratentorial brain formations responsible for subfactorial and temporal involvement in relation to abscesses.

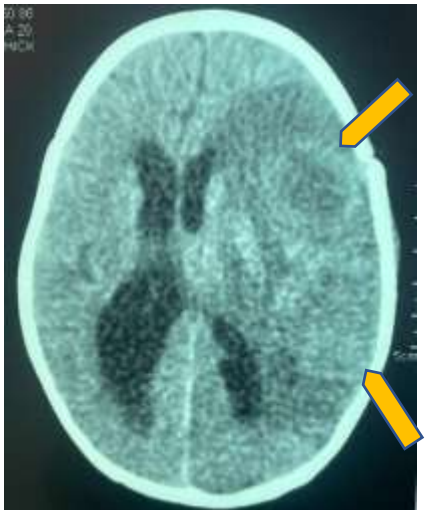

Figure 2:- 3-day post-drainage brain CT scan of abscess

Discussion:-

In endemic areas, tuberculomas account for up to 50% of all intracranial masses. Tuberculoma results in haematogenous spread of M. tb from an extracranial source [3], similar to our case following bilateral otomastoiditis

that was probably tuberculous due to its resistance to antibiotic therapy but histology was not done. In addition, 60% to 70% of the cases were under 20 years of age, with cases increasing in the first five years, although rare in children under three months of age [3]. In the tuberculous meningitis group, fever (68%), headache (59%) and vomiting (54%) were the most common complaints, while in the tuberculoma group, convulsions (95.5%) were the main complaint and systemic symptoms were rare [4], the same clinical signs were found in our patient. As in most theories, confirmation of tuberculous meningoencephalitis was made after isolation of Mycobacterium tuberculosis from CSF and from brain pus for the post-surgical tuberculoma that was initially managed as an infectious brain abscess from the initial CT scan. The literature on neuroimaging of CNS tuberculosis (TB) is scarce and largely covers pediatric CNS TB [5]. In neuroimaging, the most common findings were tuberculoma (50%), hydrocephalus (54.8%) and basal meningeal enhancement (33.8%) and 47 (75%) patients had sequelae [6], equivalent to our patient's imaging in a non-contrast CT as he was taken to the OR urgently in the face of focal signs with bilateral convergent strabismus. The real indications for surgery in tuberculosis are limited to obtaining a diagnosis, acquiring tissue for culture studies, treating hydrocephalus, aspirating a brain abscess and reducing intracranial pressure in patients with multiple tuberculomas [7], our patient has the same surgical and medical treatments based on antituberculosis drugs (2RHZE/10 HR) and corticosteroid therapy 1mg/kg/d obtaining a clinico-radiological improvement. Our patient's tuberculosis work-up was negative and no evidence of tuberculosis was found among family members. After one and a half months, there was no longer any involvement of the cranial peers or signs of HTIC.

Conclusion:-

Intracranial tuberculoma is an unusual variety of central nervous system tuberculosis and remains a hot topic in Morocco [1]. The speed of diagnosis, the quality of surgical resection and anti-tuberculosis treatment determine the prognosis. Diagnostic confirmation is histological and should be considered in the presence of any intracranial process mimicking a brain tumor or bacterial brain abscess.

Patient's point of view:
He and his parents were grateful for his rapid treatment and his recovery after 15 days

Informed consent: orally without documentation
This case has been presented with parental consent

Conflict of Interest:
The authors have declared that they have no conflict of interest

Authors' contributions:
The pediatrics team contributed to the care and to participate in the writing, the correction of this article.
The radiology team for the interpretation and confirmation of the diagnosis.

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