

Intraventricular tuberculoma: A case report*

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ABSTRACT

Intracranial tuberculomas are one of the most serious forms of tuberculosis disease after meningitis tuberculosis. Its incidence varies around 0.15% - 0.18% in the development world to 5% - 30% of intracranial masses in some underdeveloped areas. These tuberculomas, of course ubiquitous, are mostly diagnosed in the adulthood and usually located in the cerebellum and the cerebral hemispheres. Intraventricular involvement is uncommon and just 10 cases had been described in the literature. We report a case of an intraventricular tuberculoma in a 26-year-old man and we discuss the pathogenesis and the radiological findings according to this location.

Keywords: Intracranial Tuberculosis; Intraventricular Tuberculoma; Antituberculous Treatment

1. INTRODUCTION

An intracranial tuberculoma results from hematogenous spreading of tubercle bacilli to the leptomeninges or brain parenchyma [1]. These central nervous system (CNS) spreading of tuberculosis disease occur by two main interrelated pathological processes, in the form of tuberculosis (TB) meningitis or intracranial tuberculomas. The incidence of this one varies around 0.15% - 0.18% in the development world to 5% - 30% of intracranial masses in some underdeveloped areas [2-4]. According to the World Health Organization, there are approximately 8.7 million new TB cases and 990,000 deaths every year. This incidence increases slightly in HIV people (1.1 million) with 7% of mortality in this people [5]. The increasing of this disease worldwide should be taken seriously especially in countries in which AIDS (Acquired Immunodeficiency Syndrome) continues to be a pandemic disease. So, intracranial tuberculoma alone remains too a

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serious, often fatal disease in some areas and affects predominantly young people.

These intracranial tuberculomas can mimic other intracranial space-occupying lesions and must be diagnosed early and managed promptly in order to prevent this mortality or to reduce this comorbidity.

Despite recent advances in imaging (MRI with spectroscopy) and laboratory techniques, the diagnosis of intracranial tuberculoma remains a challenge, but can be strongly suspected and should be confirmed histologically.

In this paper, we described here a case of an intraventricular tuberculoma in a 26-year-old man and we discussed the pathogenesis and the radiological findings according to this exceptional location.

2. CASE REPORT

A 26-year-old man, with no medical history was admitted within our department for 04 months history of headaches, vomiting and loss of visual acuity. In our interrogatory, this patient had not been treated before for anything, especially tuberculosis. Neurological examination found a fully conscientious patient with stiff neck in bad general condition, bilateral loss of visual acuity (4/10) with bilateral papilledema. There is no fever and any evidence of neurological deficit.

Computer tomography (CT) scan showed around hypodense intraventricular lesion in the light of the fourth ventricle with major edema, heterogeneous enhancement after contrast injection and hydrocephalus. Resonance magnetic imaging was performed to well define, locate this lesion and assess the modality of surgical procedure. Magnetic resonance imaging (MRI) T1 weighted images showed a well-defined round hypointense lesion enclosed in the right occipital horn with huge peripheral edema and asymmetric hydrocephalus, with homogeneous and enhancing enhancement after gadolinium injection. On T2 weighted images, this lesion was spontaneous hypointense with peripheral edema (**Figure 1**).

In the doubt, he underwent a parietooccipital procedure that permitted to obtain the wholly gross total resection of this tumor after puncture of the right occipital

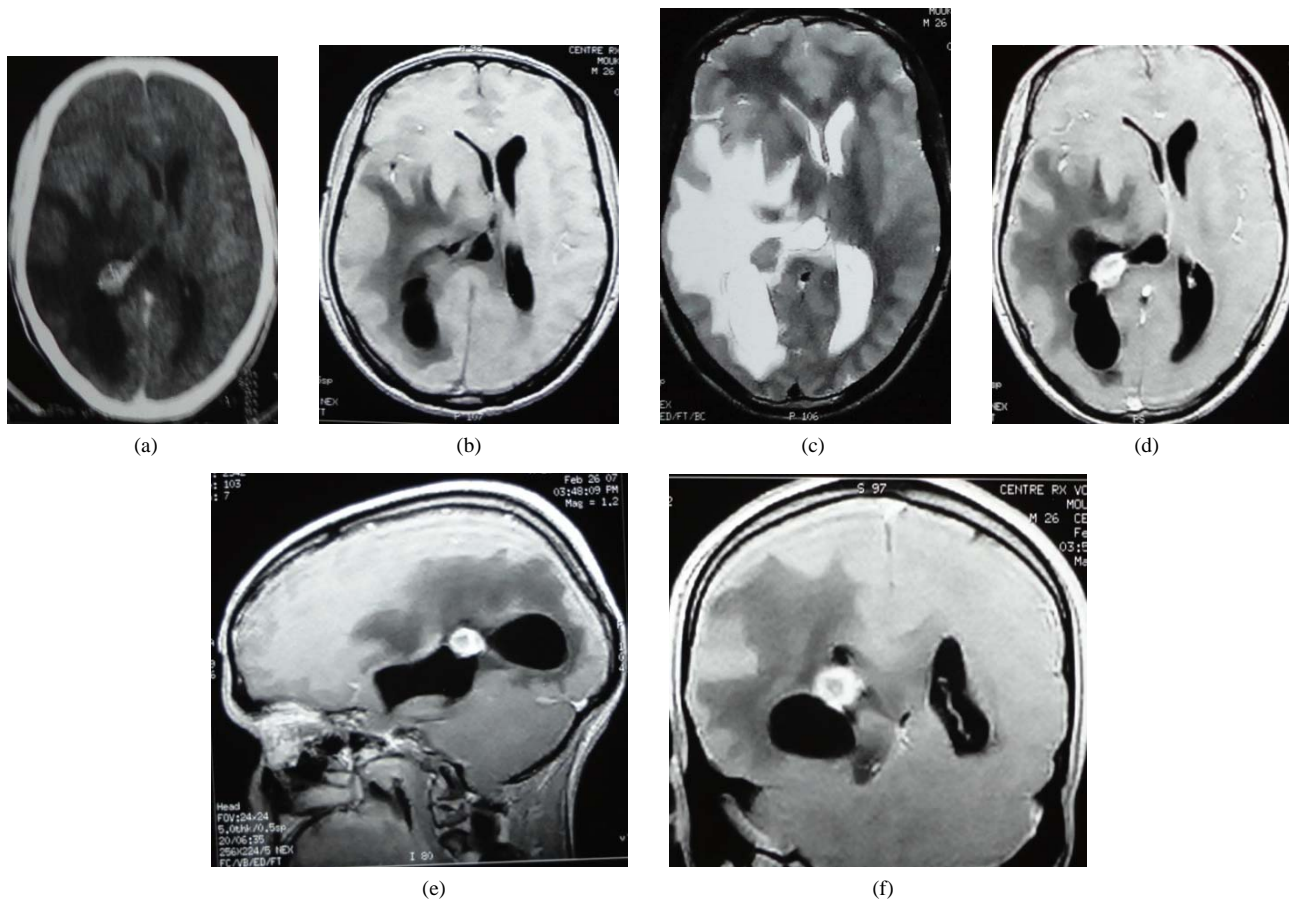


Figure 1. 1) CT scan with contrast injection showing an intraventricular mass with disproportionnal hydrocephalus and huge peripheral edema (a). 2) MRI Axial non contrast T1-weighted image shows a hypointense lesion within the right occipital horn with asymmetric hydrocephalus and huge peripheral edema (b). Axial T2-weighted image shows this huge edema centred on this hypointense intraventricular lesion (c). Contrast enhanced images on axial (d), sagittal (e) and coronal (f) view shows the characteristic ring enhancement of the lesion with a central hypointense area.

horn by the trocar of Cushing following by the establishment of an external ventricular drainage. Per operatively, it was seen an avascular yellow creamy tumor adherent to the plexus choroid compatible to the diagnosis of intraventriculartuberculoma. Cerebrospinal fluid examinations showed a citrine liquid composed of 60 cells/ mm^3 with 88% lymphocytes, hypoglycorrhachia (0.28 g/l) with high level of protein. Histopathological examination revealed that this lesion was composed of epithelioid histiocytes, langhans-type giant cells, and lymphocytes with wide range of caseating necrosis confirming the diagnosis of tuberculoma. The external ventricular drainage was removed on the 6th day. The patient was discharged from hospital ten days after surgery on corticoids (Solumedrol 2 mg/kg per day) for three months, on antituberculous treatment basing on two months of streptomycin (0.75 mg per day), isoniazid (5 mg/kg per day), rifampicin (10 mg/kg per day) and pyrazinamide (25 mg/kg per day) following by 10 months of rifampicin and isoniazid. CT scan at 3 and 12 months showed a total disappearance

of the lesion, leaving behind a hypodense lesion as a sequella (**Figure 2**).

3. DISCUSSION

Intraventricular tuberculoma is a nosological entity rarely described in the literature, only 10 cases had been published before our case. Certainly exceptional, ventricular involvement in the tuberculous process (future tuberculoma) come probably from hematogenous spread that occurs as choroid plexus inflammation characterized by a covering of gelatinous exudates, ependymitis and asymmetric hydrocephalus secondary to intraventricular adhesions or septae formation [2,6-8]. Tubercles (Rich foci) have been found within the choroid plexus, but well-developed intraventricular tuberculoma are extremely rare, probably due to the special immunity of the ventricles to infections [9].

The characteristic CT features of intraventriculartuberculoma are peripheral enhancement with central necrosis and disproportionately extensive cerebral edema

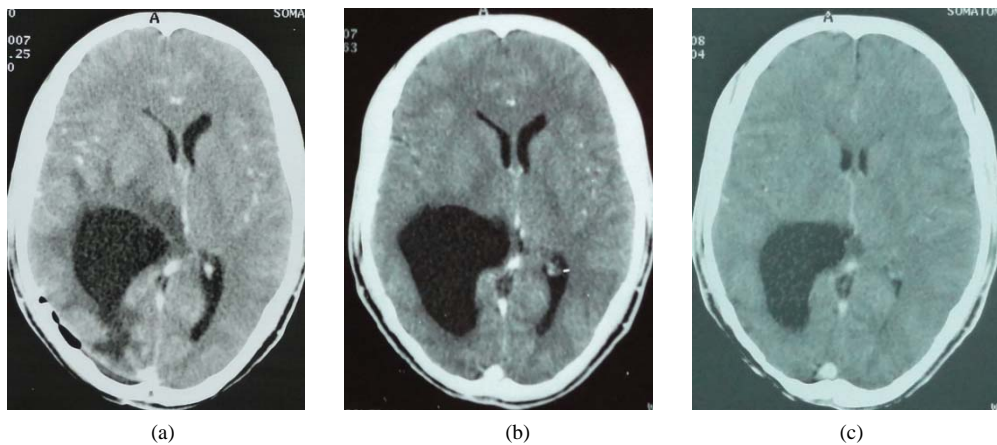


Figure 2. CT scan controls in a week (a), at 3 months (b) and 12 months (c) after surgery showed a total disappearance of the lesion, leaving behind a hypodense lesion as a sequella.

and hydrocephalus [3,8,10]. MR imaging usually shows tuberculoma as peripherally isointense and centrally hypointense on T1-weighted images. The isointense region becomes hypointense on T2-weighted images with enhancement by gadolinium injection [4,10-12]. These data were found in our case. Now in our knowledge, the presence of high peripheral edema with asymmetric hydrocephalus might suggest the diagnosis of inflammatory pathology especially intraventricular tuberculoma. It's also said that traction of the septum pellucidum to the side of the lesion confirms the presence of an inflammatory process and is a diagnostic radiological sign [10]. But considering its rarity, some differential diagnosis such as plexus choroid tumor, intraventricular glioma or metastasis had been suggested before operation. Regarding this location and the limited capacity of our patient, we opted for a direct surgical approach that permitted to establish the histological diagnosis of tuberculoma and cure the hydrocephalus. But with the modern imaging procedures (MRI with spectroscopy) and the modern laboratory analyses (Gene amplification by the polymerase chain reaction), it's possible to approach the diagnosis of tuberculoma and confirm it with a very little minimal approach such as endoscopic techniques in this location. This technique was performed by J. P. Singh *et al.* [1].

However, some authors supported that if a diagnosis of tuberculoma is considered, a trial of antituberculous therapy should be instituted even without histological confirmation [1]. That attitude can be discussed because, the tuberculosis disease required multidrug administration for a long course with several side effects. It might be suitable to have a histological specimen before treatment.

Several authors recommend to use 3 or 4 major antituberculous drugs in the first 2 months followed by 10 months of 2 antituberculous drugs [11]. The use of steroids is controversial, but must be considered in some

cases like ours with monstrous edema. The duration of treatment is uncertain, although treatment for more than 1 year is advocated by more clinicians [10,11].

4. CONCLUSION

Intraventricular tuberculomas are extremely rare. Regarding the mimicking appearance of intracranial tuberculomas and the long duration of the treatment, we strongly suggest to have histological confirmation before antituberculous drug administration.

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