

INTRAVENTRICULAR TUBERCULOMA: REPORT OF A RARE CASE

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ABSTRACT

Intraventricular tuberculoma (IVT) is extremely rare, CT and MRI patterns have been only sparsely described. Herein, a case of intraventricular tuberculoma in a 40 year-old woman is reported. At admission, the patient displayed malaise and was confused and deteriorated suddenly. Brain CT and MRI findings were very similar to intraventricular meningioma. The patient underwent surgery and tuberculoma was removed by transcortical transventricular approach. IVT should be considered in differential diagnosis of intraventricular lesions in endemic areas and in patients with unexplained malaise.

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Key Words • Cerebral ventricles • CT • MRI • tuberculoma

Introduction

In places where tuberculosis is endemic, intracranial tuberculomas can comprise as much as 10% of all space occupying lesions.¹

Tuberculomas are usually located in the cerebellum, basal ganglia and cerebral hemispheres, particularly in the frontoparietal region.² Less common sites include the corpus callosum, quadrigeminal plate, the cerebellopontine angle, the retro-orbital region, the anterior optical pathway and the intrasellar and suprasellar regions and cavernous sinus.³⁻¹⁰

Intraventricular tuberculoma is extremely rare.^{9,11} Four cases of intraventricular tuberculoma (IVT) in children have been reported and their associated CT pattern described by Berthier et al.⁹ To the best of our knowledge, MRI patterns of IVT have not yet

been described.

In this report, we describe the CT and MRI pattern of a case of intraventricular tuberculoma in a 40-year-old woman, that closely resembled intraventricular meningioma.

Case Report

A 40-year-old woman was admitted to hospital

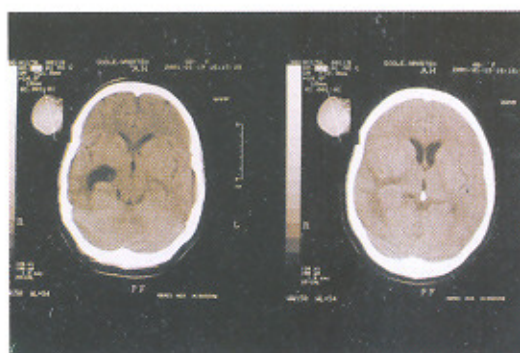


Figure 1: On CT scan an isodense mass without frank calcification is seen at right temporal horn and right temporal dilatation is seen due to obstruction.

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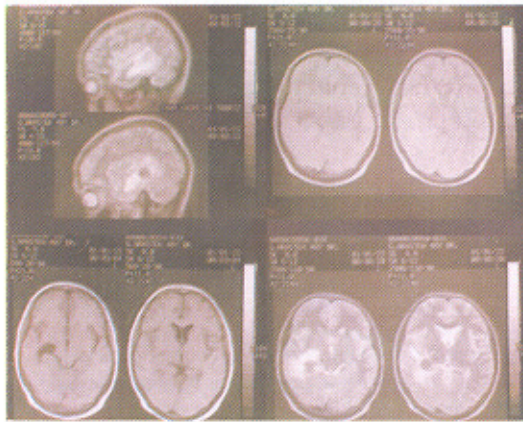


Figure 2: Left up) (sagittal 4000/117/20), Right up) Transverse (2500/25/20) Left down) (Transverse 500/20/90) and Right down) (Transverse 2500/110/90)

MR images show an isosignal mass on all sequences in the right temporal horn with obstructive dilatation, in characteristically seen in intraventricular meningioma.

with a five years history of intermittent headache. Upon admission the headache had been constant for the last 15 days. The patient had malaise, anorexia, and was agitated. She had a history of icterus in her 8th month of pregnancy, when she was 25 years old. On examination, the patient was found to be severely confused and disoriented with slight

neck stiffness, left sixth nerve palsy and was unable to sit or stand. Vital signs were otherwise normal. A chest radiograph showed no specific findings; hemogram and serum electrolytes were also within normal range. ESR were 12 for the first and 60 for the second hour. C-reactive protein was negative. Liver and kidney function tests were normal, however, WBC count was $17500/\text{mm}^3$ with 78% polymorphonuclear leukocytes and 19% lymphocytes. Hbs Ag was positive, urine culture showed *E. coli* with >100000 colony count that was sensitive to nalidixic acid and ceftriaxon. Tuberculin test was negative. CT scan revealed a right temporal horn isodense lesion without frank calcification, associated with asymmetric hydrocephalus (Fig.1). MRI study showed a round mass in the right temporal horn with its entrapment and asymmetric hydrocephalus that was isointense on T1, T2 and PD.(Fig. 2)

The patient suddenly became comatose, tetraplegic with right side mydriasis and suffered severe respiratory distress. She was operated upon immediately through the right temporoparietal craniotomy and a mass was removed by transcortical, transventricular approach. The mass was a firm, yellowish avascular spherical lesion attached to the medial wall of the temporal horn measuring 4 cm in diameter. Pathological examination revealed a granulomatous lesion that contained

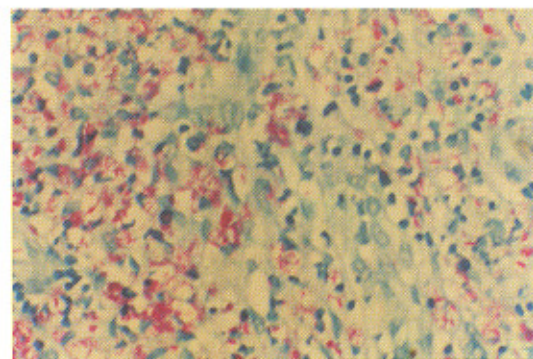
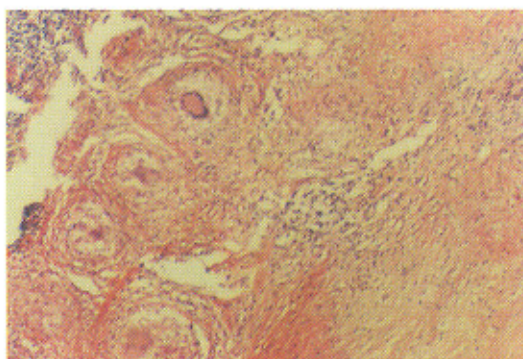


Figure 3: Left) Mycobacteria in Ziehl-Neelson preparation(*100), Right) Multiple small granulomas with giant cells and epithelioid cells caseating necrosis in the center of large granuloma is seen. (H&E*100)

necrotic areas composed of caseous material. Ziehl-Neelsen stain revealed the presence of tubercle bacilli. (Fig. 3)

Discussion

Tuberculomas are firm, avascular, spherical, granulomatous nodular masses, measuring from 2 to 8 cm in diameter. Inside these masses, necrotic areas composed of caseous material and occasionally purulent, thick fluid harboring tubercle bacilli can be seen.^{2,9}

A history of exposure and the presence of tuberculosis elsewhere in the body was found in only half of patients with surgically proven lesions.¹² Laboratory studies are non-specific.¹² A negative tuberculin test is no guarantee that a tuberculoma is not present, but the likelihood is small. In 70% of patients a previous history of tuberculosis is not present.^{13,14}

With computed tomography the "target sign" is pathognomonic of tuberculoma. As described by Welchman, the target sign consists of a central calcification or central nidus surrounded by a ring that enhances with contrast material.⁴ Another image often seen is that of an isodense area with a hypodense halo corresponding to perilesional edema that homogeneously takes up the contrast medium.¹²

CT scan findings comprise three stages of development namely: immature, mature and old. Ependymal attachment and asymmetric hydrocephalus were present in three cases, meningitis in two and ependymitis in one. Septum pellucidum traction was clearly observed in two patients.⁹

In our case, neuroimaging findings were completely different from other cases reported by Berthierand et al.⁹ An isointense intraventricular mass on T1, T2 and PD without any calcification in CT image is very

similar to meningioma. Therefore, we suggest that intraventricular tuberculoma should be considered in differential diagnosis of intraventricular lesions, specifically in endemic areas, and lack of calcification or "target sign" is no guarantee that tuberculoma is not present.

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