CASE REPORT

Utility of the Cysticercus Immunoblot in a Patient with an Atypical Solitary Cerebral Cysticercus Granuloma

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Summary

The value of the enzyme linked immunotransfer blot (EITB) assay in avoiding an invasive diagnostic procedure in a patient with an atypical solitary cerebral cysticercus granuloma is presented.

Key words : Cysticercosis, Enzyme linked immunotransfer blot, Epilepsy.

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Introduction

Solitary cysticercus granuloma (SCG) is a common cause of seizure in our patients. The diagnostic criteria for this lesion have recently been defined and validated by us.[1] Two of the important CT criteria include lesion of less than 20 mm in maximal dimension and the severity of oedema should not cause shift of the midline structures. These criteria were evolved by comparison of clinical and CT features of histologically diagnosed solitary cysticercus granuloma and small tuberculomas in patients presenting with seizure.[2] In that study, none of the SCG were > 20 mm in size and none of the tuberculomas were < 20 mm in size, at initial presentation. Occasionally, SCGs can present as lesions larger than 20 mm in size or enlarge to more than 20 mm in size. These large or enlarging granulomas can cause a management dilemma.[3] In such cases, tuberculomas, pyogenic abscesses and neoplastic lesions have to be considered in the differential diagnosis and the confirmation of the diagnosis requires stereotactic biopsy or a craniotomy. We present a case where a patient fulfilled all the clinical criteria for the diagnosis of a SCG but the lesion size was more than 20 mm in size and there was severe oedema causing a shift of the midline structures. The value of the enzyme-linked immunoelectrotransfer blot (EITB) for cysticercal antigens in this case in avoiding an invasive diagnostic procedure is presented.

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Case Report

A 9 year old girl presented with right focal seizures of 3 months duration. Contrast enhanced CT scan showed a 22 mm densely enhancing lesion in the left insular cortex with severe associated oedema causing a shift of the midline structures (Fig. 1a). The patient had no neurological deficit or features of raised intracranial pressure. A differential diagnosis of an

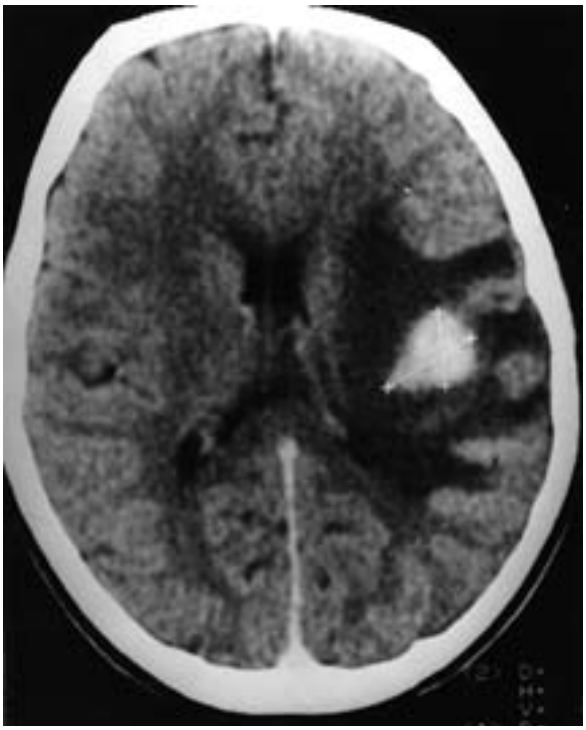

Fig. 1a : The initial scan showing a 22 mm densely enhancing granuloma in the left insular cortex with severe oedema and midline shift.

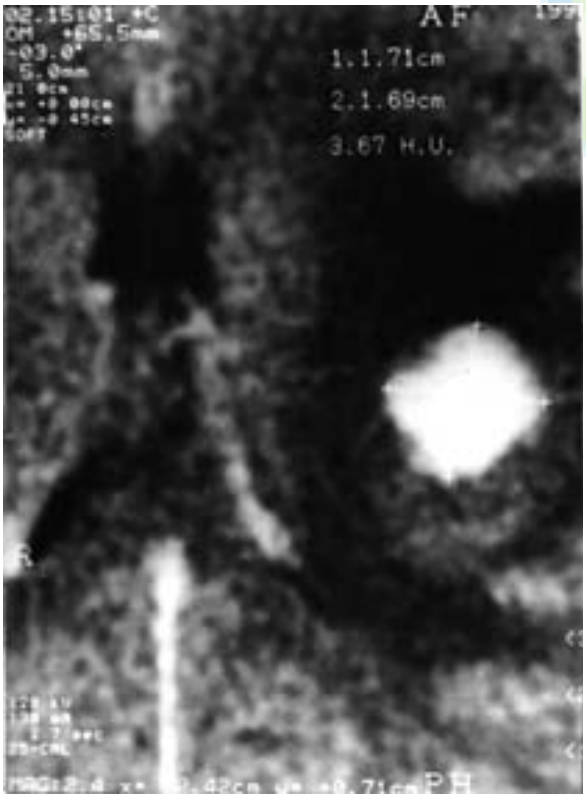

Fig. 1b : Scan done 3 months later shows reduction in the size of the enhancing lesion (17 mm) and the severity of the oedema.

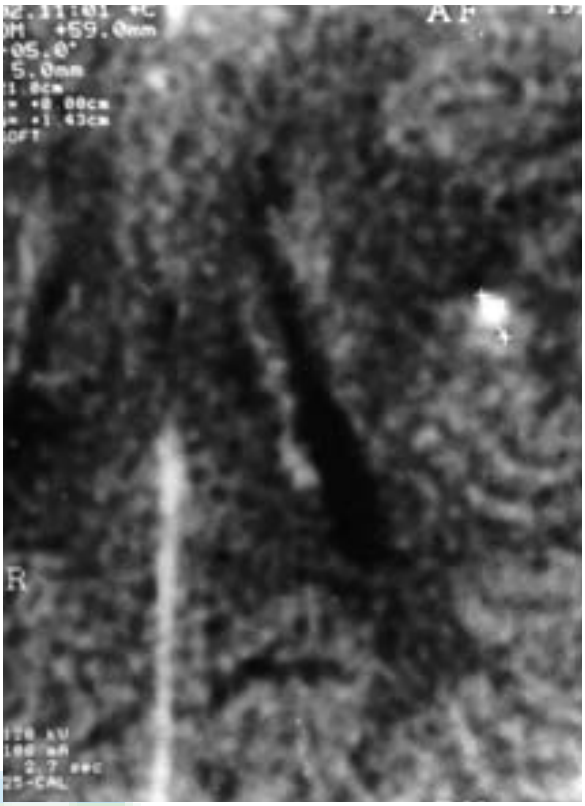

Fig. 1c : After 14 months the lesion is reduced to a small calcific dot with no oedema.

atypical SCG, tuberculoma or a neoplasm were considered. Serum was tested for cysticercal antibodies using ELISA and cysticercal antigens using EITB. Both the ELISA and EITB were positive, the EITB revealing all 7 bands. With a positive serology for cysticercosis, the patient was managed with albendazole therapy (15 mg/kg body weight per day for 14 days) and asked to report for a follow up after 3 months. In spite of diphenylhydantoin therapy, she continued to have to focal seizures and phenobarbitone was added to the treatment regime. A repeat CT scan after 3 months revealed a reduction in the size of the granuloma to 17 mm but there was still considerable oedema but no shift of the midline structures (Fig. 1b). A CT scan after one year revealed only a small calcific residue with complete resolution of the oedema (Fig. 1c). Phenobarbitone was withdrawn and she was continued on diphenylhydantoin. She has remained asymptomatic over the past 9 months.

Discussion

A diagnosis of SCG is confirmed only on follow up by spontaneous resolution of the granuloma.[1] Therefore, at initial presentation, the diagnosis of SCG is

presumptive and close follow up of patients diagnosed to have a SCG is mandatory. Tuberculomas, metastatic disease and pyogenic abscesses can occasionally mimic a SCG on the CT scan.[2] EITB is a very specific test for cysticercosis but has a poor sensitivity in patients with SCG,[4-6] with a positivity rate of only 18% to 49% in serum samples. Singh et al[6] tested the sera of 37 patients with SCG using the EITB and found that only 18 (48.6%) were positive. However, as there is no cross reactivity with other antigens, such as tuberculosis, a positive test is very useful in patient management, as it confirms the diagnosis of cysticercosis even at initial presentation. Interestingly, EITB performs better with serum than CSF in patients with a SCG.[4] In our patient, a stereotactic biopsy or stereotactic craniotomy could have been associated with some morbidity because of the location of the granuloma in the highly eloquent left insular cortex. A stereotactic biopsy, which is less invasive, would have been associated with some risk of haemorrhage due to the proximity of the sylvian vessels to the lesion. Furthermore, stereotactic biopsies of suspected inflammatory masses often lead to a pathological diagnosis of chronic inflammation alone without identifying a specific aetiology.[7] A positive EITB in our case was, therefore, helpful in avoiding invasive diagnostic procedures. The diagnosis of a SCG was confirmed by the response of the granuloma to albendazole therapy. A EITB of the serum should be performed in patients with atypical SCG if not in all patients suspected to have a SCG. This might prevent unnecessary use of invasive diagnostic procedures or empiric therapy with potentially harmful anti tuberculous drugs. Unfortunately, presently its high cost is a major hurdle to its universal application.

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