CASE REPORT

Cerebral Cysticercus Granuloma Associated with a Subdural Effusion

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Summary

The association of a solitary cerebral cysticercus granuloma with a subdural effusion is being reported. The granuloma and the effusion resolved following albendazole therapy. We speculate that the spread of the inflammatory changes around the granuloma to the subdural space could have led to the development of the subdural effusion.

Key words : Cysticercosis, Subdural space.

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Introduction

Subdural effusions are commonly seen as a complication of pyogenic meningitis or after head trauma in paediatric patients. A subdural effusion resulting from an underlying cerebral cysticercus granuloma has not been previously reported. We document such a case and discuss the possible mechanisms for this unusual occurrence.

Case Report

A 24 year old female medical doctor was seen by another physician initially with one episode of left focal seizures involving left upper limb, followed by secondary generalisation. There was no postictal weakness. A plain computerized tomogram (CT) of the head at that time revealed oedema in the right parietal region. There was unilateral ventricular dilatation of the left lateral ventricle with no evidence of any lesion in the region of the foramen of Monro. With a presumptive diagnosis of a cysticercus granuloma (not seen on plain CT), she was started on phenyotin sodium initially which was later changed to carbamazepine. She had been asymptomatic with this therapy for a year, till a week before presenting to us. She complained of severe headache and vomiting for a week but had no seizures. She denied any trauma to her head. She was awake and alert but complained of holocranial headache. She had no papilloedema or focal deficits. Contrast enhanced CT scan done elsewhere at the onset of the illness showed two small enhancing lesions adjacent to each other, in the right parietal cortical region with surrounding oedema. There was no abnormality in the subdural space. A contrast CT scan done at our hospital, on admission, showed the contrast enhancing granuloma with oedema along with a mixed density (iso- and hypodense) subdural collection, over the right frontal and parietal convexities (Fig. 1a and b). A gadolinium enhanced magnetic resonance (MR) scan showed a

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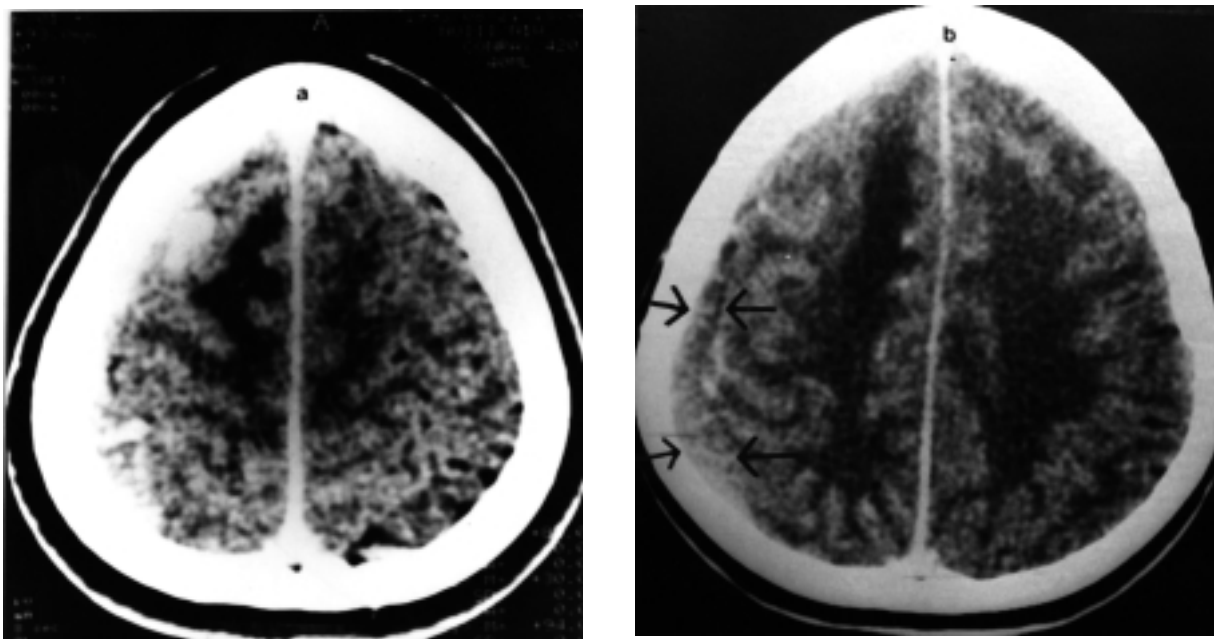

Fig. 1 : Contrast enhanced CT scan of the brain done a week after onset of symptoms, a) showing lesion in the right posterior frontal region with surrounding oedema, b) additional subdural effusion (arrows).

small enhancing nodule in the right parietal cortex high on the convexity with mild perifocal oedema (Fig. 2a and b). The subdural effusion was well visualised with enhancement of the outer membrane (Fig. 2c).

Her routine haematological investigations and coagulation work up were normal. Enzyme linked immunosorbent assay (ELISA) for cysticercal antibodies in the serum was positive. A diagnosis of a cerebral cysticercus granuloma with a subdural effusion was considered. She was managed conservatively with analgesics, oral glycerol and antiepileptic drugs. Additionally, albendazole (400mg twice a day) was prescribed for three weeks. One week after admission, she became asymptomatic and a CT scan showed a marked reduction in the size of the effusion which was now seen to be uniformly isodense. She was advised to continue the antiepileptic drugs till futher advice. She came back for a review after six months, when she continued to be asymptomatic. A contrast enhanced CT scan at this time showed complete resolution of the subdural effusion and the cysticercus granuloma (Fig. 3). The antiepileptic drugs were withdrawn and the patient has remained asymptomatic for the past 5 years.

Discussion

Solitary cysticercus granulomas are a common cause of seizures all over the world and particularly in endemic regions.[1] The granulomas produce a

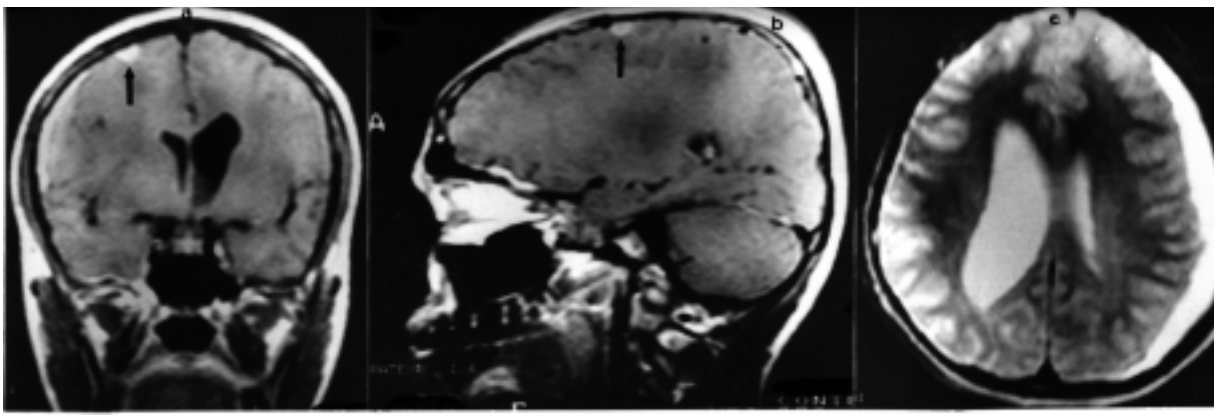

Fig. 2 : Gadolinium enhanced MRI scans showing enhancing granuloma in the right parietal cerebral convexity in the coronal (a) and sagittal (b) scans (arrow). (c) Hyperintense subdural collection over the right cerebral hemisphere (T2WI).

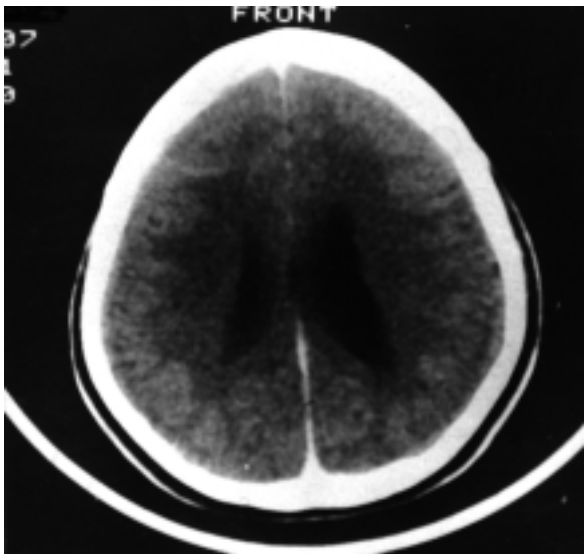

Fig. 3 : Followup contrast CT scans shows complete resolution of the granuloma.

characteristic clinical picture and CT image. On a contrast CT, they are seen as a uni- or bilobed 'rings' or 'discs' which rarely exceed 20 mm in diameter.[2] Plain CT scans usually only reveal the oedema which is frequently associated with granulomas causing seizures. Cysticercus granulomas are known to resolve spontaneously[3] and some of the persistent lesions respond to albendazole therapy.[4] The diagnosis of cysticercus granuloma in our patient was confirmed by the characteristic imaging morphology of the lesion, a positive serology for cysticercal antibodies and the response of the lesion to albendazole therapy.[5,6] Our patient can be considered to have a definitive diagnosis of neurocysticercosis on the basis of the criteria evolved by Del Brutto et al.[6]

The subdural collection in the present case accumulated within a short time span of one week. CT scan at the onset of the headache showed only the granuloma while the scan done a week later showed the effusion. The rapid evolution of the effusion, its occurrence over the cerebral hemisphere ipsilateral to the granuloma and its resolution with that of the granuloma, suggests a causal relationship between the cysticercus granuloma and the subdural effusion. We presume that the inflammation around the cysticercus granuloma having spread to the adjacent meninges and bridging veins in the subdural space led to the formation of the transudate in this space. The mechanism is akin to that responsible for the formation of subdural effusions in children with pyogenic meningitis.[7]

The effusion in our case was predominantly hypodense on the initial CT, probably due to the low protein content but turned isodense in subsequent scans with increasing accumulation of protein in the transudate. Possible causes of subdural collection of blood, such as trauma and bleeding disorders, were excluded in our patient by history and investigations. Furthermore, as the fluid was hypodense initially, an acute haematoma is ruled out. Feinberg and Valdivia[8] reported a patient with subdural cysticercal cysts which mimicked a chronic subdural haematoma on the CT scan. In our patient, the shape (concavo convex) of the subdural lesion and its rapid evolution makes this possibility quite remote.

To the best of our knowledge, this is the first reported instance of an association of a cysticercus granuloma and a subdural effusion.

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