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Short Communication

Cystisticercal Encephalopathy in Children: A Series of 13 Cases

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Abstract

We present a case series of 13 patients, presenting over a period of 3 years with features of cysticercal encephalopathy with multiple neurocysticercosis in brain. They presented with varied clinical features ranging from encephalopathy, status epilepticus, raised intracranial pressure and abnormal behaviour. Their treatment and outcome is discussed.

Keywords: *Neurocysticercosis; Encephalopathy; Status Epilepticus*

Introduction

Neurocysticercosis is a pleomorphic disease with varied clinical manifestations. It is caused by infestation of the central nervous system with encysted larvae of *Taenia solium*. Epilepsy, focal neurological deficits, increased intracranial pressure, headache and cognitive impairment are the common clinical features of the disease. Many patients with neurocysticercosis present psychiatric manifestations or organic mental disorders ranging from poor performance on neuropsychological testing to dementia. It usually presents as solitary inflammatory granuloma. We report a series of 13 cases with common finding of multiple neurocysticercosis in brain with encephalopathy.

Methods

All patients coming to OPD and ward with finding of multiple neurocysticercosis in brain (in neuroimaging) over a period of 3 years were studied. All these patients fulfilled the modified delbrutto criteria for diagnosis [1]. Their basic characteristics and clinical features were noted. All these patients also underwent routine investigations like complete blood count, renal function test. Mantoux test was done in all. Cerebrospinal fluid examination was done if required. All patients received symptomatic treatment as well as anti-parasitic drug (albendazole) and steroids. Patients showed good recovery and followed up three monthly.

Results

A total of 13 patients were studied. 5 of them were male. Six of them presented in status epilepticus in emergency ward. Three patients presented with altered sensorium without any history of past seizure according to attendants. One of them had signs of raised intra cranial pressure and encephalopathy. One patient presented with hemiparesis and altered sensorium. Her cranial tomography showed areas of hyperintensities, while MRI showed the presence of neurocysticercosis. We ruled out causes of hypercoagulability in the child. Two patients presented with recurrent episodes of generalised tonic clonic convulsions lasting few seconds to minutes. Another patient presented with abnormal behaviour in form of not recognising parents and incomprehensible speech for 6 days. Fundus examination was done in all and was found to be normal.

After stabilization all these patients underwent neuroimaging in form of cranial tomography or magnetic resonance imaging. We found multiple parenchymal neurocysticercosis in various stages of development. Complete blood count, renal function test were done routinely in all and found to be within normal limits. Mantoux test and ELISA for HIV was done and found to be negative. Cerebrospinal fluid examination was done in patients presenting with altered sensorium and status epilepticus, they were found to be normal.

All patients presenting in status epilepticus were stabilised according to standard protocol. After diagnosis of multiple neurocysticercosis, they all received steroids. After 48 hours of starting steroid, patients received antiparasitic drug albendazole at 15 mg/kg divided in

two doses for seven days. All these patients showed good recovery. They were discharged on anti-epileptic drugs. Psychiatric evaluation was done on the patient presenting with abnormal behaviour but no anti-psychotic was given. His complete recovery was delayed by one month. The patients presenting with altered sensorium also received therapy to decrease intra cranial tension, later followed by steroid and albendazole according to protocol. The patient presenting with hemiparesis also received same treatment. There was improvement in power of the affected side by the time of discharge after ten days of presentation.

Case	Age	Sex	Presentation	GCS	Fever	Papilloedema	CT/MRI
1	8	M	Status epilepticus	E3V3M4	Absent	Absent	Multiple NCC
2	10	F	Status epilepticus	E3V2M3	Absent	Absent	Multiple NCC
3	6	M	Altered sensorium	E3V3M3	Present	Absent	Multiple NCC
4	10	F	Altered sensorium with signs of raised ICT	E1V1M3	Present	Present	Multiple NCC
5	11	F	Status epilepticus	E3V2M2	Present	Absent	Multiple NCC
6	7	F	Encephalopathy + GTCS	E4V5M6	Absent	Present	Multiple NCC
7	6	F	Status epilepticus	E3V4M4	Absent	Absent	Multiple NCC
8	7	F	Stroke	E3V5M5	Present	Present	Multiple NCC
9	6	F	Status epilepticus	E3V4M5	Absent	Absent	Multiple NCC
10	8	M	Altered sensorium	E2V2M4	Present	Absent	Multiple NCC
11	9	M	Status epilepticus	E3V3M3	Absent	Absent	Multiple NCC
12	8	F	Encephalopathy + GTCS	E4V5M6	Absent	Absent	Multiple NCC
13	13	M	Abnormal behaviour	E4V2M6	Absent	Present	Multiple NCC

Table 1: *Basic characteristics of patients.*

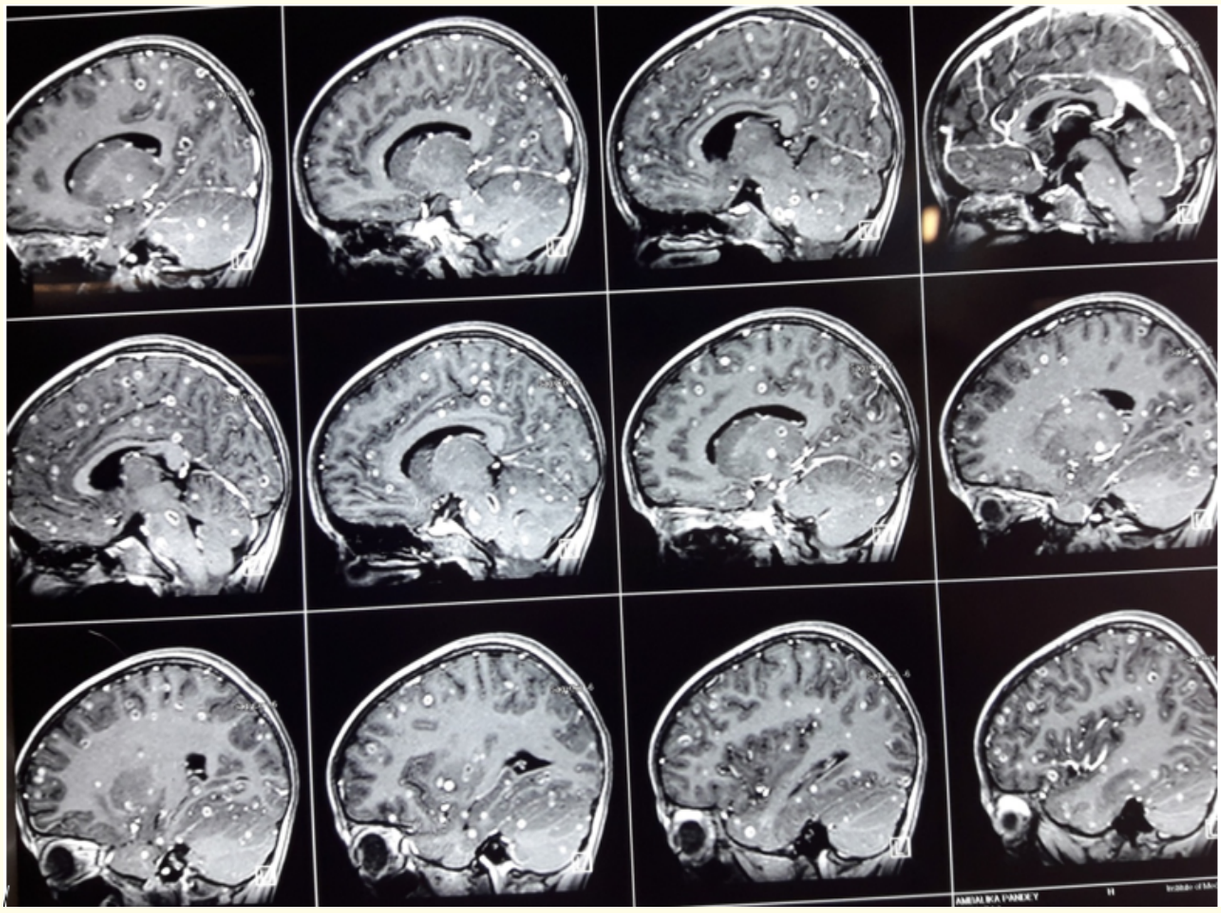

Figure 1: *MRI of brain showing multiple cysticerci in sagittal section in different stages.*

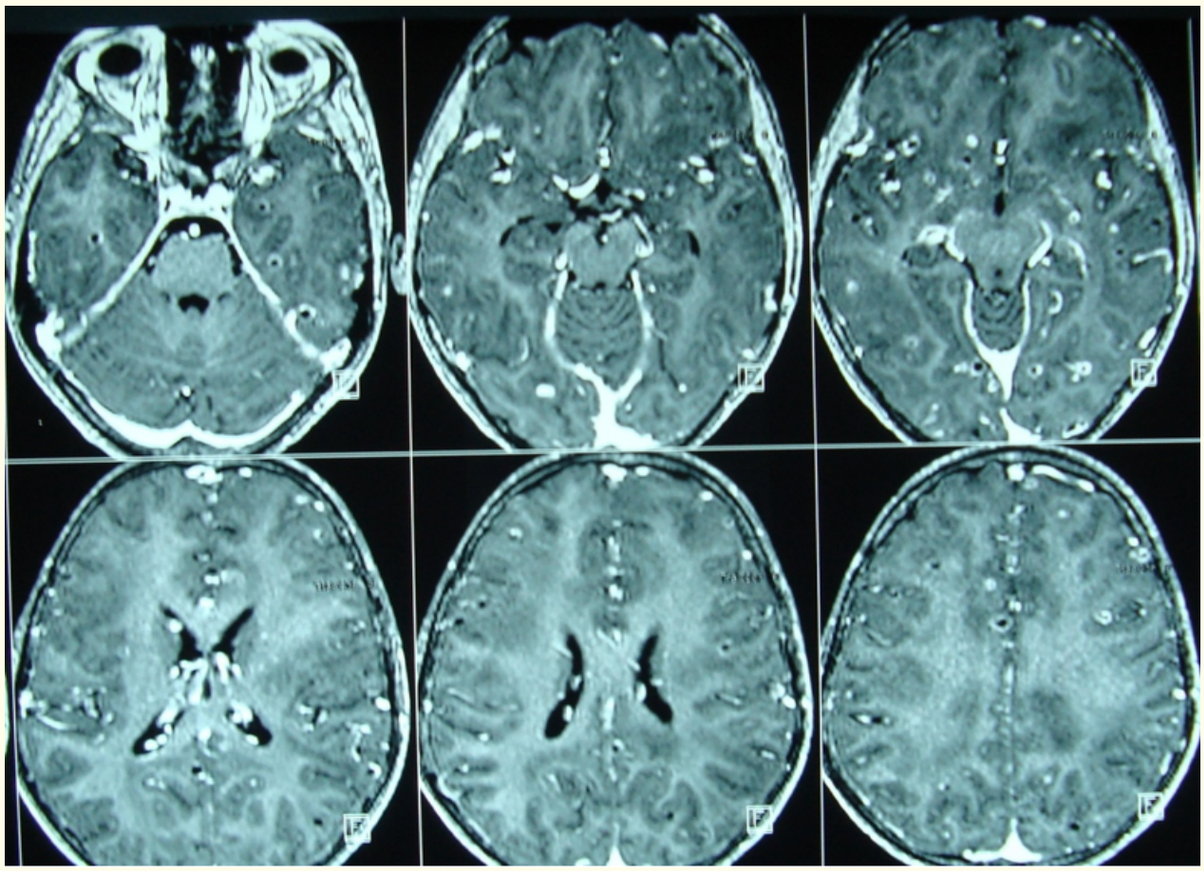

Figure 2: *MRI showing multiple cysts.*

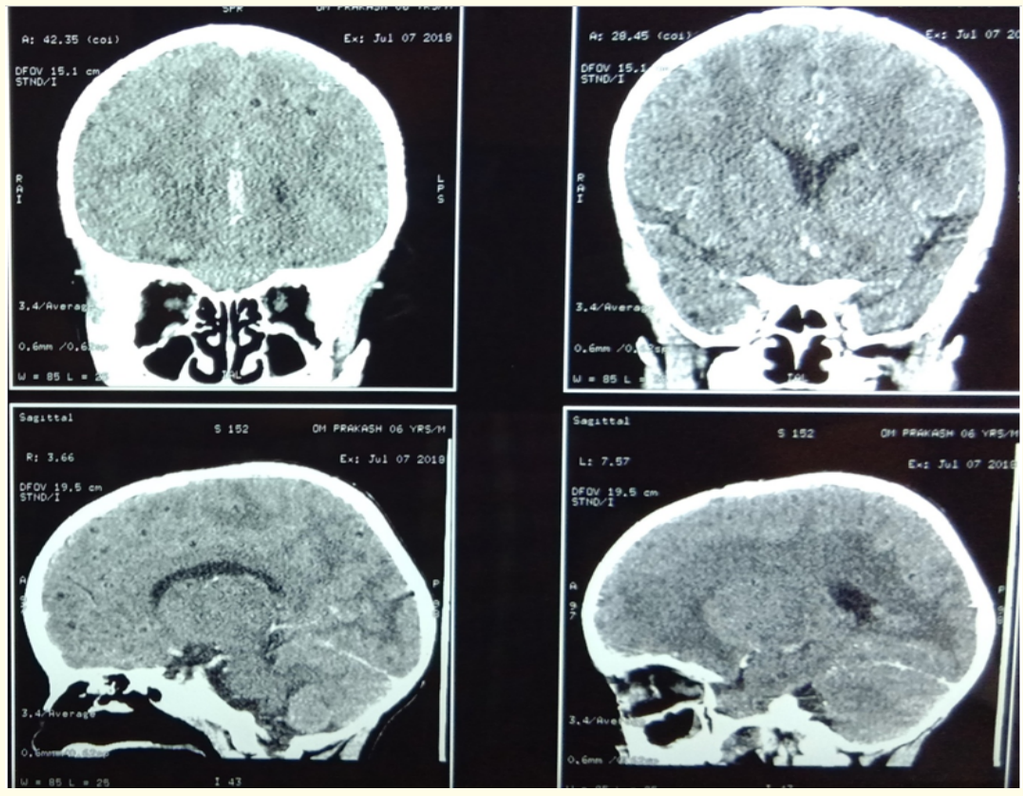

Figure 3: *Cranial tomography showing multiple cysts.*

Discussion

The aim of this article is to highlight the varied presentation of multiple cysticerci in brain. Status epilepticus was found to be the most common presentation, while abnormal behaviour and stroke were also recognised as rare presentations. Neurocysticercosis can present with virtually any clinical feature concerning central nervous system. There have been few case reports of neurocysticercosis patients presenting as encephalitis. A case report by Prasad., et al. described a six year old patient with low grade fever, altered sensorium, and later found to have cortical blindness [2]. R Aulakh reported eight year old female patient with frontal headache, progressive loss of vision and altered sensorium, later found to have multiple neurocysticercosis in multiple region of brain [3]. Another 10 year old boy was reported with three year history of seizure, headache and low grade fever, he presented in status epilepticus. He could not be saved, his brain autopsy revealed intra parenchymal cysts and larvae [4].

There is some controversy regarding use of antiparasitic drug in cysticercal encephalitis, though all our patients showed good recovery following standard protocol with anti-parasitic drug. Liberation of cytokines either due to natural degeneration of active cysts or death due to albendazole therapy may lead to increase in body temperature, raised intracranial pressure and intractable seizure [2]. Our series of patients presented with a wide spectrum of clinical features. So a high index of suspicion is required in endemic areas for patients presenting with encephalopathy.

Conclusion

Non-traumatic encephalopathy is common but Children presenting with encephalopathy without fever, neurocysticercosis should be considered as one of differential diagnosis of encephalopathy.

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