Clinical Reports

Myoclonus: a manifestation of neurocysticercosis

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Summary: A case of neurocysticercosis in an 11 year old female manifesting only as myoclonic seizures is reported. The diagnosis was based upon ELISA test, computed tomography, and biopsy of a subcutaneous nodule. The patient responded to anticysticerci drug treatment.

Neurocysticercosis has not to our knowledge been previously reported to have presented with myoclonus.

Introduction

Neurocysticercosis is a world wide problem with varied manifestations. It may remain asymptomatic throughout or manifest as seizures, raised intracranial tension, space occupying lesion, meningo-encephalitis, stroke, or with ocular, muscular or spinal involvement. The incidence of neurocysticercosis presenting as seizures varies from 18–36% while up to 92% of patients with neurocysticercosis have seizures. Partial or partial becoming generalized seizures are the most frequent 25–75%^{1–3} while status epilepticus occurs in 9.3%.⁴ Myoclonus as the presenting symptom has not to our knowledge been recorded so far.

Case report

An 11 year old female presented with frequent, brief involuntary jerky movements of various parts of the body for the last month. These movements used to persist throughout the day and disappear during sleep, but without any exaggeration on awakening. Tactile stimuli precipitated the movements, the severity of which was variable. There was no family history of any neurological disorder.

Detailed examination was normal except for the presence of myoclonic jerks of the whole body and one subcutaneous nodule over the left forearm. The haemogram, biochemical profile for blood urea, sugar and electrolytes were normal. The biochemical and cytological examination of cerebrospinal fluid (CSF) was normal. Measles antibody titre in both CSF and serum was negative.

Electroencephalogram (EEG) revealed the presence of generalized synchronous as well as asynchronous, non-periodic paroxysmal discharge of polyspikes, spike and sharp waves with well modulated alpha background activity. These patterns were not photo-responsive.

The routine X-rays of chest, skull, thighs and forearm were normal. Pre- and post-contrast computed tomography (CT) scan revealed generalized oedema with obliterated ventricular system and a diffuse bilateral low density pattern. It also revealed multiple round low densities with peripheral enhancement and signs of meningeal inflammation. The findings were highly suggestive of cysticercosis, confirmed by enzyme linked immunosorbent assay (ELISA) which was positive in both serum and cerebrospinal fluid (CSF). Biopsy of the subcutaneous nodule showed features of cysticercosis. The patient was put on sodium valproate 800 mg/day and two courses of praziquantel (50 mg/kg body weight/day in 3 divided doses) for 15 days. The 2 courses were 2 weeks apart. Sodium valproate was withdrawn gradually after 6 months.

Repeat CT scan after the second course of praziquantel was normal and the CSF ELISA test also became negative.

Discussion

The presence of normal mentation and normal CSF with no neurological signs and lack of positive family history of epilepsy or neurological disorder differentiates myoclonus in this patient from symptomatic myoclonus with various progressive or static encephalopathies. Primary generalized myoclonic epilepsy may also occur in this age group but 90% of the patients with this entity also

have tonic clonic seizures while one-third of tonic clonic seizures may have myoclonus.⁵ This patient had only myoclonic seizures with no exaggeration in the early morning hours and no photo-responsiveness, differentiating it from juvenile myoclonic epilepsy and photosensitive myoclonus. One third of cases of juvenile myoclonus have a photoresponsive EEG.⁶ The absence of 3 Hz spike wave discharge in the EEG differentiates it from myoclonic absences.

The EEG in neurocysticercosis may be normal or show focal, multifocal or generalized slowing, a spike-sharp wave or periodic lateralized epileptiform discharge.^{1,3,7} In this patient the EEG showed polyspike and spike sharp wave discharges. Twenty-three to 53% of EEGs with polyspike wave discharges are seen with myoclonic seizure.⁶

Sotelo *et al.*⁸ classified neurocysticercosis into active and inactive form depending upon the CT appearance and CSF analysis. The active form included arachnoiditis, hydrocephalus secondary to meningeal inflammation, parenchymal cysts, brain infarction secondary to vasculitis, mass effect due to a large cyst or cyst clumps and intraventricular and spinal cysts. The inactive form included parenchymal calcification and hydrocephalus secondary to meningeal fibrosis. Combination of two

or more of these were seen in more than 50% of their cases. They proposed that it is only the active form which requires specific treatment. They also stated that the ELISA test is negative in the inactive form of neurocysticercosis. In the present case CT showed active lesions and ELISA was positive in both CSF and serum. Mervis and Lotz⁹ divided the parenchymatous form of neurocysticercosis into three types based on CT findings: (i) A diffuse bilateral low density pattern with very little change after contrast. (ii) Multiple low densities with defined central rounded areas of enhancement. (iii) Rounded cystic lesions with well defined or irregular edge which may enhance with a ring fashion. The present case had type I and II types of parenchymatous lesions.

The ELISA for cysticercosis was positive in both serum and CSF. The efficacy of immune tests only in serum for the diagnosis of neurocysticercosis is controversial.

Myoclonus may be cortical or subcortical in origin; however, considering primarily the location of the cysts either type of myoclonus may occur. Even then myoclonus has not been stressed in the epileptic profile of cysticercosis.¹⁻⁴ Thus the present case was unique in presenting solely with myoclonus.

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