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Case Report

Subacute sclerosing panencephalitis with parkinsonian features in a child: A case report

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Abstract

Background: Subacute sclerosing panencephalitis (SSPE) can present with atypical clinical signs which may result in delayed diagnosis and treatment. We present a child with SSPE whose initial manifestation was parkinsonism.

Patient: This 12-year-old boy presented with the complaint of difficulty in standing up and walking for 2 months. Neurological examination revealed generalized rigidity, bradykinesia, impaired postural reflexes, and a mask-like facies. The initial diagnosis of Juvenile Parkinson Disease was made. He had no improvement with levodopa, trihexyphenidyl, tetrabenazine and clonazepam. The EEG showed irregular background activity with generalized slow waves which were not suppressed with diazepam injection. SSPE was considered and the diagnosis was confirmed with the identification of measles antibodies in cerebrospinal fluid.

Conclusion: SSPE should be considered in children and adolescents with parkinsonian symptoms, particularly in the absence of a history of vaccination against measles.

Keywords: SSPE; Children; Atypical; Parkinsonism

1. Introduction

Subacute sclerosing panencephalitis (SSPE) is a chronic progressive infectious and degenerative disease of central nervous system (CNS) resulting from measles virus infection. The average period between exposure and onset of SSPE ranges between 3 and 12 years [1]. Typical clinical manifestations of SSPE include personality changes, intellectual deterioration, behavioral abnormalities, myoclonic movements, and pyramidal and extrapyramidal symptoms. Less common manifestations include visual loss, hemiparesis, behavioral changes, epilepsy, ataxia or acute encephalopathy [2–4]. To our knowledge, the initial manifestation of parkinsonism in pediatric patients with SSPE is rare [4]. Here, we report a case of SSPE presenting initially with parkinsonian features.

2. Case report

A 12-year-old boy was referred to our clinic with difficulty in standing up and walking, dystonia, left-sided and generalized stiffness progressing slowly over 2 months. He described difficulty turning over in bed, impairment of limb movements, resting tremor (especially in the left hand), difficulty holding objects, and slipping of footwear from left foot as associated symptoms. There was no history of behavioral abnormality, loss of consciousness,

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convulsion, sphincter dysfunction, vomiting, fever, intention tremor, hearing impairment or jaundice. His family history was noncontributory. He had no past history of measles infection and denied illicit drug intake. The boy had history of measles vaccination. General and mental examinations were normal. Neurological examination revealed normal consciousness, slurred speech with decreased volume and speed, generalized rigidity, left hemidystonia, bradykinesia, impaired postural reflexes, and mask-like facies. Deep tendon reflexes were brisk. Plantar reflexes were flexor. Generalized dystonia developed within one week after presentation. Diagnostic tests performed for the etiology of dystonia and rigidity including complete blood count, serum biochemistry, ammonia, lactate, copper, ceruloplasmin levels, anti-nuclear antibody titers, tandem mass spectrometry and lysosomal enzyme screen were normal, as were 24 h-urinary copper excretion and urinary organic acid levels. Infectious serology for mycoplasma, cytomegalovirus, Epstein–Barr virus and Herpes simplex virus were negative. No Kayser–Fleischer ring was found with slit lamp examination. The first magnetic resonance imaging (MRI) (Fig. 1A) and nerve conduction studies were normal. After 4 months, hyperintense lesions of both parietal areas in cerebral white matter in T2-weighted images were found during follow-up period (Fig. 1B).

The initial diagnosis was Juvenile Parkinson Disease and treatment was levodopa, trihexyphenidyl, tetrabenazine and clonazepam. However, no benefit was observed from this treatment. Six weeks after initiation of symptoms, he developed acute loss of balance and sudden falls during walking, interpreted as negative myoclonus. EEG was performed for differential diagnosis of diseases causing negative myoclonus such as myoclonic epilepsy and SSPE. It showed irregular background activity with generalized slow wave discharges which were not suppressed after diazepam injection intravenously (Fig. 2A and B). As EEG findings were consistent with SSPE, cerebrospinal fluid (CSF) was examined: there were no cells, normal glucose (68 mg/dL) and normal protein (448 mg/L, normal: 150–450); oligoclonal bands were detected. Tests showed increased measles IgG index (2.13; <1.3: normal, 1.3–1.5: intermediate, >1.5: elevated). EIA test for measles IgG showed increased titers in serum (7,343,104 U/mL, normal: <25 U/mL) and CSF (231,526.40 U/mL, normal: <25 U/mL). These results confirmed the diagnosis of SSPE, and treatment with inosiplex (100 mg/kg/day p.o) was started in addition to a 5 day-course of intravenous immunoglobulin (IVIg, 400 mg/kg/day) and carbamazepine (20 mg/kg). These resulted in partial remission including amelioration in balance and gait. The patient has been followed-up for 4 months and currently is able to walk with support. His speech improved, bradykinesia and myoclonus decreased.

3. Discussion

The characteristic initial clinical signs of SSPE are behavioral and intellectual changes and myoclonic jerks [1]. On the other hand, approximately 10% of SSPE patients have been reported to present with unusual features like generalized convulsions, hemiparesis, epilepsia partialis continua, acute encephalopathy with loss of consciousness, cerebellar ataxia, or visual loss [2–4]. Our patient's presentation with parkinsonian features did not evoke the diagnosis of SSPE at initial examination. The absence of a family history, the failure of the first etiologic evaluation, lack of effect from antiparkinsonian and anti-dystonic drugs, and later, the development of negative myoclonia led to further tests indicating the diagnosis of SSPE, and some improvement was observed when treated accordingly.

An accurate diagnosis of Juvenile Parkinson Disease rests on the clinician's ability to recognize its characteristic signs and associated symptoms (rest tremor,

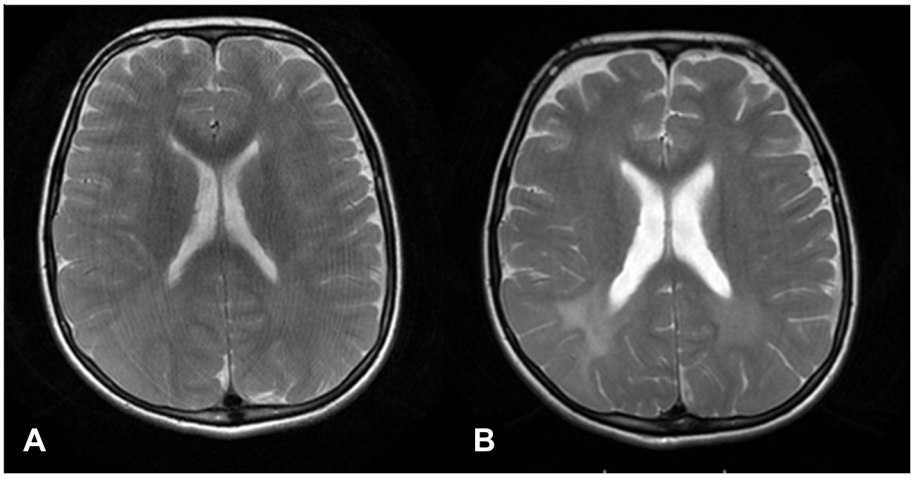

Fig. 1. The first normal MRI (A) and T2 weighted axial section showing hyperintense lesions of both parietal areas in cerebral white matter during follow-up period (B).

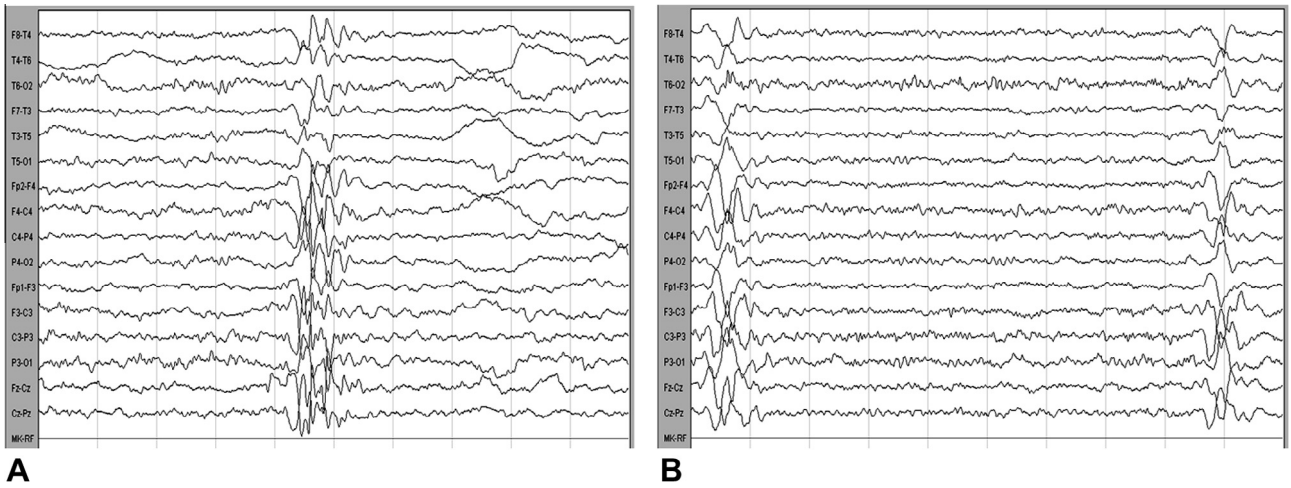

Fig. 2. EEG's of the case before (A) and after (B) diazepam administration.

rigidity, bradykinesia, and gait disturbance), especially in the early stages. Parkinsonian features have been described at advanced stages of SSPE [5], but Misra et al. [6] reported on two teenagers with SSPE whose early manifestation was parkinsonism with no myoclonic jerks or cognitive disturbance. SSPE became evident only when cognition deteriorated rapidly and myoclonic jerks became manifest, with the characteristic EEG changes of periodic complexes and elevated anti-measles serology [6].

The diagnostic role of EEG findings in SSPE has been defined in the literature [7]. Periodical high-amplitude slow wave complexes which cannot be suppressed with diazepam is a characteristic EEG sign of SSPE [3,8], as in our case. The definite diagnosis is based on measles IgG titers in the CSF. MRI does not show any specific changes, but is helpful in the differential diagnosis of SSPE [9,10]. It can be normal in the first few months of the disease, as was in our case. On the other hand, hyperintense lesions of both parietal areas in cerebral white matter in T2-weighted images were found in 4 months after the first MRI.

Previous case reports have been focused on parkinsonian features and SSPE, but the prognosis of the patients has not been discussed. However, SSPE has been considered as a uniformly progressive disease resulting in death in a few years. More recently, Anlar and Yalaz [11] have performed a survey among patients recorded by the SSPE Association in Turkey, a non-profit patient organization. In contrast to the literature supported by older references, they reported that only 60 out of 340 (17%) had died within 2 years after diagnosis. They concluded that although SSPE still is a progressive disease without curative treatment, it does not carry the same prognosis as it did decades ago. Currently, our patient is able to walk with support and has not developed cognitive deterioration.

SSPE should be considered in children who present with new neurological signs of subacute onset. Recent measles outbreaks in various regions of the world warrant clinicians' interest and knowledge about this disease, especially in areas where measles epidemics were noted in the past 10 years.

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