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Frontal nonconvulsive status epilepticus manifesting somatic hallucinations

Shigetoshi Takaya[a,d], Riki Matsumoto[b], Chihiro Namiki[a,c], Hayaki Kiyosu[d], Osamu Isono[e], Kazuo Hashikawa[a], Akio Ikeda[b], Hidenao Fukuyama[a,*]

[a]*Human Brain Research Center, Kyoto University Graduate School of Medicine, Kyoto, Japan*
[b]*Department of Neurology, Kyoto University Graduate School of Medicine, Kyoto, Japan*
[c]*Department of Psychiatry, Kyoto University Graduate School of Medicine, Kyoto, Japan*
[d]*Kisshoin Hospital, Kyoto, Japan*
[e]*Min-Iren Chuou Hospital, Kyoto, Japan*

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Abstract

Somatic hallucinations are subjective experience of false, strange sensations of things occurring in or to the body. They can be seen in psychotic disorders, but have not been well described as an ictal psychosis in patients with nonconvulsive status epilepticus (NCSE) frontal origin. We reported a 69-year-old woman who had NCSE of frontal origin manifesting prolonged somatic hallucinations mimicking a psychiatric disorder and initially treated as such. Ictal EEG revealed the frontal focus and ictal single-photon emission computed tomography (SPECT) showed the activation, not only in the frontal area but also in the parietal area as the projected regions, both of which might be associated with the development of her symptoms. She also had two generalized tonic-chronic seizures out of psychosis. Her psychosis and ictal rhythmic discharges on EEG ceased with valproate and she has since remained free from the symptoms. The current case suggests that long-lasting somatic hallucinations could be an ictal psychosis in frontal NCSE and thus an EEG study is needed for an early diagnosis and treatment.

Keywords: Frontal lobe epilepsy; Nonconvulsive status epilepticus; Somatic hallucinations; Cenesthopathy; Ictal psychosis; Ictal SPECT; EEG

1. Introduction

Somatic hallucinations, or cenesthetic hallucinations, are subjective experience of false, strange sensations of things occurring in or to the body in the absence of a corresponding stimulus that are usually associated with delusional explanations [1,2]. They can be seen more often in schizophrenia than in affective or organic psychoses [2], but they have not been reported to our knowledge as an ictal psychosis in patients with nonconvulsive status epilepticus (NCSE) of frontal origin.

We report a patient with frontal NCSE showing long-lasting somatic hallucinations that were initially treated as a psychiatric disorder. Our case suggests that epileptic disorder should be considered as a possible cause of somatic hallucinations whenever they are resistant to antipsychotic treatment.

2. Case report

A 69-year-old woman was brought into general hospital by her husband for her complaints of somatic hallucinations described as “My nerves are moving in my arms”, “My hands and feet are melting down” or “My abdomen is twisting and attaching to my back”. She had a long history of mild hypertension which had been treated by a low dose of a calcium antagonist. During the last 4 years, she had two

* Corresponding author. Human Brain Research Center, Kyoto University Graduate School of Medicine, Shogoin, Sakyo-ku, Kyoto 606-8507, Japan. Tel.: +81 75 751 3603; fax: +81 75 751 3202.
E-mail addresses: shig.t@kuhp.kyoto-u.ac.jp (S. Takaya), fukuyama@bpp2.kuhp.kyoto-u.ac.jp (H. Fukuyama).

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episodes of visual hallucinations consisting of persons and animals without emotional changes. These lasted for a few days with decreased feeding and were relieved spontaneously without antipsychotics or antiepileptics, but there is no further information available. Otherwise, she had been healthy and led a normal daily life without alcohol abuse or drug addiction. She had no perinatal problem and has never had CNS infection or head injury. On admission, the patient was talkative, but could carry out routine activities such as eating or using a bathroom unaided. The patient persisted in complaining intermittently of somatic hallucinations as described above, but no visual or auditory hallucinations and no significant changes of affection or personality were associated. She was oriented to time and place, but her attention was judged to be impaired, because of her decreased digit forward score of 4, and she did not agree to take more complicated neuropsychological examinations. Other neurological and general physical examinations were normal.

Routine blood tests, serum levels of lactate and pyruvate, thyroid function, CSF analysis, brain magnetic resonance imaging (MRI) and MR angiography were unremarkable. Serologic tests for syphilis were negative. EEG showed bilateral rhythmic, about 3 Hz sharp waves predominantly in the left frontal area almost continuously (Fig. 1A,B). It continued with the amplitude fluctuated throughout the recording of more than 30 min. Ictal single-photon emission computed tomography (SPECT) with *N*-isopropyl-*p*-[^{123}I] iodoamphetamine (IMP) showed hyperperfusion in the bilateral frontal and parietal lobes (Fig. 2A). Three-dimensional stereotactic surface projection (3D-SSP) analysis [3] of the cerebral blood flow changes was performed with normalization by cerebellar activity, as compared with a normal control database of eight age-matched subjects (66–70 years old). This revealed increased perfusion remarkably in the left frontopolar areas, moderately in the right frontopolar and the bilateral parietal association areas (Fig. 2B).

Very-late-onset schizophrenia-like psychosis [4] was initially suspected before the EEG was examined and thus a low dose of risperidone was started. However, this exacerbated the symptoms and was therefore discontinued. Since EEG seizure patterns were documented as described above, ictal psychosis was strongly suspected. Carbamazepine was then started and increased up to 400 mg/day (a serum level of 7.9 μ/ml) but it did not improve her clinical symptoms. She had two generalized tonic-clonic seizures out of psychosis and a confusional state followed for a few days. EEG at that time showed generalized rhythmic sharp waves (Fig. 3A,B). Carbamazepine was replaced by valproate of 1200 mg/day. The complaints of somatic hallucinations lasting for a month decreased gradually then disappeared. The follow-up EEG, taken when the patient was free from the symptoms, showed disappearance of bifrontal rhythmic discharges and appearance of normal background activity (Fig. 3C,D).

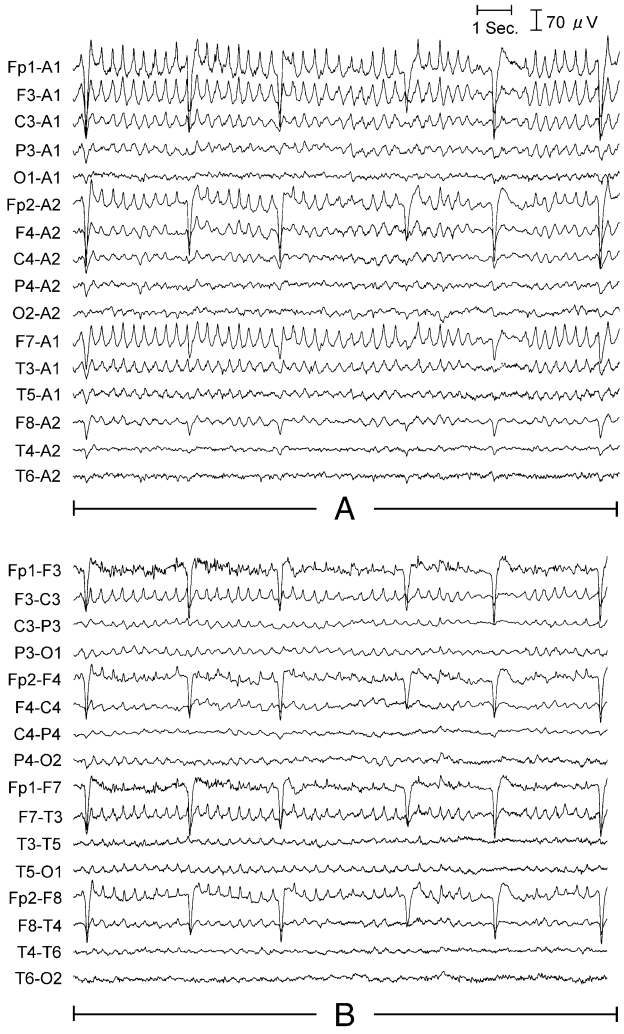

Fig. 1. Ictal EEGs taken when the patient presented with somatic hallucinations without loss of consciousness. Bilateral rhythmic, about 3 Hz sharp waves predominantly in the left frontal area are displayed both on a monopolar montage with an ipsilateral ear lobe reference (A) and a bipolar one (B) in the same period. A repeated EEG taken 3 weeks later showed similar findings.

Her digit forward score was slightly improved up to 5 and her memory function was almost within normal range for her age, but she did not agree to have the other neuropsychological tests. The patient has since remained free from the symptoms for 8 months.

3. Discussion

Psychotic manifestation in this patient's late life initially mimicked very-late-onset schizophrenia-like psychosis, which usually responds well to low doses of antipsychotics [4]. The diagnosis of epilepsy was confirmed by EEG and by two episodes of generalized tonic-clonic seizures that occurred out of psychosis. This was also consistent with cessation of psychosis and ictal rhythmic discharges on EEG by valproate. Furthermore, EEG and SPECT findings