Panic Attack Symptoms in a Patient with Left Temporal Lobe Epilepsy

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We describe a 56-year-old woman with left temporal lobe epilepsy who developed symptoms of a panic attack. Owing to normal electroencephalography and brain magnetic resonance imaging results, she was initially diagnosed as suffering from panic attacks and treated for anxiety neurosis. The symptoms persisted and she was re-examined in our department. An interictal electroencephalogram showed paroxysmal spike waves in the left mesial temporal lobe region and this was the basis for a diagnosis of left temporal lobe epilepsy. This report suggests that left temporal lobe epilepsy should be considered as the differential diagnosis when patients frequently complain of fear or anxiety.

KEY WORDS: TEMPORAL LOBE EPILEPSY; PANIC ATTACK; FEAR; ANXIETY; ELECTROENCEPHALOGRAM

Introduction

Temporal lobe epilepsy (TLE) presents with a variety of psychomotor symptoms. In an unusual form of multiple sclerosis, TLE is a unique manifestation of the disease.1 TLE causes a disturbance of higher cerebral functions, so may induce language, memory or cognitive impairments, illusions or structured hallucinations. A relationship between yawning and TLE has also been described.2 Fear or anxiety can form part of the epileptic critical symptom pattern.3,4 This means that differentially diagnosing this type of epilepsy is difficult, especially when confronted by what appears to be a panic attack. Sazgar et al.5 recently demonstrated panic attack symptoms in patients with right TLE, but not in those with left TLE.

We describe a 56-year-old patient with left TLE who developed panic attacks.

Case report

In November 2002 a right-handed 56-year-old female suddenly complained of severe anxiety during the night. Two days later this symptom gradually disappeared, but she experienced a ‘needle-sharp’ pain in her head and around her eyes every 1 – 2 min and presented with a panic attack. This was accompanied by an abnormal sense of smell, chest discomfort, nausea and vomiting but no fever. She visited several neurology and psychiatry departments, and investigations including electroencephalography (EEG) and brain magnetic resonance imaging (MRI) were performed. A diagnosis was not made, however, because the test results were normal. The psychiatrists concluded that her panic attacks were causing the other symptoms and administered medication for anxiety neurosis.
The patient continued to have panic attacks and was admitted to our medical department in April 2003. The patient had no abnormal physical or neurological findings and the results of brain MRI were normal. She had no history of febrile convulsions or epilepsy. The patient's blood test showed normal findings, including the C-reactive protein level.

An interictal EEG was performed during hospitalization and showed paroxysmal spike waves in the left mesial temporal lobe regions (Fig. 1). This suggested a diagnosis of TLE, as these EEG findings are typical of this condition. Carbamazepine was administered initially at a dose of 100 mg/day but was increased, by doubling the dose each time, over a period of several months. A 600 mg/day dose was needed to obtain good control of the panic attacks. Since then, the patient has not had a panic attack.

**Discussion**

The central brain foci leading to fear or anxiety as symptoms of epilepsy are temporal, and in some rare cases, frontal. Using a voxel-based morphometric approach, Massana et al. reported a significant ($P < 0.05$) reduction in left parahippocampal gyrus grey matter density in patients with panic disorder, compared with healthy subjects. Panic attacks in patients with right TLE have been described, but left TLE is probably responsible for our patient's symptoms.

A careful symptomatological analysis is necessary to allow clinicians to make a definitive diagnosis of TLE however. Periodic pyrexial episodes with an unknown focus of origin were described in a patient with TLE, in which the patient developed automatism together with pyrexia during hospitalization.
and the EEG results indicated spike discharges in the fronto-temporal lobe region. Periodic lateralized epileptiform discharges were also seen on the EEG from a patient with influenza B-associated encephalopathy.\textsuperscript{8} Herpes simplex virus-induced encephalitis and influenza virus-associated encephalopathy need to be ruled out to establish the diagnosis of TLE.

In summary, a 56-year-old female presented with symptoms of panic attacks. She was diagnosed with TLE, as the EEG showed paroxysmal spike waves in the left mesial temporal lobe region. This report suggests that TLE should be considered as the differential diagnosis when patients frequently complain of fear or anxiety.

Acknowledgement

The Science Research Promotion Fund of the Promotion and Mutual Aid Corporation for Private Schools of Japan supported this study (grant to Dr T Kanda).

Received for publication 9 September 2003 • Accepted subject to revision 17 September 2003 • Revised accepted 2 October 2003

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