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Partial seizures presenting as panic attacks

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Partial seizures should be considered in the differential diagnosis of refractory or atypical panic attacks

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The diagnosis of partial epileptic seizures is often challenging. The problem is considerable; the lifetime prevalence of epilepsy is 3-4%, and 60% of those affected have simple or complex partial seizures.[1 2] Panic disorder has a lifetime prevalence of about 1.5% and is characterised by discrete episodes of unexpected, sudden, overwhelming terror accompanied by a variety of physical, cognitive, and behavioural symptoms.[3]

Panic disorder and some partial seizures may have similar symptoms. Patients with epilepsy may have prodromal symptoms of tension, anxiety, and depression. Temporal lobe seizures commonly include affective symptoms, fear, and autonomic features, including changes in skin colour, blood pressure, and heart rate.[4] In comparison, for panic attack to be diagnosed *(Diagnostic and Statistical Manual of Mental Disorders*, fourth edition) patients must have at least four of 13 symptoms, including physical symptoms (palpitations, sweating, trembling, sensation of breathlessness, chest pain, feeling of choking, nausea, faintness, chills or flushes, and paraesthesiae) and affective symptoms, including fear of losing control, fear of dying, and derealisation or depersonalisation.[3 5] There is, therefore, considerable overlap of symptoms between the two disorders, and a definitive diagnosis may be difficult. We describe three patients with partial seizures that were suggestive of panic disorder.

Case reports

Case 1

A 68 year old man presented with a four year history of stereotyped attacks that occurred 10 to 14 times daily. These began with the sensation of pins and needles in his head, spreading to his torso and limbs. His breathing became rapid, and he developed a dry mouth, nausea, and a feeling of unease. The symptoms developed and receded gradually. He would be pale, sweaty, agitated, and tearful during the attacks, which lasted between one and four minutes.

After initial presentation to a cardiologist, he was referred to a psychiatrist who diagnosed panic attacks. Attendance at an anxiety management group and treatment with diazepam were without benefit. Over the next three years the episodes continued, and he became withdrawn and anorexic. Investigations at the time of neurological referral, including blood and urine chemistry, routine electroencephalography, and computed tomography of the brain, gave normal results. He was admitted for video electroencephalography telemetry with 20 channel scalp electroencephalography and 2 channel electrocardiography.

A video of the attacks showed them to be stereotyped and to last up to one minute. The patient appeared anxious, hyperventilated, remained partially aware throughout, and indicated when an episode had occurred. During the attacks the electroencephalogram showed repetitive epileptiform discharges over the right hemisphere.

Partial seizures were diagnosed four years after onset of his symptoms. He started taking antiepileptic drugs, resulting in a 90% decrease in frequency of seizures.

Case 2

A 30 year old woman presented with a 10 year history of stereotyped episodes. These began with a pain in her head, hyperventilation, and palpitations, followed by tingling over the left side of her face and left arm, diminution in hearing, left sided chest pain, fear, and a dry mouth. The symptoms built up and diminished gradually, the episode lasting for 15 to 30 minutes. Her husband had recently noted swallowing and chewing movements during the episodes, which occurred in clusters up to 15 times a week.

Six years previously she had been diagnosed as possibly having partial seizures and carbamazepine was begun, with some short term benefit. She stopped this one year later, with no change in frequency of the attacks. Routine electroencephalography gave normal results. Subsequently she was considered to have panic attacks with hyperventilation and was instructed in relaxation methods, without benefit. She had major psychosocial problems, complained of low mood, and noted that her attacks worsened at times of stress.

General and neurological examinations were unremarkable. During monitoring by prolonged 16 channel ambulatory electroencephalography, an attack occurred during light sleep, accompanied by spike discharges over the left hemisphere.

Complex partial seizures were diagnosed. A magnetic resonance imaging scan of the brain showed sclerosis of the left hippocampus. She started taking lamotrigine, with a 50% decrease in frequency of seizures.

Case 3

A 47 year old woman presented with a four year history of attacks. Initially these were brief episodes of perception of a smell similar to burning candles, which occurred once a fortnight. There was no loss of consciousness or abnormal movements during the attacks. Initial investigations, including computed tomography of the brain and 24 hour electroencephalography, gave normal results. She was diagnosed as possibly having complex partial seizures and was prescribed sodium valproate, carbamazepine, and then phenytoin, with little change in frequency of attacks.

The patient had undergone abdominal hysterectomy three years previously, after which the nature of the episodes had changed. They began with epigastric discomfort, chest tightness, and faintness, followed by headache, tingling in the extremities, and a feeling of unreality. During the attacks she trembled, appeared flushed and sweaty, and was unresponsive or did not respond appropriately. The attacks lasted one to two minutes, and she felt unwell for a further 30 minutes. The attacks increased in frequency despite the patient taking antiepileptic drugs.

She also complained of episodes of "claustrophobia," feeling breathless, being fearful of collapsing or dying, and needing to go outside. She had a history of depression, self harm, and chronic back and hip pain.

A psychiatrist diagnosed possible panic disorder. A course of relaxation and anxiety management was instituted, and she started taking dothiepin. Attacks continued up to six times daily, and she was referred for further evaluation. A magnetic resonance imaging scan of the brain was unremarkable. She was admitted for video electroencephalography telemetry with 20 channel scalp electroencephalography and 2 channel electrocardiography.

A video of the attacks showed onset with flushing and a slight change in facial expression. The patient hyperventilated, appeared anxious, and was able to answer 'yes' to questions. The electroencephalogram showed repetitive epileptiform discharges over the left temporal region.

A diagnosis of complex partial seizures was made. She started taking lamotrigine, with more than a 50% reduction in frequency of the seizures.

Discussion

Differentiating partial seizures from panic disorder can be difficult on the basis of symptoms but is clearly important.[6–8] Historical features may aid diagnosis. In case 1, the age of onset (64 years) would be unusual for panic disorder, which rarely presents for the first time after 45 years. A witness's account of motor automatisms, such as repetitive swallowing in case 2, favours a diagnosis of complex partial seizures. The duration of the attack may be helpful; partial seizures tend to be much shorter than panic attacks, which can last between 5 and 30 minutes.[9] Hyperventilation, palpitations, fear, and anxiety are unreliable diagnostic criteria, as these cases demonstrate.

If supposed panic attacks are unresponsive to treatment or the history suggests atypical features (see box), referral to a neurologist should be considered. A magnetic resonance imaging scan of the brain may be useful, as in case 2, but cannot diagnose the nature of episodes, and routine electroencephalography may give normal results in patients with partial seizures (up to four wake and sleep recordings on electroencephalography may be needed to identify interictal epileptiform discharges in 90% or more of patients with confirmed epilepsy).[10] The cases described show the value of prolonged electroencephalography in the differentiation of epileptic from non-epileptic attacks and the classification of seizure type.[11] Concomitant videotaping has the advantage of recording a patient's behaviour during an attack, allowing correlation with any changes on the electroencephalogram.

Features typical of partial seizures

- Short duration of attack (usually 1 to 2 minutes)
- Witness accounts of motor automatisms (for example, repetitive swallowing, chewing, or plucking at clothes)
- Age greater than 45 years at onset of attacks
- History of febrile convulsions
- Lack of response to conventional treatments for panic attacks

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Endpiece

Only one publication!

Lest junior doctors become demoralised they should bear in mind Professor Mshigeni's explanation of why God could never get a chair at a university[1]: "He has only one major publication. It carried no references and was not published in a properly refereed journal. There is some doubt whether He wrote it Himself. And the international community has found it very difficult (indeed impossible) to replicate the results of his work."

1 Lean J. Now it's time to save the humans. *The Independent* 1998; 10 May:17.

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