Childhood febrile convulsions and déjà vu in adulthood

Introduction

Temporal lobe epilepsy may comprise simple partial seizures without loss of awareness or complex partial seizures with a loss of awareness. Complex partial seizures may evolve into a generalized tonic-clonic seizure. Aura is a feature of the majority of temporal lobe seizures. Most auras and automatisms last a very short period, from a few seconds to 1–2 minutes. This article reports a young woman who experienced a generalized grand mal seizure after 20 years of approximately fortnightly déjà vu phenomena, and describes the association of temporal lobe epilepsy with childhood febrile convulsions.

Discussion

This article describes a patient experiencing 20 years of déjà vu, a recognized aura to temporal lobe epilepsy, before suffering a single generalized convulsion. The aura was very distinct and extremely unpleasant, which distinguishes this manifestation of seizure activity from a similar symptom which is part of normal experience. Because of some ambiguities in the term 'complex partial seizures', the most recent classification of the International League Against Epilepsy (Berg et al, 2010) refers instead to mesial temporal lobe epilepsy with hippocampal sclerosis.

Epidemiological studies show a relationship between febrile convulsions and temporal lobe epilepsy in later life (Kanemoto et al, 1998; Cendes, 2004). This is particularly the case with 'complex' febrile convulsions, defined as febrile seizures that last longer than 15 minutes, have focal features, or recur within 24 hours.

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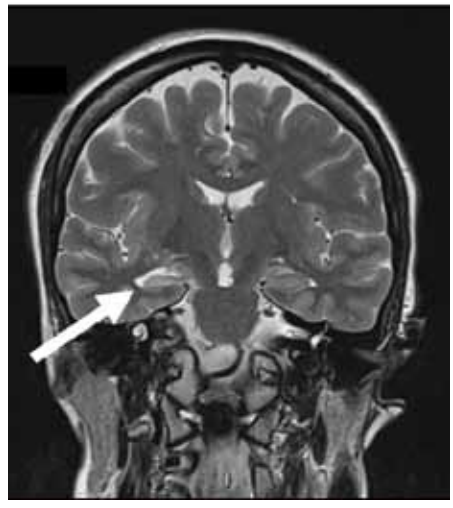
Magnetic resonance imaging (Huang and Chang, 2009) and fluorodeoxyglucose-positron emission tomography (Guedj et al, 2010) studies demonstrate that mesial temporal sclerosis is frequently found in patients who have experienced febrile convulsions as a child (Rein, 1998: Salanova et al, 1998). Fluorodeoxyglucose-positron emission tomography may demonstrate a relative reduction in glucose metabolism in the region of the epileptic focus, often the mesial temporal structures (Savic et al, 1997). This technique is particularly helpful when a magnetic resonance scan has shown no structural change and can also be applied in the inter-ictal period.

Although temporal lobe epilepsy is equally distributed between the sexes, female patients may experience catamenial epilepsy, in which there is an increase of

Figure 1. A magnetic resonance imaging brain scan showing a T2-weighted coronal section. There is loss of volume and increased signal intensity in the right hippocampus (arrow) indicating hippocampal sclerosis.



Case Report

A 43-year-old woman was observed by her partner to have a grand mal convulsion in bed. At 01.00 am she became unresponsive, her eyes rolled upwards, she frothed at the mouth and all four limbs shook for up to 5 minutes. After 10 minutes she became responsive but remained confused for a further 20–30 minutes. No prior event of this type had ever occurred, although 7 months earlier she had experienced two episodes of syncope which on one occasion resulted in a small contusion over the occipital region of her scalp. Clinical examination then and currently was entirely unremarkable. A series of investigations including an electrocardiogram, 24-hour Holter electrocardiogram, blood biochemistry, full blood count and a computed tomography scan of the brain were normal.

In the past, the patient had suffered febrile convulsions up to the age of 5 years. She was taking no medication, was a non-smoker and had a modest alcohol intake.

On more detailed enquiry she described at least a 20-year history of experiencing déjà vu phenomena. They had occurred once or twice a month, usually when driving, but had never progressed beyond this. These déjà vu episodes would typically be associated with an unpleasant affective component. In describing these phenomena the patient pressed both hands to her chest as if recollection of the déjà vu experience was 'uncomfortable'. She volunteered that it was 'as if her stomach was churning with an associated sense of nausea'.

A magnetic resonance imaging scan of the brain (*Figure 1*) showed an isolated focal abnormality in the form of increased signal and a slight reduction in the size of the right hippocampal head – in keeping with mesial temporal sclerosis. The electroencephalogram showed a mild abnormality, consisting of a run of rhythmic theta activity followed by a single sharp wave on the right, and a focal mid-temporal sharp wave in the left.

The patient was diagnosed as having temporal lobe epilepsy with the preceding episodes of déjà vu also having an ictal basis. Treatment was commenced with levetiracetam 250 mg twice daily, increased after 2 weeks to 500 mg twice daily. She has had no further seizure and the déjà vu phenomena have been abolished.

seizures during the menstrual period. Auras, such as déjà vu, occur in around 80% of temporal lobe seizures (Ko and Sahai-Srivastava, 2009). They may be somatosensory (i.e. olfactory, auditory or gustatory but not frank visual hallucinations), autonomic (i.e. sweating, 'pins and needles', epigastric sensations or tachycardia) or as in this case a psychic sensation (Ko and Sahai-Srivastava, 2009). The latter may include déjà vu (an inappropriate impression of familiarity of a present experience), jamais vu (a sensation that something familiar was in fact unknown) and less commonly prescience (a sense of 'knowing' what was about to happen in the immediate future) (Sadler and Rahey, 2004). Other appreciations are de-personalization (a sensation of detachment from oneself) or de-realization (surroundings appear unreal).

This patient had been sufficiently concerned about her déjà vu that she had herself consulted the internet to see why she had these symptoms of déjà vu and the associated unpleasant affect that accompanied them. A study examining the role of affect in temporal lobe epilepsy suggested that whereas jamais vu aura were frequently negative (often feelings of fear), déjà vu was usually associated with a familiar or pleasurable affect (Sengoku et al, 1997).

Management of temporal lobe epilepsy

As in this case, about half of all new-onset partial seizures are controlled effectively by the first drug choice. Drugs frequently selected for partial focal seizures include carbamazepine, lamotrigine and sodium valproate. Clobazam, gabapentin, levetiracetam, pregabalin, tiagabine, topiramate and zonisamide can also be considered (Joint Formulary Committee, 2010). In refractory, drug-resistant temporal lobe epilepsy, surgical resection is the definitive treatment (Choi et al, 2008).

Conclusions

Déjà vu phenomena are not uncommon in the general population but their association with strong affective features and any suggestion of disturbances of consciousness should prompt a search for temporal lobe epilepsy. Patients with a past history of febrile convulsions are in a higher risk group to experience this form of epilepsy later in life. BJHM

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LEARNING POINTS

- When temporal lobe epilepsy is suspected, enquire about phenomena of déjà vu, jamais vu, prescience, de-personalization or de-realization.
- Enquire about associated affective features of fear, anxiety, discomfort, autonomic features or generalized malaise.
- Febrile childhood convulsions (particularly when deemed complex) may cause structural brain abnormalities.
- Febrile childhood convulsions may be associated with temporal lobe epilepsy in adulthood (although this association probably results from a complex interaction between genetic factors and environmental exposure, including brain insults).
- Computed tomography brain scans are often normal and magnetic resonance imaging scans may also be normal in temporal lobe epilepsy, but fluorodeoxyglucose-positron emission tomography scanning may help when magnetic resonance imaging scanning is normal.