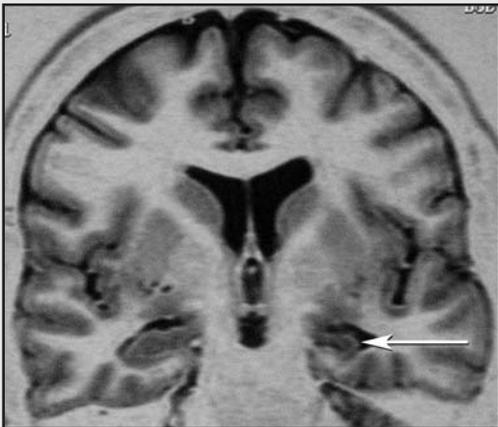




# Complex partial seizures

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A 24 year old woman with a past history of febrile convulsions presents with a history of several episodes of 'funny turns' over a period of six months. She states she 'feels weird' before each episode. Her partner describes that she becomes verbally unresponsive, licks her lips, and makes other strange movements with her mouth. They usually last several minutes, after which she appears quite drowsy for half an hour. She recalls nothing of the event itself. Examination findings are normal. You take blood tests and arrange for an electroencephalogram.



**Figure 1.** Tilted coronal heavily T1-weighted inversion recovery MRI image

## Question 1

Which imaging investigation is the most accurate test in this setting?

- A. computerised tomography (CT)
- B. magnetic resonance imaging (MRI)
- C. single photon emission computed tomography (SPECT)
- D. positron emission tomography (PET).

## Question 2

Is imaging indicated in generalised seizures?

## Question 3

The patient's blood tests are normal and her electroencephalogram (EEG) suggests a seizure focus in the left temporal lobe. Her MRI is shown (Figure 1). Are the following statements true or false?

- A. hippocampal sclerosis is present
- B. hippocampal sclerosis is an uncommon cause of temporal lobe epilepsy
- C. hippocampal sclerosis is associated with childhood convulsions
- D. surgery for hippocampal sclerosis results in a high rate of seizure freedom.

## Answers

### 1. Answer B

The history is one of complex partial seizures, in which the aim of imaging is to identify a structural cause that correlates with the focus. Magnetic resonance imaging is the most specific imaging modality for identifying the various structural lesions that may cause a seizure. Computerised tomography is less accurate for their detection, but is useful in settings such as head injury, systemic illness and substance abuse, or where there is persistent neurology that may suggest an acute process such as haemorrhage. Single photon emission computed tomography and positron emission tomography studies of cerebral blood flow and metabolism respectively are frequently utilised in the assessment of focal seizures in patients who are being assessed for surgery.

### 2. Answer

Imaging is less commonly utilised in primary generalised epilepsy as it is rare that a structural lesion is the cause. Care needs to be taken to distinguish primary generalised epilepsy from cases in which there is focal onset with secondary generalisation. In these cases, and where there is EEG evidence of focal seizure onset, MRI is more likely to be of benefit in identifying a structural cause. Other indications for imaging include poor pharmacologic control and severe seizure type.

### 3. Answer A

True. Figure 1 demonstrates atrophy of the left hippocampus compared to the normal right side, as well as low T1 signal and loss of internal structure. T2-weighted images (not shown) demonstrated high T2 signal in the left hippocampus.

### Answer B

False. Hippocampal sclerosis accounts for 50–70% of temporal lobe epilepsy resection specimens.

### Answer C

True. Prolonged febrile convulsions and status epilepticus predispose to hippocampal sclerosis and the development of complex partial seizures.

### Answer D

True. Anterior temporal lobectomy has a high success rate in hippocampal sclerosis (90–95% major improvement or complete seizure freedom) where it is a solitary lesion and with typical investigation findings. It is reserved for cases where seizures are severe and refractory to medical management.

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