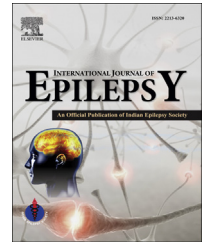


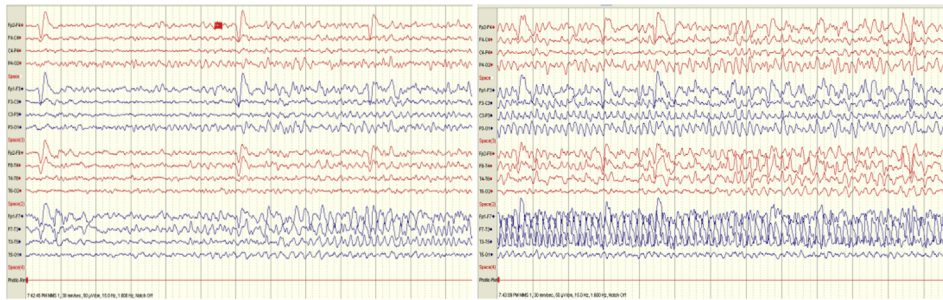
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Quiz

Q1: A lateralized ≥ 5 –7 Hz seizure discharge within 30 s of seizure onset (as given in the figure below) is prototype of ictal onset from which part of the following areas on the ipsilateral side?



- A. Medial temporal (hippocampal) onset
- B. Neocortical temporal onset
- C. Extra-temporal onset
- D. No definite role

Q2: A 28-year-old lady has presented with refractory epilepsy of 12 yrs duration. She was getting 2–3 seizures per month. Semiology: an aura of fear followed by confusional state with orolimentary and bimanual automatisms. She is amnesic for the event. There is rarely secondary generalization. She had a single febrile convulsion at the age of 2 years. No family history epilepsy was noted. Her IQ was 82 and she has left temporal deficits on neuropsychology. She was right handed. Her MRI brain was normal (figure 1) and interictal FDG PET showed left temporal hypometabolism (Fig. 2). The ictal EEG showed a left regional temporal rhythm. Can surgery – left standard temporal lobectomy be planned?

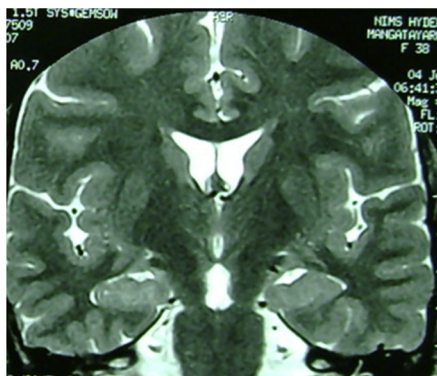


Fig-1

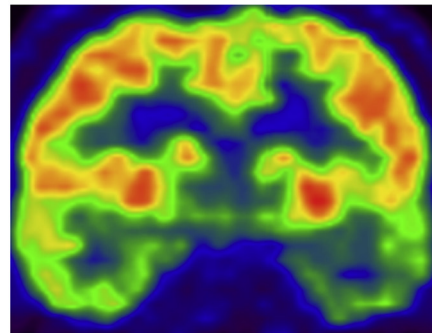


Fig-2

- A. Depth Electrode monitoring must be done before surgery
- B. She is not a candidate for epilepsy surgery
- C. It is a case of MRI negative and PET positive Temporal lobe epilepsy and surgical outcome likely to be good
- D. It is a case of MRI negative and PET positive Temporal lobe epilepsy and surgical outcome likely to be poor

Q3: Single most important predictor of favourable outcome after epilepsy surgery is

- A. History of febrile convulsions
- B. Lesion on MRI
- C. Clear-cut EEG lateralization
- D. Lateralization on neuropsychology

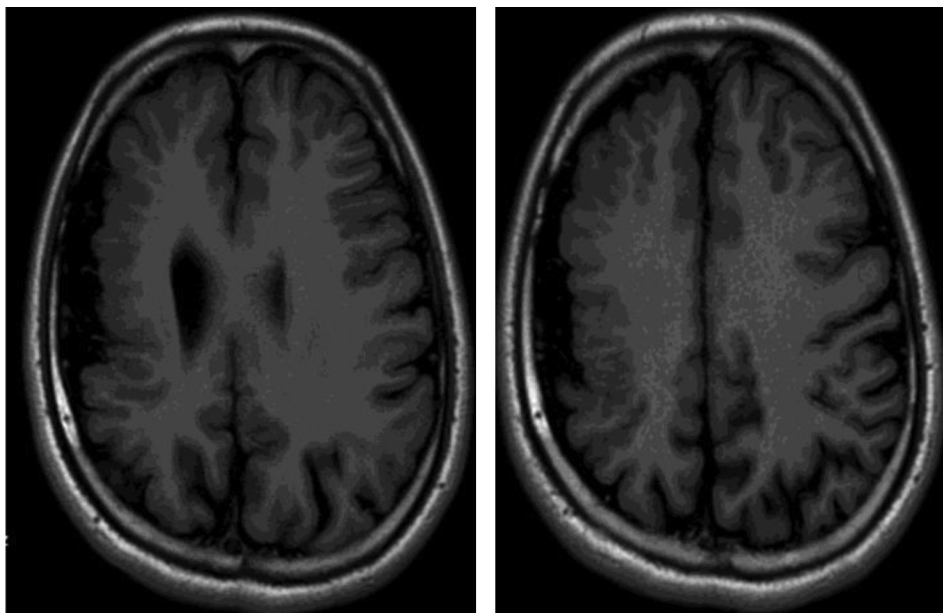
Q4: A 32-year-old male with intractable seizures and a normal MRI scan undergoes a non-invasive evaluation. Based on scalp EEG and seizure semiology, he had subdural electrodes placed and seizures were localized to the left language dominant supplementary motor area. Following surgical resection the patient will most likely exhibit:

- A. Verbal memory deficits
- B. Temporary paresis on the left
- C. Temporary mutism and anomia
- D. Left inferior quadrantsia

Q5: Which drug should be avoided in children with epilepsy due to suspected POLG MUTATION?

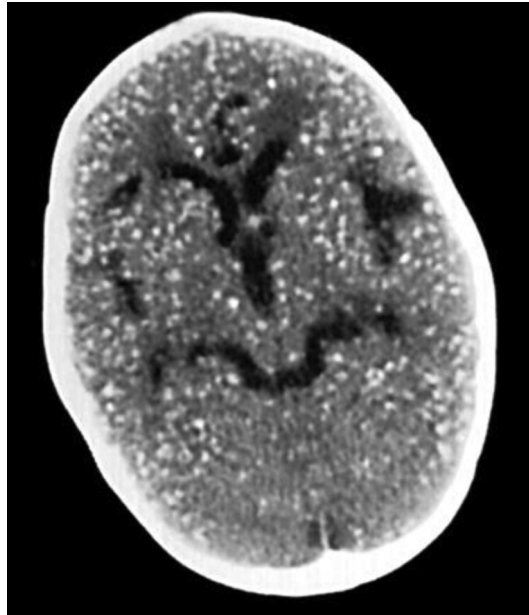
- A. Phenytoin
- B. Valproate
- C. Carbamazepine
- D. Levetiracetam

Q6: What is the MRI abnormality noted in the figure given below?



- A. Right hemiatrophy
- B. Left hemimegalencephaly
- C. Right hemispherical polymicrogyria
- D. Pachygyria left hemisphere

Q7: Starry sky appearance on CT brain as given below in a 9-year-child with uncontrolled seizures and progressive cognitive decline. What is the diagnosis?

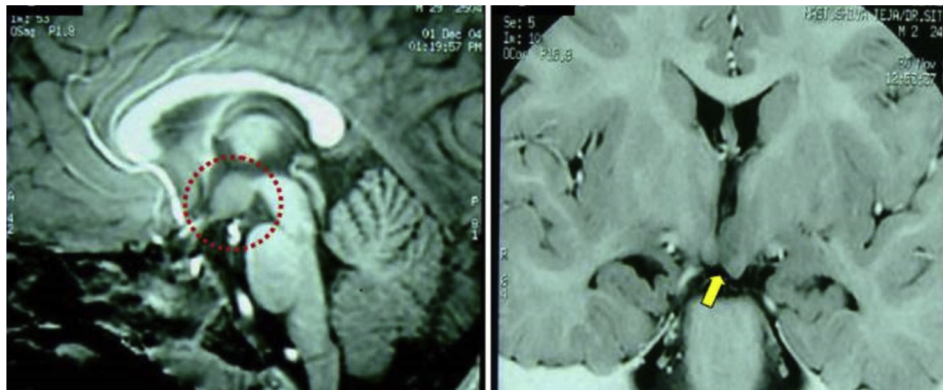


- A. Multiple neurocysticercosis
- B. Multiple tuberculomas
- C. Multiple tubers in tuberous sclerosis
- D. Multiple cryptococcomas

Q8: In the land mark study by Kwan and Brodie, treatment with a single AED was effective in about what percent of patients with newly diagnosed epilepsy?

- A. 10%
- B. 20%
- C. 30%
- D. 50%

Q9: Below is the MRI brain in a six-year-child with refractory epilepsy from one year of age. What is likely to be the special character of seizures in this child?



- A. Ictal fear and palpitations
- B. Ictal singing
- C. Ictal speech
- D. Gelastic seizures

Q10: Spot the diagnosis based the EEG below in an 18-year-old lady who presented with fever seizures and altered sensorium.



- A. SSPE
- B. CJD
- C. HSV encephalitis
- D. Brain abscess

Answers

Question number	Answer
1.	A Discussion: An initial, regular 5–9-Hz inferotemporal rhythm (type 1A) was most specific for hippocampal-onset seizures. This was first described by Ebersole and Pacia in 1996. Reference: Ebersole JS, Pacia SV. Localization of temporal lobe foci by ictal EEG patterns. <i>Epilepsia</i> .1996 Apr; 37(4): 386–99.
2.	C This is a case of MRI negative and PET positive Temporal lobe epilepsy. Discussion: PET-positive, MRI-negative TLE patients have excellent surgical outcomes after ATL, very similar to those in patients with MTS, regardless of whether or not they undergo intracranial monitoring. These patients should be considered prime candidates for ATL, and intracranial monitoring is probably unnecessary in the absence of discordant data. Reference: LoPinto-Khoury C, Sperling MR, Skidmore C, Nei M, Evans J, Sharan A, Mintzer S. Surgical outcome in PET-positive, MRI-negative patients with temporal lobe epilepsy. <i>Epilepsia</i> . 2012 Feb; 53(2): 342–8.
3.	B Lesion on MRI. Discussion: Positive MRI to be a positive predictor of both short term and long-term seizure-free outcome as demonstrated in many studies. Reference: Edelvik A, Rydenhag B, Olsson I, Flink R, Kumlien E, Källén K, Malmgren K. Long-term outcomes of epilepsy surgery in Sweden: a national prospective and longitudinal study. <i>Neurology</i> . 2013 Oct 1; 81(14): 1244–51.
4.	C Temporal mutism and anomia.

(continued)	
Question number	Answer
5.	<p>Discussion: The supplementary motor area (SMA) occupies the medial portion of Brodmann cortical area 6 and is located in the superior frontal gyrus. Surgical resections of lesions of the medial frontal lobe may result in immediate postoperative motor and speech deficits which in most cases are reversible.</p> <p>References: Bleasel AF, Morris HH 3rd edition – supplementary sensorimotor area epilepsy in adults and Ulu MO, Tanriöver N, Ozlen F, Sanus GZ, Tanriverdi T, Ozkara C, Uzan M. Surgical treatment of lesions involving the supplementary motor area: clinical results of 12 patients. <i>Turk Neurosurg.</i> 2008 Jul; 18(3): 286–93</p>
6.	<p>B</p> <p>Discussion: VPA toxicity is an uncommon but potentially fatal cause of idiosyncratic liver injury. Rare mutations in POLG, which codes for the mitochondrial DNA polymerase γ (polγ), cause Alpers-Huttenlocher syndrome (AHS). AHS is a neurometabolic disorder associated with an increased risk of developing fatal VPA hepatotoxicity.</p> <p>Reference: Polymerase γ gene POLG determines the risk of sodium valproate-induced liver toxicity. Stewart JD, Horvath R, Baruffini E, Ferrero I, Bulst S, Watkins PB, Fontana RJ, Day CP, Chinnery PF. <i>Hepatology.</i> 2010 Nov; 52(5): 1791–6</p>
7.	<p>C</p> <p>Right hemispherical polymicrogyria.</p> <p>Discussion: Hemispherical dysplasia is associated with focal intractable seizures, contralateral hemiparesis with cognitive and behavioural problems. Functional hemispherotomy is the treatment of choice for children with hemispherical dysplasia.</p> <p>Reference: Neuroplasticity in hemispheric syndrome: an interesting case report. Krishnan SS, Panigrahi M, Jayalakshmi S, Varma DR. <i>Neurol India</i> 2011; 59(4): 601–4</p>
8.	<p>A</p> <p>Multiple neurocysticercosis.</p> <p>Discussion: CT brain shows multiple intracranial hyperdense foci (calcifications), seen diffusely distributed in both the cerebral and cerebellar hemispheres. No evidence of any perilesional oedema or midline shift was seen. These widespread intra-parenchymal calcifications, giving a starry sky appearance on computed tomography are consistent with a diagnosis of neurocysticercosis</p> <p>Reference: Sodhi KS, Khandelwal N, Suri S, Starry sky appearance. <i>Postgrad Med J.</i> 2005 May; 81(955): 332.</p>
9.	<p>D</p> <p>50%</p> <p>Discussion: Of the 470 patients studied, nearly 50% of newly diagnosed patients became seizure-free on the first-ever AED, with >90% doing so at moderate or even modest dosing. Tolerability was as important as efficacy in determining overall effectiveness.</p> <p>Reference: Effectiveness of first antiepileptic drug. Kwan P(1), Brodie MJ. <i>Epilepsia.</i> 2001 Oct; 42(10):1255-60.</p>
10.	<p>D</p> <p>Gelastic seizures due to Hypothalamic hamartoma.</p> <p>Discussion: Patients harbouring an HH may present most often in childhood with gelastic seizures and/or precocious puberty or developmental delay. The course of epilepsy in these patients is highly variable and tends to be medically refractory. Without surgical intervention, the gelastic seizures may progress to complex partial and/or generalized epilepsy, although 25% continue to remain the same.</p> <p>Reference: Mullatti N, Selway R, Nashef L Elwes R, Honavar M, Chandler C et al The clinical spectrum of epilepsy in children and adults with hypothalamic hamartoma. <i>Epilepsia</i> 2003; 44(10): 1310–9.</p>
	<p>C</p> <p>HSV encephalitis with PLEDs L > R.</p> <p>Discussion: The origin of PLEDs in HSV encephalitis is still controversial. In the case of herpes simplex encephalitis, PLEDs appear in the early progressive stage of the inflammatory lesion.</p> <p>Reference: Funakawa I, Katoh H, Hara K, Yasuda T, Terao A. A case of herpes simplex encephalitis with periodic lateralized epileptiform discharges. <i>Rinsho Shinkeigaku.</i> 1991 Jun; 31(6): 669–73</p>

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