

Nocturnal Frontal Lobe Epilepsy

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Case Presentation

- Patient is a 30 year old female presenting to clinic at 24 weeks gestation (G3P2) with complaints of seizure activity two weeks prior to visit.
- States her first seizure-like episode occurred at age 18 with jerking, rolling eyes, tongue-biting, and foaming at mouth. She has similar seizures once every 2 – 3 months. Recurring seizures always occur during sleep around 6 AM.
- Patient's provider overseas prescribed Topimax (topiramate) at 50 mg b.i.d. for past 7 years with minimal relief.

Diagnosis

- Nocturnal Frontal Lobe Epilepsy:
 - Most common sleep-related focal epilepsy¹ (70%)
 - Simple / Complex Partial Seizure
 - Secondary generalized seizure
 - Onset in adolescence or early adulthood¹
 - Genetic link (most common)²
 - Autosomal Dominant with variable penetrance
 - *CHRNA4* gene related to cholinergic system
 - Structural neurodevelopmental lesions³

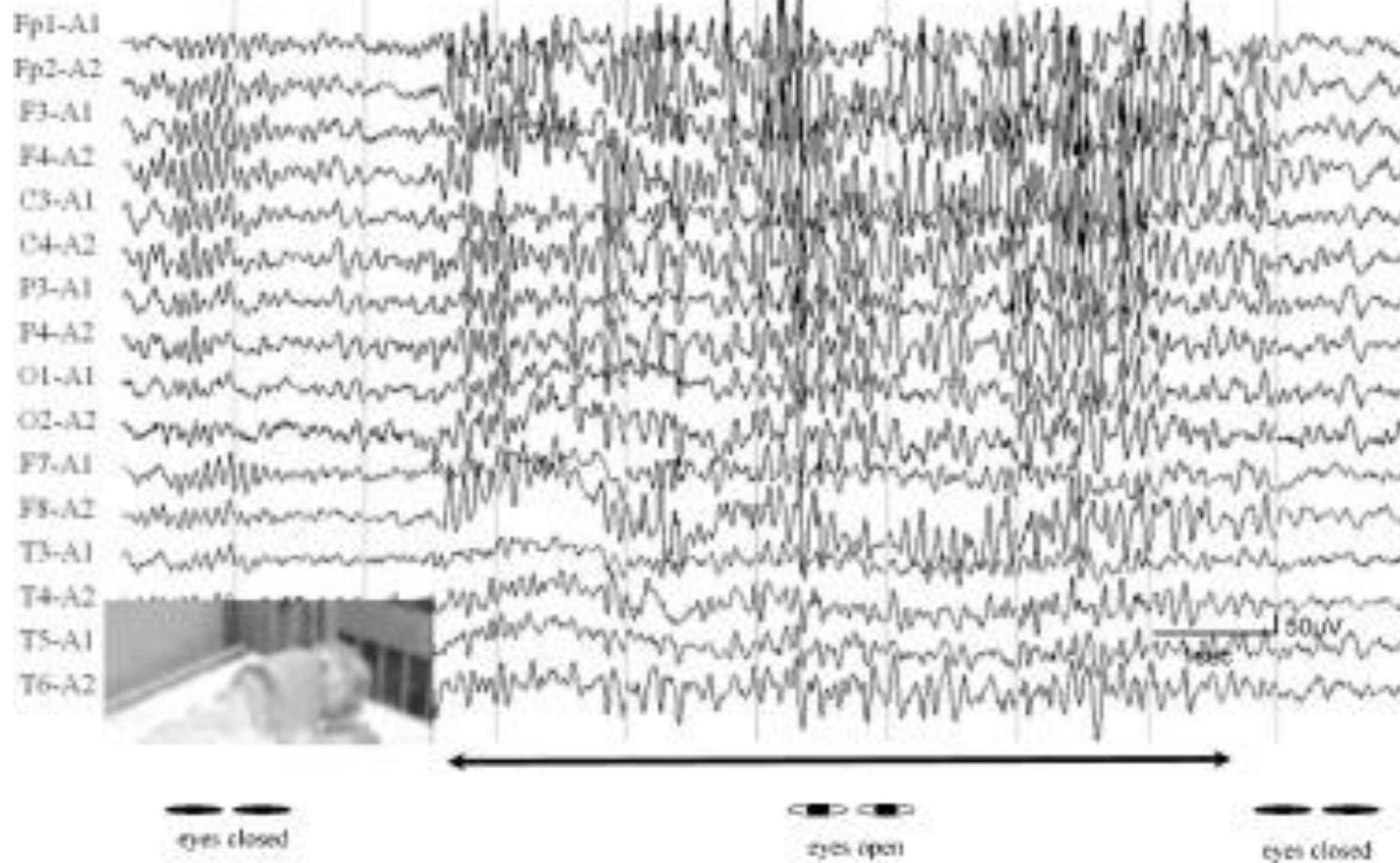


Clinical Features

- Positive family history²
- 3 types:⁴
 - Short (2 – 4 seconds)
 - Sudden and brief (5 – 10 seconds)
 - Longer (up to two minutes)
 - Associated with parasomnias
- Multiple focal seizures, mostly in NREM sleep⁵
 - 28% in study had secondary generalized seizure

Diagnostic Evaluation

- Presenting with multiple stereotyped motor events during sleep
- EEG⁶
 - Low interictal epileptiform discharge (IED) frequency + limited sampling of NREM sleep
 - Does not exclude diagnosis
- Asleep EEG repeat studies, all-night recording, polysomnography
- MRI recommended⁶



Differential Diagnosis

- NREM parasomnias
- REM sleep behavior disorder (RBD)
- Periodic limb movements
- Psychogenic nonepileptic spells
- Nocturnal panic attacks

Management

- Rare events
 - Clonazepam 0.5 – 1 mg at bedtime
- Anti-seizure drug therapy - lifelong

Broad spectrum:

Drugs used to treat a broad range of seizure types (both focal and generalized onset)

- Brivaracetam
- Clobazam
- Felbamate
- Lamotrigine[§]
- Levetiracetam
- Perampanel
- Rufinamide
- Topiramate
- Valproate
- Zonisamide

Narrow spectrum (focal):

Drugs used primarily for focal-onset seizures (including focal evolving to bilateral convulsive seizures*)

- **Carbamazepine[¶]**
- Eslicarbazepine[△]
- Gabapentin[△]
- Lacosamide
- Oxcarbazepine[△]
- Phenobarbital[¶]
- Phenytoin[¶]
- Pregabalin[△]
- Tiagabine[△]
- Vigabatrin[△]

Narrow spectrum (absence):

Absence seizures only (a type of generalized seizure)

- Ethosuximide

Management

- Counsel
 - Adequate sleep⁷
 - Seizure precautions⁸
 - Driving
- Pregnancy recommendations⁹
 - 6 months pre-pregnancy planning
 - Established pregnancy – no changes in drug regimen
 - Avoid **valproate**, carbamazepine, phenobarbital
 - Prenatal screen for malformations
 - Folic Acid and Vitamin K supplementation
 - Monitor blood levels: week 6, 10, once per trimester, postpartum
 - Not contraindicated in breast-feeding

Patient Plan

- EEG
- Brain MRI
- Topiramate level
- Continue medication as previously prescribed
- Re-evaluate and adjust medications post-partum
 - Increase anti-seizure prevention and control

Citations

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Questions