Non-lesional Medically-intractable Localization-related Epilepsy
Case Presentation

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Disclosure

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Current Research support
Current Research support
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Learning Objectives

• Present a patient with non-lesional medically intractable localization-related epilepsy
Case Presentation

• BB is an 32 y/o RH CW with two seizure types:
• Seizure #1: Staring, Onset 25 y/o
  – Aura: None
  – Stares, holds breath, then whole body movements, +/- amnestic of events
  – Associated: no tongue biting, +/- urinary incontinence
  – Postictal: at baseline
  – Duration: 30 seconds – 2 minutes
  – Frequency: 20-30/month, can have 4-5 a day or skip a few days. Many seizures occur during sleep.
  – No precipitating factors
Case Presentation

• Seizure #2: Wormlike Movements, Onset: 25 y/o
  – No Aura
  – Sudden onset side to side head movements, arms in the air, vigorous flailing movements all extremities, rolling back and forth, some snorting/grunting
  – Associated features: +/- urinary incontinence and tongue biting, +/- amnestic of events, has fallen out of bed
  – Postictal: at baseline
  – Duration: < 30 seconds
  – Frequency: May have several during sleep, up to nightly
  – No precipitating factors
Case Presentation

• Seizure Risk Factors
  – Negative Family History for seizures
  – No febrile seizures
  – No head trauma with loss of consciousness
  – No CNS infections
  – Normal birth

• Past Medical History
  – Migraines

• Social History
  – Divorced, lives with two children. Quit tobacco 6 yrs ago. Denies alcohol, illicit drug use. Former fast food worker, currently unemployed
Case Presentation

• Current medications:
  – LTG 150 BID, LEV 1500 BID, LCM 200/300
  – Combination decreases daily seizures

• Past AEDs:
  – None

• Physical Exam
  – Normal except for obesity, bilateral toes nonreactive
Evaluation

• Routine EEG
  – 2004: one Generalized spike wave d/c

• VEEG 2007
  – 6 stereotyped szrs, hypermotor activity in all extremities/body, +/- postictal right hand nose wipe
  – Nonlocalizing EEG, questionable 2-3 seconds of rhythmic theta Left Frontal prior to one seizure

• VEEG 2013
  – 12 stereotyped hypermotor activity, +/- postictal right hand nose wipe
  – Nonlocalizing EEG, Ictal and Interictal SPECT obtained
3 Tesla Brain MRI: Normal
3 Tesla Brain MRI: Normal
3 Tesla Brain MRI: Normal
3 Tesla Brain MRI: Normal
Evaluation

• PET
  – Negative

• SPECT
  – Ictal, Interictal, SISCOM, ISAS
  – Nonlocalizing

• Functional MRI 2013
  – Left language dominance
Evaluation

• Neuropsychological Evaluation
  – Nonlocalizing, global cognitive dysfunction
  – FSIQ 72, VIQ 67, PIQ 82

• Psychological Evaluation
  – Stable depression

• Decision made to proceed with intracranial StereoEEG monitoring
  – Based on seizure semiology
  – Seven 10-contact electrodes in each frontal lobe
SEEG Placement

Courtesy of Larry Ver Hoef, MD, UAB Epilepsy Center
Intracranial StereoEEG
Intracranial EEG StereoEEG - 1
Intracranial StereoEEG - 2
Intracranial StereoEEG - 3
Intracranial StereoEEG
SEEG Localization

• 9 stereotyped localization-related seizures with hypermotor activity and dyscognitive features
• Localization: Right mesial frontal/cingulate gyrus
SEEG Seizure Localization

Courtesy of Larry Ver Hoef, MD, UAB Epilepsy Center
SEEG Localization

Courtesy of Kristen Riley, MD, UAB Epilepsy Center
Post-Op MRI
Case Presentation Summary

- Intractable Localization-related Epilepsy
- Stereotyped likely Frontal Lobe hypermotor seizures with non-localized Scalp Video EEG
- Normal MRI, Nonlocalizing SPECT, Negative PET
- StereoEEG: localized to right mesial frontal, cingulate gyrus
- Path: Focal cortical dysplasia Type Ia, neuritic plaques, neurofibrillar tangles
- Seizure free 14 days post-resection