

INTRODUCTION

- Refractory status epilepticus occurs when recurrent seizure episodes persist despite the administration of antiepileptic medications, namely a benzodiazepine and a non-benzodiazepine²
- Management of recurrent seizures requires careful consideration of a patient's underlying medical conditions, response to medication and risk of adverse side effects of anti-epileptic drugs
- There is no definitive treatment for refractory status epilepticus, making treatment variable across patients

BACKGROUND

- The patient is a 48 year old female with a past medical history of hypertension, alcohol abuse, peripheral neuropathy and a three year history of epilepsy, with her last grand mal seizure one year prior
- At baseline she took daily levetiracetem and gabapentin for seizure control
- On admission she was suspected of having had a seizure secondary to medication non-compliance, causing encephalopathy and rhabdomyolysis

CLINICAL COURSE

Chief Complaint

- Altered mental status (AMS)
- Hypotension
- Right sided paralysis in upper and lower extremities

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Labs & Preliminary Tests

- Elevated troponins
- Signs of acute kidney injury and rhabdomyolysis
- Leukocytosis
- EKG was notable for antero-septal ST depressions

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Treatment

- 1 L of normal saline
- 1 dose of broad spectrum antibiotics
- Admission to the ICU with q2 hour neuro checks
- Anti-epileptic drugs (AEDs)
 - Levetiracetam 1500 mg BID
 - Fosphenytoin 150 mg TID

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Additional Therapy

- Days later repeat MRI (figures C, D) showed cortical damage
- Despite continued AED therapy, AMS persisted
- The patient also developed a right-sided focal seizure
- AEDs were increased + Lacosamide 100 mg BID
- Another seizure resulted
- Lacosamide was increased to 200 mg q12 hours

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Clinical Exam

- Evidence of urinary and fecal incontinence
- Signs of dehydration
- No signs of trauma

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Other Results

- CT of the head and neck were negative for infarct or hemorrhage
- MRI showed post-ictal changes (figures A, B)
- Chest x-ray showed right upper and lower lobe infiltrates (likely due to aspiration pneumonia)

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ICU Course

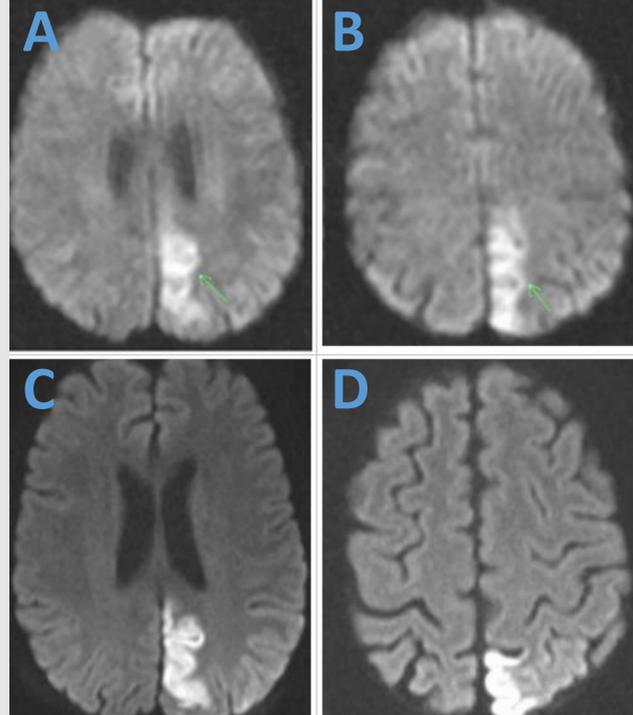
- 1 L of normal saline
- Broad spectrum antibiotics
- EEG showed left hemispheric and parasagittal dysfunction the next day
- Lethargy continued without seizure activity
- The patient was transferred to the regular floor for continued monitoring

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- The next day seizure activity ceased, but repeat EEG showed periodic lateralized epileptiform discharges (PLEDs)
- Three days later another breakthrough seizure developed and continued intermittently for several days
- Zonisamide was added to her treatment

RADIOLOGY



Panel A & B: MRI of the brain with restricted diffusion of the medial left parietal and occipital lobes, consistent with post-ictal changes.

Panel C & D: MRI showing persistent restricted diffusion along the medial left parietal lobe cortex along the precuneus with edema.

CONTINUED COURSE

- She had multiple episodes of complex partial seizures within one day
- Phenobarbital was given
- Repeat EEG showed left parasagittal slowing and improved left hemispheric PLEDs

CASE DISCUSSION

- Because seizures could not be controlled with four AEDs, she was transferred to an epilepsy monitoring unit and continued on only levetiracetem 1500 mg BID, lacosamide 200 mg BID
- Repeat EEG showed left occipital sharp waves and periodic discharges suggesting cortical irritability
- Valproate 500 mg QID and clobazam 10 mg nightly therapy were added
- The next day continuous EEG monitoring showed multiple focal seizures and cortical irritability
- Existing medication doses were increased and phenytoin 200 mg TID was added to therapy with a one-time dose of lorazepam
- In response, there was significant improvement in the frequency and duration of her seizures. EEG was notable for brief left occipital sharp waves. Repeat MRI showed no substantial change when compared to the images from days prior

CONCLUSIONS

In this challenging course of refractory status epilepticus, the addition of phenytoin immensely improved the patient's condition. Our patient's case emphasizes the importance of:

- Continued neurological monitoring and EEG to assess for the progression of seizure activity
- Consistent AED treatment throughout treatment
- Constantly evaluating the response to therapy and if alternative anti-epileptic medications are needed

REFERENCES

- SA. Mayer, J. Claassen, et al. "New-Onset Refractory Status Epilepticus with Underlying Autoimmune Etiology: a Case Report." *SN Comprehensive Clinical Medicine*, Springer International Publishing, 28 Nov. 2019, link.springer.com/article/10.1007/s42399-019-00185-z.
- Sheikh, WA, et al. "Super Refractory Status Epilepticus: A Case Report from Livingstone Central Hospital, Zambia." *Medical Journal of Zambia*, www.ajol.info/index.php/mjz/article/view/160826.