Three cases of Temporal Lobe Epilepsies in pediatric patients age

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BACKGROUND

Temporal lobe epilepsy (TLE) is the most common type of epilepsy in both children and adults. Similar to other epilepsies TLE can impact quality of life, neurodevelopmental and psychosocial functioning. It can be secondary to various causes such as hippocampal sclerosis, brain tumors or idiopathic origins. The presentation can vary based on underlying case and age. Depending on the underlying cause, awareness may be impacted. Younger ages will present with prominent motor manifestations that could be confused with extra-temporal movements. As children age and particularly in adolescent cases, one may see automatism that starts simply and may become more complex. If secondary to brain tumor, surgical management including resection of the underlying mass will achieve seizure freedom.

Pediatric patients with seizures and EEG findings concerning for TLE warrant imaging with an MRI for assessment of any lesional defects such as mesial temporal sclerosis. A variety of surgeries are available such as lesionectomy, standard anterior temporal lobectomy, and amygdalohippocampectomy. However, if no lesional defect is identified, medication can be used to help achieve seizure freedom, however this may not always be the case.

OBJECTIVES

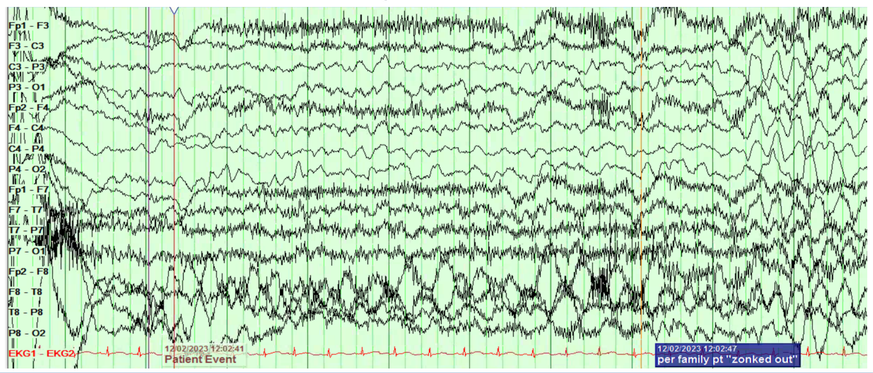
To analyse the clinical presentations, EEG findings, and treatment outcomes in a group of children diagnosed with temporal epilepsies, with a special focus on the utility of parental videos, EEG and imaging findings, in diagnosis and management.

METHODS

This presentation retrospectively reviews three pediatric patients (aged 6 months-6 years) who were diagnosed with temporal lobe epilepsy at the University of Kentucky in 2023. Description of the clinical histories, seizure descriptions, treatment regimens, and follow-up data were collected. Each patient's parents had videos upon presentations that were concerning enough to lead to further workup and admission, where they underwent EEG recording with corresponding video monitoring to capture seizure events.

CASE SERIES

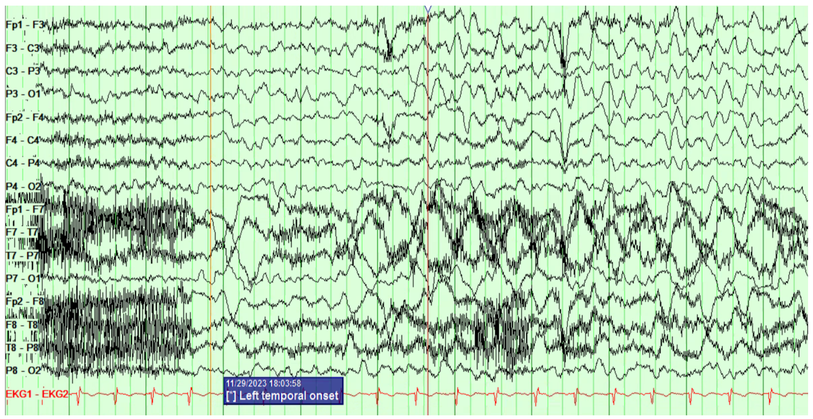
Patient 1:
8 month old female with benign past medical history presented with seizure seen as arm and legs being stiff while playing, leading her to fall, associated with blank stare lasting for couple seconds, followed by sleeping for several hours. EEG showed seizure from right anterior temporal region. MRI was normal. Currently, patient is on Oxcarbazepine and seizure-free 3 months after the initial presentation. Being followed for further work up.



CASE SERIES

Patient 2:
5 year old male born at 25 weeks, who had prolonged febrile seizures secondary to roseola encephalitis at 18 months old. Parents described the seizure as a scared look, stomach ache leading to staring spells, at times associated with pale face, and swallowing several times with a "crooked" smile with left side of face going up, abnormal movements of extremities and "garbled speech". Being unresponsive during the seizure, followed by sleepiness afterwards.

EEG showed focal seizure from left temporal region. MRI was consistent with left mesial temporal sclerosis (see Figure). He failed two anti-seizure medication, and is currently on Oxcarbazepine, still having breakthrough seizures. He will have temporal lobe resection with amygdalohippocampectomy in the next few weeks.



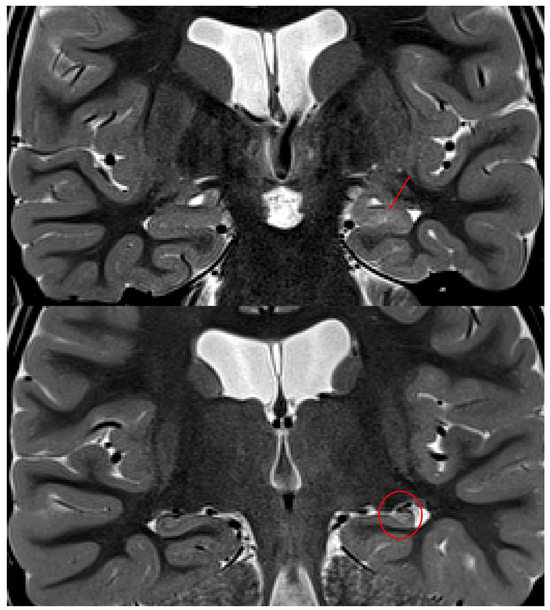


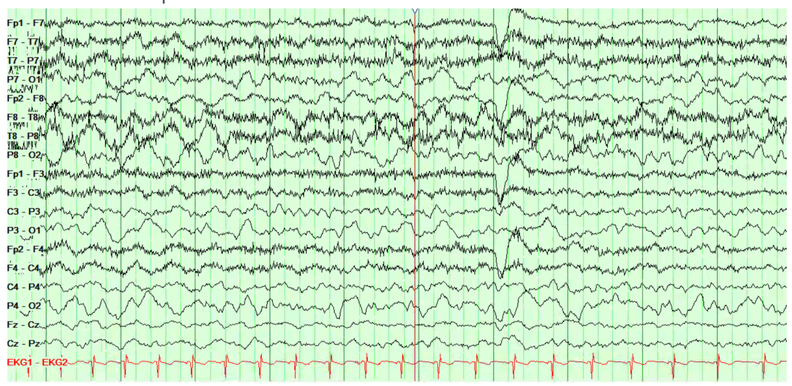
Figure 2 mm thick coronal T2-weighted MR images from Patient 2.

MRI shows abnormal signal in the left hippocampal head (arrow) and volume loss of the hippocampal body (circle), consistent with mesial temporal sclerosis.

CASE SERIES

Patient 3:
5 month old female with benign past medical history. She presented with full body stiffness with fixed gaze lasting 30-45 seconds, at times associated with pre oral cyanosis. This was followed by unresponsive and sleepy afterwards. Of note, his older brother had similar seizure and is on phenobarbital.

EEG showed seizures from right posterior temporal region, and MRI is still pending. She is on phenobarbital and seizure-free 3 months after initial presentation, being followed for further work up.



DISCUSSION

In adult TLE, seizures may include auras, automatisms, posturing and head turning. However, in contrast to adults, the semiology of TLE in children can be profoundly affected by age and brain development

In the second patient, he most likely had mesial temporal sclerosis secondary to febrile seizures due to a viral illness. Studies have reported that febrile status epilepticus can lead to mesial temporal sclerosis. This case series demonstrates that temporal lobe epilepsy can have different clinical presentations, and imaging places a vital role as identification of a lesional area could open doors to surgical intervention when seizures are refractory to medication.

In the other younger patients, motor manifestations were commonly seen which could be considered as extra-temporal seizures. These cases show the importance of EEG in localization of onset of seizures.

Overall, recognizing the variable presentations of temporal lobe seizures in young children is essential not only for appropriate clinical interventions but also for supporting long-term developmental trajectories in this population.

CONCLUSIONS

This case series highlights the diversity of temporal lobe epilepsies in children, the pivotal role of EEG combined with video monitoring and brain imaging in diagnosis and treatment planning, and the value of parental videos when presenting to the hospital.

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