Functional Resection of the Mesial Temporal Lobe in Drug-Resistant Epilepsy: Case Report and Multidisciplinary Review

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Abstract

Introduction: Mesial temporal lobe epilepsy (MTLE) is the most common cause of drug-resistant focal epilepsy and is often linked to hippocampal sclerosis. Surgical resection of the epileptogenic zone is an effective and established treatment in functional neurosurgery, showing high long-term seizure freedom rates[1]. Preserving cognitive and language functions, especially in the dominant hemisphere, requires careful planning with functional mapping and individualized approaches.[2]

Clinical description: A 29-year-old man presented with epilepsy starting at age 10, marked by epigastric aura followed by oroalimentary automatisms and impaired awareness. He became resistant to multiple antiepileptic drugs. MRI revealed left hippocampal sclerosis, and video-EEG confirmed seizure onset in the left mesial temporal lobe. Neuropsychological tests showed verbal memory deficits. Wada test confirmed left-hemisphere language dominance with contralateral memory. An anterior left temporal lobectomy, including amygdalohippocampectomy, was performed. Intraoperative electrocorticography (ECoG) and neuronavigation with preoperative functional MRI (fMRI) were used to preserve eloquent cortex. The procedure was uneventful. The patient was discharged on the third postoperative day without neurological deficits. After 12 months, he was seizure-free (Engel class IA), with improved subjective memory and full social reintegration. Postoperative MRI confirmed adequate resection and preservation of key cortical areas.

Discussion: Functional neurosurgery must balance seizure control and preservation of function. Multimodal evaluation with MRI, video-EEG, neuropsychological assessment, and functional imaging improves surgical outcomes.[2] Studies show 70–80% of MTLE patients achieve seizure freedom after surgery.[1] The combined use of fMRI and ECoG is critical for identifying eloquent cortex, especially in dominant hemispheres.[3]

Conclusions: Anterior mesial temporal lobectomy, guided by functional mapping and multidisciplinary evaluation, is a safe and effective approach for treating drug-resistant MTLE. Early surgical intervention improves long-term seizure control and quality of life with minimal functional morbidity.[1,2,3]

References

1. Rolston JD, Englot DJ, Wang DD, Garcia PA, Chang EF. Predictors of seizure freedom after anterior temporal lobectomy: a meta-analysis. J Neurosurg. 2021;134(5):1552–1560.
2. Perven G, González-Martínez J. Advances in presurgical evaluation for epilepsy surgery. Curr Neurol Neurosci Rep. 2022;22(8):521–530.
3. Antonucci MU, Lefevre EM, Wang L, et al. Functional MRI and intraoperative mapping to preserve language and memory in epilepsy surgery. Epilepsy Behav. 2023;142:109174.