

# Clinical Insights from SEEG-guided Resections for Temporal Lobe Epilepsy: A Case Series



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## Introduction

- Temporal lobe epilepsy (TLE) is the most common focal epilepsy (~60%)
- Despite medical advances, 30–50% of patients are drug-resistant
- Surgical options can achieve high rates of seizure freedom in selected patients
- Up to 1/3 of refractory cases require stereoelectroencephalography (SEEG) for epileptogenic zone localization
- Limited data exist on how SEEG informs resective surgical strategy in TLE

## Methods

- **Single-center retrospective case series of refractory TLE patients undergoing resection (2022–2023)**
- Data collected: Demographics; seizure history and semiology; preoperative evaluation (EEG, MRI, fMRI, PET/SPECT/MEG, etc); SEEG implantation details; operative findings; pathology; postop outcomes
- Outcome measure: Engel classification at 1 year postoperatively

## Results

### Preliminary Results: Resection Outcomes

Seizure Free at 1 Year Post-Op	17 (60.7%)
<b>Engel Outcome at 1 Year Post-Op</b>	
IA	15 (53.6%)
IB	3 (10.7%)
IIA	3 (10.7%)
IIB	1 (3.6%)
IIIA	5 (17.9%)
IIIB	0
IV	1 (3.6%)
Reoperation	1 (3.6%)

- Analysis was performed to compare the proportion of patients achieving seizure freedom (Engel IA) out of total resection outcomes

<u>Number of Implant Days</u> (Median [IQR])	14 [10-20]
<u>SEEG Laterality</u>	
Unilateral	16 (57%)
Bilateral	12 (43%)
<u># Electrodes Implanted</u> (Median [IQR])	19 [17-21]
<u>Complications</u>	
Radiographic SAH, no clinical sequela	9 (32%)
Radiographic Hematoma, no clinical sequela	1 (3.6%)
Clinical Significant Hemorrhage	1 (3.6%)
Infection	0
<u>Days to First Seizure</u> (Median [IQR])	4.5 ± 3
<u>SOZ Localization Successful</u>	26

- Analysis was performed to compare the proportion of successful SOZ localization out of total SEEG cases

## Results (cont.)

- 28 patients met inclusion criteria; median age 33 years; median epilepsy duration of 5 years
- **SEEG indicated primarily for non-lesional MRI (86%) and poor localization (39%)**
- Median 19 electrodes implanted; 5 contacts resected
- **Seizure onset localization was successful in 93% of patients**
- Common pathology: gliosis and focal cortical dysplasia
- Low complication rate; 1 clinically significant hemorrhage
- SEEG guided tailored resections, preferentially involving mesial and lateral temporal structures

## Conclusions

- SEEG-guided surgery in refractory TLE achieved favorable outcomes with limited resection extent
- SEEG refined surgical targeting while sparing non-epileptogenic tissue
- Future work will use volumetric MRI to optimize electrode selection

## References

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