

## Seizure Outcome After Surgical Resection of Insular Glioma

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### Introduction

A majority of patients with insular tumors present with seizures. Although a number of studies have shown that greater extent of resection improves overall patient survival, few studies have documented post-operative seizure control after insular tumor resection. The aim of this study was to 1) characterize seizure control rates in patients undergoing insular tumor resection, 2) identify predictors of seizure control, and 3) evaluate the association between seizure recurrence and tumor progression.

### Methods

The study population included adults who had undergone resection of insular gliomas between 1997 and 2015 at the University of California San Francisco. Preoperative seizure characteristics, tumor characteristics, surgical factors, and postoperative seizure outcomes were reviewed.

### Results

One-hundred and nine patients with sufficient clinical data were included in the study. At one year after surgery, 74 patients (68%) were seizure free. At final follow-up, 42 patients (39%) were seizure free. Median time to seizure recurrence was 46 months (95% CI 31-65 months). Multivariate Cox regression analysis revealed that greater extent of resection (HR=0.2899 [0.1129, 0.7973],  $p=0.0127$ ) was a significant predictor of seizure freedom. Of patients who had seizure recurrence and tumor progression, seizure usually recurred within 3 months prior to tumor progression. Repeat resection offered additional seizure control, as eight of the 22 patients with recurrent seizures became seizure free after re-operation.

### Conclusions

Maximizing the extent of resection in insular gliomas portends greater seizure freedom after surgery. Seizure recurrence is associated with tumor progression, and repeat operation can lead to additional seizure control.

### Learning Objectives

By the end of this session, participants should be able to: 1) Identify that insular gliomas often present as seizures; 2) Describe predictors of seizure control after insular glioma resection, and 3) Understand the temporal relationship between seizure recurrence and tumor progression.

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