

**Introduction**

Even after a gross total resection of a meningioma, seizures can persist and become refractory to medications from residual tumor, recurrence, or damage to the brain from tumor invasion or surgery. These cases tend to be difficult to treat, and patient outcomes are less optimal. Here we discuss our experience in the surgical management of medically refractory epilepsy caused by meningiomas using an epilepsy-focused approach to guide seizure focus resection in addition to recurrent or residual tumor.

**Methods**

Patient data from all resections involving a meningioma in patients with medically refractory epilepsy over a 13-year period (2005-2017) were reviewed. Patient demographics, presenting symptoms, tumor location, phase I results, extent of resection, intra-operative ECOG findings, pathology, surgical morbidity, post-operative deficits and follow-up were recorded.

**Results**

Seven surgeries were performed on six patients, 4 of which were male with an average age of 45. The average duration of seizures prior to surgery was 5 years. Patients had failed an average of 2.4 medications prior to surgery and were on an average of two medications pre-operatively. 71% (5/7) of surgeries were a re-operation for recurrent or residual meningioma. Pre-operative phase I evaluations were completed in all patients, and all had non-invasive electrophysiologic evidence of a seizure focus in nearby brain. Pre-resection intraoperative electrocorticography showed corresponding spikes in 5/7 (71%) patients, with all of these patients showing decreased activity post-resection. All patients benefited from surgery – An Engel class 1 or 2 outcome was achieved in 6/7 (85%) of patients at 6 months and in 4/5 (80%) at 1 year. One patient developed an SMA syndrome post-operatively which improved by 6 months; otherwise there were no new neurologic deficits.

**Conclusions**

Patients with residual or recurrent meningiomas and medically refractory epilepsy should undergo a formal epilepsy evaluation. With appropriate surgical management targeting the residual tumor and surrounding epileptogenic cortex, good outcomes can be accomplished in most of these cases.

**Learning Objectives**

By the conclusion of this session, participants should be able to:

- 1) Identify patients with medically refractory epilepsy related to a meningioma
- 2) Understand the additional work-up that is necessary to properly identify extra-tumoral epileptogenic zones
- 3) Describe the surgical nuances that will allow for resection of the seizure focus

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