

# Characterizing Patient Populations at Risk for Postoperative Seizure After Primary Meningioma Resection

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## Introduction

Postoperative seizures after resection of a primary meningioma are uncommon, even when seizures are a preoperative presenting symptom. Understanding risk factors for postoperative seizures can help guide clinical decision making for prophylactic AED usage in the postoperative period.

**Objective:** We conducted a single center retrospective review of patients with primary meningioma resection to characterize the patient profile at risk of experiencing postoperative seizure.

## Methods and Materials

Clinical and demographic data was extracted from an institutional tissue bank of patients who underwent primary meningioma resection between 1995 and 2018. Only primary meningioma patients were included in the cohort. Descriptive statistics were used to analyze the cohort characteristics and compare those who did and did not experience postoperative seizure.

## Results

Of the 146 patients in the institutional cohort, 35 (24.0%) patients experienced a postoperative seizure. Their demographic and clinical characteristics are outlined in Table 1. Notably, the incidence of skull base tumors was lower in those experiencing postoperative seizure ( $p = 0.02$ ).

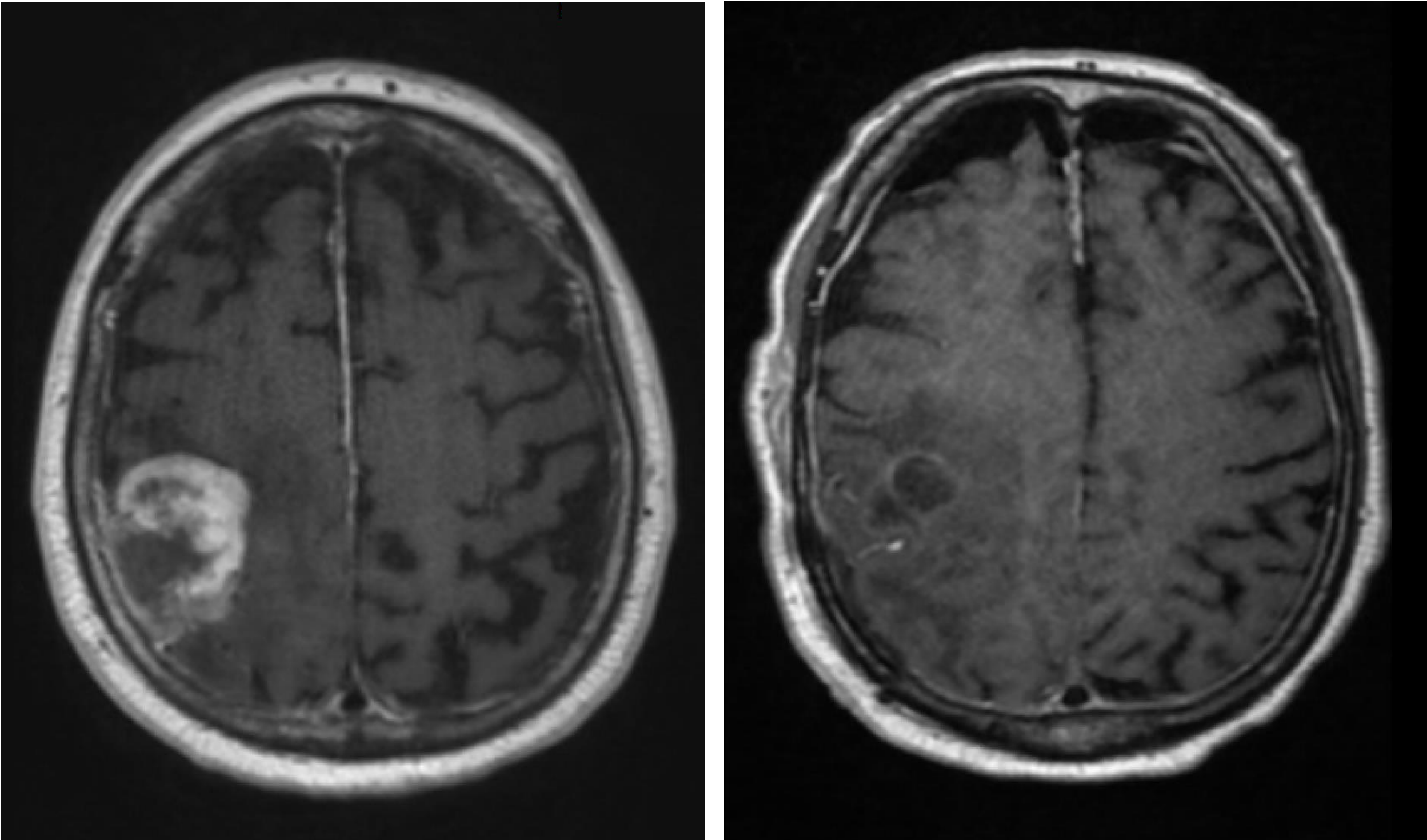
**Table 1.** Demographic & Clinical Characteristics

Characteristic	Postoperative Seizure (n = 35)	No Postoperative Seizure (n = 111)	P-value
Age, median (SD)	62.5 (13.9)	61.0 (14.7)	0.57
Sex, % (n)	68.6 (24)	58.6 (65)	0.39
Tumor grade, % (n)			
Grade 1	20 (7)	16.2 (18)	0.82
Grade 2	74.3 (26)	78.4 (87)	
Grade 3	5.7 (2)	5.4 (6)	
Skull base location, % (n)	22.9 (8)	47.7 (53)	0.02*

**Table 2.** Postoperative Characteristics

Characteristic	Postoperative Seizure (n = 35)	No Postoperative Seizure (n = 111)	P-value
Total surgical resection, % (n)	57.1 (20)	69.4 (77)	0.79
Postoperative complications, % (n)	34.3 (12)	32.4 (36)	1.00
Hemorrhage, % (n)	25.7 (9)	17.1 (19)	0.38
Postoperative hydrocephalus, % (n)	5.7 (2)	6.4 (7)	1.00
Preoperative seizure, % (n)	45.7 (16)	18.0 (20)	0.002*
Postoperative seizure within 6 months, % (n)	42.9 (15)		

43% of those experiencing a postoperative seizure did so within 6 month of their resection surgery. Furthermore, there was a higher incidence of preoperative seizure in those experiencing a postoperative seizure as compared to not ( $p = 0.002$ )



**Figure 1.** MRI of patient with postoperative seizure

## Conclusion

Our data suggests that the patients at greatest risk for postoperative seizures have non-skull base tumors and experienced preoperative seizure. Further research is warranted to understand how these factors influence risk of postoperative seizure to inform clinical decision making around AED prophylaxis.

## Contact

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