

# Influential Factors for Meningioma Recurrence

Teran S<sup>1</sup>, Rodriguez G<sup>1</sup>, Schammel N<sup>1</sup>, Self S<sup>2</sup>, Schammel CMG<sup>3</sup>, Lynn M<sup>4</sup>

<sup>1</sup>Univeristy of South Carolina School of Medicine Greenville, Greenville SC

<sup>2</sup>Department of Epidemiology, Arnold School of Public Health, University of South Carolina, Greenville SC

<sup>3</sup>Pathology Associates, Greenville SC

<sup>4</sup>Department of Surgery, Division of Neurosurgery, Prisma Health Upstate, Greenville SC

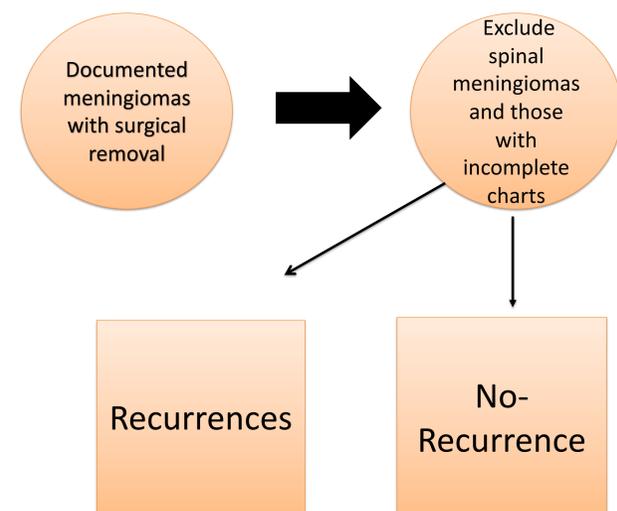
## Introduction



- Each year there are approximately 29,000 meningioma diagnoses.
- The vast majority of meningiomas found were not found incidentally. Therefore, the meningiomas were associated with neurological symptoms that lead to their initial discovery.
- Symptoms of meningiomas are related to their location within the brain.
- Quality of life and ease of financial burden are two common topics of discussion in medicine, both of which recurrences largely impact.

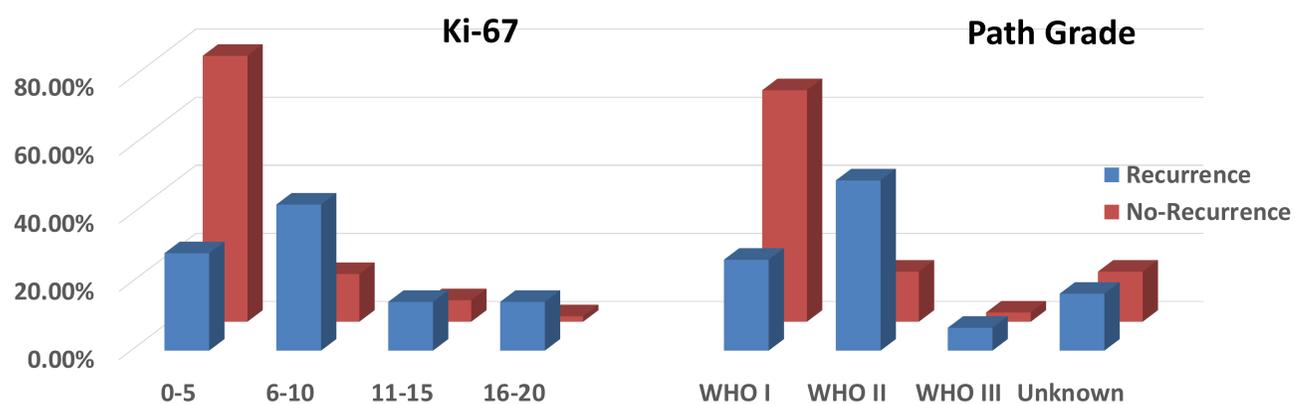
## Materials and Methods

- An evaluation of all meningiomas surgically resected and/or treated at a single institution between 1/1/2006 – 12/31/2016 was completed.
- Typical demographic and clinicopathologic data were collected to include numbers of recurrences, treatments, and overall outcomes.



## Results

### Histologic Characteristics

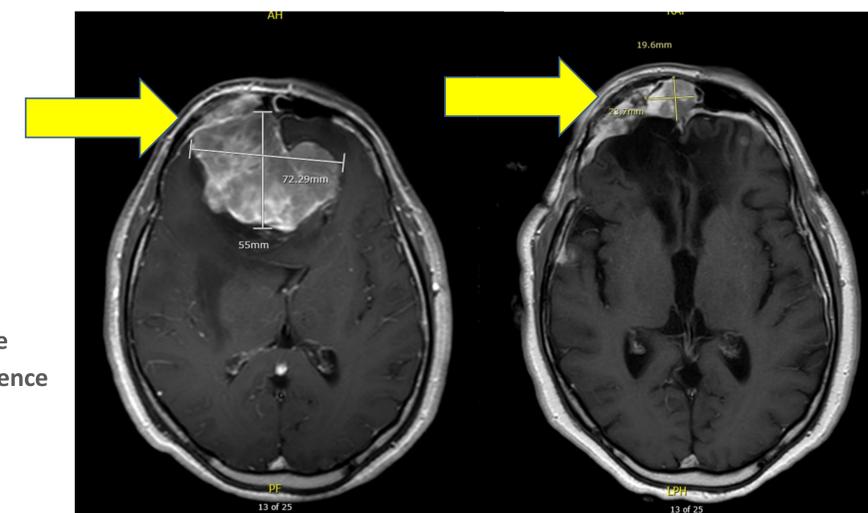


### Comparison of Recurrence vs. No-Recurrence

	YES Recurrence n=30	NO Recurrence n=150	p-value
Age of Diagnosis			0.1381
Range	66.7	55.2	
Mean	55	58.9	
Median	55.9	58.3	
Gender	n=30	n=150	1
Male	13 (43.4%)	60 (40%)	
Female	17 (56.6%)	90 (60%)	
Race	n=30	n=144	0.0175
Caucasian	18 (60%)	123 (84%)	
Black	12 (40%)	23 (16%)	
Incidental Finding	n=30	n=150	0.0212
Yes	4 (13.3%)	5 (3.3%)	
No	26 (86.7%)	145 (96.7%)	
GTR	n=30	n=150	0.0037
Yes	14 (46.7%)	105 (70%)	
No	11 (36.7%)	17 (11.3%)	
Unknown	5 (16.7%)	28 (18.7%)	
Path Grade	n=30	n=150	<0.0001
WHO I	8 (26.7%)	102 (68%)	
WHO II	15 (50%)	22 (14.7%)	
WHO III	2 (6.7%)	4 (2.7%)	
Unknown	5 (16.7%)	22 (14.7%)	
Mitotic Rate	n=30	n=150	0.0019
Range	26.25	20	
Mean	6.2	2.12	
Median	4	1	
Ki-67	n=7	n=64	0.033
0-5	2 (28.6%)	50 (78.1%)	
6-10	3 (42.9%)	9 (14%)	
11-15	1 (14.3%)	4 (6.3%)	
16-20	1 (14.3%)	1 (1.6%)	
Survival (years)	n=30	n=150	0.9792
Range	34.47	14.41	
Mean	10.84	6.17	
Median	10.12	6.07	

- The mitotic rate is statistically significant, showing that individuals who did have a recurrence had a higher average mitotic rate.
- As shown above, Ki-67 was also shown to have higher incidence of recurrence as the range increases.
- Regarding grade, recurrences were typically grades II and III compared to no recurrences which were predominately Grade I.
- In the event of a Gross-Total Resection (GTR), the chance of recurrence decreased.
- Symptoms (incidental findings) do not seem to influence probability of recurrence.
- When comparing those with recurrences to those without, none of the demographics were significantly different except for race.

## Imaging



**Initial Meningioma:** Large, aggressive, Grade III meningioma. This is the initial finding. Patient was symptomatic.

**Recurrent Meningioma:** Status post surgery. The yellow arrow points to the tumor growing back a few years later after its initial removal.

## Discussion

- It appears the profile for individuals with recurrences is dependent on histological markers, as shown by the data.
- Creating a standardized pathological array of test to preform on these patients could help determine who is more at risk for recurrence.
- Treatment options could then factor in recurrence and avoid the recurrence of symptoms.

## Selected References



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