

Introduction

- The standard-of-care for intracranial meningiomas is surgical resection ± radiation therapy (RT). However surgery may not be possible when meningiomas are present in locations where resection may result in significant morbidity or when a patient is medically inoperable
- The long-term clinical outcomes of patients with magnetic resonance imaging (MRI)-defined meningiomas treated with RT alone are reported.

Methods

- The charts of 211 patients with meningiomas diagnosed by contrast-enhanced MRI treated with either stereotactic radiosurgery (SRS) or fractionated radiation therapy (FRT) between 1991 and 2012 were reviewed
- Actuarial rates for overall survival (OS), local control (LC), and development of treatment-related radiographic edema (TRE) were determined by the Kaplan Meier method.

Results

Table 1. Patient and Tumor Characteristics

Characteristic	Number	Treatment		P-value*
		FRT	SRS	
Number of Lesions	211	75 (35.5%)	136 (64.5%)	0.001
Location	211	80 (38.0%)	131 (62.0%)	<0.001
SRS dose	211	100 (47.5%)	111 (52.5%)	<0.001
Pathology other than grade I meningiomas	211	127 (60.2%)	84 (39.8%)	1.000
Age at SRS (Median)	68.5	68.5	68.5	0.141
Age at FRT	68.5	68.5	68.5	0.141
Lesion size (cm)	211	117	94	0.002
Mean	4.8	4.8	4.8	
Median	2.36	2.36	2.36	

Figure 1. Actuarial overall survival (A.) and local control (B.) curves for all patients

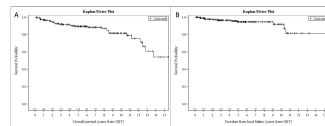


Figure 2. Local control for FRT vs. SRS

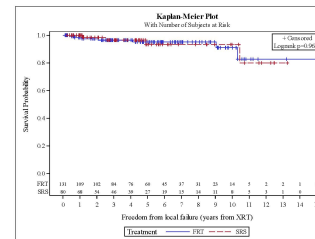


Figure 3. Freedom from TRE: SRS vs. FRT

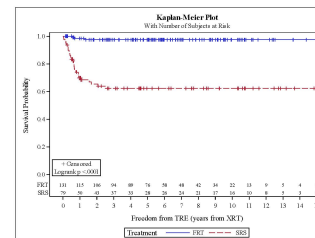
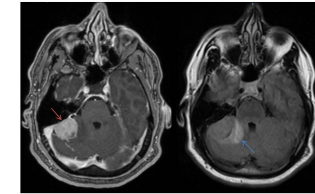


Figure 4. Example of treatment-related edema (arrows)



- 211 patients received radiation therapy for 223 lesions
- Median follow-up was 5.7 years
- Eleven patients experienced a local failure, of whom 2 were ultimately found to have pathologically proven metastatic carcinoma
- Five and 10-year OS and LC were 94.9% & 89.4% and 97.8% & 94.6%, respectively, with no significant difference based on modality of therapy
- 3.3% of patients were found to have a diagnosis other than grade I meningioma

Conclusions

- RT alone using limited margin is an effective treatment option for MRI-defined meningiomas and should be considered even without biopsy if surgery will present significant morbidity
- Although local control with SRS versus FRT was comparable, FRT was associated with a significantly decreased risk of TRE

References

- Flickinger, et al. Int J Radiat Oncol Biol Phys, 56:801-6 (2003).
- Milker-Zabel, et al. Int J Radiat Oncol Biol Phys, 61:809-16 (2005).
- Korah, et al. Int J Radiat Oncol Biol Phys, 76:181-6 (2010).