

Introduction

- Local control for meningiomas are crucial to decrease recurrences and associated morbidity
- Various radiation regimens exist for treatment of meningiomas including hypofractionated treatment 25 Gy in 5 fractions, single fractionated SRS, or conventional fractionation of 50.4-60 Gy over 28-30 fractions

Methods

- Report institutional long-term outcomes with treating low-grade meningiomas with 25 Gy in 5 fraction regimen

Objective

- Our institutional database was queried for patients treated with hypofractionated regimen of 25 Gy over 5 fractions at Thomas Jefferson University Hospital (TJU) between 2013-2022
- Patients were excluded if they had grade 2 or 3 disease, less than 12-month follow-up, or missing post-treatment MRI
- Local control was assessed with PFS using Kaplan-Meier
- Follow-up time was assessed using months between last date of RT and most recent head imaging (CT or MRI)
- Radiation-induced toxicities were graded based on CTCAE criteria through clinical documentation and subcategorized by acute (during RT), subacute (within 3 months post-RT), or late (>3 month post-RT)
 - Radiation necrosis was confirmed using MRI and clinical documentation, graded based on CTCAE criteria
- Dosimetric data for volumes and OARs were collected
- Symptom control after RT was categorized as worsening, stable, partially improved, or completely resolved based on clinical documentation from radiation oncology and/or

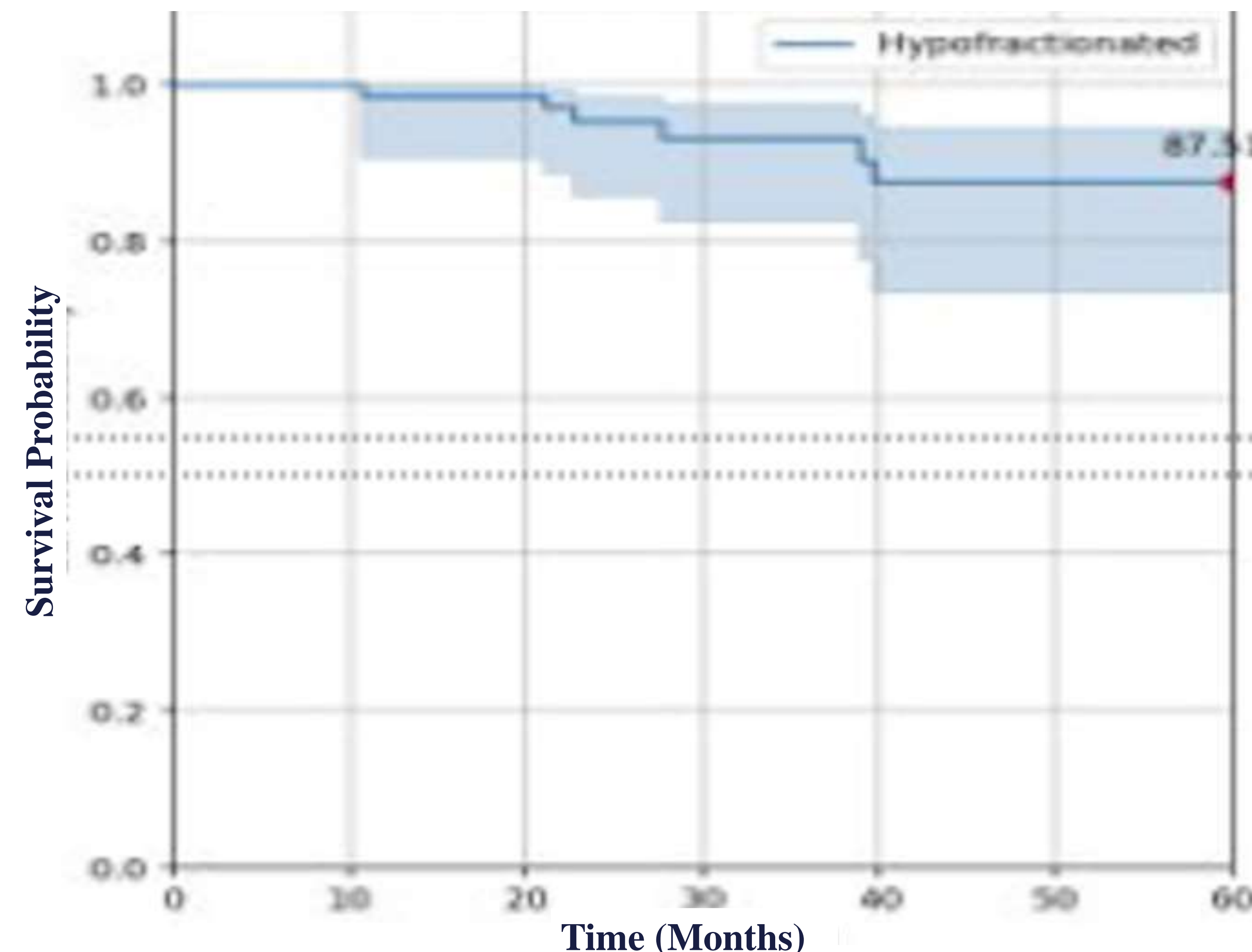
Results

Symptom Control Post-RT

Worsened	2 (2.7%)
Stable	19 (26%)
Partially Improved	25 (34.2%)
Resolved	18 (24.7%)

Demographics (n=73)

Gender	55 female 18 male
Median Age at Diagnosis	66 y (21-89y)
Race:	
White	80.5%
Black	12.5%
Asian	1%
Hispanic	1%
Native American	1%
Location:	
Cavernous Sinus	12.5% (n=9)
Parasagittal/Parafalcine	11.1% (n=8)
Sphenoid	11.1% (n=8)
Prepontine/Cerebellar	8.3% (n=6)
Olfactory Groove	2.7% (n=2)
Other intracranial sites	44.4% (n=27)
Median Pre-RT KPS	90 (50-100)
Prior Surgery	36 (49.3%)
Prior Radiation (to same site)	6 (8.2%)



Sample Hypofractionated Plan

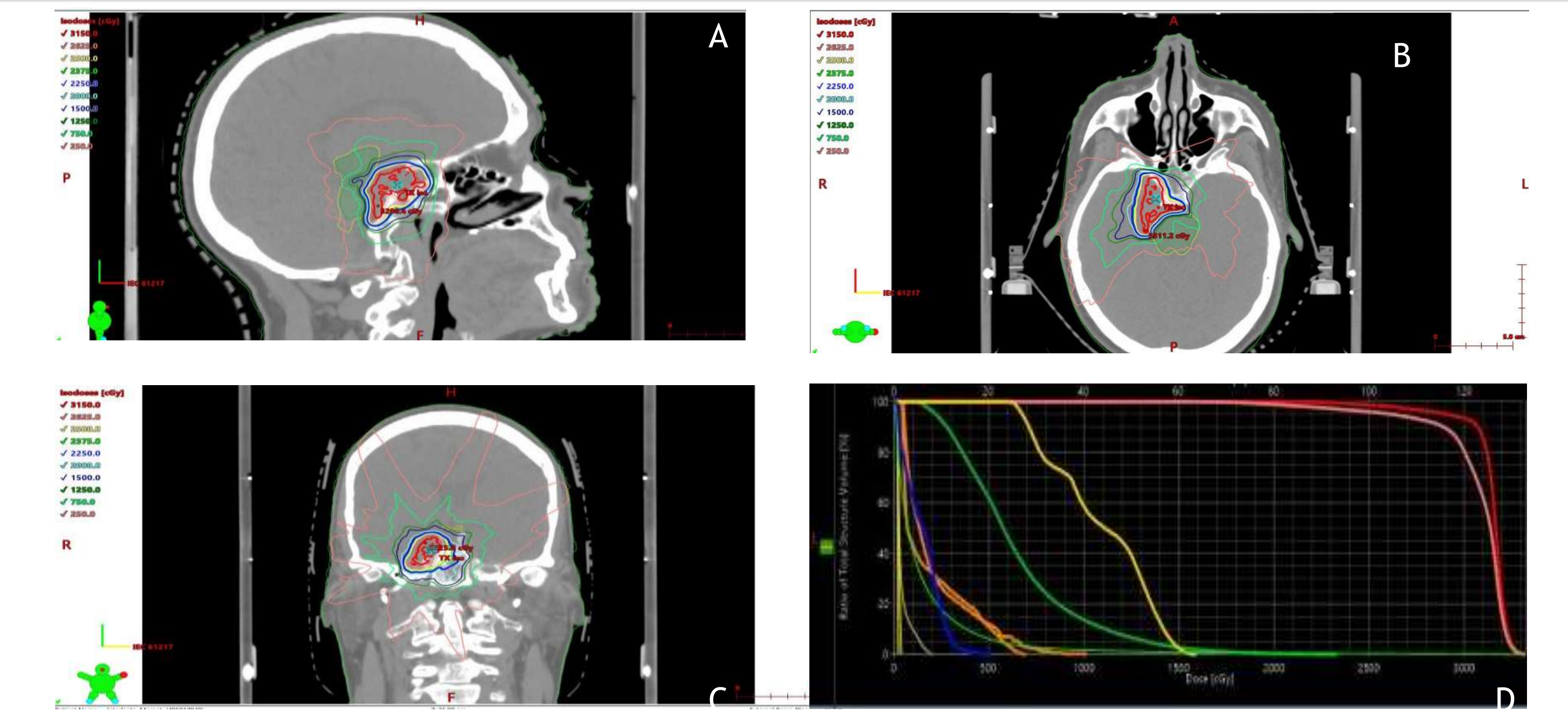


Figure 2 Sample Hypofractionated Plan sagittal (A) axial (B) and coronal (C) views with isodose distributions for patient undergoing therapy with 25 Gy in 5 fractions and Dose Volume Histogram (D)

Result Summary

- Median follow-up of 38.0 m, the 1-year, 3-year, and 5-year local control rates were 98.6%, 93.15%, and 87.51% respectively.
- Subgroup analysis excluding patients previously treated with radiation, local control rates were 95.64%, 94.07%, and 90.15% at 1, 3, and 5y respectively
 - 4 patients showed local control between 80-129 months
- Local failure found to be independent of tumor size (chi-square=0.85, p-value= 0.65)
- 13 patients (18%) had G1/G2 toxicities, 3 experienced G2 radionecrosis

Discussion/Conclusion

- Hypofractionation regimen of 25 Gy in 5 fractions achieves excellent local control and symptom control in a safe manner
- Excellent clinical outcomes for patients with prior surgery, previous RT or for lesions near critical structures
- More studies to assess local control beyond 5 years

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