

# Treatment Team

Radiation Oncologist: **Gregg Dickerson, M.D.**

Neurosurgeon: **Lloyd Mobley III, M.D.**

Medical Physicist: **Steve Humphries**

Radiation Therapist: **Mark Post**

Registered Nurse: **Angela Panek**



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# *Radiosurgery Case Study*

Post-Surgical Grade III  
Rhabdoid Meningioma

*May 2010*



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# Radiosurgery Case Study

## Case History

A 74 year old male, presented to the ER with dizziness in November 2009. A CT scan was performed shortly after arrival to the ER showing an ill-defined hypodensity in the inferior left hemisphere involving left frontal lobe and medial left temporal lobe.

MRI confirmed the mass and surgical resection was recommended. Dr. Lloyd Mobley completed surgery in early December 2009. Pathology indicated a diagnosis of rhabdoid meningioma, grade III.

## CyberKnife Treatment Rationale

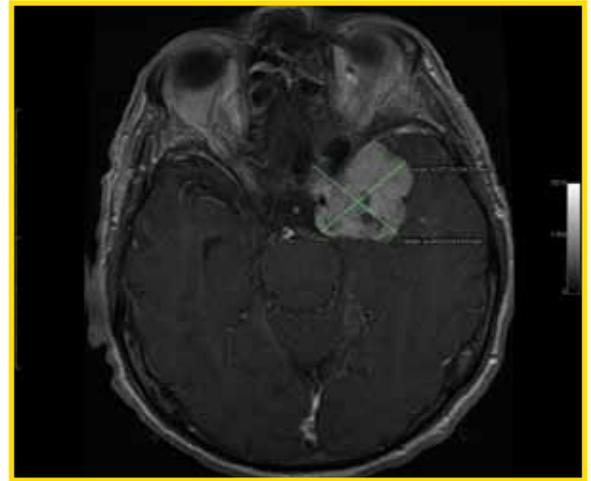
The patient was referred to Anova Cancer Care by Dr. Mobley following surgery for consideration of radiosurgical treatment of the residual unresectable tumor. The high proliferation rate of this tumor indicated it may be aggressive, thus radiosurgery of the residual tumor was indicated.

Non-isocentric radiation beam delivery (i.e., beams that do not have to converge on a single point) allows the dose distribution to conform to even irregularly shaped tumors. The CyberKnife technology provides more conformal treatment than isocentric delivery systems preserving more healthy surrounding tissue while maintaining good local tumor control.

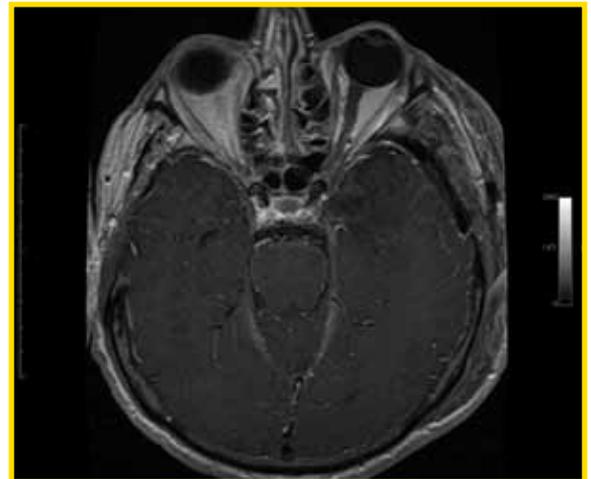
## Planning Process and Goals

The patient was prepared for treatment by creating a mask to limit movement of the head during treatment. The mask is made of a foam-covered plastic that is molded to the patient's face and is immobilized to the treatment table. It is comfortable and non-invasive to the patient.

A treatment planning CT scan and 3Tesla MRI scan of the head were obtained. These scans were then fused to provide clean, high-resolution and precise anatomical images for contouring. The lesion was identified and contoured and critical structures were identified. The treatment dose was prescribed with dose-limiting constraints on dose delivered to surrounding critical structures. A dose of 27 Gy delivered in three fractions of 900 cGy each was prescribed for this patient using a 10mm fixed collimator.



*CT image prior to surgery clearly shows the tumor and its location.*



*Following surgery, the tumor had been removed, with some residual tumor remaining.*

## Treatment Delivery

The patient underwent CyberKnife treatment in an average of 35 minutes/fraction using 134 beams/fraction. The patient tolerated treatment well.

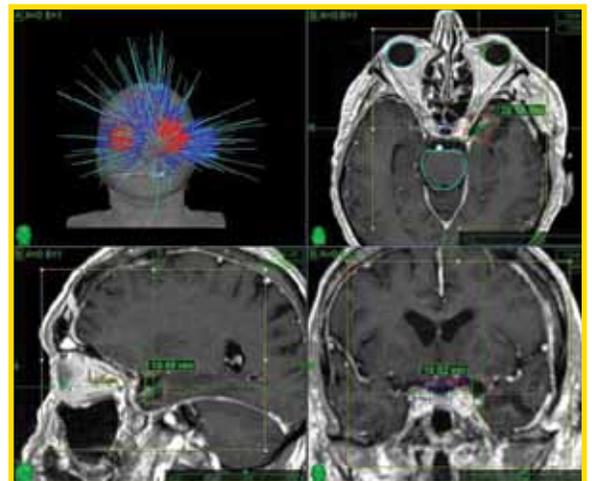
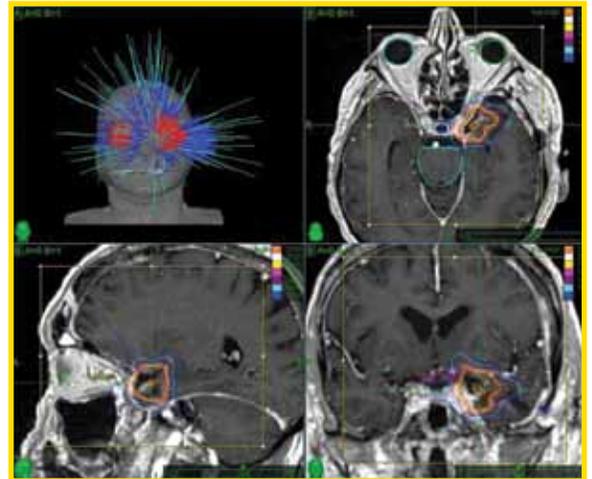
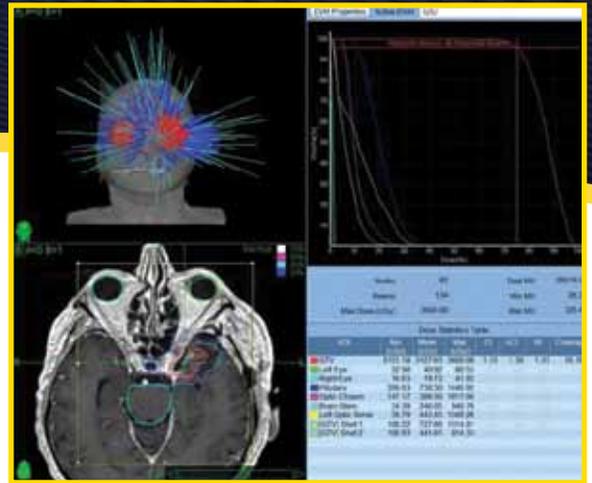
## Outcome and Follow-Up

Two and a half months following CyberKnife treatment completion, MRI scans revealed stable postoperative changes without evidence of tumor recurrence. At all follow-up appointments patient denied any side effects from CyberKnife treatment (headaches, dizziness, nausea, fatigue). The patient had some residual vision problems following surgery that were not made worse with CyberKnife treatment. MRI scans two years following treatment show no evidence of tumor recurrence and the patient has not had any problems related to his treatment.

## Conclusions & Commentary

CyberKnife SRS was an excellent option for this patient's peripheral tumor bed to maintain local control and hopefully prevent any further problems for the patient in the future. He is not only responding well to treatment, but there has been no adverse effect on his quality of life. The patient was able to go on a road trip a few days following treatment completion with no side effects caused from treatment.

Stereotactic radiosurgery is becoming more common to treat post-surgical tumor resections in the brain due to the conformal dosing that can be attained in the tumor that iso-centric therapies cannot, allowing for more healthy tissue being spared from the toxicities of radiation.



*The treatment planning images depict the dose contouring around the residual tumor, as well as the beam distribution of the treatment delivery.*