

**Title: The perspective of the neuro-oncologist in brain tumor management after surgery:
What are the questions & how can MR imaging help?**

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Abstract: The standard of care for both newly diagnosed and recurrent glioblastoma (GBM) patients has changed significantly in the past 10 years, including use of radiation and temozolomide in treatment of newly diagnosed GBM and bevacizumab for treatment for recurrent GBM. However, despite these advances and significant improvements in patient outcomes, the management and treatment of GBM patients remains a challenging and frustrating endeavor. Difficulties in interpretation of imaging changes after initial treatment, as well as the effects of anti-angiogenic agents like bevacizumab on MRI characteristics, can make even the determination of disease progression complicated in multiple situations. Furthermore, tumor progression after treatment with anti-angiogenic agents carries a particularly poor prognosis and there is a general lack of effective therapies for this group of patients. These significant limitations in terms of standard treatments contrast with a relative wealth of new information regarding the molecular underpinnings of GBM. These findings are helping to refine our understanding of the molecular heterogeneity and pathogenesis of these tumors and provide a basis for the future development of rational and targeted therapies for specific tumor subtypes.

Highlights

- **Radiation therapy with concurrent temozolomide and adjuvant temozolomide is the established standard treatment for newly diagnosed GBM**
- **Pseudoprogression is an important complicating factor in the interpretation of MRI imaging of GBM patients, and practitioners need to have a good awareness of this issue and familiarity with current recommendations by the Response Assessment in Neuro-Oncology (RANO) Working Group**
- **Bevacizumab monotherapy is the most common standard salvage therapy for recurrent BM. However, bevacizumab treatment is associated with modest effects on overall survival, difficulties in imaging interpretation of progression, and the development of resistance and poor prognosis at progression.**

Target Audience: Practitioners involved in care and management of primary brain tumor patients