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### Imaging in post treatment glioma: The concepts of pseudo progression & pseudo response

**G**lioblastoma multiforme is one of the commonly seen primary malignant brain neoplasm in adults. The current standard of management is surgical resection followed by radiation therapy and adjuvant Temozolomide chemotherapy. This approach has been proven to improve the overall post treatment survival. In addition, in 2009, bevacizumab for recommended for recurrent glioblastoma. With the change in treatment regime there has been introduction of a new concept of Pseudo-progression and Pseudo-response. These treatment regimens have effect on the MRI appearance of the brain parenchymal disease morphology. Earlier the disease extent and grading was based mainly on the degree of enhancement, which in turn is based on disruption of blood brain barrier. Now we understand that its neoangiogenesis rather than disruption of blood brain barrier which correlates with tumor grade. This forms the basis of MRI perfusion technique. Pseudo progression is widely believed to be more frequent following concomitant RT-TMZ. By definition, pseudo progression subsides without further treatment but, in some cases, appears to progress with time into radiation necrosis or treatment related necrosis. The diagnosis of pseudo progression is critical in the treatment protocol as, it may influence the clinical recommendation to continue with adjuvant chemotherapy rather than change to a second-line therapy. Antiangiogenic agents such as Bevacizumab, an anti-VEGF antibody may produce a rapid decrease in contrast enhancement with a high response rate and 6-month progression-free survival, but with rather modest effects on overall survival. The advanced imaging techniques like arterial spin labeling, dynamic susceptibility contrast perfusion imaging as well as spectroscopy help in differentiating these treatments induced changes from residual / recurrent tumor and thereby guide treatment protocol. A thorough knowledge of these entities and their imaging morphology with advanced MRI sequences is of utmost importance.

### Biography

Consultant Radiologist in MRI department Nanavati Superspeciality Hospital, Mumbai. Consulting Radiologist at Sunridges Hospitals, Mumbai Teleradiology consultant for Acuscan Imaging Centre, Manjeri Diagnostic centre, Kerala, Lotus Imaging Centre kharagarh, Vidhi Diagnostics, Rajnandgaon and Nucleus Diagnostics, Lagos.

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