Surgical perspective: Neurosurgical Approach to Brain Tumors

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Highlights

- Preoperative functional MRI and magnetic source imaging can be used to determine motor and language function in patients with brain tumor
- Preoperative images can be loaded into intraoperative navigation systems for tumor resection
- Intraoperative cortical mapping can determine motor and language function in brain tumor surgery
- Direct cortical mapping can be correlated to preoperative imaging through the intraoperative navigation system
- Intraoperative MR can determine extent of resection and can be registered to the intraoperative navigation system for further tumor resection
- The role of correlation of intraoperative and postoperative imaging after tumor resection is unknown at present.

Target Audience: Neuroradiologists, Neurosurgeons, Neuro Oncologists, Medical Oncologists, Neurologists, Brain tumor and brain imaging researchers

Objectives: Understand the role of preoperative and intraoperative imaging techniques to improve extent of resection while minimizing neurosurgical complications in brain tumor resection.

Purpose: Demonstrate neurosurgical questions that MR imaging can answer in preoperative and intraoperative setting.

Methods: Review of case material and methods utilized in brain tumor surgery with emphasis on imaging technologies.

Results: Many preoperative and intraoperative techniques are available to decrease surgical complications, decrease neurosurgical injury, and improve extent of tumor resection.

Discussion: Successful utilization of these techniques is outlined as well as pitfalls and limitations of current imaging will be discussed.

Conclusion: MR imaging plays an integral role in brain tumor surgery both from a preoperative and intraoperative standpoint.

References:


