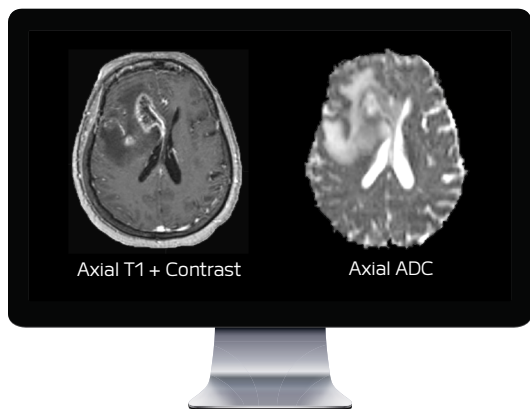


GLIOBLASTOMA MULTIFORME



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CLINICAL PRESENTATION

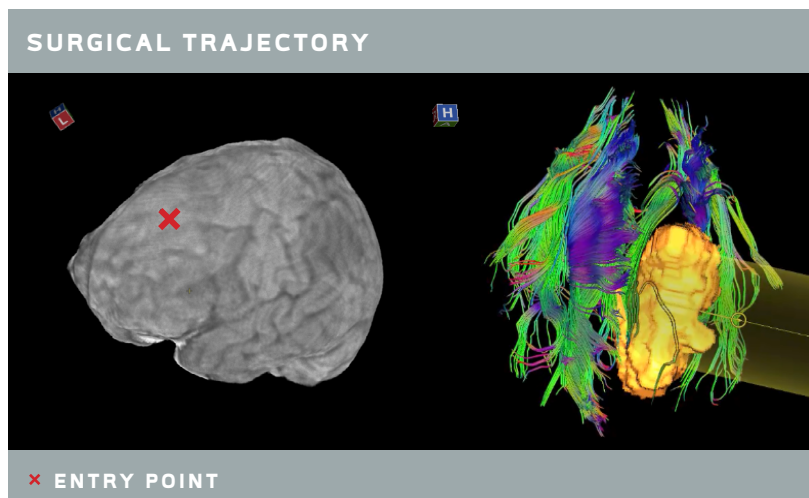
The patient is a 78-year-old female, who presented with a history of hypertension, sudden confusion and right-sided weakness after a fall. The patient was found to have a left frontal lesion. The lesion appeared to be a GBM, with irregular peripheral enhancement with areas of central necrosis in the lateral ventricle and corpus callosum, and extensive vasogenic edema surrounding the tumor, suggesting malignancy. Additionally, “butterfly” invasion into the right hemisphere is consistent with a GBM diagnosis. A frozen specimen pathology exam confirmed a high-grade glioma.

SURGICAL PLAN

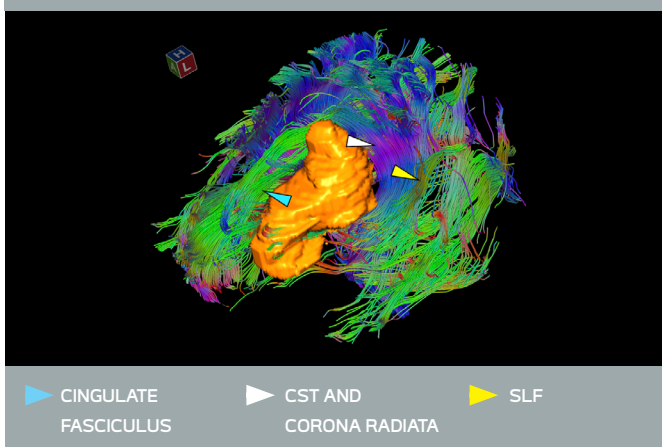
BrightMatter™ Plan, a surgical planning tool used to generate whole brain tractography data, revealed that the cingulate fasciculus was displaced medially (right, blue arrow), the superior longitudinal fasciculus (SLF) was displaced laterally (right, yellow arrow), and the corticospinal tract (CST) and the corona radiata were displaced posteriorly (right, white arrow). The confirmed displacement rather than destruction of the CST suggested that surgical debulking could improve the functional status of the patient in preparation for adjuvant chemoradiation.

SURGICAL MANAGEMENT

The surgical plan was imported to neuronavigation, and a right fronto-temporal craniotomy was performed with the anterior and superior frontal gyri identified for entry (below, red x). Lesion debulking was completed and verified using neuronavigation. Motor mapping was used to prevent tract injury.



PRE-OPERATIVE TRACTOGRAPHY



CLINICAL OUTCOME

The patient's preoperative upper and lower extremity weakness improved post-operatively and she regained basic mobility without ambulation at her one week post-operative assessment.

CASE HIGHLIGHTS

- This case was initially considered for biopsy only
- BrightMatter™ Plan revealed that surgical debulking and improved mass effect could relieve pressure on the preserved but compressed corticospinal tract
- Post-operative functional recovery was observed