



## Quicktome case study

### RIGHT PARIETAL LOBE GLIOMA RESECTION



Submitted by  
**Harold Smith, MD**  
Las Palmas Del Sol  
Healthcare

#### Patient history

An elderly woman presented with stroke-like symptoms including motor weakness and was treated at her local hospital. After no improvement of symptoms, an MRI scan later revealed an infiltrating glioma in the right parietal occipital white matter. Surgical resection was indicated.

#### Brain network involvement

Quicktome brain mapping software was used to analyze the lesion and the areas surrounding it. The corticospinal tract and the Ventral Attention Network were both involved in this case.

#### Corticospinal tract

The corticospinal tract (CST) and its importance are well known to surgeons. The corticospinal tract is a group of nerve fibers that carries sensory and motor signals from the brain to the muscles of the body. It is an important part of the sensorimotor system, which is responsible for controlling voluntary movement. Damage to the corticospinal tract can result in paralysis or other motor impairments.

In this case, the CST ran just anterior medial to the tumor, and probably explained the patient's mild weakness.

#### Ventral attention network

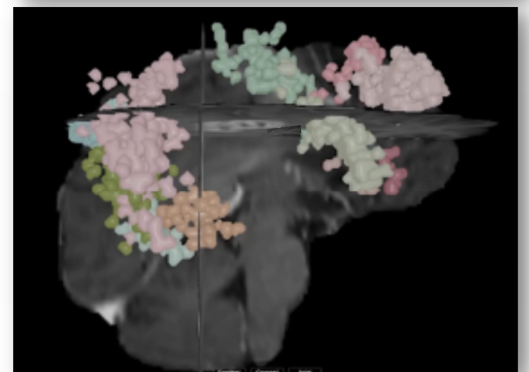
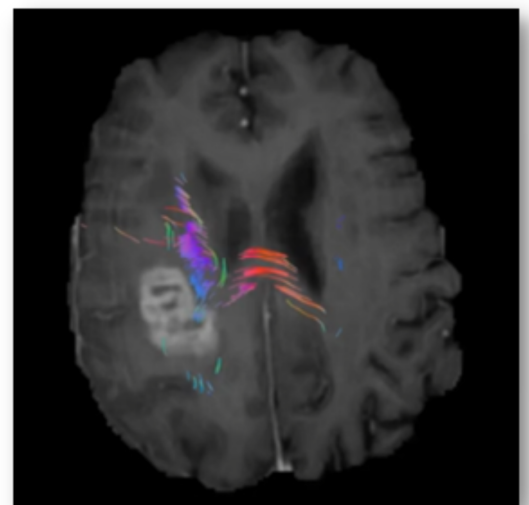
The ventral attention network (VAN) is a unilateral, typically right hemispheric brain network that swaps our focus between various tasks and responding to unexpected cues. Damage to the VAN results in hemispatial neglect, and other forms of cognitive dysfunction which was a concern for Dr. Smith.

Quicktome showed that the VAN was entwined with the lesion which may have also contributed to the patient's symptoms.

#### Networks involved:

VENTRAL ATTENTION

SENSORIMOTOR



*Networks as seen in Quicktome  
Top: Proximity of lesion to corticospinal tract.*

*Bottom: Parcels of the ventral attention network surrounding lesion.*

#### Surgical decisions and outcomes

Initially, a posterior lateral approach to the tumor was considered, but it was determined that this would take the surgeon through the VAN and potentially cause serious neglect issues for the patient. Instead, a more lateral approach through a sulcus was chosen, which allowed for access to the tumor while avoiding the VAN and CST. The surgery was successful and the patient was discharged on postoperative day one with no new deficits.