

## ABSTRACT

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Endoscopic-assisted surgical approach for butterfly glioma surgery.

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**PURPOSE:** Gliomas that spread along the white matter tracts of the corpus callosum to both hemispheres have traditionally been considered surgically challenging largely due to the relative complexity of safely achieving complete resections. We present a series of endoscopic-assisted resections of butterfly gliomas with post-operative radiological assessment of EOR and clinical outcome data.

**METHODS:** Retrospective review of patients who underwent surgical resection of a butterfly glioma from 2007 to 2020. Butterfly gliomas were defined as gliomas, which appeared to arise from the corpus callosum with significant bilateral extension. All records were retrospectively reviewed with operative/clinical outcomes and complications recorded.

**RESULTS:** 70 patients who underwent an endoscopic-assisted transcortical or interhemispheric approach for butterfly glioma resection met inclusion criteria. A unilateral transcortical approach was used in 86% of cases and an interhemispheric approach in 14%. The endoscope enhanced the visualization of the contralateral hemisphere and allowed for resection of tumor, not reached by standard microscopic visualization, in 100% of cases. 90% of resections resulted in greater than a 95% resection rate. Neurological deficits mostly consisted of motor (10%) and memory (6%) deficits and were most common with posterior tumors of the splenium.

**CONCLUSION:** The endoscopic-assisted transcortical or interhemispheric approach for butterfly glioma resection is effective in achieving a greater than 95% resection with minimal complications. An angled approach allows careful maneuvering around complex anatomic structures and difficult corners, and should be examined further for its clinical benefits in a prospective manner.

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