Endoscopic endonasal transplanum transtuberculum approach for resection of retrochiasmatic craniopharyngioma

JAMES K. LIU, M.D.,1,3 AND JEAN ANDERSON ELOY, M.D.2,3

Departments of 1Neurological Surgery and 2Otolaryngology – Head and Neck Surgery, and 3Center for Skull Base and Pituitary Surgery, Neurological Institute of New Jersey, University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark, New Jersey

Retrochiasmatic craniopharyngiomas are formidable cranial base tumors to resect because of their intimate relationship with neighboring critical neurovascular structures, particularly the undersurface of the optic chiasm and hypothalamus. Radical resection offers the best chance of minimizing tumor recurrence, although this may be associated with significant surgical morbidity. Although various transcranial approaches have been utilized (transbasal subfrontal, frontobasal interhemispheric, pterional, orbitozygomatic, and petrosal) for resection of retrochiasmatic craniopharyngiomas, each is associated with some degree of brain retraction, and direct visualization of the retrochiasmatic region is often incomplete, therefore resulting in blind dissection. The endoscopic endonasal transplanum transtuberculum approach provides the most direct route to the retrochiasmatic region while affording unmatched visualization of the undersurface of the optic chiasm, third ventricle, and hypothalamus. This advantage allows for direct bimanual tumor dissection off of these critical structures by using microsurgical principles. The endonasal route also has the advantage of avoiding brain retraction and risk of cerebral edema that can be associated with transcranial approaches. In this operative video atlas report, the authors demonstrate their step-by-step techniques for resection of a suprasellar retrochiasmatic craniopharyngioma using a purely endoscopic endonasal transplanum transtuberculum approach. They describe and illustrate the operative nuances and surgical pearls to safely and efficiently perform the approach, tumor resection, and multilayered reconstruction of the cranial base defect.

The video can be found here: [http://youtu.be/ZIbJvAyRxYU](http://youtu.be/ZIbJvAyRxYU).

**KEY WORDS** • retrochiasmatic craniopharyngioma • transcranial approach • cranial base tumor • video