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Cranio-Orbital Pretemporal Approach for Microsurgical Resection of Hypothalamic Rosette Forming Glioneuronal Tumor with Reversal of Preoperative Blindness: 2-Dimensional Operative Video

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Key words

- Cranio-orbital approach
- Endoscopy
- Hypothalamic glioma
- Microsurgery
- Vision improvement

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The hypothalamic region is susceptible to involvement of several processes.[1] Lesions in this region remain challenging for surgical access and treatment. Strategies include both endoscopic and microsurgical approaches.[2] A cranio-orbital approach with extradural clinoidectomy and optic canal unroofing provides the necessary corridor to visualize and decompress the optic nerve/chiasm and remains an important tool in achieving complete tumor resection with favorable functional and visual outcomes.[3-12] Endoscope assistance in transcranial surgery is well established, used to provide direct visualization of hidden adjacent tissues.[13] A 25-year-old woman presented with headache and progressive visual loss to blindness (hand waving and light perception) on admission. Magnetic resonance imaging demonstrated a 28-mm-diameter tumor in the hypothalamic region with no significant postcontrast enhancement. She underwent right cranio-orbital craniotomy, extradural anterior clinoidectomy, and optic canal unroofing with a 2-mm high-speed diamond drill and copious irrigation. After ipsilateral falciform ligament release, the tumor capsule was coagulated, sharply opened, and resected in a piecemeal fashion. Endoscopic assistance warranted the removal of hidden parts and confirmed tumor removal. Histopathology and next-generation sequencing confirmed the diagnosis of rosette-forming glioneural tumor. Follow-up revealed gross total tumor removal on magnetic resonance imaging and complete recovery of visual function as per ophthalmologist examination. Rosette-forming glioneural tumors are considered rare and classified as World Health Organization grade I tumors usually found in the fourth ventricle.[14] To our knowledge, we present the first operative video (Video 1) demonstrating the removal of rosette-forming glioneural tumor in the hypothalamic region with endoscopic assistance.

CRediT AUTHORSHIP CONTRIBUTION STATEMENT

Nebojsa Lasica: Writing — review & editing, Writing — original draft, Formal analysis, Conceptualization. **Talal Siddiq:** Writing — review & editing, Writing — original draft, Resources. **Richard Hessler:** Writing — review & editing, Writing — original draft, Resources, Formal analysis. **Kenan I. Arnautovic:** Writing — review & editing, Writing — original draft, Supervision, Project administration, Formal analysis, Conceptualization.

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