Brainstem surgery

- Neonatal Hearing Loss Risk Factors and miRNA Biomarkers Identified Through AABR Screening
- Hereditary Leukoencephalopathy: Overview to Definition, Diagnosis and Treatment
- HucMSCs-derived Exosomes Protect Against 6-hydroxydopamineinduced Parkinson's Disease in Rats by Inhibiting Caspase-3 Expression and Suppressing Apoptosis
- Anatomical Step-by-Step Dissection of Complex Skull Base Approaches for Trainees: Surgical Anatomy of the Translabyrinthine and Transcochlear Approaches
- Experimental validation and identification of ferroptosis-associated biomarkers for diagnostic and therapeutic targeting in hearing loss
- Glioblastoma multiforme: an updated overview of temozolomide resistance mechanisms and strategies to overcome resistance
- Radiation-Induced Cavernous Malformation in the Cerebellum: Clinical Features of Two Cases
- Glycine alters the sequential pattern of swallowing activity in juvenile rat working heart-brainstem preparations

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Brainstem surgery presents one of the most arduous challenges in neurosurgery, and surgical series on this topic in the literature are scarce compared with other brain regions. Consequently, there is no standard of reporting

1. Bricolo A, Turazzi S. Surgery for gliomas and other mass lesions of the brainstem. Adv Tech Stand Neurosurg. 1995;22: 261-341. 2. Albright AL, Guthkelch AN, Packer RJ, Price RA, Rourke LB. Prognostic factors in pediatric brain-stem gliomas. J Neurosurg. 1986;65(6):751-755. 3. Epstein F, Wisoff JH. Surgical management of brain stem tumors of childhood and adolescence. Neurosurg Clin N Am. 1990;1(1):111-121. 4. Jallo GI, Biser-Rohrbaugh A, Freed D. Brainstem gliomas. Childs Nerv Syst. 2004;20(3):143-153. 5. Cavalheiro S, Yagmurlu K, da Costa MD, et al. Surgical approaches for brainstem tumors in pediatric patients. Childs Nerv Syst. 2015;31(10):1815-1840. 6. Bertalanffy H, Benes L, Miyazawa T, Alberti O, Siegel AM, Sure U. Cerebral cavernomas in the adult. Review of the literature and analysis of 72 surgically treated patients. Neurosurg Rev. 2002;25(1-2):1-55. 7. Yaşargil MG. Microneurosurgery. Vol IVB. Thieme; 1996. 8. Zaidi HA, Mooney MA, Levitt MR, Dru AB, Abla AA, Spetzler RF. Impact of timing of intervention among 397 consecutively treated brainstem cavernous malformations. Neurosurgery. 2017;81(4):620-626. 9. Alpers BJ, Watts JW. Mesencephalic glioma: a clinical and pathologic analysis of ten cases. Arch Neurol Psychiatry. 1935;34(6):1250-1273. 10. Garcia RM, Ivan ME, Lawton MT. Brainstem cavernous malformations: surgical results in 104 patients and a proposed grading system to predict neurological outcomes. Neurosurgery. 2015;76(3):265-278.

[1)]

When the lesion involves or points toward the floor of the fourth ventricle, a standard suboccipital approach through the vermis suffices. Lesions presenting in the cerebellopontine angle or the lateral pons may be safely approached through a standard retromastoid craniectomy. A more direct (perpendicular) access can be obtained by a standard subtemporal-transtentorial approach when the lesion is high and lateral, by a combined subtemporal-suboccipital approach when the lesion extends more inferiorly, and by a combined subtemporal-presigmoid approach for the more anteriorly located lesions. Anterior or anterolateral lesions of the highest aspect of the pons or of the mesencephalon can be readily accessed by the pterional-anterior temporal approach or by a standard subtemporal approach. Dorsal mesencephalic lesions require a supracerebellar/infratentorial approach or, when

they extend more inferiorly, an occipital transtentorial approach. When the ventral aspect of the lower brain stem is involved, the lateral suboccipital approach works well [2)]

Books

Surgery of the Brainstem

Publications

Rohde V. Surgery of the Brainstem. J Neurol Surg A Cent Eur Neurosurg. 2021 Aug 3. doi: 10.1055/s-0041-1728769. Epub ahead of print. PMID: 34344050.

Wen DY, Heros RC. Surgical approaches to the brain stem. Neurosurg Clin N Am. 1993 Jul;4(3):457-68. PMID: 8353444.

Videos

Microsurgical resection of brainstem cervicomedullary ganglioglioma

<html><iframe width="560" height="315" src="https://www.youtube.com/embed/biD4G1Hh0yk" title="YouTube video player" frameborder="0" allow="accelerometer; autoplay; clipboard-write; encrypted-media; gyroscope; picture-in-picture" allowfullscreen></iframe></html>

1)
Serra C, Türe H, Fırat Z, Staartjes VE, Yaltırık CK, Ekinci G, Sav A, Türe U. Microsurgical management of midbrain gliomas: surgical results and long-term outcome in a large, single-surgeon, consecutive series. J Neurosurg. 2023 Jul 21:1-12. doi: 10.3171/2023.5.JNS222219. Epub ahead of print. PMID: 37503951.

2)
Wen DY, Heros RC. Surgical approaches to the brain stem. Neurosurg Clin N Am. 1993 Jul;4(3):457-68. PMID: 8353444.