

Posterior Fossa Tumors Special Edition. Celebrating 4 years!

Ricardo Santos de Oliveira ¹, Matheus Ballesterio ^{1,2}

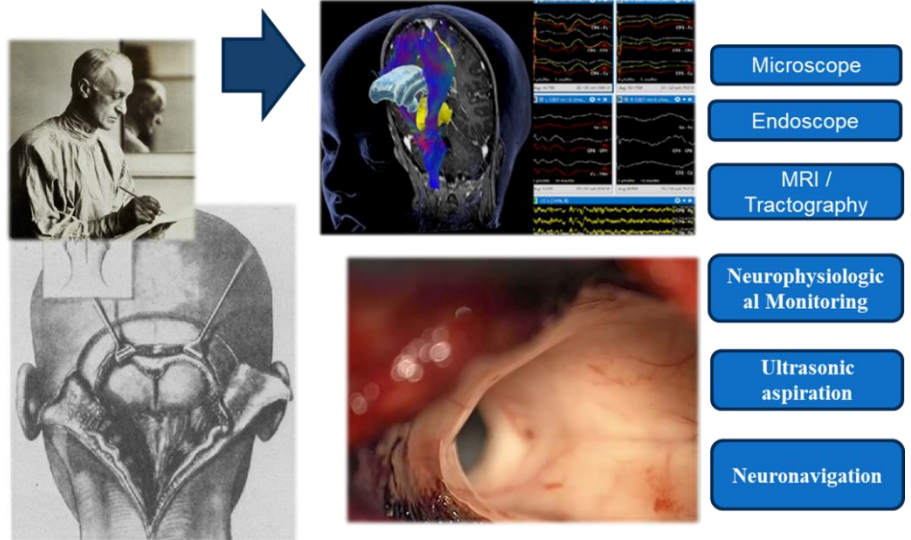
¹ Departamento de Cirurgia e Anatomia, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, Brasil

² Departamento de Medicina, Universidade Federal de São Carlos, São Carlos, Brasil

✉ Ricardo de Oliveira, MD

e-mail: rsoliveira@gmail.com

Available at:
<http://www.archpedneurosurg.com.br/>



Keywords: Editorial, Posterior Fossa Tumor

Posterior fossa tumors account for approximately half of the central nervous system tumors in children. Major technological advances, mainly in the fields of molecular biology and neuroimaging, have modified their classification, leading to a more detailed description of these entities.

Certain modifications in the general nomenclature introduced by the 2021 WHO classification of tumors of the CNS have an impact on how we approach the posterior fossa tumors described in this study.

The focus of this annual special issue is posterior fossa tumors in children. There were several emerging technologies and approaches in the diagnosis and treatment of posterior fossa tumors in children. It's important to note that medical technology and research are continually evolving, so there may have been further advancements in this field since then. Here are some promising technologies and strategies that were being explored:

Advanced Imaging Techniques:

Functional MRI (fMRI): This technology helps in mapping the brain's functional areas, allowing surgeons to plan their approach more accurately and minimize damage to critical brain regions.

Diffusion Tensor Imaging (DTI): DTI provides information on the brain's white matter tracts, aiding surgeons in preserving essential neural pathways during surgery.

Spectroscopy: It helps in identifying tumor types and differentiating between tumor tissue and healthy brain tissue.

Surgical Navigation Systems: The use of advanced navigation systems during surgery allows for precise tumor localization and safer tumor removal, minimizing damage to surrounding healthy tissue.

Brain Ultrasound and iMRI: Some hospitals are equipped with iMRI suites that allow real-time imaging during surgery. Most common brain ultrasound helps a lot during



Posterior fossa tumors Special Edition. Celebrating 4 years!

the posterior fossa surgery and can use simultaneously with neuronavigation system.

Minimally Invasive Techniques: Minimally invasive procedures, such as endoscopic surgery, are being explored for certain types of posterior fossa tumors. These techniques can reduce recovery times and complications.

Intraoperative monitoring (IOM), also known as intraoperative neurophysiological monitoring (IONM), is a critical technique used during certain surgeries to monitor the nervous system's function in real-time. It helps surgeons and medical teams assess the integrity of neural structures, particularly the brain and spinal cord, during surgical procedures.

Genomic and Molecular Analysis: Advances in genomic and molecular analysis of tumors can provide insights into the specific genetic mutations driving the tumor's growth. This information can help guide treatment decisions, including targeted therapies.

Radiation Therapy Advancements: Techniques like proton therapy and stereotactic radiosurgery are being used to precisely target tumors while minimizing damage to surrounding healthy tissue, which is especially important in pediatric cases.

Immunotherapy: Immunotherapy approaches, such as checkpoint inhibitors, are being investigated for their potential in treating certain types of posterior fossa tumors in children. These therapies aim to harness the body's immune system to fight the tumor.

Personalized Medicine: Tailoring treatment plans to the individual characteristics of each patient's tumor is becoming increasingly important. This includes considering factors such as tumor genetics, location, and the child's overall health.

Telemedicine and Remote Consultations: Telemedicine technologies enable pediatric neuro-oncologists to collaborate with experts worldwide, improving the quality of care, especially in regions with limited access to specialized healthcare.

This special issue covers the different aspects of posterior fossa tumors surgery. We wish to thank all the authors for their tremendous contributions, and we hope that you will have the same interest and pleasure to read this special issue as we have had to edit it.