

Neuroendoscopic biopsy

From 2001 to 2008, 49 pediatric patients (mean age, 12.16 years) with tumors located in the intraventricular or paraventricular areas underwent neuroendoscopic biopsy, with or without simultaneous endoscopic third ventriculostomy. Neuroendoscopic biopsies were performed to verify the histological diagnosis of neoplasms and to establish pathological diagnoses necessary for planning appropriate treatment strategies.

In 45 of 49 patients (91.8%) neuroendoscopic biopsy specimens were appropriate for diagnosis and revealed 27 germinomas, 11 astrocytomas, and one ependymoma, etc. The tumor location included the pineal gland (n = 28), thalamus (n = 7), intraventricle (n = 3), hypothalamus (n = 3), suprasellar area (n = 2), and diffuse multifocal area (n = 3). In two patients (4.1%) biopsy specimens were informative but not diagnostic. Tumor tissue specimens were undiagnostic in two patients (4.1%). There were eight transient morbidities, including four EOM limitations, two central DI, one EVD infection, and one CSF leakage. One patient experienced postoperative tumor bleeding requiring emergent operation. There was no case of operative mortality.

Neuroendoscopic biopsy can be considered as the first choice for tissue sampling of periventricular and intraventricular tumors with acceptable risks ¹⁾.

Endoscopic biopsy for intraventricular tumors in pediatric patients with small ventricles is a challenging procedure due to the risk of morbidity during the intraventricular approach.

Results indicate that neuroendoscopic [biopsy](#) has a very good diagnostic yield and reasonably low [complication](#) rate. The [procedure](#) seems most advantageous for diagnosis of [intraventricular lesions](#) where [cerebrospinal fluid diversion](#) is an additional therapeutic requirement ²⁾.

Avecillas-Chasin et al present the use of the [VarioGuide](#) system (Brainlab, Iberica) for intraventricular endoscopic biopsy in children with small ventricles. Nine consecutive pediatric patients with intraventricular lesions and small ventricular size were included. All patients had lesions in the anterior part of the third ventricle with a median frontal and occipital horn ratio (FOR) of 0.33. Four patients presented with growth failure, four patients with visual disturbances, and one patient with seizures. The VarioGuide system consists of an ergonomic arm with three joints for gross adjustment. The three rotational joints on the distal side of the system are adjusted according to the angles of the planned trajectory. The endoscope is adjusted to the distal side of the VarioGuide and inserted through the ring, previously set for the diameter of the endoscope and for the planned trajectory. The accuracy of the trajectory and correct ventricular cannulation are confirmed under endoscopic guidance. The biopsy is then carried out according to the standard technique. In all cases the biopsy sample provided the definitive diagnosis. Four patients were diagnosed with germinomas, one with hamartoma, two with hypothalamic astrocytoma and two with craniopharyngioma. The use of the VarioGuide system for intraventricular endoscopic biopsy is a new procedure highly recommended for pediatric patients with small ventricle size. This technique may help minimize the risk of unnecessary brain damage during the entrance to small ventricles ³⁾.

¹⁾

Song JH, Kong DS, Shin HJ. Feasibility of neuroendoscopic biopsy of pediatric brain tumors. Childs Nerv Syst. 2010 Nov;26(11):1593-8. doi: 10.1007/s00381-010-1143-9. PubMed PMID: 20390421.

²⁾

Somji M, Badhiwalla J, McLellan A, Kulkarni A. Diagnostic Yield, Morbidity, and Mortality of Intraventricular Neuroendoscopic Biopsy - Systematic Review and Meta-analysis. World Neurosurg. 2015 Sep 15. pii: S1878-8750(15)01174-2. doi: 10.1016/j.wneu.2015.09.011. [Epub ahead of print] Review. PubMed PMID: 26385114.

3)

Avecillas-Chasin JM, Budke M, Villarejo F. Neuroendoscopic Intraventricular Biopsy in Children with Small Ventricles using Frameless Varioguide® System. World Neurosurg. 2015 Dec 23. pii: S1878-8750(15)01700-3. doi: 10.1016/j.wneu.2015.12.022. [Epub ahead of print] PubMed PMID: 26723291.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=neuroendoscopic_biopsy

Last update: **2024/06/07 02:58**

