

Hospital for Sick Children

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Dmytriw AA, Ha W, Bickford S, Bhatia K, Shroff M, Dirks P, Muthusami P. Long Vascular Sheaths for Transfemoral Neuroendovascular Procedures in Children. *Neurointervention*. 2021 Jun 3. doi: 10.5469/neuroint.2021.00192. Epub ahead of print. PMID: 34078026.

All patients with confirmed intracranial [germ cell tumors](#) treated at the Hospital of Sick Children during the period January, 1952, to December, 1989, were reviewed. Of the 51 tumors reviewed, 16 were located in the suprasellar region, 32 in the pineal region, and three in both the pineal and the suprasellar regions. Forty-nine patients underwent surgical resection which was total in seven and partial in 20, and consisted of a biopsy in 22. Two patients were managed on the basis of serum and cerebrospinal fluid markers. Surgical tools such as the operating microscope, the ultrasonic surgical aspirator, and the laser beam allowed safe debulking and removal of the deep-seated tumors in the pineal region. There were no operative deaths in the 36 patients treated since 1972, who included 23 with pineal tumors. Twenty-five patients with germinomas received radiotherapy and had a 5-year survival rate of 85.1%. Thirteen patients with non-germinoma germ-cell tumors received radiotherapy and had a 5-year survival rate of 45.5%. On the basis of this review, the authors recommend resection of pineal and suprasellar germ-cell tumors in order to firmly establish an accurate histological diagnosis to guide the extent of adjuvant therapy. In the case of a pure germinoma without evidence of dissemination, adjuvant therapy consists only of local radiotherapy. On the other hand, for malignant non-germinoma germ-cell tumors, adjuvant therapy must include chemotherapy as well as craniospinal axis radiotherapy ¹⁾.

[Endoscopic third ventriculostomy](#) (ETV) has preferentially been offered to patients with more favorable prognostic features compared with a [shunt](#).

To use advanced statistical methods to adjust for treatment selection bias to determine whether ETV survival is superior to shunt survival once the bias of patient-related prognostic factors is removed.

An international cohort of children (< or = 19 years of age) with newly diagnosed [hydrocephalus](#) treated with [ETV](#) (n = 489) or [shunt](#) (n = 720) was analyzed. Kulkarni et al. used [propensity score](#) adjustment techniques to account for 2 important patient prognostic factors: age and [hydrocephalus etiology](#). [Cox regression survival analysis](#) was performed to compare time-to-treatment failure in an unadjusted model and 3 propensity score-adjusted models, each of which would adjust for the imbalance in prognostic factors.

In the unadjusted [Cox model](#), the ETV failure rate was lower than the shunt failure rate from the immediate postoperative phase and became even more favorable with a longer duration from surgery. Once patient prognostic factors were corrected for in the 3 adjusted models, however, the early failure rate for ETV was higher than that for a shunt. It was only after about 3 months after surgery did the ETV failure rate become lower than the shunt failure rate.

The relative risk of [Endoscopic third ventriculostomy failure](#) is initially higher than that for shunt, but after about 3 months, the relative risk becomes progressively lower for ETV. Therefore, after the early high-risk period of ETV failure, a patient could experience a long-term treatment survival advantage compared with shunt. It might take several years, however, to realize this benefit ²⁾.

¹⁾

Hoffman HJ, Otsubo H, Hendrick EB, Humphreys RP, Drake JM, Becker LE, Greenberg M, Jenkin D. Intracranial germ-cell tumors in children. J Neurosurg. 1991 Apr;74(4):545-51. PubMed PMID: 1848284.

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Kulkarni AV, Drake JM, Kestle JR, Mallucci CL, Sgouros S, Constantini S; Canadian Pediatric Neurosurgery Study Group. Endoscopic third ventriculostomy vs cerebrospinal fluid shunt in the treatment of hydrocephalus in children: a [propensity score-adjusted analysis](#). [Neurosurgery](#). 2010 Sep;67(3):588-93. doi: 10.1227/01.NEU.0000373199.79462.21. PMID: 20647973.

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