



Superior Parietal Lobule Approach for Choroid Plexus Papillomas Without Pre-operative Embolization in Very Young Children

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Introduction

Choroid plexus papillomas are rare neoplasms often found in the atrium of the lateral ventricle of infants that cause overproduction hydrocephalus. The extensive vascularity and medially located blood supply of these tumors, coupled with the young age of the patients, can make blood loss challenging. Pre-operative embolization has been advocated to reduce blood loss and prevent the need for transfusion, but this mandates radiation exposure and the additional risks of vessel injury and stroke.

Methods

We conducted a retrospective review of all children who presented to Columbia University/Morgan Stanley Children's Hospital of New York with a choroid plexus papilloma in the atrium of the lateral ventricle that underwent surgery using a superior parietal lobule approach without pre-operative embolization.

Results

Nine children were included with a median age of seven months. There were no perioperative complications or new neurological deficits. All patients had intraoperative blood loss of less than 100cc with a mean minimum hematocrit of 26.9 (range 19.6-36.2). No patients required a blood transfusion. Median follow-up was 50 months, during which time no patients demonstrated residual or recurrent tumor on MRI, nor did any have an increase in ventricular size or require CSF diversion.

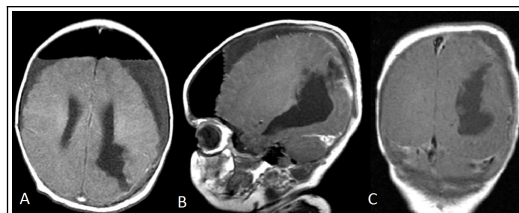


Figure 1: Post-operative MRI demonstrating gross total resection and the superior parietal lobule approach.

Conclusions

The superior parietal lobule approach is a safe and effective approach for very young children with choroid plexus papillomas in the atrium of the lateral ventricle. Our results suggest that preoperative embolization is not essential to avoid transfusion or achieve overall good outcomes in these patients. This management strategy avoids radiation exposure and the additional risks associated with embolization.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Discuss the advantages and disadvantages of various corridors to and of pre-operative embolization of lateral ventricular choroid plexus papillomas, 2) Identify the advantages, techniques, and outcomes demonstrated for the superior parietal lobule approach without pre-operative embolization for these tumors.

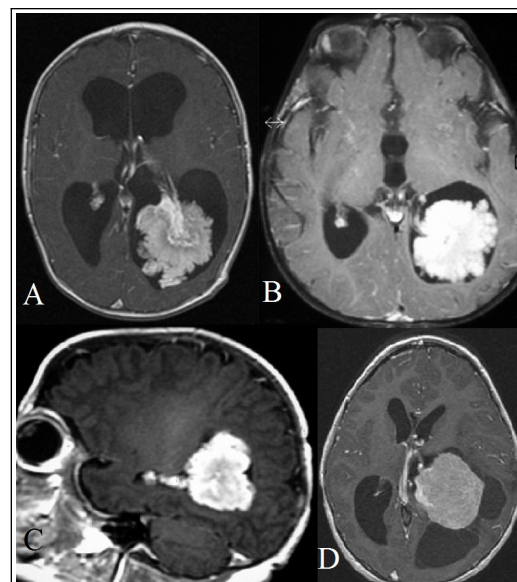


Figure 2: Four representative tumors demonstrating a variety of vascular pedicle anatomy.

References

1. Rickert CH, Paulus W: Tumors of the choroid plexus. *Microsc Res Tech* 2001 Jan 1;52:104-111.
2. Wrede B, Liu P, Ater J, Wolff JEA: Second surgery and the prognosis of choroid plexus carcinoma--results of a meta-analysis of individual cases. *Anticancer Res* 2005 Nov;25:4429-4433.
3. Berger C, Thiesse P, Lellouch-Tubiana A, Kalifa C, Pierre-Kahn A, Bouffet E: Choroid plexus carcinomas in childhood: clinical features and prognostic factors. *Neurosurgery* 1998 Mar;42:470-475.
4. Wolff JEA, Sajedi M, Brant R, Coppes MJ, Egeler RM: Choroid plexus tumours. *Br J Cancer* 2002 Nov;87:1086-1091.
5. Wolff JE, Sajedi M, Coppes MJ, Anderson RA, Egeler RM: Radiation therapy and survival in choroid plexus carcinoma. *Lancet* 1999 Jun;353:2126.
6. Chow E, Reardon DA, Shah AB, Jenkins JJ, Langston J, Heideman RL, et al.: Pediatric choroid plexus neoplasms. *Int J Radiat Oncol Biol Phys* 1999 May 1;44:249-254.
7. Wrede B, Hasselblatt M, Peters O, Thall PF, Kutluk T, Moghrabi A, et al.: Atypical choroid plexus papilloma: clinical experience in the CPT-SIOP-2000 study. *J Neurooncol* 2009 Dec;95:383-392.
- Otten ML, Riina HA, Gobin YP, Souweidane MM: Preoperative embolization in the treatment of choroid plexus papilloma in an infant. Case report. *J Neurosurg* 2006 Jun;104:419-421.
- Souweidane MM, Johnson JH, Lis E: Volumetric reduction of a choroid plexus carcinoma using preoperative chemotherapy. *J Neurooncol* 1999 Jun;43:167-171.

Cappabia