

Intra-operative Complications and Extent of Capsular Resection Associated with the Swiveling Technique

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Introduction

Colloid cysts are often removed from the anterior third ventricle by pure endoscopic resection. As previously described, once the colloid cyst capsule is maneuvered by endoscopic forceps into the lateral ventricle, the swiveling technique applies constant, gentle pressure by rotating the forceps to free the capsule from choroidal attachments.(1) Presently, there are no reports of safety or efficacy of the technique.

Methods

Medical records, radiographic imaging, and intraoperative videos of endoscopic colloid cyst removal by one surgeon at the University of Buffalo from 2009-2016 were retrospectively reviewed. Follow-up was obtained where possible. Extent of capsular resection, intraoperative complications, and long-term outcome were assessed.

Results

Sixteen endoscopic colloid cyst resections were attempted on fourteen patients. The swiveling technique was employed on nine patients (age: 30-65 years, follow-up: 1-39 months). The technique achieved complete capsular removal in four patients, without residual cysts on postoperative imaging or recurrences at follow-up. Small capsular remnants subsequently coagulated with bipolar cautery occurred in four patients; two of these had no residual cyst, but one recurred and is being followed. The other two exhibited small residuals on postoperative imaging, remaining stable at follow-up. An additional patient had a small capsular remnant retract into the third ventricle on choroidal attachments precluding cauterization. In this same patient, colloid dislodged into the lateral ventricle during the swiveling technique and was irretrievable. Two minor hemorrhages occurred resulting in third ventricle clots. In one patient, clot was completely removed by suctioning; in the other, a small clot remained. No patients required reoperation.

Conclusions

The swiveling technique facilitates colloid cyst capsular removal. Bipolar cautery can be performed on capsular remnants. The technique has minimal intraoperative complications including hemorrhage. Technical challenges include capsular retraction and colloid dislodgement, emphasizing the need for capsular content removal prior to swiveling. Further analysis and prospective comparison to other techniques is needed.

Learning Objectives

By the end of this session, participants should be able to: 1) describe the swiveling technique and its utility in the endoscopic removal of third ventricle colloid cysts, 2) identify technical issues that the neurosurgeon may encounter when employing the swiveling technique, and 3) discuss potential risks of the technique and compare them to those associated with standard endoscopic resection.

References

Dorsch AB, Leonardo J. Use of the Swiveling Technique for Endoscopic Removal of a Colloid Cyst of the Third Ventricle: A Technical Note. J Neurol Surg A Cent Eur Neurosurg. 2017;78(1):78-81.