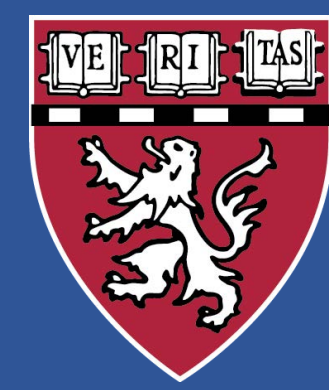




Combined Endoscopic and Open Approach for Resection of Pediatric Craniopharyngioma



Casey Jarvis^{1,2}, Lissa C. Baird^{1,3}

¹Department of Neurosurgery, Boston Children's Hospital, ²Department of Neurosurgery, Brigham and Women's Hospital, ³Dana-Farber Cancer Institute

Background

There is a high risk of significant morbidity from hypothalamic and endocrine dysfunction after resection of large third ventricular pediatric craniopharyngioma.

Objective

The combined transcortical endoscopic and open approach for resection of pediatric craniopharyngioma allows for improved outcomes by minimizing parenchymal traction during open resection.

Clinical Case

11 year old male with no significant PMHx, p/w 2 months of progressive intermittent headaches, acutely worsening over the past 48hrs with associated nausea/vomiting and subjective blurry vision. Ophthalmology evaluation notable for subtle optic disc edema and full visual fields. MRI revealed a large cystic suprasellar mass with calcifications, concerning for craniopharyngioma.

Methods

A pterional incision is made. A burr hole is placed at Kocher's point for EVD placement into the ventricle. Once CSF return is confirmed, a flexible endoscope is passed into the lateral ventricle. The cyst is identified through the foramen of Monroe and gently dissected away from the hypothalamus using a combination of Fogarty balloon inflation and irrigation (**Fig 2A-B**). The cyst is then punctured and cyst fluid is aspirated for decompression (**Fig 2C**). Once the cyst has been decompressed, a modified orbitozygomatic craniotomy is performed (**Fig 3A**). A subfrontal approach is used to complete the tumor resection through the opticocarotid triangle (**Fig 3B**).

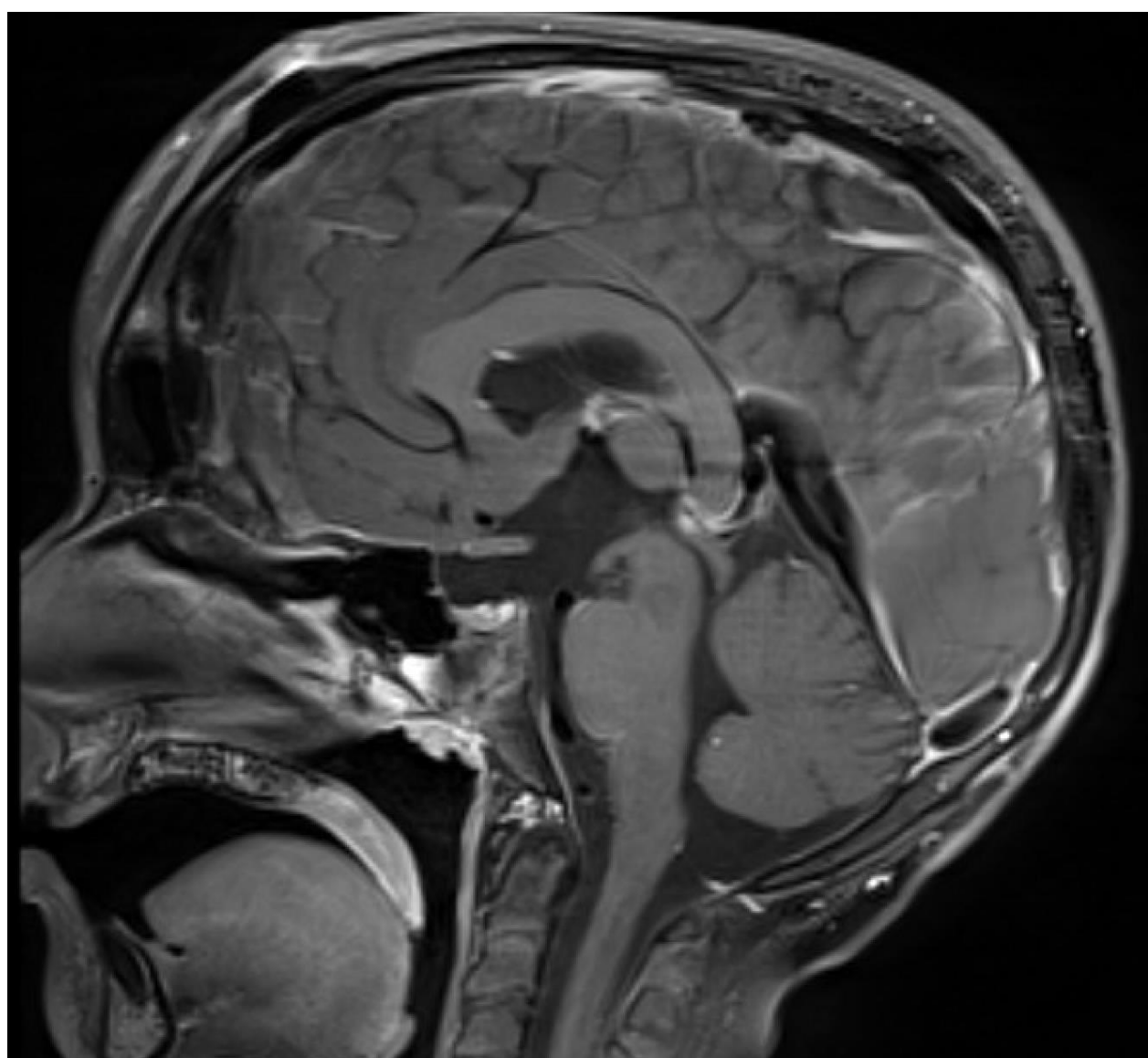
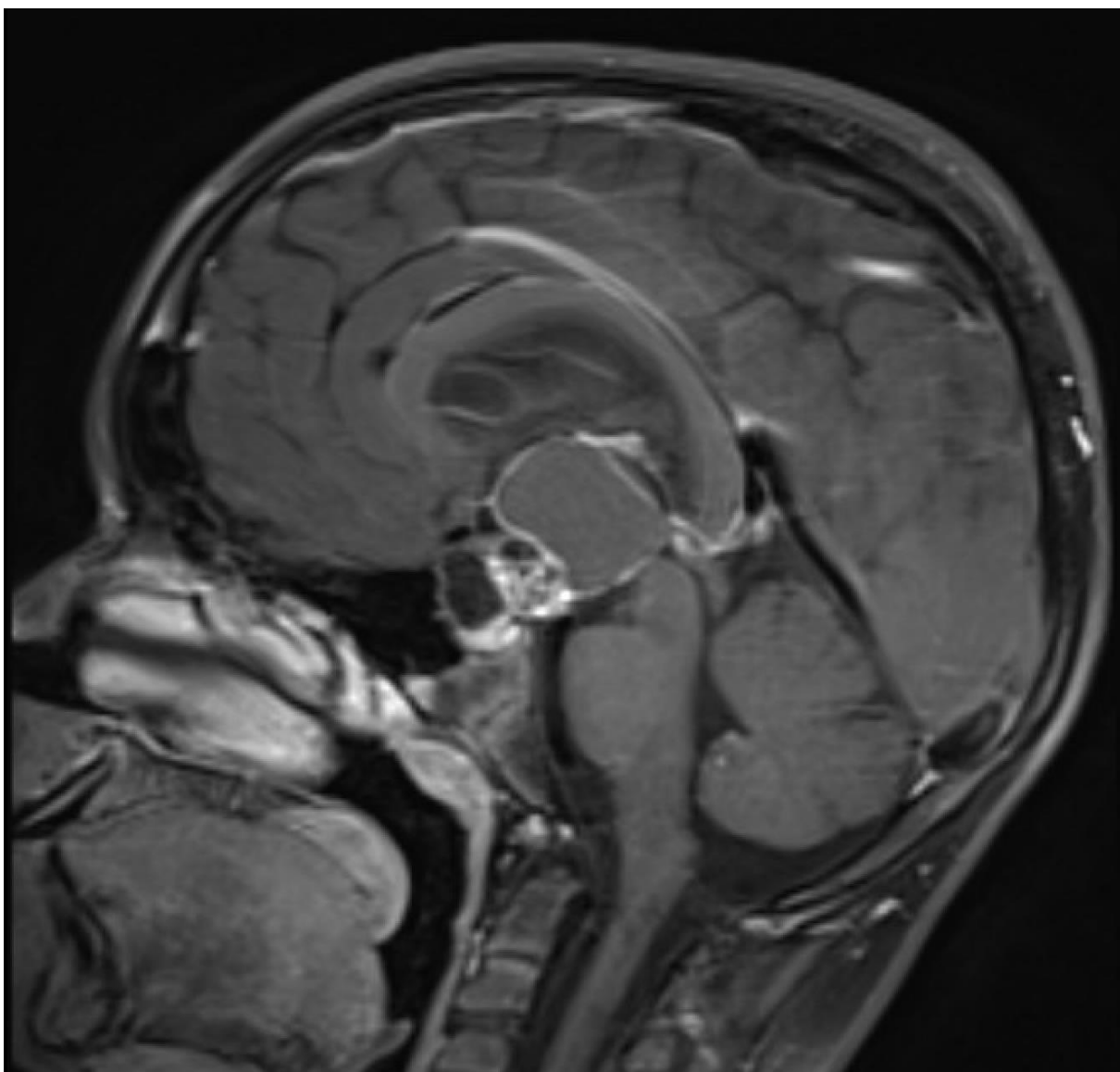


Fig 1. A) Preoperative MRI demonstrating 3.5 x 3.3 x 2.5cm calcified suprasellar mass with significant ventriculomegaly. **B)** Post-operative imaging demonstrating gross total resection of suprasellar mass.

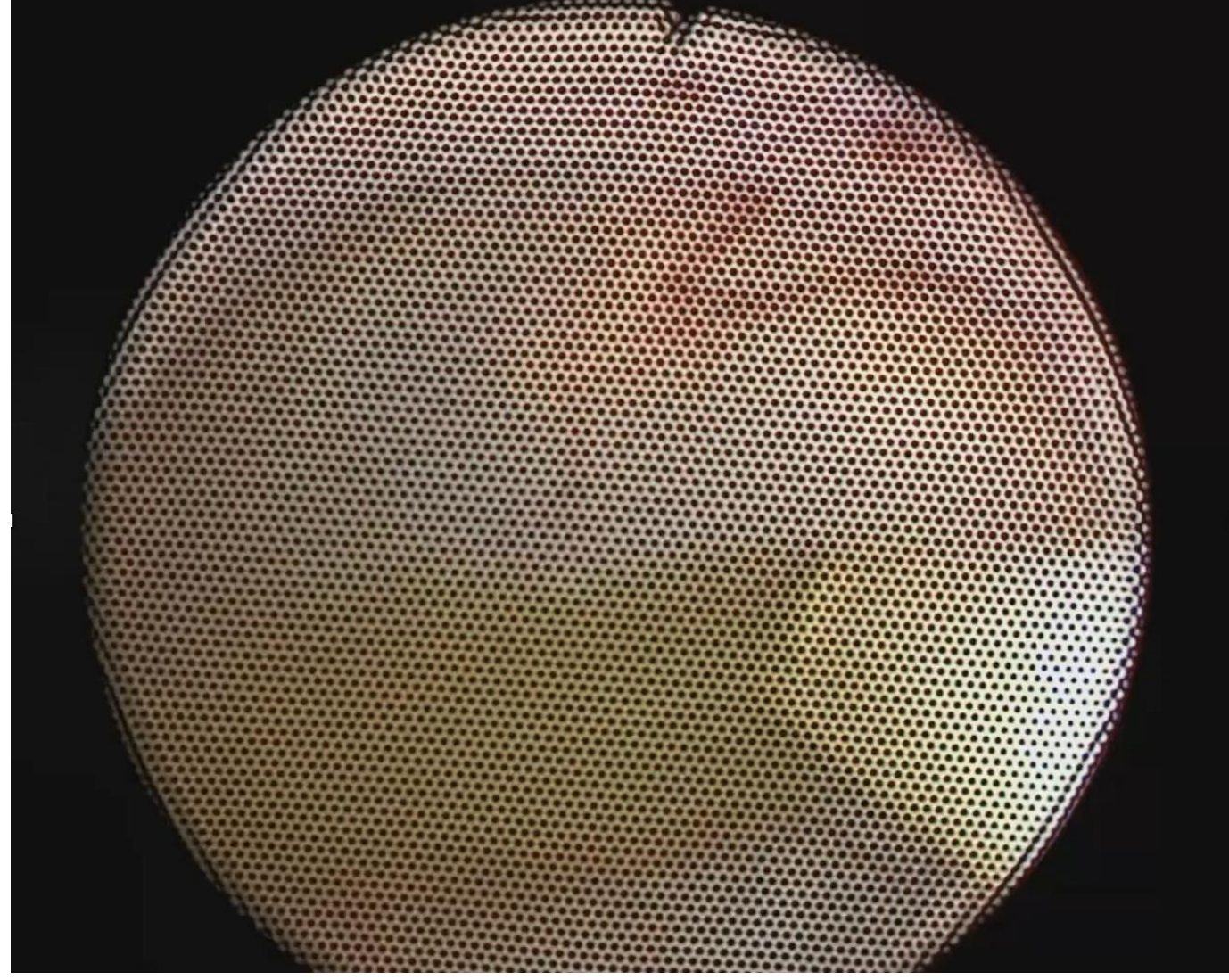
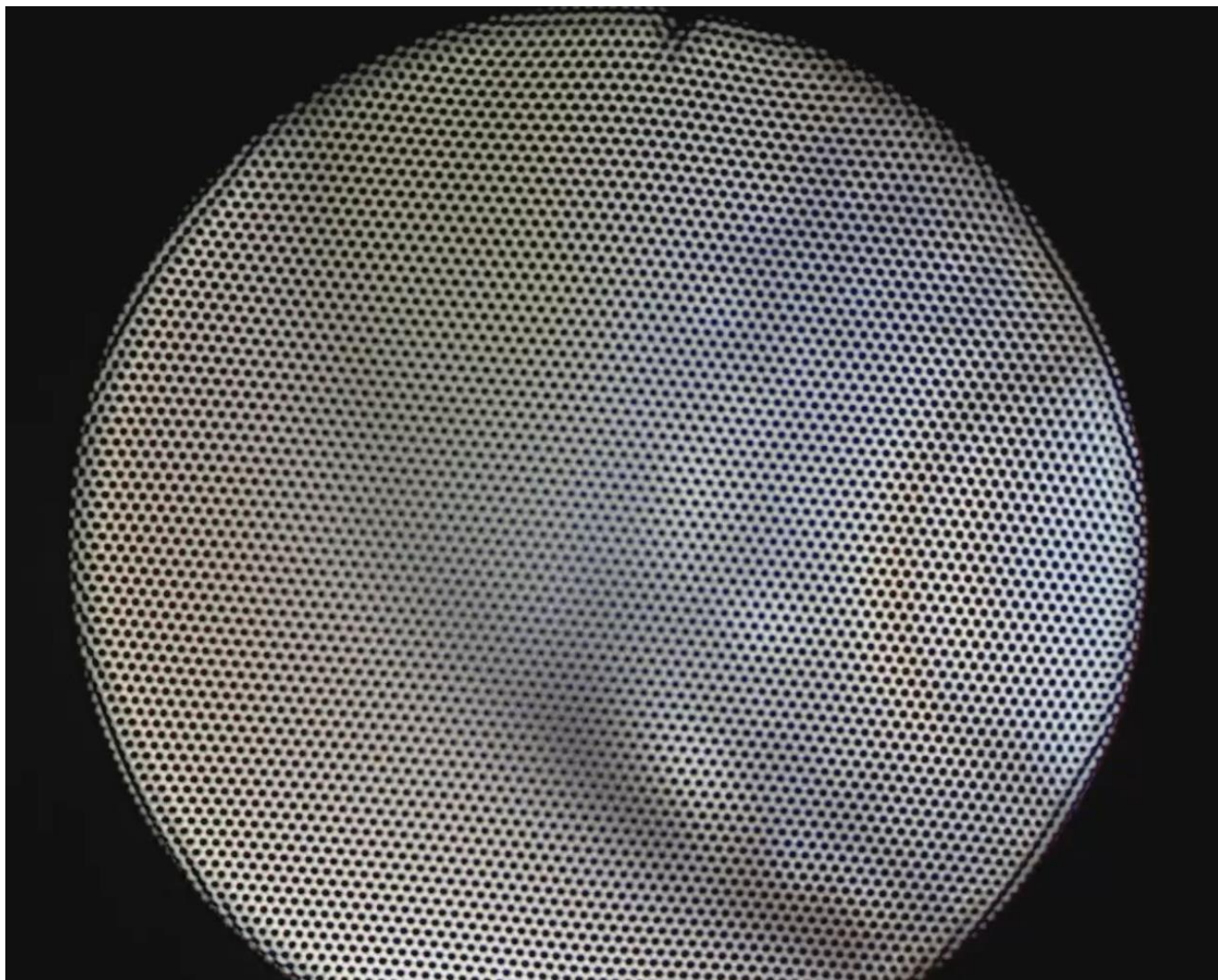
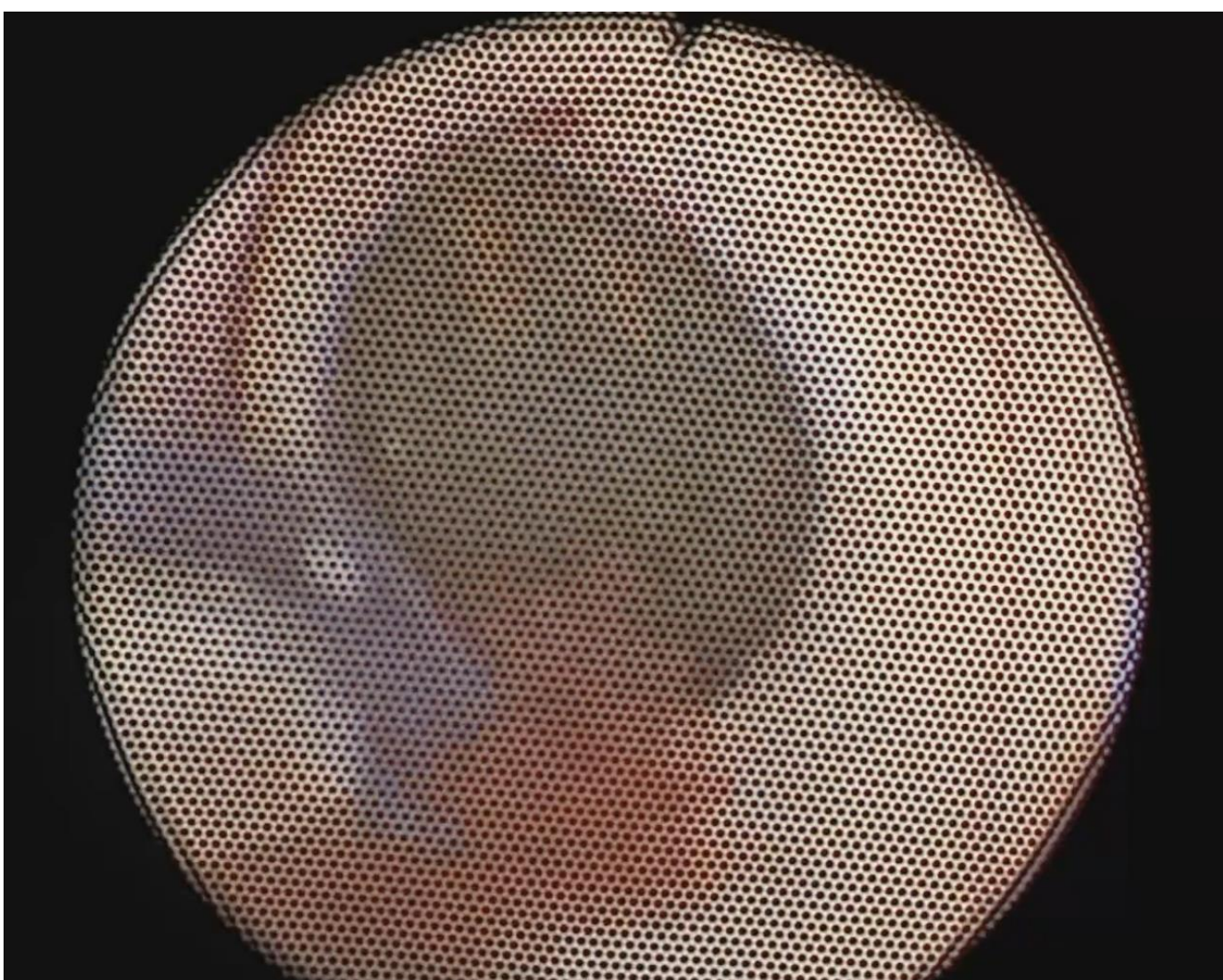


Fig 2. A) A flexible endoscope is passed through Kocher's point into the left lateral ventricle. The tumor cyst can be visualized through the foramen of Monroe. **B)** The fogarty balloon and irrigation are used to gently dissect the capsule away from the surrounding hypothalamus. **C)** The cyst is punctured and cyst fluid is aspirated for decompression.

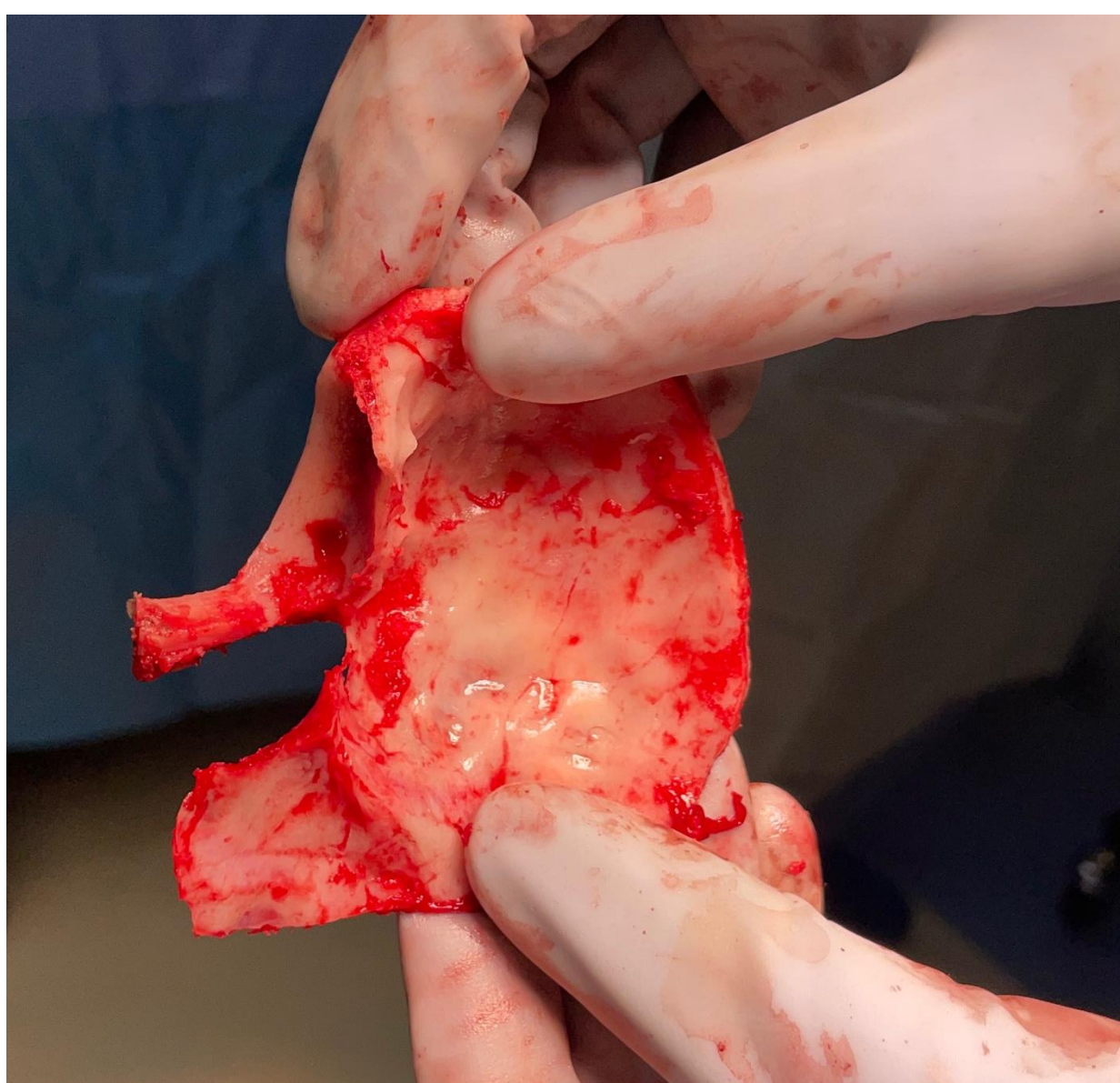


Fig 3. A) Bone flap from one piece modified orbitozygomatic craniotomy. **B)** Resection is performed using a subfrontal approach through the opticocarotid triangle.

Conclusions

A combined transcortical endoscopic and open approach can improve the safety and efficacy of craniopharyngioma resection for tumors with extension into the third ventricle.

Contact

Casey Jarvis MD
Department of Neurosurgery,
Boston Children's Hospital
300 Longwood Ave, Boston MA 02115
Casey.jarvis@childrens.harvard.edu
617-355-0441



Boston Children's Hospital