



Eyebrow Supra-orbital Trans-frontal Sinus, Trans-lamina Terminalis Approach for 3rd Ventricular Choroid Plexus Papilloma Resection

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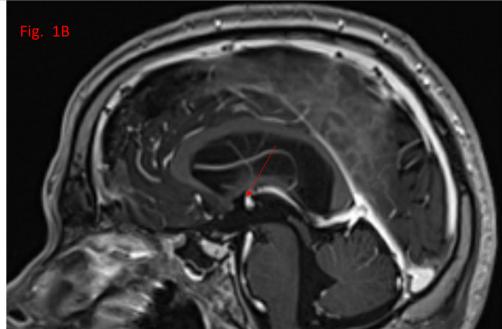
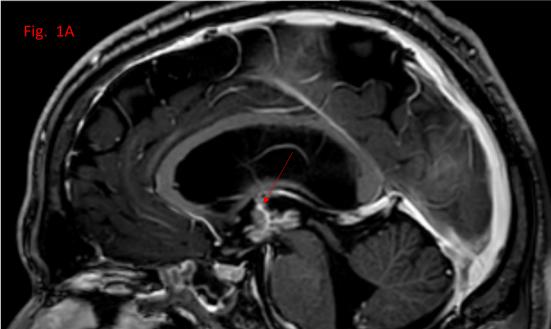


Fig. 2

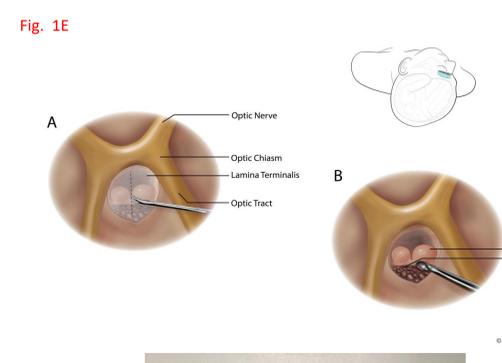
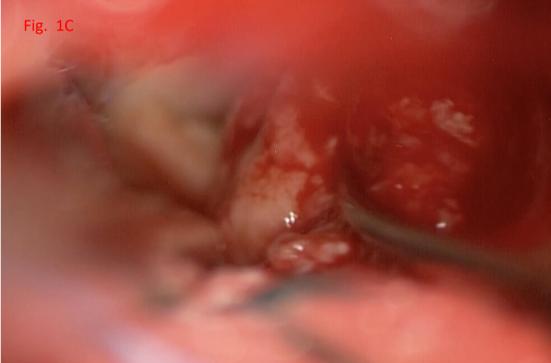
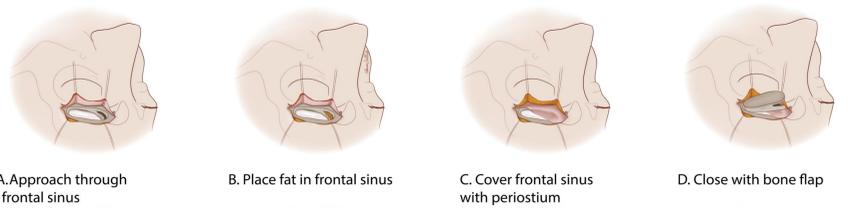
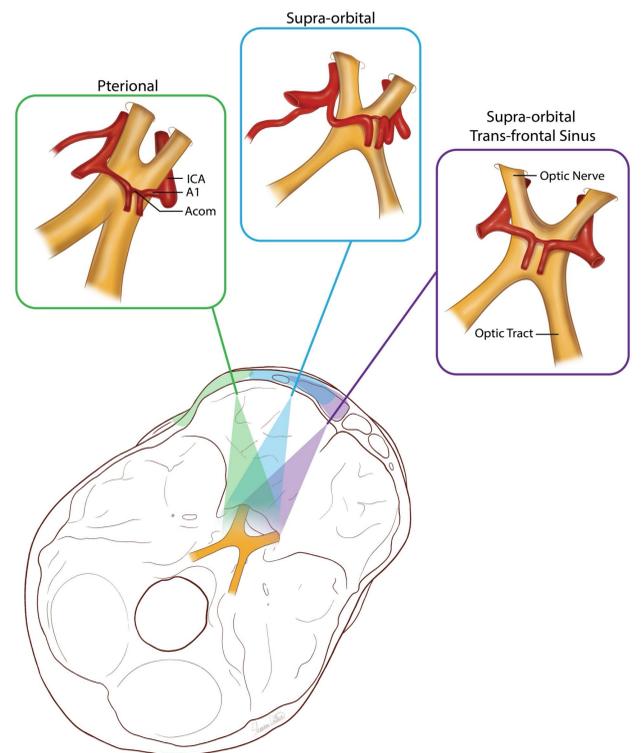


Fig. 3



Introduction

Choroid plexus papillomas (CPP) are rare tumors in adult population, constituting less than 1% of intracranial masses. 70% of adult CPP are located in the 4th ventricle. 3rd ventricular CPP are rare. Differential diagnoses of masses in 3rd ventricle include metastasis, colloid cysts, ependymoma, chranio-pharyngioma, lymphoma and congenital cysts.

Methods and Materials

A 40yr old gentleman with a history of nasal squamous cell carcinoma presented with headaches and ventriculomegaly. On further workup, he was found to have a 3rd ventricular mass with a vascular pedicle (Fig. 1A, red arrow). Due to his history of nasal carcinoma and ventriculomegaly, it was decided to proceed with resection of the 3rd ventricular mass. Various surgical approaches was considered. Since he had prior endonasal surgery for his cancer, a vascularized naso-septal flap was not available. Patient was bald, therefore, a larger incision was avoided. It was decided to proceed with an eyebrow supra-orbital, trans-frontal sinus, sub-frontal, trans-lamina terminalis approach was adopted to remove the mass.

Results

An eyebrow supra-orbital incision was made. A pericranial flap was elevated. A supra-orbital craniotomy with medial extension into the frontal sinus was performed (Fig. 2). Orbital roof was flattened, dura opened, CSF released, sub-frontal approach was performed, lamina terminalis identified. Acom is pulled up and after coagulating and cutting the lamina terminalis (LT) (Fig. 1E), 3rd ventricle was accessed. Based on the MRI, we anticipated a vascular pedicle at the roof of the 3rd ventricle. Care was taken to accidentally pull the tumor out and cause hemorrhage. Tumor had good margin with the walls of the 3rd ventricle and appeared to be attached only through the vascular pedicle. Tumor had the appearance of choroid plexus. Tumor was circumferentially coagulated to shrink it (Fig. 1C). Once the pedicle was identified, an assistant gently pulled it (Fig. 1D), while the primary surgeon first coagulated it, and then cut to perform gross total resection of the mass. Lamina terminalis opening was covered large pieces of Surgicel. No fixed retraction was used throughout the case. Frontal sinus was gently packed with abdominal fat, making sure not block the frontal recess which was result in frontal mucocele development. Frontal sinus defect was covered with periosteal flap (Fig. 2).

Discussion

Here, we present a rare case of 3rd ventricular choroid plexus papilloma. Our modified eyebrow, extended supra-orbital trans-frontal sinus approach provides a more midline access to LT as opposed to a standard supra-orbital and pterional craniotomy. It provides tumor access along its length without compressing the optic apparatus. Although, biocornal craniotomy provides an excellent midline access to LT, it has cosmetic complications for patient like ours who was bald (Fig. 1F). An endoscopic endonasal approach is reasonable for lesions in the anterior 3rd of 3rd ventricle. It was not possible in our case due to lack of vascularized flap because of his sinonasal resection.

Conclusions

Eyebrow, extended supra-orbital, trans-frontal sinus, trans-lamina terminalis approach provides direct access to isolated 3rd ventricular lesions in carefully selected patients with excellent cosmetic outcomes.

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