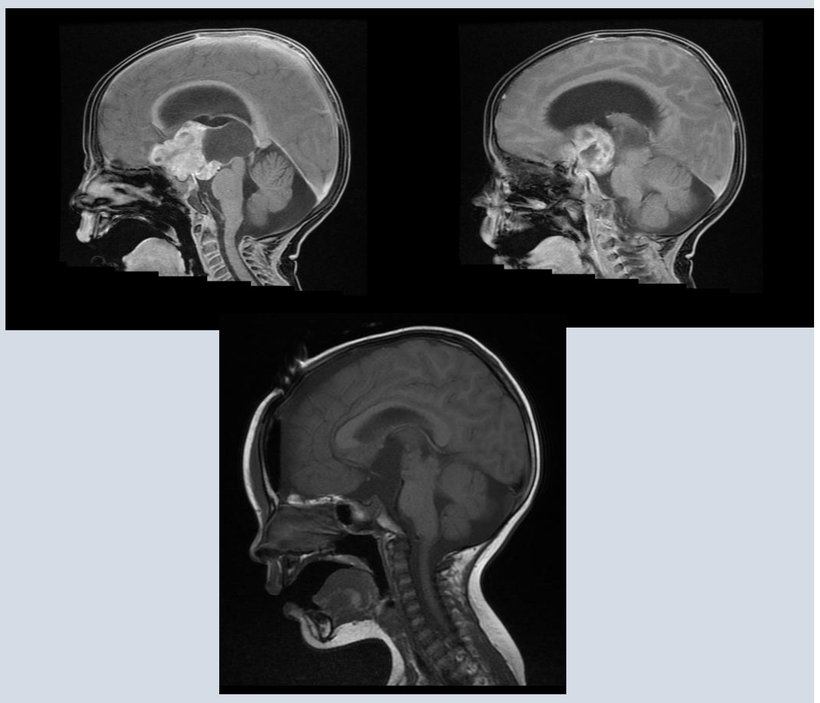
Endonasal Resection of Large and Giant Pediatric Craniopharyngioma: Treatment and Outcomes in Patients with Hi-Flow CSF Leaks

In this comprehensive pediatric series, the skull base repair algorithm of using an NSF in all cases large or giant pediatric craniopharyngioma with "high flow" intraoperative leaks was effective in mitigating adverse events.

INTRO: The endoscopic expanded endonasal approach (EEA) has been shown to be a safe and effective surgical technique in the resection of pediatric craniopharyngioma. Cerebrospinal fluid (CSF) leaks are among the most common complications of this approach. Here we review consecutive skull base resections using EEA in pediatric patients at a single institution, to identify potential risk factors for this surgical complication.

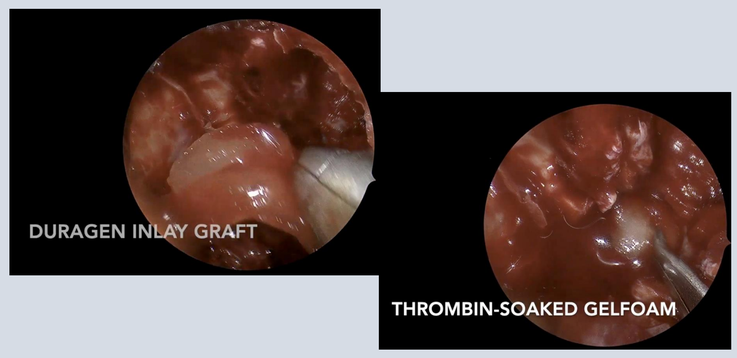


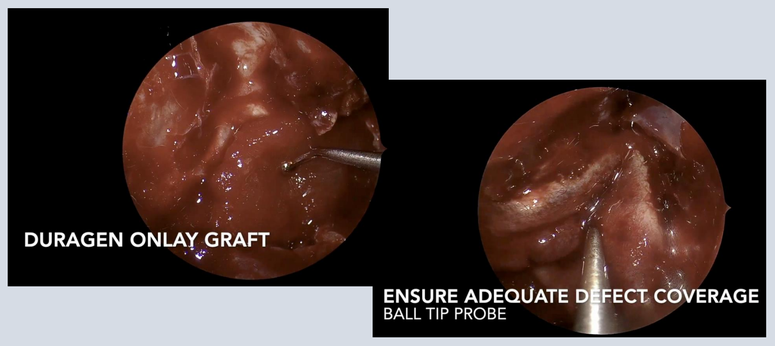
METHODS: A retrospective chart review was conducted on pediatric patients at a single institution for patients 19 years-old and under, who underwent an EEA for resection of large or giant craniopharyngioma from 2015 – 2022. All patients in this cohort had a minimum of 2-year follow-up.

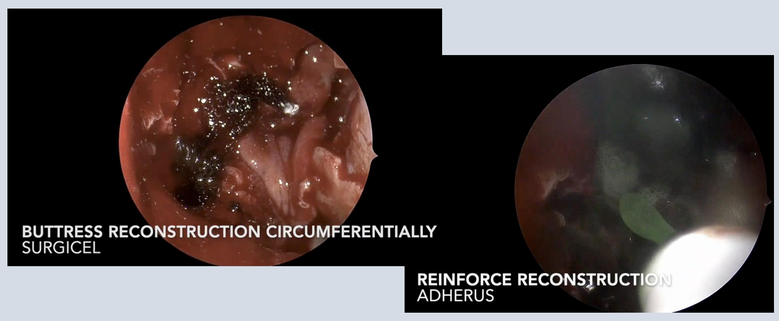
RESULTS:
Our series included 22 patients who underwent 30 surgical interventions over an 8-year period (2015-2022). Patients with either large (>3.5cm) or giant (>5cm) tumors with current follow-up who had all surgical interventions at our facility were included for final analysis. This cohort included 22 patients (12 females and 10 males) with a mean age of 9.29 years (SD=4.4). A total of eight tumors were classified as being Giant.

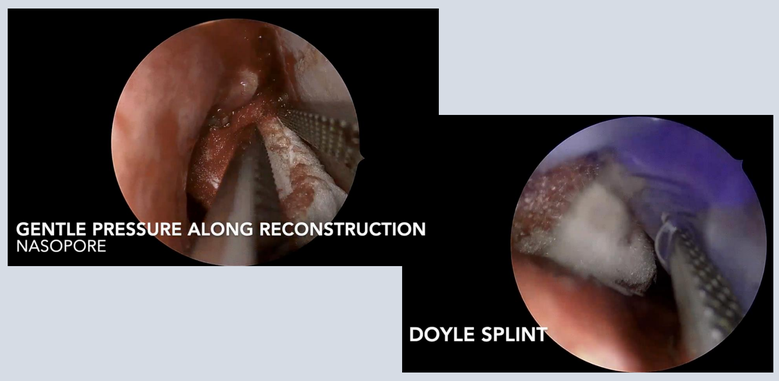
All tumors involved the third ventricle. All patients experienced an expected intraoperative CSF leak, of which 22 (100%) were "high-flow" leaks. Nasoseptal flaps were used for skull base reconstruction in all cases. 4 patients experienced a postoperative CSF leak, 3 of which had meningeal irritation. 1 required a lumbar drain and 3 required re-exploration. None required subsequent surgery and none had complications related to the CSF leak at long-term follow-up . All patients had a complete resection of the tumor.

All patients presented with pituitary compromise and had both preoperative and postoperative obesity. None had hypothalamic injury. All had panhypopituitarism following surgery. One patient had bilateral optic nerve pallor both pre and postoperatively. Three had normal pre and postoperative visual exams. All had baseline postoperative motor, cranial nerve, and cognitive exams. There were no significant complications.









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