TITLE:

Endoscopic Transventricular Approach for Treating Cystic Craniopharyngiomas - Case series

Introduction and objectives:

Craniopharyngiomas (CPs) constitute 1.2-4.6% of all intracranial tumors. They infiltrate the surrounding structures, making surgical removal challenging. A minimally invasive approach may mitigate surgical risks while providing effective disease control. The goal of this study was to analyze the outcomes of patients with craniopharyngioma treated with endoscopic transventricular approach (ETA), followed by radiotherapy (RT).

Methods:

We retrospectively reviewed 16 patients treated at ULS Santa Maria (Lisbon, Portugal) between July 2013 and July 2025. They presented with cystic craniopharyngiomas extending into the IIIrd ventricle and underwent ETA followed by fractionated stereotactic RT or proton beam therapy (PBT). Patient outcomes and recurrence rates were analyzed.

Results:

Sixteen patients were included, 6 children and 10 adults with an average age of 11,3 and 56,4 years, respectively. The most common presentation was headache (75,0%) and visual deficits (62,5%). Eight patients presented with papilledema. Obstructive hydrocephalus was present in 11 cases (68,8%). All patients underwent ETA with cyst aspiration, capsule fenestration and biopsy. Septostomy was performed in 6 patients. In 1 patient a shunt was placed. An intracystic catheter connected to an Ommaya reservoir was placed in 3 patients. Hydrocephalus resolved in all patients. Five patients developed post-operative endocrinological deficits: hypothyroidism (3/16; 18,8%), diabetes insipidus (2/16; 12,5%) and hypocortisolism (1/16; 6,3%). Patients were submitted to fractionated stereotactic RT or PBT on average 2,3 months after the surgical procedure. Three patients experienced recurrences after a median follow-up of 3,4 months. At a median follow-up of 32,6 months there was residual tumor stability, without cyst recurrence in 81,3% patients (13/16). All 13 patients improved from visual deficits. Four children developed new endocrinological deficits during follow-up.

Conclusion:

ETA is a safe, minimally invasive and effective procedure to treat CP, avoiding hypothalamic damage. Adjuvant RT allows good long-term control of residual disease, without significant side effects.