Subdiaphragmatic craniopharyngioma

Most craniopharyngiomas can be classified as either “prechiasmatic” or “retrochiasmatic” according to their growth patterns.

In cases with prechiasmatic growth (n = 14), most tumors were easily separated from the undersurface of the third ventricle floor with the exception of a small area at the top of the tumor where tumor-glial interfaces occurred. Pathological examination of the tough tumor surface demonstrated well-organized collagen tissue, which is compatible with diaphragma sellae. All tumors of this type had intrasellar components, suggesting a subdiaphragmatic origin for this tumor type. On the other hand, tumors with retrochiasmatic growth (n = 11) demonstrated a prefixed chiasm, and most of the surface excluding areas exposed to ventricular cerebrospinal fluid showed tumor-glial interfaces. With the exception of three, all tumors of this type lacked intrasellar components, and the diaphragm sellae was depressed and free of tumor, suggestive of a supradiaphragmatic infundibular origin of the tumor.

Growth pattern is closely correlated to the origin of the tumor, whether it is above or below the diaphragm sellae. In craniopharyngiomas with prechiasmatic growth, the major portion of the tumor could be resected by traction. These tumors are candidates for the transsphenoidal approach if the sphenoid sinus is pneumatized. Tumors with retrochiasmatic growth, which are not covered by diaphragm sellae and contact brain tissue directly, are easily torn by traction and the tumor-glial interface should be carefully dissected under direct vision [1)].

From 1990-2008, 90 patients (64 adults and 26 children) underwent TSS for craniopharyngioma (34 subdiaphragmatic and 56 supradiaphragmatic). TSS was performed as the initial surgery in 62 patients and as the second procedure in 28 patients. RESULTS:

Total tumor removal was achieved in 70 (77.8%) patients, subtotal removal was achieved in 17 (18.9%), and partial removal was achieved in 3 (3.3%). Total removal was more often accomplished in initial surgery (56 of 62 [90.3%]) than second surgery (14 of 28 [50.0%]). Postoperative deterioration of anterior pituitary hormones developed in 31 of 47 (66.0%) patients with preoperative normal function or partial anterior pituitary loss. New-onset postoperative diabetes insipidus (DI) developed in 35 of 67 (52.2%) patients. Of 61 patients with preoperative visual loss, 55 (90.2%) noted some degree of visual improvement after surgery. The early postoperative mortality rate was 2.2% (2 of 90 patients). Cerebrospinal fluid (CSF) leakage occurred in 11 patients (12.2%), and 5 patients required surgical repair of the leak. Tumor recurrence was observed in seven (7.8%) patients during a mean follow-up period of 4.6 years.

Most craniopharyngiomas including the supradiaphragmatic type can be removed safely by TSS with a good outcome, although endocrine function frequently worsens after surgery. Dural fascia graft is a very effective technique to prevent CSF leaks, especially after eTSS [2)]

Complications

Recurrence

Solanki et al. present a technique for the persistent external drainage of intractable subdiaphragmatic cystic recurrences with the creation of a fistula between the cyst wall epithelium and epithelium on the nasal cavity, using a pedicled nasoseptal flap as a conduit. The long-term efficacy of endoscopic transnasal external fistulation (ETEF) in controlling cystic recurrences in this patient group is addressed through a retrospective observational review of 3 male patients aged 8, 22, and 45 years with the diagnosis of recurrent cystic subdiaphragmatic craniopharyngioma who underwent the ETEF procedure between 2006 and 2009. Clinical presentation, neuroimaging, surgical interventions, and follow-up were recorded. The main outcome measure was cyst reaccumulation on MRI. Patients had a mean follow-up of 76 months (range 5-8 years) with no incidence of cystic recurrence. Follow-up imaging revealed sustained cyst involution contrary to the usual recurrent enlargement commonly seen in this patient group. Symptoms of headache and visual field defects improved post-ETEF. Long-term theoretical complications of a persistent fistula such as intracranial abscess, meningitis, or CSF leak were not observed. ETEF promotes nasalization of cystic recurrences in subdiaphragmatic craniopharyngioma. It is safe and effective, causing long-term involution of cysts and can be considered a definitive procedure [3].

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