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Quadrigeminal arachnoid cyst: is endoscopic treatment “the best”?

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Background: Arachnoid cysts account for 1% of intracranial mass lesions. Quadrigeminal cistern arachnoid cysts are even rarer lesions, as there incidence is 5- 10% of all arachnoid cysts. Surgical management options include craniotomy and cyst excision or fenestration, cystocisternostomy, ventriculocisternostomy and cystoperitoneal shunt. Similar procedures can be performed endoscopically and successful treatment of quadrigeminal arachnoid cyst has been reported through this procedure as well. However, there is no consensus about the treatment of choice for such rare group of patients. In this backdrop, we analysed 18 cases of arachnoid cysts treated at our institute between 2002 and 2012. Based on our rich experience and review of literature we have tried to formulate guidelines for the treatment of quadrigeminal arachnoid cysts.

Methods: We retrospectively analysed 18 patients of quadrigeminal cistern arachnoid cyst for clinical presentation, demographic profile, management and outocome. Age ranged from 29 days to 50 years (mean 17 years). All the patients underwent computed tomography and magnetic resonance imaging of the brain. Cysts were classified into 3 subtypes based on MRI findings. Surgical intervention was carried out in all the patients.

Results: Two patients had type 1 cysts, 4 had type 2 cysts and 12 had type 3 cysts. Two patients (type 1) underwent endoscopic third ventriculostomy (alone) and 4 patients underwent ventriculo-peritoneal shunt placement primarily. Craniotomy and cyst wall excision along with ventriculocystostomy and cystocisternostomy was done in 4 patients with type 2 cysts (primarily in 3 patients and after shunt in one patient), and endoscopic fenestration of cysts to the sub-arachnoid space or the ventricles and endoscopic third ventriculostomy was done in 7 patients with type 3 cysts. Two patients with type 3 cysts underwent only endoscopic ventriculocystostomy and cystocisternostomy without endoscopic third ventriculostomy. The follow up period ranged from 6 months to 48 months (mean 23.7 ± 12.3 months).

Conclusion: Quadrigeminal plate arachnoid cysts when symptomatic require some form of surgical intervention. We believe that endoscopic fenestration of cyst with cystocisternostomy or cystoventriculostomy when combined with third ventriculostomy is the procedure of choice for such patients. We do not recommend placement of solitary ventriculoperitnoeal shunt. Operative re-exploration should be planned only after proper clinico-radiological correlation and not on the basis of imaging findings alone, as sometimes the cysts fail to regress but symptoms improve.