Ventriculocystocisternostomy

Suprasellar arachnoid cyst treatment with ventriculocystocisternostomy is an an effective and durable treatment for symptomatic patients in most cases [1].

Suprasellar and third ventricular size does respond to the surgical intervention at long-term follow-up [2].

Technique

The endoscope is introduced through a point about 3 cm lateral to the midline and about 1 cm anterior to the coronal suture. As determined on preoperative sagittal MRI, the position of the point varies according to the anatomy of the cyst and ventricle so that we could obtain an optimal trajectory to make the aqueduct visible through the foramen of Monro and the endoscope could be inserted along a trajectory that would enable fenestration of both the apical and basal cyst membranes with minimal anterior- posterior manipulation.

Generally, the endoscope is inserted along a line directed to the imaging line which connected the bilateral external auditory foramens, but the direction deflected slightly to the median line to prevent injury to the thalamus. After using standard anatomical landmarks to confirm visual entry into the right lateral ventricle, the endoscope was advanced to the foramen of Monro, allowing identification of the bluish-colored apical dome of the arachnoid cyst.

First, small blood vessels on the cyst wall were obliterated and a fenestration in its apical membrane was made using scissors. Second, the capsule of the cyst was shrunk down with the aid of an endoscopic bipolar coagulator until the aqueduct is clearly visible, which can prevent the persistent redundant wall of the cyst from free-floating in the third ventricle. Third, the cyst wall was resected as much as possible to make a large fenestration in its apical membrane using scissors.

Later the endoscope is advanced into the cyst, allowing visual inspection of the displaced cisternal contents.

The endoscope is further advanced to the basal cyst membrane, where a cystocisternotomy is performed anterior to the basilar artery (BA).

At this point multiple fenestrations should be made in avascular portions of the membrane by using blunt biopsy forceps and scissors between cranial nerves exiting the brainstem. The fenestrations should be as large as possible and as many as possible. In some cases, the lower portion of the cyst formed a relatively flat membrane between the clivus and the pons, and a second fenestration is easy and safe to perform. In the cases where the inferior wall of the cyst extended for some considerable distance and is plastered to the clivus before being reflected onto the basilar artery and the pons, a cystocisternotomy can be per- formed by making a fenestration against the clivus in the lower portion of the cyst which is attached to the clivus [3].

Video

<html><iframe width="420" height="315" src="https://www.youtube.com/embed/qQHH2do6jwM" frameborder="0" allowfullscreen></iframe></html>

Understanding the variable anatomy of Liliequist's membrane is important as a surgical landmark [4].

Results with ventriculocystocisternostomy are believed superior to those of ventriculocystostomy [5].

A navigated laser-assisted endoscopic ventriculocystocisternostomyhas the advantage of facilitated guidance of the neuronavigation system to the target area when normal anatomical landmarks are not visible [6].

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