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Simplification of shunt catheter using neuroendoscope for multilobular hydrocephalus caused by intraventricular cysts and trapped fourth ventricle

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Object: Development of neuroendoscope has given us more varieties of hydrocephalic treatment, although many catheters used to be inserted into independent cavities of multilobular hydrocephalus at the times that a shunt was the only solution of hydrocephalus. In this paper, we have retrospectively reviewed the cases treated with neuroendoscope to simplify shunt catheter for multilobular hydrocephalus in children.

Methods: There were 29 cases resulted in successful simplification of shunt catheter, consisting of 15 cases treated with neuroendoscopic fenestration for intraventricular cysts and 14 cases with the stenting for aqueductal occlusion combined with trapped fourth ventricle, in our hospital from April, 2006 to December, 2011.

Results: Mean ages were 4.3 years old (between 1 month and 16 years old) in cases with the fenestration and 3.2 years old (between 1 month and 8 years old) in ones with the stenting respectively. In some cases of intraventricular cysts, we should approach in twice or more times to confirm the connection of all ventricular cavities with large fenestrations to prevent following adhesion and to search the best route of shunt catheter without a solitary cavity. In almost cases of aqueductal occlusion combined with trapped fourth ventricle, the stenting was performed at the timing of shunt malfunction or infection. A few cases with slit ventricle were approached through the enlarged fourth ventricle with suboccipital craniotomy. There were no postoperative complications in both neuroendoscopic treatments.

Conclusion: Neuroendoscopic treatment for multilobular hydrocephalus in children has become safe and various. Our method for reducing the number of shunt catheter could be easier and safer in hydrocephalic management.