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Stellenwert endoskopischer Eingriffe für eine erfolgreiche Shuntexplantation bei langzeit shuntversorgten Kindern

Role of endoscopic procedures for successful shunt removal in previously long term shunted patients

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Objective

Shunt dependant children often have to undergo more than 20 operations throughout their lives. Therefore, shunt dependency is a question of tremendous importance. Different endoscopic procedures were developed to prevent shunting in case of obstructive hydrocephalus. We report about 4 children, in which endoscopic procedures were successfully used to remove or cut down on the number of pre-existing shunts.
Material and methods: 4 previously shunted children with hydrocephalus presented between 3/2003 und 3/2004 with signs of shunt failure. 2 boys (12 and 17 years old) suffered from aqueductal stenosis, a 7 year old girl from Chiari-malformation type I and a 2 year old boy from a posthemorrhagic multi loculated hydrocephalus. The latter child presented with 4 ventricular and 2 peritoneal catheters at time of admission. The other 3 children had single ventriculo-peritoneal shunt systems. Indication for surgery was based on clinical and radiological findings, in the child with multi loculated hydrocephalus and 4 implanted shunt systems, ventriculography was performed before surgery.

Results

In both children with aqueductal stenosis, the shunt was successfully explanted after endoscopic third ventriculostomy. Microsurgical decompression of the posterior fossa led to successful removal of the shunt system in the girl with Chiari-malformation. In the case of the boy with the multi loculated hydrocephalus three endoscopic procedures including cyst fenestration, aqueductoplasty, pellucidotomy and third ventriculostomy finally led to successful removal of 3 of the 4 shunt systems.
Discussion: knowledge of the definite underlying cause for each and individual hydrocephalic patient is of utmost importance to define best treatment.

In complicated cases, ventriculography may help to understand the pathophysiology by demonstrating non-communicating components. Even in long term shunted children, direct treatment of the obstructive cause may lead to successful shunt removal. Endoscopy helps to reach this goal by providing different treatment options, i.e. aqueductoplasty, ventriculostomy, cystostomy and pellucidotomy.