Neurosurgical forum
Letters to the editor

Quadrigeminal cyst

To The Editor: I read with interest the article by Cinalli et al. (Cinalli G, Spennato P, Columbano L, et al: Neuroendoscopic treatment of arachnoid cysts of the quadrigeminal cistern: a series of 14 cases. Clinical article. J Neurosurg Pediatr 6:489–497, November 2010). The authors reported on 14 patients with arachnoid cysts of the quadrigeminal cistern who had been treated endoscopically. The authors classified the quadrigeminal arachnoid cysts (QACs) according to their anatomical and radiological appearance. As the authors state, the most frequent form (Type I) extended infratentorially and supratentorially with a dumbbell shape. Type II cysts were confined to the infratentorial space and were associated with the most severe and acute form of hydrocephalus. Type III cysts presented a significant asymmetric expansion toward the temporal fossa. Ten patients underwent an endoscopic procedure as primary treatment and 4 as an alternative to shunt revision. In 6 cases, the first endoscopic procedure was ventriculocystostomy (VC) together with endoscopic third ventriculostomy (ETV). In the other 8 cases, the first endoscopic procedure was VC alone.

If the repeat endoscopic procedures are excluded, complete success (resolution of symptoms and signs of intracranial hypertension and Parinaud sign, normalization of head circumference growth, and control of hydrocephalus and cyst size with no further surgical procedure) was achieved in 7 (50%) of their 14 cases. Therefore, it does not seem appropriate to conclude that QACs and the associated hydrocephalus can be effectively treated by endoscopy; this approach allows the patient to be shunt independent in more than 78% of the cases. If endoscopy is used as a first option, the success rate of endoscopic procedures observed in this series was 90%.

The authors claimed that they report the first series on neuroendoscopic management of QACs in children, including very young children, those never treated before (first presentation), and those who had already been treated with shunt procedures. Unfortunately, the authors have missed our series of endoscopically managed QACs, published in 2009. Seventeen patients with QACs had undergone surgery between 2000 and 2007 at our institution. Five patients had undergone shunting prior to neuroendoscopic surgery. There were 9 girls and 7 boys ranging in age from 7 days to 17 years (mean 40 months). All patients had hydrocephalus. The QACs were bulging into the lateral ventricles in all patients. Therefore, VC was performed in the right lateral ventricle, the endoscope was advanced into the third ventricle, and ETV was done in 13 patients. In 3 patients, ETV was not possible, and only VC could be performed. We used rigid endoscopes in all patients. Holoprosencephaly, porencephaly, Chiari malformation Type II, encephalocele, and temporal ep- endymal cyst were the associated brain lesions in 2, 2, 1, and 1 patients, respectively. The QACs had either decreased or disappeared on the follow-up MR images except for 1 patient. A second VC was performed in that patient 3 years later. Subdural fluid collection and a CSF fistula were seen as complications in our patients. Of the 8 patients who were 6 months old or younger, only 1 patient did not need a ventriculoperitoneal shunt. Endoscopic procedures were successful in all patients older than 6 months of age (p = 0.005). To our knowledge, there had been no study containing psychometric evaluation in patients with QAC before. Of the 10 patients with QAC presenting in their infancy, 9 had developmental delay. Of the 3 patients who underwent Wechsler Intelligence Scale for Children–Revised testing, only 1 had a normal IQ.

In conclusion, the success rate of endoscopic procedures in the management of QACs is not as high as that of suprasellar arachnoid cysts. As the authors reported in their series, multiple endoscopic surgeries may be needed to render the patients shunt free.

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The author reports no conflict of interest.

References

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Epidural abscess

To The Editor: We read with great interest the recent article by Kanu et al. (Kanu OO, Ukpomwan E, Bankole O, et al: Intracranial epidural abscess of odontogenic origin. Case report. J Neurosurg Pediatr 7:311–315, March 2011). The authors describe their management of a child with odontogenic epidural abscess/epidural em-

pyema, a rare form of localized intracranial suppuration. They correctly state that the key principles of operative management are as follows: surgical evacuation of the pus collection; eradication of the primary source (preferably, we would add, during the same anesthesia); and the administration of high-dose intravenous antibiotics.

In the largest documented CT-era experience of intracranial suppurative disorders over a 2-decade period,3,6 odontogenic intracranial pus collections were reported in several series: 973 brain abscess patients (n = 9, 0.9% [2 pediatric]);2 82 epidural empyema patients (n = 1, 1.2%);6 699 subdural empyema patients (n = 5, 0.7% [2 pediatric]);2 and 22 infratentorial empyema patients (n = 0, 0%).3 indicating these pus collections are an extremely rare occurrence, even in a region where intracranial suppurative was prevalent.

We, however, disagree with the authors regarding the method of surgical drainage; that is, that epidural empyemas are usually drained via a craniotomy. Because epidural empyemas, in our experience,4,6 are well-localized pus collections, usually liquid, and generally not loculated, drainage is facilitated via limited cranial access procedures such as a bur hole or limited craniectomy with no visualization of the neomembrane and/or capsule. Following a significant reduction of the infectious burden through surgical drainage and simultaneous primary source eradication, ongoing intravenous antibiotic therapy is usually adequate to treat the residual infection; resultant complete involution of the capsule is usually noted on follow-up contrast-enhanced CT scans.

Kanu et al. mention a “controversy regarding excision of the epidural abscess wall especially when it is deep seated.” We are aware of the reported controversy regarding excision of brain abscess wall (“capsulectomy”), but to our knowledge, this has never been reported for epidural empyemas.3 First, epidural empyemas, given their location, are always superficial. Second, in our experience neomembrane and subsequent capsule formation have never been an issue during or after surgical drainage. Following limited cranial access, the liquid pus collection is usually easily drained, the cavity is washed out with antibiotic irrigation until a clear effluent is present, and a soft drain connected to a closed drainage system is left in situ. We do not perform a capsulectomy and/or neomembrane removal because the dura mater serves as an excellent anatomical barrier, and, in addition to the risk of dural penetration, removal of the neomembrane/capsule, in our opinion, does away with the patient’s “reactive response” to wall off and contain the pus collection.

On the other hand, following craniotomy and dural opening in a chronic cranial subdural empyema, the surgeon is confronted with an outer nonvascular membrane that is adherent to the inner surface of the dura (easily removed), the pus collection, and an inner neovascularized membrane that is adherent to the cortical surface and, according to our experience, should never be removed because postoperative hemorrhage and cortical damage are the typical sequelae.5,6 We draw the authors’ attention to the largest CT series of epidural empyemas reported to date, in which, using the aforementioned surgical treatment paradigm, none of the 70 patients who underwent surgical drainage of their pus collections required repeat drainage or developed a surgical hematoma requiring evacuation.7 From our extensive experience with intracranial suppurative, craniotomy in the presence of an epidural empyema is usually reserved for an associated intradural pathology such as subdural empyema and or brain abscess.2,4

Furthermore, in resource-poor regions the use of CT only may result in uncertainty when the epidural pus found does not match the imaging results and when the possibility of a subdural collection cannot be ruled out intraoperatively, resulting in the dilemma of whether the dura mater should be opened or not. If subdural pus is found, the cranial opening should be expanded for effective drainage of the subdural collection. If no subdural pus exists, there is the danger of infection spreading to the subdural space. However, in our experience this is extremely infrequent when adequate drainage of the epidural pus collection, with concomitant intravenous antibiotic therapy, is provided. Therefore, in this situation we believe that it is better to open the dura than to overlook a potentially fatal subdural empyema.4

Finally, the authors should be commended because their report serves to remind the contemporary neurosurgical audience of a rare form of intracranial suppurative that is not seen in developed regions today.

Disclosure

The authors report no conflict of interest.

References