Choroid plexus cyst of the third ventricle

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Choroid plexus cysts are frequent benign intraventricular lesions that infrequently cause symptoms, usually in the form of obstructive hydrocephalus [1].

Difficult to detect on routine investigations and may lead to the wrong choice of treatment.

These instances are even less common in the adult population.

Although these lesions may float freely within the ventricle leading to intermittent obstruction of the cerebrospinal fluid (CSF) circulation at variable points in a single patient, such a phenomenon has only been documented using cranial ultrasonography and observed intraoperatively by Azab et al. [2].

When warranted, treatment seeks to reestablish cerebrospinal fluid flow and does not necessarily require resection of the cyst itself. Hence, endoscopic exploration of the ventricles with subsequent cyst ablation is the current treatment of choice for these lesions.

The extension of the cyst and whether the hemisphere involved is dominant or not, determines the ideal endoscopic trajectory [3].

Case reports

1998

In a 6-week-old boy a ventriculoatrial shunt was implanted for correction of an active asymmetrical hydrocephalus of unknown origin. When he was 3 months of age a water-soluble contrast CT ventriculography revealed a noncolloid cyst localised predominantly in the upper portion of the III ventricle. At that time the ventricular catheter obstructed with choroid plexus was removed; new bilateral catheters in a parieto-occipital region were implanted. In the course of the next 4 years, first the atrial catheter had to be extracted and then the peritoneal catheter was changed, in both cases because of obstruction. Periods of normal life alternated with periods of transient and intermittent symptoms of increased intracranial pressure, papilloedema, and myoclonic jerks. Repeated computed tomography (CT) and magnetic resonance imaging (MRI) showed stabilised hydrocephalus with an enlarged left lateral ventricle. When the boy was 16 years old MRI revealed a choroid plexus cyst in the left lateral ventricle 2 cm in diameter, with a ballvalve type of obstruction of the foramen of Monro. CT stereoendoscopic resection of the wall of a large cyst filled with cerebrospinal fluid was performed, and two additional adnexal small cysts were coagulated using the bipolar coagulator, Diomed 25 laser and scissors; the symptoms then regressed, except for superior bilateral altitudinal anopsia. Light and electron microscopy of the cyst wall is reported. The cyst was composed of collagenic connective tissue lined with a basal lamina lacking in epithelial cells. The preoperative and postoperative MRI are presented. According to the literature this case is only the third ever described in a child [4].

2001

A 53-year-old woman with a history of hypertension who sustained a blunt traumatic injury to the occipital region and subsequently developed a progressively worsening right-sided headache. Radiological examinations over the next 2 years revealed an enlarged right lateral ventricle and, ultimately, a choroid plexus cyst in its anterior and middle third, near the foramen of Monro, which is a rare location for these lesions. The cyst was removed en bloc, and follow-up examinations showed a significant improvement in her headache and a minimal differences in size between right and left ventricles [5].

2002

Unusual small choroid plexus cyst obstructing the foramen of monroe [6].

2007

A 2-year-old boy. The patient presented with markedly declining mental status, vomiting, and bradycardia over the course of several hours. Computed tomography scans demonstrated enlarged lateral and third ventricles with sulcal effacement, but no obvious mass lesions or hemorrhage. There was no antecedent illness or trauma. A right frontal external ventricular drain was placed in the patient, resulting in decompression of only the right lateral ventricle. Magnetic resonance (MR) imaging demonstrated a lobulated cyst arising from the choroid plexus of the left lateral ventricle and herniating through the foramen of Monro into the third ventricle, occluding both the foramen of Monro and the cerebral aqueduct. The patient underwent an endoscopic fenestration of the cyst, and histological results confirmed that it was a choroid plexus cyst. Postoperative MR imaging showed a marked reduction in the cyst size. The cyst was no longer in the third ventricle, the foramen of Monro and the aqueduct were patent, and the ventricles were decompressed. The patient was discharged home with no deficits. This case is illustrative because it describes this entity for the first time, and more importantly highlights the need to obtain a diagnosis when a patient presents with acute hydrocephalus without a clear cause [7].

2008

A 3-year-old female child presented with rapid loss of consciousness for the first time. Computed tomography and magnetic resonance imaging scans only showed triventriculomegaly. Endoscopy revealed a cyst of the third ventricle, which was excised, leading to good recovery [8].

2009

11-week-old girl presented to the emergency department with a 1-day history of projectile vomiting, lethargy, and dysconjugate gaze. Hydrocephalus was confirmed on head CT. During hospitalization, the symptoms resolved with a decrease in ventricular size. One week later, the patient again presented with similar symptoms, and MR images with 3D-constructive interference in steady state

sequences revealed that a cyst was blocking the third ventricle. The patient subsequently underwent endoscopic fenestration of the cyst with resolution of hydrocephalus and symptoms [9].

2011

A patient was seen in the emergency department with fevers, acute onset of headaches, and lethargy. Computed tomography demonstrated dilated lateral and third ventricles with a relatively normal-sized fourth ventricle. An external ventricular drain was placed. Despite decompression of the lateral ventricles, follow-up magnetic resonance imaging demonstrated a dilated third ventricle with a possible thin-walled mass extending from the foramen of Monro into the posterior portion of the third ventricle. The patient subsequently underwent endoscopic fenestration of the cyst with endoscopic third ventriculostomy. Although two other cases of symptomatic choroid plexus cysts of the third ventricle have been previously reported in children, our paper highlights the possibility of endoscopic cyst fenestration together with a third ventriculostomy as a treatment option in cases where the cyst extends into the posterior third ventricle. Despite adequate decompression, we were concerned that due to CSF pulsations the remnant cyst wall could result in acute aqueduct obstruction and subsequent hydrocephalus [10].

2013

In a case of a 25-year-old female patient with a 3-week history of intermittent headaches, the computerized tomography (CT) of the head detected supratentorial hydrocephalus, with enlargement of the lateral and third ventricles. Magnetic resonance imaging revealed a homogeneous cystic lesion in the third ventricle. A right-sided, pre-coronal burr hole was carried out, followed by endoscopic exploration of the ventricular system. A third-ventriclostomy was performed. With the aid of the 30-degrees endoscope, a cyst arising from the choroid plexus was visualized along the posterior portion of the third ventricle, obstructing the aqueduct opening. The cyst was cauterized until significant reduction of its dimensions was achieved and the aqueduct opening was liberated. Postoperative recovery was without incident and resolution of the hydrocephalus was confirmed by CT imaging. The patient reports complete improvement of her headaches and has been uneventfully followed since surgery. The video can be found in http://youtu.be/XBtj_SqY07Q. (http://thejns.org/doi/abs/10.3171/2013.V1.FOCUS12332). [11].

2015

Azab et al. endoscopically treated a case of third ventricular choroid plexus cyst in a 9-year-old boy who presented with headaches and disturbed conscious level. He underwent a transventricular approach through a single burr hole.

During the procedure, the cyst was noted to intermittently herniate into the lateral ventricle and recede back through the foramen of Monro. Endoscopic ablation of the cyst was achieved and followed by endoscopic third ventriculostomy (ETV). The patient made an excellent recovery after the procedure [12].

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