Cerebellopontine angle arachnoid cyst case reports

2022

An 11-year-old boy developed corneal hypoesthesia in the left eye following surgical debulking of a cerebellopontine angle arachnoid cyst. He was diagnosed with Mackie Stage 1 neurotrophic keratopathy. Due to his hypoesthesia, he had developed recurrent microbial keratitis and corneal ulceration secondary to foreign bodies sustained during contact sports. At presentation, he reported photophobia and dry eye symptoms, corrected-distance visual acuity was 6/18, Cochet-Bonnet aesthesiometer demonstrated reduced corneal sensation (5-15mm), Schirmer's I test was 15mm, and in vivo confocal microscopy showed a complete absence of a subepithelial corneal plexus. He underwent indirect, minimally invasive, corneal neurotization using the ipsilateral supratrochlear nerve and a sural nerve autograft. Subjective improvement in corneal sensation was noticed by the patient at 2 months. Objective improvement, measured on Cochet-Bonnet aesthesiometer, was first observed at 6 months with steady stepwise improvement to 20-35mm at 21 months. Importantly, due to the increase in corneal sensation, the patient did not develop any further corneal complications. At 12 months, dry eye symptoms resolved and Schirmer's I test improved to 30mm. At 15 months, corrected-distance visual acuity improved to 6/5 and in vivo confocal microscopy demonstrated evidence of corneal reinnervation with nerves running through the subepithelial space surrounded by healthy and active keratocytes.

Conclusions and importance: Corneal neurotization represents an exciting development in the armamentarium for the treatment of neurotrophic keratopathy and can be considered for younger patients with early-stage disease [1)].

A 40-year-old man presented with right HFS for the past 3 years. Preoperative magnetic resonance imaging revealed a right cerebellopontine angle cystic mass with high intensity on T2-weighted images, low intensity on T1-weighted and diffusion-weighted images, and no contrast effects. Cyst excision and decompression of the facial nerve using a lateral suboccipital approach to monitor abnormal muscle response (AMR) resulted in permanent relief. The cyst was histologically compatible with an arachnoid cyst.

Lessons: In the present case, when the cyst was dissected, the AMR disappeared and no offending arteries were detected around the root exit zone. Therefore, the cyst itself was responsible for HFS, for which AMR was useful. Limited cases of HFS due to arachnoid cysts without neurovascular compression have been previously reported. The authors suggested that pulsatile compression by the cyst results in facial nerve hyperactivity and secondary HFS [2)].

A 16-year-old patient with an arachnoid cyst of the cerebellopontine angle with an isolated auditory deficit was treated surgically. The follow-up was marked by a Full recovery of hearing after surgical treatment. Arachnoid cyst of the cerebellopontine angle is rare in the pediatric population. early surgical management help to increase the chances of recovery [3)].

2021

A unique case of a young girl who developed headache and ataxia as a result of an intracranial infratentorial dermoid cyst and an arachnoid cyst of the cerebellopontine angle. Complete removal of the dermoid cyst and drainage of the cyst leads to a full recovery. Dermoid and arachnoid cysts are two pathologies with a possible common embryogenic factor, early surgery can give a better outcome in the long term [4)].

An unusual case of acquired torticollis in an 8-month-old female infant with a large cerebellopontine angle arachnoid cyst. Symptoms resolved after surgical fenestration. Non-traumatic acquired or new-onset torticollis requires brain imaging, and posterior fossa lesions are an important entity in the differential for pediatric clinicians [5)].

2017

A 4-year-old boy with global developmental delay, esotropia, moderate aortic root dilation, genu valgum, and in-toeing gait. MRI brain for evaluation of neonatal hypotonia revealed a left cerebellopontine angle arachnoid cyst. He referred on newborn hearing screening, and diagnostic auditory brainstem response (ABR) showed left profound retrocochlear hearing loss. Surgical intervention for the arachnoid cyst was deferred, with spontaneous resolution at age two years without hearing recovery. CMA revealed a novel, de novo 5.1 Mb microdeletion of 22q13.31q13.33 not involving SHANK3, a gene typically deleted in PMS.

As diagnostic sensitivity improves, smaller chromosomal imbalances will be detectable related to milder or different phenotypes. They present two patients with novel deletions of chromosome 22q13 associated with multiple congenital anomalies and features distinct from PMS [6)].

2016

A 14-year-old previously healthy girl presented to our outpatient clinic with a 6-weeks history of frontal headache. They typically would start in the occipital region and then radiate bifrontally. The neurological examination was unremarkable. Magnetic resonance imaging revealed an extra-axial bilateral lesion in bilateral cerebellopontine angle, larger on left side. The lesions were homogeneously hypointenese on T1-weighted imaging and hyperintense on T2-weighted imaging without evidence of contrast enhancement and without evidence of restriction on diffusion-weighted imaging. No surgical treatment was indicated.

Bilateral arachnoid cysts of the cerebellopontine angle are very infrequent and the main indication for surgery is the existence of clinical symptoms or neurological deficit coincident with the locations of the cysts [7)].

2015

Petscavage et al. present the case of a 49-year-old woman who presented with acute, nonprogressive left sensorineural hearing loss and benign positional vertigo that was associated with an arachnoid cyst of the cerebellopontine angle. The presence of the lesion was documented by MRI examinations that were obtained 7 years apart. Arachnoid cysts at the cerebellopontine angle are usually found incidentally on MRI performed for unrelated reasons. However, if the arachnoid cyst displaces or compresses adjacent cranial nerves, symptoms may result. They review the salient imaging features of arachnoid cysts that allow their differentiation from other lesions of the cerebellopontine angle [8)].

Gurkas et al. report a patient with a CPA arachnoid cyst. He presented with cranial nerve palsies and mirror movements found in upper extremities. They postulated that CPA arachnoid cyst compressing the brain stem and the pyramidal decussation may lead to mirror movements, and conclude that mirror movements can be associated with CPA arachnoid cyst [9)].

A 71-year old woman presenting with a right hemifacial spasm and an ipsilateral arachnoid cyst. Preoperative magnetic resonance imaging findings suggested a neurovascular compression caused by displacement of the facial-acoustic complex and the anterior inferior cerebellar artery by the cyst. Cyst excision and microvascular decompression of the facial nerve achieved permanent relief. The existing cases of arachnoid cysts causing hemifacial spasm are reviewed and the importance of a secondary neurovascular conflict identification and decompression in these cases is highlighted [10)].

Trigeminal Neuralgia in a Child With a Cerebellopontine Angle Arachnoid Cyst [11)].

Sharma et al. report two cases of bilateral CPA AC with their pathophysiology and review of literature [12)].

2014

Visagan et al. first report a CPA arachnoid cyst causing TGN in a paediatric case [13)].

2012

A 62-year-old man complaining of vertigo and progressive hearing loss was diagnosed with an arachnoid cyst at the right cerebellopontine angle based on magnetic resonance imaging (MRI). In this case-report, we used computed tomography (CT) cisternography to determine whether the arachnoid cyst communicated with the cerebrospinal fluid (CSF) space. Differentiating between a noncommunicating and communicating arachnoid cyst is required for presurgical evaluation. CT cisternography is a less used but reliable radiological technique for determining the presence of

communication, and could therefore be included in the diagnostic work-up of arachnoid cysts. The patient underwent surgery with fenestration of the arachnoid cyst; his vertigo improved and his hearing was preserved [14].

Superior oblique myokymia (SOM) is a rare disorder with an unclear pathogenesis. We describe a first reported case of chronic disabling SOM in association with a cerebellopontine angle arachnoid cyst, who had a gradual and eventually complete symptomatic resolution 8 months following cyst marsupialisation. Among other aetiologies, SOM may therefore be due to abnormal CSF flow dynamics resulting in structural compromise of the nerve [15].

2011

A 7-month-old infant presented to the hospital with a history of delayed milestones and an abnormal increase in head circumference. Magnetic resonance images and CT scans of the brain showed a large CSF cavity involving the entire brainstem and a right CPA arachnoid cyst causing obstruction of the fourth ventricle and dilation of the lateral and third ventricles. Cerebrospinal fluid diversion was performed by direct communication from the syringobulbia cavity to the left lateral ventricle and from the left lateral ventricle through another ventricular catheter; external ventricular drainage was performed temporarily for 5 days. Communication between the syrinx and arachnoid cyst was confirmed. Clinically, there was a reduction in head circumference, and serial MR imaging of the brain showed a decrease in the size of the syrinx cavity and the ventricle along with opening of the normal CSF pathways. The postoperative course was uneventful, and no further intervention was necessary. On follow-up of the child at 3 years, his developmental milestones were normal. Surgical intervention for this condition is mandatory. The appropriate type of surgery should be performed on the basis of the pathophysiology of the developing syringobulbia [16].

A 47-year-old woman complaining of sharp and lancinating pain in the right periauricular and submandibular areas visited our hospital. Swallowing, chewing, and lying on her right side triggered the pain. Her neurologic examination revealed no specific abnormalities. The results of routine hematologic and blood chemistry studies were all within normal limits. Carbamazepine and gabapentin were given, but her symptoms persisted. Her pain was temporarily relieved only by narcotic pain medication. MRI showed an arachnoid cyst located in the right cerebellomedullary cistern extending to the cerebellopontine cistern. Cyst removal was performed via a right retrosigmoid approach. Lateral suboccipital craniotomy was performed using the right park-bench position. After opening the dura and cerebellopontine angle, the arachnoid cyst was exposed. The arachnoid cyst was compressing the flattened lower cranial nerves at the right jugular fossa. Her symptoms resolved postoperatively. Two months after the operation, she was completely free from her previous symptoms [17].

2009

A rare case of cerebellopontine angle arachnoid cyst manifesting as hemifacial spasm (HFS) is reported. The patient is a 42-year-old woman with 10-month history of left HFS. A preoperative

magnetic resonance imaging scan showed a well-demarcated area, hypointense on T1-weighted imaging and hyperintense on T2-weighted imaging, in the left cerebellopontine angle, without contrast enhancement, resembling an arachnoid cyst. METHODS: The cyst was excised with microneurosurgical technique and the facial, vestibular, and acoustic nerves were completely decompressed from the arachnoid wall. RESULTS: The postoperative course was uneventful, and the left HFS disappeared immediately. Histologically, the cyst wall was a typical arachnoidal membrane. Ten months after surgery, the patient is symptom free. CONCLUSION: It is well-known that in approximately 10% of cases, trigeminal neuralgia can be caused by a space-occupying mass. However, the fact that HFS can also be caused by organic lesions as well as neurovascular compression is less well-known. Although the occurrence of tumor compression causing HFS has been previously recognized, cerebellopontine angle cysts have very rarely been described. The observation of a patient with a cerebellopontine angle arachnoid cyst causing HFS prompted us to review the literature relative to HFS caused by an organic lesion rather than neurovascular compression [18)].

2007

a patient with a CPA arachnoid cyst who presented with hoarseness (unilateral vocal cord paralysis) and dysphagia secondary to isolated compression of the vagus nerve. This rare presentation of a CPA arachnoid cyst has not been reported previously. CLINICAL PRESENTATION: The patient described is a 50-year-old man who experienced a precipitous onset of hoarseness and dsyphagia. An otolaryngological evaluation revealed right-sided vocal cord paralysis. Brain magnetic resonance images displayed a cystic mass at the right CPA and anterior displacement of the vagus nerve. INTERVENTION: The patient underwent retrosigmoidal craniectomy with cyst fenestration, which was well tolerated. Intraoperatively, Cranial Nerve X was found splayed over the cyst and was consequently decompressed. CONCLUSION: Postoperatively, the patient's dysphagia completely resolved. However, the results of a laryngeal electromyocardiogram revealed minimal evidence of recovery in the affected vocal fold, and the patient continued to suffer from dysphonia. Although CPA arachnoid cysts are rare, they should be considered when a patient presents with an isolated cranial nerve palsy. Treatment options include cyst fenestration and cranial nerve decompression [19)].

2006

A 51 years old female is reported who was diagnosed by IRM of a 4,5 x 2 cm arachnoid cyst, situated on the left cerebello-pontine angle, with tinnitus, hearing loss and vertigo that mimicked a Meniere's attack. We think thees benign tumors must be included in the differential diagnosis of Meniere's disease because they can be indistinguishable from it clinically [20)].

1992

Higashi et al., reported the first case of hemifacial spasm with an ipsilateral cerebellopontine angle arachnoid cyst in a 25-year-old man. The patient underwent evacuation of the arachnoid cyst by a partial membranectomy without any beneficial effect, and finally got rid of the hemifacial spasm by reexploration and microvascular decompression of the facial nerve. The operative findings and results revealed that the cyst produced deviation of the ipsilateral posterior inferior cerebellar artery, which was secondarily in contact with the root exit zone of the facial nerve [21)].

A 17-month-old girl who developed two cerebellopontine angle arachnoid cysts after posterior fossa surgery for a brain tumor. After surgical excision of the tumor the child developed a left cerebellopontine angle cyst. This was treated through a suboccipital craniectomy by evacuating the cyst and excising the cyst wall. Two months later the child developed a second right-sided cerebellopontine angle cyst. It was treated by inserting a cystoperitoneal shunt. This article presents the case with radiological evidence of the acquired nature of the cysts. It also includes a brief review of the clinical presentation, pathogenesis, radiological evaluation, and surgical treatment of arachnoid cysts with emphasis on those occurring in the posterior fossa [22)].

1991

A case of an arachnoid cyst in the cerebellopontine angle manifesting as contralateral trigeminal neuralgia is presented. Decompression and excision of the lesion resulted in total relief of symptoms. The possible causes of contralateral trigeminal neuralgia are briefly reviewed, and the surgical treatment of this entity is discussed [23)].

1987

A case of a cerebellopontine angle arachnoid cyst spontaneously disappeared is reported. A 1-year-and-11-month old boy was suffered from sudden onset of left facial palsy. CT scan demonstrated dilatation of left internal auditory canal and a cystic lesion in the left cerebellopontine angle. Neurological examination disclosed only left facial palsy and left hearing loss. There was no signs and symptoms of increased intracranial pressure. He was followed up by CT scan. Repeated CT scan showed non-enhanced cystic lesion, the attenuation value of which was similar to that of cerebrospinal fluid. The cyst expanded gradually, and the brain stem was severely compressed. Then operation was planned under the diagnosis of left cerebellopontine angle arachnoid cyst about 2 years after the onset. But CT scan performed before operation showed disappearance of the cyst. Without operation the patient was followed by CT scan. There is no recurrence of the cyst. Natural history of arachnoid cyst will be well understood with repeated CT scan [24)].

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