Cerebellopontine angle arachnoid cyst

Epidemiology

Middle cranial fossa is the most common site of intracranial arachnoid cysts, followed by the cerebellopontine angle (CPA) and suprasellar area.

Etiology

Gardner et al., in 1960 attributed a embryonal atresia of the fourth ventricle as the cause of "arachnoid cyst" of the cerebellopontine angle [1].

Clinical features

They usually remain asymptomatic so they are often diagnosed incidentally during radiological evaluation for other reason [2].

As these cysts enlarge, they may compress surrounding structures and cause neurological symptoms. Patients may present with vague, nonspecific symptoms such as headache and ataxia. [3].

These cysts also can cause dysfunction of specific cranial nerves, including III, IV, VI (to cause diplopia), V (to induce trigeminal neuralgia), VII (to cause congenital or acquired facial nerve paralysis), VIII (to cause hearing loss, tinnitus, vertigo), X (to result in hoarseness and dysphagia) [4] [5] [6].

Gurkas et al. report a patient 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 [7].

Diagnosis

Cerebellopontine angle arachnoid cyst diagnosis

Differential diagnosis

A cerebellopontine angle lesion could be a vestibular schwannoma, meningioma, epidermoid cyst, or less likely, arachnoid cyst, metastasis, lower cranial nerves schwannoma, lipoma, hemangioma, paraganglioma, or vertebra-basilar dolichoectasia. Primary meningeal melanocytoma is a rare neoplasm, especially when it occurs at the cerebellopontine angle [8].

MRI is helpful in differentiating arachnoid cysts from those cystic lesions. If a pathologic cause of a

retrocochlear disorder is suspected in a patient with a unilateral sensorineural hearing loss and tinnitus, MRI should be performed to evaluate the cerebellopontine angle.

On MRI, arachnoid cysts appear as smooth-surfaced lesions that in all magnetic resonance sequences exhibit a signal characteristic of CSF. In contrast, epidermoid cysts show mixed signals on FLAIR images and high signals on diffusion weighted images. Neurenteric cysts present high signals on T1-weighted images and cystic schwannomas show some foci of contrast enhancement on T1-weighted postcontrast images [9) 10)].

The rising of a neuroglial cyst from the nerve sheath is a finding that brings other possible origins of neuroglial cysts into consideration [11)].

Treatment

The optimal surgical management of arachnoid cysts remains controversial.

Although surgery for these entities is controversial, arachnoid cysts can be treated surgically with open craniotomy for cyst removal, fenestration into adjacent arachnoid spaces, shunting of cyst contents, or endoscopic fenestration.

Alaani et al. support a conservative management approach to the majority of these cysts [12)].

The definitive treatment for these arachnoid cysts is a retrosigmoid suboccipital craniotomy and microsurgical resection and fenestration of the cyst walls [13)].

Outcome

The risks of surgery are few, but complications (meningitis, hemiparesis, oculomotor palsy, subdural hematoma, grand mal epilepsy, and death) have been reported [14)]. [15) 16)].

Olaya et al. report the first case of complete recovery from sensorineural hearing loss and facial weakness following endoscopic fenestration [17)].

Case series

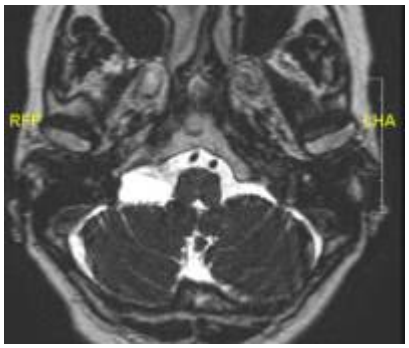
Cerebellopontine angle arachnoid cyst case series

Case reports

Cerebellopontine angle arachnoid cyst case reports.

Cerebellopontine angle arachnoid cyst cases from the General University Hospital of Alicante

Both vestibulocochlear nerves (VIII) with normal and symmetrical caliber and morphology are identified, with no evidence of areas of focal thickening that suggest the existence of intra or extracanalicular vestibular schwannoma. The round image up to 21mm in the right cerebellopontine angle follows the fluid signal in all the sequences and displaces the origin of the the facial nerves (VII), and the vestibulocochlear nerves (VIII), anteriorly. Findings are suggestive of a right cerebellopontine angle arachnoid cyst.



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