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АРАХНОИДАЛЬНАЯ КИСТА МОСТОМОЗЖЕЧКОВОГО УГЛА С МАСС-ЭФФЕКТОМ: КЛИНИЧЕСКОЕ НАБЛЮДЕНИЕ

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Введение. Арахноидальные кисты – доброкачественные образования, составляющие около 1 % от всех объемных образований головного мозга. В большинстве случаев они бессимптомны, однако если кисты оказывают масс-эффект на окружающие ткани, то в этом случае проводится хирургическая фенестрация.

Цель исследования: описать клинический случай и лечение пациентки с арахноидальными кистами мостомозжечкового угла.

Материалы и методы. Пациентка, 53 лет, направлена в отделение нейрохирургии Больницы общего профиля KAT Attica (Греция) для хирургического лечения. Больная жаловалась на покалывание и каузалгию в левой половине лица, расстройство артикуляции (дизартрия), хрипоту (дисфония), проблемы с глотанием твердой пищи и жидкостей (дисфагия), шум в ушах и боль (вдоль глазной ветви тройничного нерва).

Результаты. Пациентке провели ретросигмоидальную краниотомию с фенестрацией кисты и одновременной установкой шунта по Торкильдсену. Полное удаление капсулы кисты не сделано, поскольку образование плотно прилегало к соседним структурам. После операции у пациентки наблюдалось улучшение артикуляции и глотания.

Заключение. Несмотря на доброкачественность, кисты мостомозжечкового угла могут проявляться клинически в результате сдавливания соседних структур. Простой фенестрации кисты может быть достаточно для исчезновения симптомов.

Ключевые слова: арахноидальная киста, мостомозжечковый угол, черепные нервы, клинический случай, хирургическая фенестрация

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Mass phenomena from a cerebellopontine angle arachnoid cyst: case report

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Introduction. Arachnoid cysts are benign lesions comprising about 1 % of all intracranial space occupying lesions. The majority are asymptomatic, while surgical intervention, consisting of fenestration, is suggested in the presence of mass phenomena.

The aim of the study – to present the case of a patient with arachnoid cysts in the cerebellopontine angle and its treatment.

Materials and methods. A 53-years old female patient was referred to our Department of Neurosurgery for the surgical management of a cerebellopontine angle mass. The patient reported tingling sensation and causalgia of her left hemiface, dysarthria, hoarseness, difficulty swallowing solid food and liquids, tinnitus and pain distributed along the ophthalmic branch of the trigeminal nerve.

Results. The patient was subjected to retrosigmoid craniotomy with fenestration of the cyst and concurrent placement of a Torkildsen shunt. No complete resection of the capsule of the cyst was attempted, due to its tight adhesions to the adjacent structures. Postoperatively, there was an improvement in the dysarthria and swallowing of the patient.

Conclusions. Cerebellopontine angle cystic lesions while histologically benign, may become clinically apparent due to compression of adjacent structures. Simple fenestration of the cyst may be sufficient for the remission of symptoms.

Key words: arachnoid cyst, cerebellopontine angle, cranial nerves, clinical case, fenestration surgery

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INTRODUCTION

The cerebellopontine angle (CPA) is a restricted anatomic area with an abundance of key structures. Due to the limited free space available, the presence of virtually any space-occupying lesion could give rise to symptoms due to the compression of any cranial nerve or the cerebellum.

Arachnoid cysts are intradural, extramedullary collections of cerebrospinal fluid that can be manifested as space-occupying lesions and are considered histologically benign. They are incidental findings particularly in children, with a male predominance of 2 : 1, however this ratio inverses for cases involving the CPA [1]. Interestingly, arachnoid cysts affect more commonly the right CPA than the left [2]. For the majority of cases simple observation is recommended, whereas surgical management with fenestration of the cyst is restricted only for the symptomatic ones.

As far as the latter are concerned, cases of arachnoid cysts causing obstructive hydrocephalus, have been reported [3]. This manifestation may arise secondary to lesions found in the suprasellar, prepontine, third ventricle, or the posterior fossa region. The appearance of cranial nerve palsy and ataxia induced from an arachnoid cyst of the CPA is a rather uncommon finding [4–6].

MATERIALS AND METHODS

A 53-years old female patient with a medical history insignificant of any pathology, was referred to our Department for the surgical management of a newly diagnosed CPA-mass. The patient reported the presentation of tingling sensation and causalgia of the left hemiface twenty days prior to her admission. Over time, her symptoms worsened and upon admission she presented with dysarthria, hoarseness, difficulty swallowing solid food and liquids, tinnitus and pain distributed along the ophthalmic branch of the trigeminal nerve.

Physical examination revealed left hypoesthesia of the face, left mouth droop, rightward deviation of the uvula, left hemiparesis including shoulder elevation, a positive Romberg sign as well as left dysmetria and dysdiadochokinesia.

Magnetic resonance imaging with intravenous administered contrast, demonstrated the presence of an unenhanced, hypointense in T1W (Fig. 1 *a, b*, *c*), iso- to hyperintense in T2W (Fig. 1 *d, e*) and isointense in T2 FLAIR images (Fig. 2 *a, b*) with restriction of diffusion (Fig. 2 *c*) mass in the left CPA, compressing the medulla oblongata. The vascular structures, including the left vertebral artery, which traversed the lesion, appeared patent.

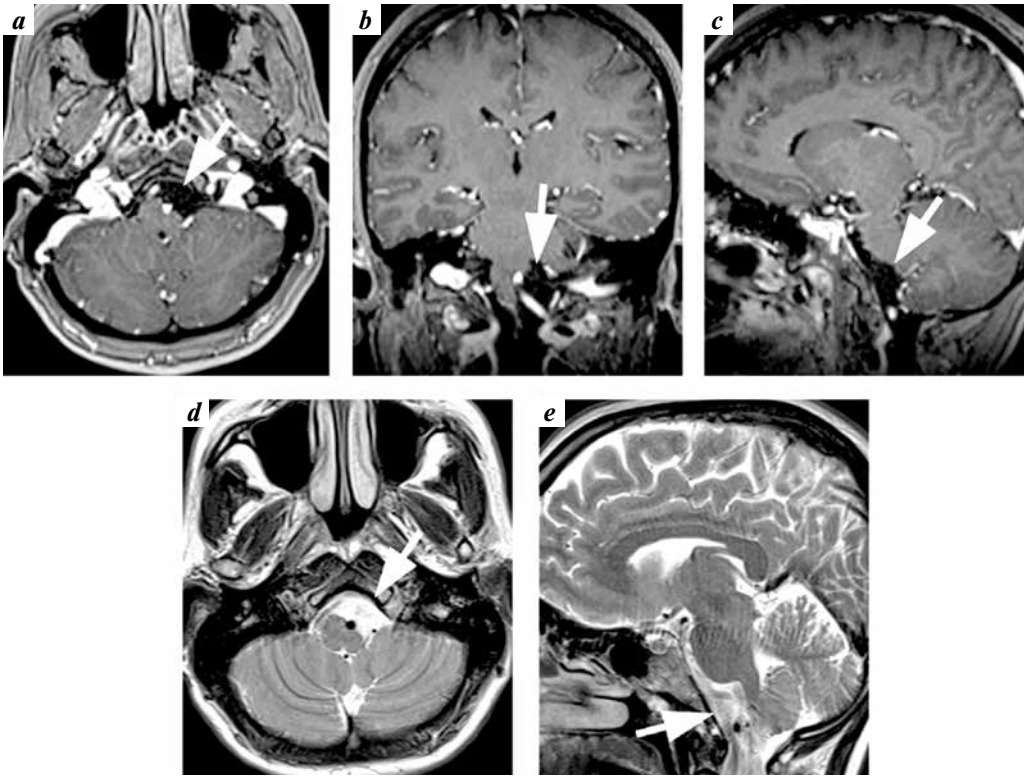

Fig. 1. *MRI scan demonstrated the presence of an unenhancing hypointense in T1W lesion in the CPA (a–c) and iso- to hyperintense in T2W (d, e)*

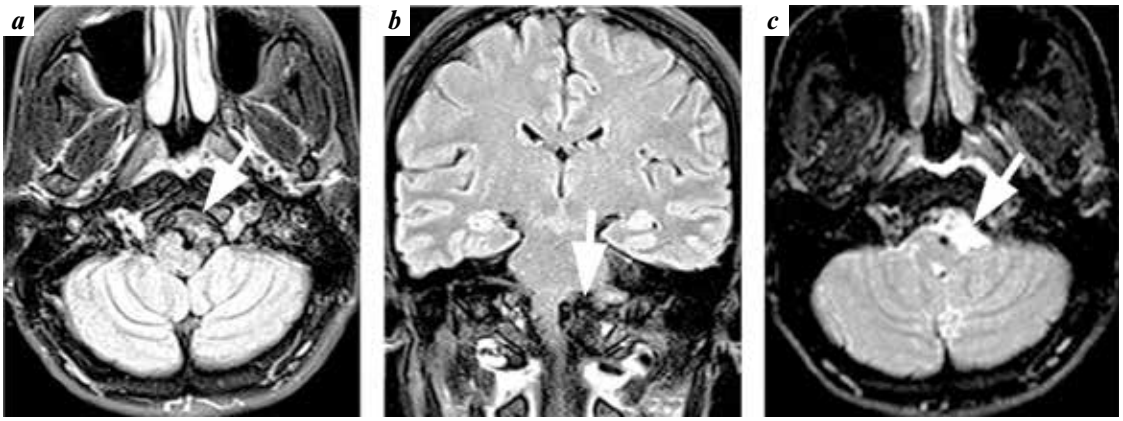

Fig. 2. *Further evaluation demonstrated an isointense lesion in T2 FLAIR images (a, b) with restriction of diffusion in diffusion weighted imaging (c)*

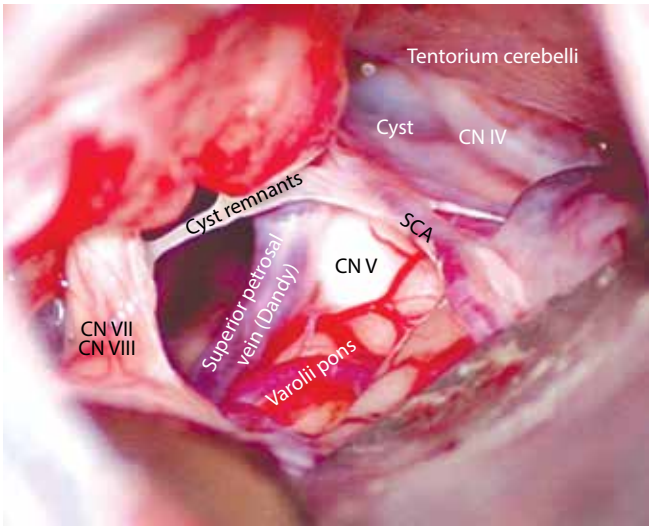

Fig. 3. *Intraoperative photograph. The cyst and the local anatomy: IV, V, VII, VIII cranial nerves; superior cerebellar artery (SCA) and others*

RESULTS

The patient was subjected to retrosigmoid craniotomy (Fig. 3) with fenestration of the cyst and concurrent placement of a Torkildsen shunt. No complete resection of the capsule of the cyst was attempted, due to its tight adhesions to the adjacent structures, rendering the danger for inadvertent nerve damage highly possible. Tissue was not harvested for histological examination, as the majority of the cyst had been removed during the mobilisation of the surrounding structures. Postoperatively, there was an improvement in the dysarthria and swallowing of the patient. MRI demonstrated reduction of mass phenomena on the medulla oblongata (Fig. 4). Upon re-evaluation 3 months postoperatively, complete remission of the neurological deficits was identified. The patient remains free of neurological symptoms or radiological evidence of recurrence of the cyst 1 year after the operation.

The patient provided a written informed consent for the release of his case history and of the visual material published in the present paper.

DISCUSSION

In the present work, we report the case of a patient with V, VII, VIII, X, XI cranial nerve palsy and ataxia induced from a CPA arachnoid cyst.

Cerebellopontine angle cystic lesions while histologically benign, may become clinically apparent due to compression of adjacent structures. Simple fenestration of the cyst may be sufficient for the remission of the symptoms.

The differential diagnosis of an arachnoid cyst includes but is not limited to Rathke's cleft cyst, craniopharyngioma endodermal and epidermoid cysts, with the latter being the most challenging to differentiate from.

When comparing the radiological features of arachnoid cysts with those of epidermoids, the former have the same signal intensity as the cerebrospinal fluid on FLAIR, diffusion, and steady-state free precession imaging, whereas the latter will not simulate the cerebrospinal fluid on these sequences. The arachnoid cyst is also more sharply delineated than is the epidermoid. In addition to this, epidermoid tumours more often extend into the subarachnoid space and enlarge it, unlike arachnoid cysts, which cause a more focal mass effect. There is usually no oedema of the surrounding parenchyma, and hydrocephalus is rare, even in the setting of large tumours and brain displacement. Endodermal cysts are rarely encountered in the central nervous system, presenting with a hyperintense signal in the T1W, T2W and FLAIR MRI. No restriction of diffusion is observed in DWI [7].

Symptoms may be caused either due to neuronal insults or because of vascular compression [8]. Symptoms associated with CPA arachnoid cysts reported to date include hemifacial spasm, trigeminal neuralgia, hearing loss, ataxia and dysphagia [9, 10]. Similar symptomatology has been reported in the presence of various cystic lesions including epithelial cysts [11], endodermal cysts [12] and neurenteric cysts, rendering the differential diagnosis even more challenging. In general, such lesions are considered to be histologically benign, however cases of malignant transformation have been reported [13, 14]. Schwannomas [15], choroid plexus papillomas [16] and cavernous haemangiomas [17]

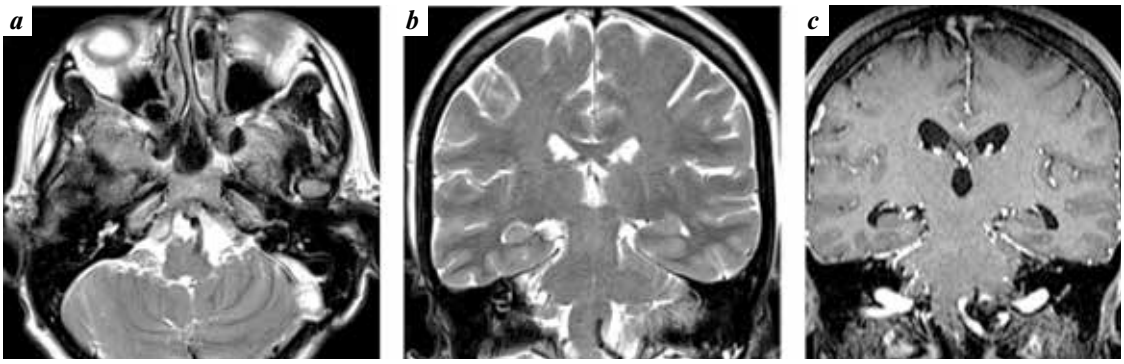

Fig. 4. *Postoperative investigation with axial (a) and coronal (b) T2W MRI, as well coronal T1W MRI with IV contrast (c), demonstrated reduction of mass phenomena on the medulla oblongata*

may also occasionally present as cystic lesions or with cystic componenets.

Remission of symptoms usually follows fenestration of the cyst regardless of the surgical approach [18]. Moreover, E.J. Lee and Y.S. Ra [18], in their series of 110 patients with surgically treated intracranial cysts, found 6 patients without radiologic evidence of reduction in the size of the cyst, requiring additional operations. The same authors also reported that the outcome was observed to be better in the symptomatic cases.

CONCLUSION

Cerebellopontine angle cystic lesions while histologically benign, may become clinically apparent due to compression of adjacent structures. Simple fenestration of the cyst may be sufficient for the remission of the symptoms.

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