Extraventricular Colloid Cyst in the Frontal Lobe: Case Report

Frontal Lobda Ekstraventriküler Kolloid Kist

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ABSTRACT We describe a rare case of extraventricular colloid cyst in the frontal lobe. An 18-year-old woman at 38 weeks of pregnancy presented with complaints of headache and epileptic seizures. Magnetic resonance imaging showed a lesion which was hyperintense on T1-weighted and isointense on T2-weighted images. T1-weighted MR images with gadolinium showed no enhancement of the lesion. Anti-epileptic therapy was administered to the patient. Caesarean section was performed because of the mother and fetal distress. The lesion was removed completely without any complications since continuous epileptic seizures appeared after the Caesarean section. Histopathological examination established the definite diagnosis of a colloid cyst.

Key Words: Central nervous system cysts; epilepsy, frontal lobe

ÖZET Frontal lobda nadir bir ekstraventriküler kolloid kist olgusu sunduk. Otuz sekiz haftalık gebe olan 18 yaşında bir kadın hasta epileptik nöbet ve baş ağrısı yakınmalarıyla başvurdu. Manyetik rezonans görüntülemede lezyon T1 ağırlıklı kesitlerde hiperintens, T2 ağırlıklı kesitlerde izointens olarak görüldü. Gadoliniumla elde edilen T1 ağırlıklı kesitlerde lezyon görüntüsünde kontrastlanma gözlenmedi. Antiepileptik tedavi başlandı. Maternal ve fetal distres nedeniyle sezaryen operasyonu yapıldı. Sezaryen operasyonu sonrası epileptik nöbetlerin devam etmesi üzerine kraniyotomi ile lezyonun total eksizyonu komplikasyonsuz olarak gerçekleştirildi. Histopatolojik inceleme ile kolloid kist tanısı kesin olarak konuldu.

Anahtar Kelimeler: Santral sinir sistemi kistleri; epilepsi, frontal lob

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Colloid cysts of the central nervous system (CNS) are benign congenital tumors that almost always arise from the anterior part of the third ventricle.[1,2] The tumors are usually symptomatic in patients aged 20-50 years. The colloid cysts constitute approximately 0.5-1% of all primary brain tumors, and 15-20% of all intraventricular masses are colloid cysts.[3] Other locations include the leptomeninges, cerebellum, brainstem, brain convexity, and the fourth ventricle.[3-8] We present a rare case of extraventricular colloid cyst in the frontal lobe.

CASE REPORT

An 18-year-old woman at 38 weeks of pregnancy presented with complaints of headache and epileptic seizures. Her main complaint was headache last-

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ing for 1 month, without any complaint of vomiting. She did not have any seizures or headache before. After admission, she had a seizure-like activity with frothy discharge, her tendon reflexes were brisk, vital functions were stable and pupils reacted to light normally.

T_1-weighted magnetic resonance (MR) images showed a peripherally hyperintense and centrally isointense lesion. The lesion was hypointense on T_2-weighted imagesas well as on diffusion-weighted images. T_1-weighted MR images with gadolinium showed no enhancement of the lesion (Figure 1). Antiepileptic threapy was started to the patient. Epileptic seizures were controlled with this therapy. Caesarean section was done to preserve maternal and fetal health. After Caesarean section, epileptic seizures started again. Electroencephalography (EEG) showed frontal hyperactivity. Because seizures continued in spite of antiepileptic treatment, total removal of the lesion was achieved through a frontal craniotomy without any complications. The cystic lesion containing mucoid fluid was located and under the dura and it was adhered to it. Colloid cyst was easily dissected from the surface of the brain.

Gross examination of the lesion showed a well-circumscribed, 3.5 cm cystic nodule. It adhered to overlying dura. The cyst was filled with a thick, viscous mucoid material. Microscopic examination showed that the cyst was lined by simple columnar epithelium with ciliated and nonciliated cells as well as scattered goblet cells (Figure 2). The colloid cyst content consisted of amorphous periodic acid-Schiff-positive eosinophilic material. Immunohistochemical examination revealed positive staining for cytokeratin in the cytoplasm of the lining cells, but no staining for glial fibrillary acidic protein. The histopathological findings were consistent with colloid cyst. Postoperative computed tomography (CT) scan of the brain showed porencephalic cyst.

DISCUSSION

Colloid cysts of the CNS account for approximately %1 of all intracranial tumors and are the most common type of the neuroepithelial cysts, they are also the most common tumors in the third ventricle.[1] Typically, patients are asymptomatic, although colloid cysts may cause symptoms by obstructing the foramen of Monro, which results in sudden death in rare cases.[9,10] Other locations include the leptomeninges, cerebellum, brainstem, brain convexity, fourth ventricle and the frontal lobe.[2-5,7,8,11-13] The diagnosis was based on the neuro-imaging, surgical or autopsy findings and neuropathological findings.[2] We describe a rare case of dura-based extraventricular colloid cyst in the frontal lobe.

On T1-weighted images, the central portion of the mass had the same signal intensity with the brain, whereas it was hyperintense at the periphery. On T2-weighted images, the central portion of the mass was markedly hypointense when compared to the brain, while the peripheral portion

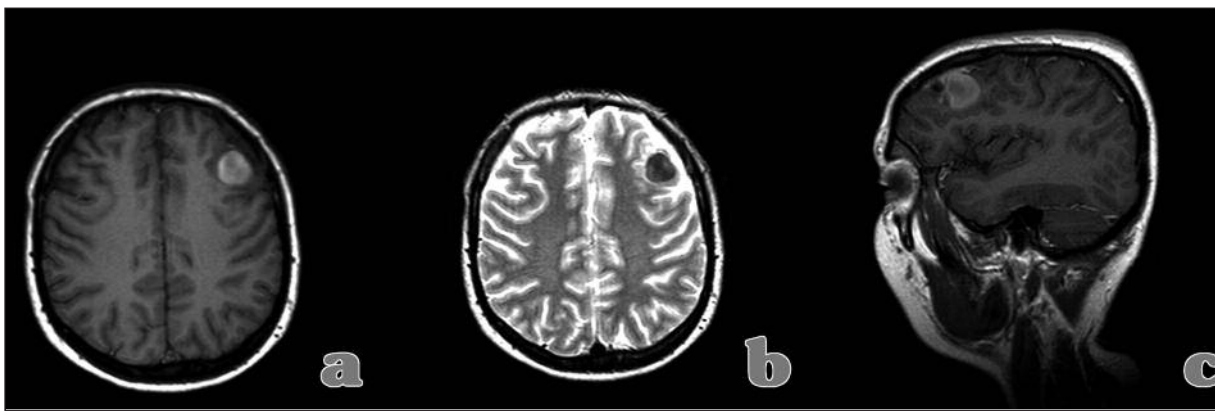

FIGURE 1: a) Axial T1-weighted MR image showing the lesion with peripheral hyperintensity and central isointensity **b)** Axial T2-weighted MR image showing the centrally hypointense lesion **c)** Sagittal T1-weighted MR images with gadolinium showed no enhancement of the lesion.

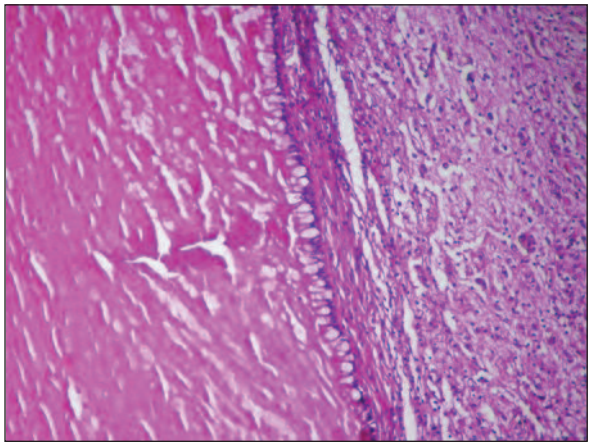

FIGURE 2: Photomicrograph of the colloid cyst adjacent to the brain tissue. The colloid cyst wall was lined by simple columnar epithelium with goblet cells and the cyst content consisted of amorphous eosinophilic material (HE, x100). (See for colored form http://tipbilimleri.turkiyeklinikleri.com/)

was isointense. These imaging findings corresponded to an actual pathological difference between the central and peripheral portions of the mass. The central portion of the mass was solid, whereas the periphery was liquid.[14] In our case, the lesion showed a peripheral hyperintensity and central isointensity on T_1-weighted images, and peripheral isointensity on T_2-weighted images.

Colloid cysts are lined by simple or pseudostratified cuboidal or columnar epithelium with ciliated and nonciliated cells as well as scattered goblet cells.[1,5,7] The colloid cysts are lined by a single layer of epithelial cells and are typically filled with thick, viscous mucus containing an array of ingredients, including blood products, macrophages, cholesterol crystals, and numerous metallic ions, such as copper, iron, magnesium, aluminum, and phosphorus. Some colloid cysts may be filled only with thin serous fluid, and the composition of each cyst dictates its imaging characteristics, especially with MR imaging.[13]

Typically, colloid cysts are clinically silent and are found incidentally when patients are imaged for other reasons. When patients are symptomatic, they typically experience chronic headache, which may be intermittent and positional because of transient CSF obstruction. On rare occasions, a colloid cyst may completely and irreversibly obstruct the foramen of Monro, resulting in sudden loss of consciousness and, if patients are not treated, in coma and death.[9,10] In the descending order, the symptoms are headache (68%), gait disturbances (47%), and transient memory disturbances (37%), with papilledema (47%) and ataxia (37%) being the most common signs.[15] Our patient presented with complaints of headache and epileptic seizures. The patient did not respond to antiepileptic therapy.

Pregnancy often masks the existence of an intracranial neoplasm. The diagnosis can be easily missed, because symptoms such as headache, vomiting, visual disturbances etc., are often encountered in pregnancy with or without preeclampsia.[16] The treatment of the colloid cyst is total surgical excision, but management of patients diagnosed during the third trimester is controversial. We planned to have a healthy way of labor as a priority.

Chaudhuri and Wallenburg recommended that neurosurgical intervention is best deferred until after delivery.[17] In most cases, pregnancy may be allowed to continue under close supervision until baby is reasonably mature. Tewari et al. recommended that if symptoms respond to pharmacologic control (eg, anticonvulsants, antiemetics, corticosteroids), delivery should be expedited in early third trimester after recording of fetal maturity and to minimize the cerebellar or temporal lobe herniation, Caesarean delivery under general anaesthesia must be followed by immediate neurosurgical decompression.[18] Our patient was controlled under close supervision during pregnancy. After pregnancy, a Caesarean section was done under general anesthesia. After birth, because epileptic seazures could not be controlled, patient was operated.

In conclusion, colloid cysts of the CNS are benign congenital tumors that rarely arise in the frontal lobe. We presented the colloid cyst in the frontal lobe because a small number of cases reported in the literature. We want to make a reminder, pregnancy may mask symptoms caused by an intracranial pathology.

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