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Co-existing Tumors On Suprasellar Region : A Rare Case and Re-view of Literature

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Case Report

History

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ABSTRACT

Introduction: The co-existence of primary intracranial tumors originating from different cell types is rare. While the association of meningioma and glioma is frequently reported in the literature, the number of cases with meningiomas and epidermoid cysts is relatively low. We report a unique case because the association of suprasellar meningioma and the epidermoid cyst has not been reported before in the literature.

Case Presentation: A 50-year-old female presented to the clinic with a headache and progressive vision loss. In cranial Magnetic Resonance (MR) images, a T1A hypointense, T2A iso-hyper intense heterogenous contrasting suprasellar mass lesion was observed. The patient was operated on with a diagnosis of suprasellar meningioma. At the suprasellar region, a mass that macroscopic view and consistency compatible with epidermoid cyst explored intraoperative incidentally. Two different pathological specimens were sent to pathology. The patient's pathology was reported as WHO 2021, Transitional type grade 1 Meningioma, and Epidermoid cyst content.

Conclusion: The number of cases with meningiomas and epidermoid cysts is very low in the literature. Despite advanced MR imaging techniques, cystic lesions can be overlooked in the diagnosis. The occurrence of two different histopathological types of tumors in the same localization can be explained by the local paracrine effects of the tumors.

Keywords: Suprasellar Meningioma, Epidermoid Cyst, Tumor co-existence.

Türkçe başlık

Süreç

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ÖZ

Giriş: Farklı hücre tiplerinden köken alan intrakraniyal tümörlerin birlikteliği nadirdir. Literatürde meningiom ve glioma birlikteliği sıklıkla bildirilirken meningiom ve epidermoid kist birlikteliği olan olgu sayısı oldukça azdır. Olgumuz, literatürde, suprasellar bölgede menengiyom ile epidermoid kist birlikteliği bildirilmediği için benzersizdir.

Olgu Sunumu: 50 yaşında kadın hasta baş ağrısı ve ilerleyici görme kaybı şikayeti ile kliniğimize başvurdu. Yapılan kraniyal MR görüntülemelerinde T1A hipointens, T2A izointens, postkontrastlı serilerde heterojen kontrastlanan suprasellar kitle lezyonu izlendi. Hasta suprasellar meningiom ön tanısı ile ameliyat edildi. Suprasellar bölgede intraoperatif olarak makroskopik görüntüsü ve kıvamı epidermoid kist ile uyumlu olan meningioma eşlik eden kitle saptandı. Patolojiye iki farklı patolojik örnek gönderildi. Hastanın patolojisi WHO 2021, Transizyonel tip grade 1 Meningioma ve Epidermoid kist içeriği olarak raporlandı.

Sonuç: Literatürde meningiom ve epidermoid kisti olan olgu sayısı oldukça azdır. Gelişmiş MR görüntüleme tekniklerine rağmen tanıda kistik lezyonlar gözden kaçabilmektedir. Aynı lokalizasyonda iki farklı histopatolojik tümörün görülmesi, tümörlerin lokal parakrin etkileri ile açıklanabilir.

Anahtar sözcükler: Suprasellar Meningiom, Epidermoid Kist, Tümör birlikteliği

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Introduction

The co-existence of primary intracranial tumors originating from different cell types is rare. Epidermoid cysts are a subgroup of congenital tumors. They develop due to faulty implantation of ectodermal cells during the closure of the neural tube in embryological life. Its incidence among all intracranial masses is 0.2-1% [1]. Meningiomas originate from arachnoid cap cells in the meninges, and their incidence is 24-34% in all primary brain tumors [2]. In this article, we reported the co-existence of suprasellar meningioma and epidermoid cyst, which could not be detected preoperatively radiologically but detected incidentally intraoperatively.

Case Presentation

A 50-year-old female presented to the clinic with a headache and progressive vision loss. In cranial Magnetic Resonance (MR) images, a T1A hypointense, T2A iso-hyper intense heterogenous contrasting suprasellar mass lesion was observed. The lesion was 29x33x30 mm sized, which causes compression in the left optic nerve, extending to the pituitary fossa in the suprasellar region and surrounding the internal carotid artery (ICA) 360 degrees the left half of the optic chiasm. Figure 1. There was no neurological deficit except for total vision loss in the left eye on her neurological examination. Pituitary hormone levels were normal. The patient was operated on with a diagnosis of suprasellar meningioma. Neuronavigation guided left frontotemporal craniotomy performed, a mass compatible with meningioma was explored. At the suprasellar region, the macroscopic nature of mass was a change, a mass that macroscopic view and consistency compatible with epidermoid cyst was resected from the pituitary fossa. Figure 2. Two different pathological specimens were sent to pathology. There was no change in the neurological examination during postoperative follow-up, and pituitary insufficiency did not develop. The patient was discharged after one week of follow-up. The patient's pathology was reported as WHO 2021, Transitional type grade 1 Meningioma, and Epidermoid cyst content.

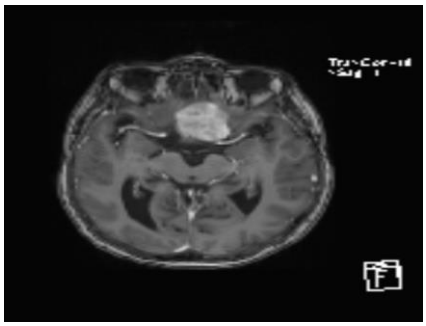

Figure 1a. Pre-operative magnetic resonance image (MRI), T1-weighted MRI with gadolinium (Gd) enhancement, axial projection.

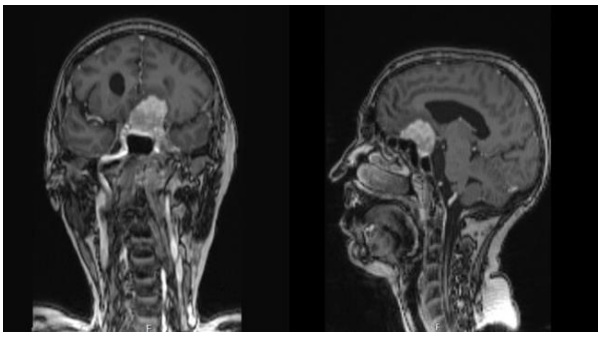

Figure 1b. Pre-operative magnetic resonance image (MRI), T1-weighted MRI with gadolinium (Gd) enhancement, sagittal and coronal projection.

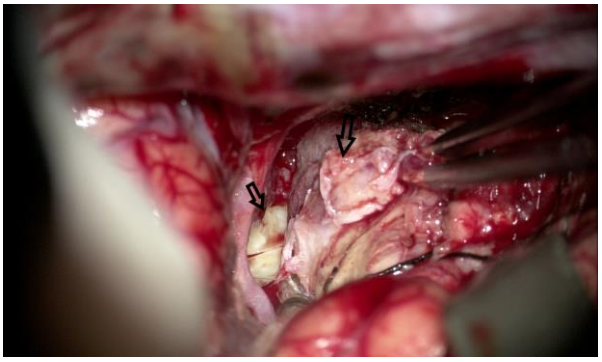

Figure 2. Intra-operative image. Left-sided arrow indicates epidermoid cyst and the right-sided arrow indicates suprasellar meningioma.

Discussion

The association of tumors originating from different cell types with primary intracranial tumors is rare. While the association of meningioma and glioma is frequently reported in the literature, the number of cases with meningiomas and epidermoid cysts is quite low [3]. Co-existing meningioma and epidermoid cyst with vestibular schwannoma, pituitary adenoma, and lipoma have also been reported [4]. Thomalske and Galow were reported meningioma and cerebellopontine angle epidermoid cyst in 1975 [5]. In 1979, Frazer and Victoratos[6] reported a co-existing epidermoid cyst and meningioma developed after cranial radiotherapy Karekezi et al. reported a patient with right frontal lobe meningioma and right temporal lobe epidermoid cyst in 2016 [7].

While the anatomical location of both tumors is different in most cases of meningiomas and epidermoid cysts reported in the literature, Kumar et al. reported the association of meningioma and epidermoid cyst located in the same localization [8]. Our case is unique because the association of suprasellar meningioma and the epidermoid cyst has not been reported before in the literature. There are many theories about the co-existence of different histological types of tumors. Although studies support the theories that locally acting oncological factors released from tumors may be effective, some authors have argued that this may be

purely coincidental [9]. Since the association of meningioma and glioma is high in the literature, studies were mostly conducted on these two associations. It is a common view that meningiomas and gliomas locally stimulate adjacent parenchyma and arachnoid cells for neoplastic cell development.

Suzuki et al. reported that epidermal growth factor (EGF) receptor was highly expressed in the cells of meningioma, which is in the same localization as glioblastoma, and they suggested that "the former may have had a growth-promoting effect on the latter" [10].

The pathogenesis of "tumor-derived tumors" has been less studied in the co-existence of epidermoid cyst and meningioma. Epidermoid cysts are tumors of embryological origin, and studies on whether they affect the development of meningioma are limited. Karekezi et al. stated that according to their theory, the cerebrospinal fluid (CSF) circulating around and under the arachnoid membrane of the epidermoid cyst might be an effective factor in the development of meningioma by stimulating tumor cell growth through irrigation of neighboring regions [7].

It has been suggested that meningiomas secrete EGF and EGF secretion, and local paracrine stimulation may play a role in the development of epidermoid cysts [11].

Conclusion

The number of cases with meningiomas and epidermoid cysts is deficient in the literature. Despite advanced MR imaging techniques, cystic lesions can be overlooked in the diagnosis. In our case, due to suprasellar localized meningioma and peripheral edema area, epidermoid cyst in the same localization could not be detected in the preoperative MR imaging. Complaints of our patient were related to her suprasellar meningioma, and the epidermoid cyst was incidental. The occurrence of two different histopathological types of tumors in the same localization can be explained by the local paracrine effects of the tumors. However, there is no clear explanation for tumors developing in different anatomical locations and far from each other in the literature, and further genetic and histopathological studies are required.

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