



Case Report

Association of an Epidermoid Tumour with Ipsilateral Aneurysms of Middle Cerebral Artery Bifurcation and Anterior Communicating Artery

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Abstract

By this case report the authors are aimed to describe an unusual case of epidermoid tumour associated with ipsilateral two cerebral aneurysms. Radiological and clinical findings of a 45 year old male patient are described. Investigation of the patient revealed a right temporal lobe tumour and ipsilateral two aneurysms. The patient is treated with micro-neurosurgery successfully. Both the tumour and the right MCA aneurysm are interfereted in the same session. His pathological diagnose was epidermoid tumour. Togetherness of epidermoid tumours and cerebral aneurysms is a very rare entity. Further studies are needed to demonstrate the exact pathological and genetic mechanisms.

Keywords: Aneurysm; epidermoid; tumour

Epidermid Tümörün Aynı Tarafta Bulunan Orta Cerebral Arter Bifurkasyon Anevrizması ve Anterior Kommunikan Arter Anevrizması ile İlişkisi

Özet

Yazarlar bu makalede epidermoid tümör ile birlikte iki beyin anevrizması bulunan nadir görülen bir vakayı sunmuşlardır. Kırk beş yaşındaki erkek hastanın radyolojik ve klinik bulguları sunulmuştur. Tanısal yöntemler, hastanın sağ temporal lobunda tümör ve iki adet anevrizmanın bulunduğunu göstermiştir. Hasta mikrocerrahi yöntemi ile aynı seansta başarılı bir şekilde tedavi edilmiştir. Hastanın patoloji sonucu epidermoid tümör olarak gelmiştir. Epidermoid tümör ve anevrizmaların eş zamanlı bulunması nadir görülen bir durumdur. Bu durumun ortaya çıkmasında gerçek patolojik ve genetik mekanizmaların gösterilmesi için ileri çalışmalara ihtiyaç bulunmaktadır.

Anahtar Kelimeler: Anevrizma; epidermoid; tümör

INTRODUCTION

Association of an epidermoid tumour with an aneurysm has been reported in the literature in only five cases^(1,2,5,7,8). We report a case of right temporal intra axial epidermoid tumour associated with ipsilateral saccular middle cerebral artery (MCA) and anterior communicating artery (Ant. Comm.) aneurysms. Right pterional

craniotomy was performed for removing the tumour and clipping of the aneurysms. Both pathologies could have the same dysgenetic factors in common.

CASE PRESENTATION

A 45 years old male patient admitted to our neurosurgery department with headache continuing for one week which is followed

by alteration in level of conscious for two days. His physical and neurological examination revealed neck stiffness, bilateral papilledema, and mild left hemiparesia. Laboratory investigations showed no anomalies. His cranial tomography (CT) demonstrated diffuse subarachnoid haemorrhage, intraventricular haemorrhage, and a tumour like hypodense region in lipid density covered with hyperdense densities resembling haematoma at right temporal lobe (Fig. 1).

Due to the clinical and radiological interpretation the first differential diagnosis was a cerebral aneurysm and incidentally diagnosed cerebral tumour silent in nature till time of presentation. So we performed a cerebral angiography, which revealed right MCA and Ant. Comm. Aneurysms (Fig. 2). After this diagnosis we also performed a cranial magnetic resonance imaging (MRI) to reveal the origin of the right temporal lesion. A mass lesion, heterogeneous in density, hyperintense on T1 (Fig. 3) and T2 weighted (Fig. 4) images was seen. There were also hypointense regions on T2 weighted images which is thought to be

due to haemorrhage. Post-contrast T1 images revealed no extra contrast media enhancement (Fig. 5). Images also revealed mild peritumoural oedema.

We performed right pterional craniotomy. After dural opening using transcortical approach we reached the haematoma. Following evacuation of haematoma a tissue white-gray in color resembling an epidermoid tumour came to front. This tissue was avascular and lipid like in structure. The lesion was removed with gentle dissection from the temporal region. To reach the right MCA aneurysm we continued with Sylvian dissection. The aneurysm was saccular in nature with a significant neck and was clipped with a Sugita aneurysm clip. We also aimed to perform a second clip to the Ant. Comm. aneurysm but because of the strong arachnoidal adhesions around the second aneurysm's dome the operation was ended.

After the operation the patient's follow up was uneventful. His pathological diagnosis was epidermoid tumour. The patient was discharged on the thirteenth day of the operation with mild left hemiparesia.

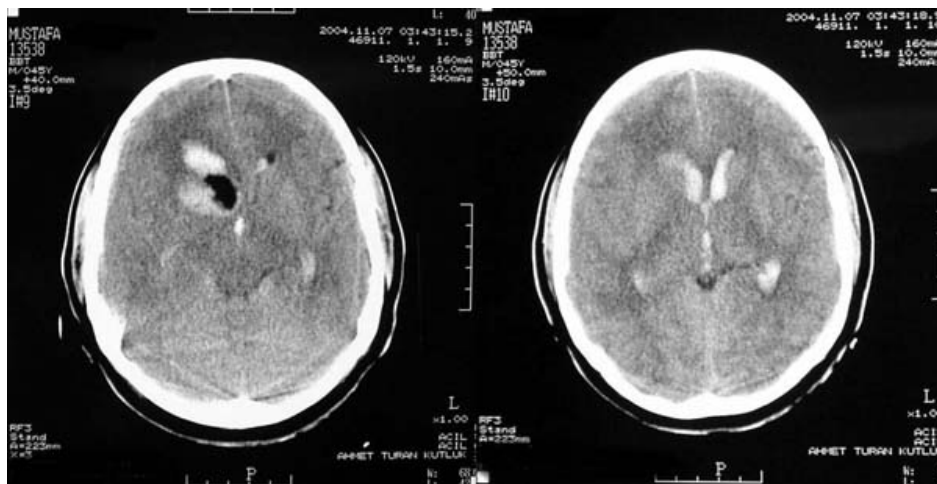


Figure 1: Diffuse subarachnoid haemorrhage and a tumour like hypodense region in lipid density covered with hyperdense densities resembling haematoma at right temporal lobe.



Figure 2: Cerebral angiography demonstrating right MCA and Ant. Comm. aneurysms.

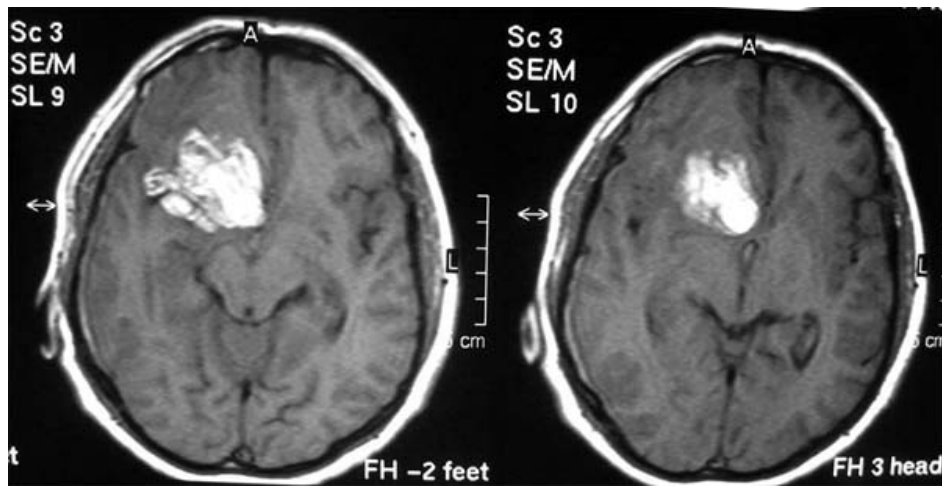


Figure 3: T1 weighted MRI of the lesion.

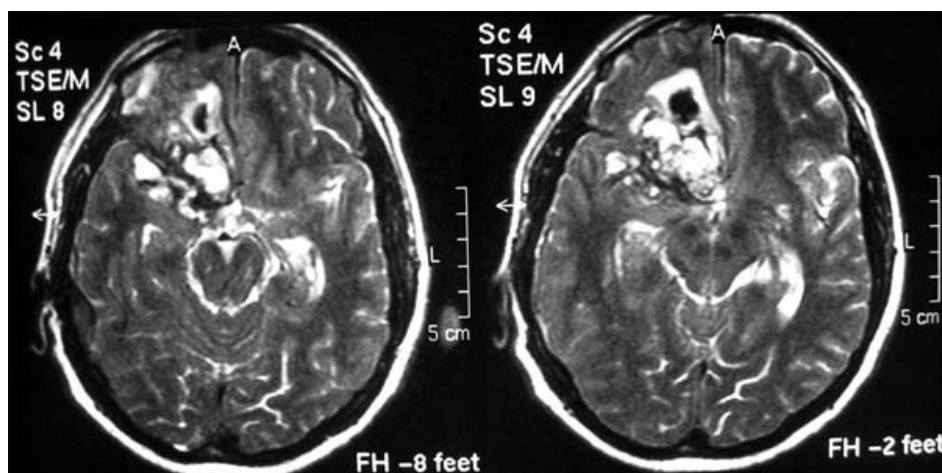


Figure 4: T2 weighted MRI of the lesion.

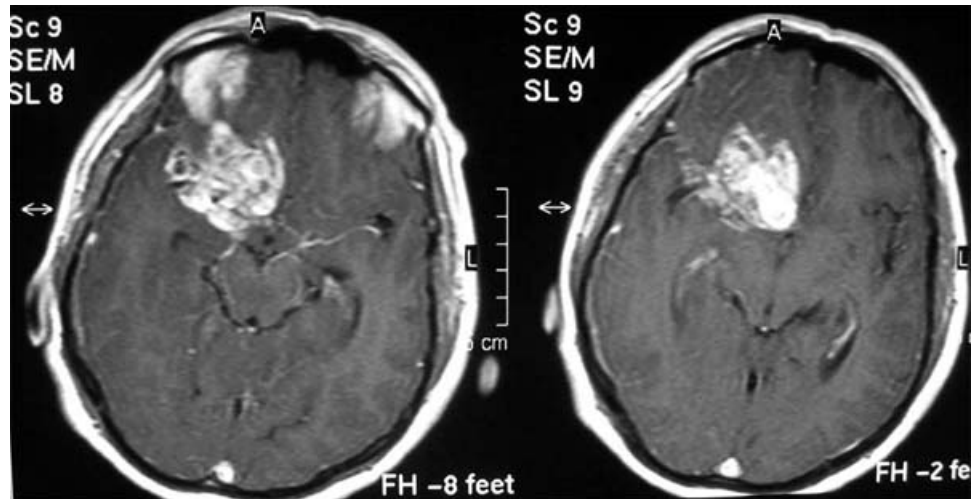


Figure 5: Post-contrast T1 weighted MRI of the lesion.

DISCUSSION

Epidermoid tumours are developmental anomalies, presenting as benign masses that arise when retained ectodermal implants from the closing neural tube (normal developmental cells) are trapped within the growing brain, usually in the third and fourth week of gestation. They are probably caused by incorrect disjunction of neuro-ectodermal cells from cutaneous ones, and thus are not neoplastic masses, but can be considered, and are sometimes called, "ectodermal heterotopia"⁽⁹⁾. They represent % 0.2-1 of all intracranial mass lesions. Pontocerebellar angle, sellar region, suprasellar region and middle cranial fossa are the most common settlement sites. They tend to develop extra-axially. They usually have similar characteristics with cerebrospinal fluid (CSF) in T1 or T2 weighted images. Due to their cholesterol rich nature, sometimes they could be seen hyperintense in T1 images. Their hypointensity makes it difficult to distinguish tumour borders from the surrounding tissue and because of their CSF like density, differential diagnosis from arachnoid cysts could be difficult⁽³⁾.

The co-existence of an aneurysm and an epidermoid tumour is extremely rare. Few

hypotheses have been made to explain the pathogenesis of association between tumours and aneurysms. Hemodynamic stress and vascular proliferation factors are responsible for aneurysm formation in association with meningiomas or other tumours. In 1992 Ahmad suggested that strong adhesions and inflammatory processes could lead to aneurysm formation⁽¹⁾.

In our case the tumour was hyperintense not only in T1 weighted but also in T2 weighted images which is unusual for this tumour group and this made the diagnosis difficult. We think that this is a result of both aneurysmal bleeding and tumour's lipid rich structure. The tumour was intra-axial, which is also unusual.

Our case supports Ahmad's theory. The Ant. Comm. aneurysm was surrounded with strong adhesions which made it unreachable by microsurgery. Being both the tumour and the aneurysms at the same side is also another supporter of Ahmad's theory for our case.

Thinking togetherness of these aneurysms with a developmental anomaly like epidermoid tumour, there may also be another link between these two pathologies in genetic base. There are many authors

suggesting that aneurysms could be genetic anomalies^(4,6). There may be a dysgenetic factor which requires further implementation to explain the rare togetherness of epidermoid tumours and intracranial aneurysms.

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