Intracranial Aneurysm Mimicking Cerebral Cavernous Malformation

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血管病理学的脑血管有不同的临床和神经放射学表现，这使得建立预术前诊断成为可能。我们报告了一例发生在大脑内动脉瘤的病例，其临床表现和MRI不典型，预术前诊断为脑内海绵状血管瘤。我们强调了异常MRI图像可能的机制以及病变的鉴别诊断。

Key words: Intracranial aneurysm, cerebral cavernous malformation, cerebral vascular malformations, intracranial hemorrhage, chronic hematoma, hemosiderin rim

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CASE REPORT

A 32-year-old man presented to our clinic with a 2-year history of tonic-clonic seizures. His neurological examination was normal. Preoperative cranial MRI showed nonenhancing, heterogeneous signal intensity in superior temporal gyrus and hypointens area around the lesion in T1- and T2-weighted images (Fig. 1A-1B). Leading diagnosis was cerebral cavernous malformation.

The patient underwent a left temporal craniotomy, and his lesion was excised. After exposure of dura, lesion was localized with transcortical ultrasonography. Transcortical route was used to reach the lesion and small arterial feeders of the lesion were cauterized and cut. Hemosiderin accumulation was seen around the lesion intra-


Serebral Kavernöz Malformasyona Benzeyen İntrakranyal Anevrizma

Beyin vasküler patolojileri preoperatif tanı olarak kılan farklı klinik yansımaları ve nöroradyolojik görünümle sahiptir. Çalışmadada epilepsi ve alsılık olulunan MRI bulguları olan ve preoperatif olarak serebral kavernöz malformasyon ön tanı konulmuş bir intrakraniyal anevrizma olgusu sunulmuştur. Ender MRI görünümüyle ilgili olası mekanizmalar ve lezyonun ayrıcı tanıнии vurgulanmıştır.

Anahtar kelimeler: İntrakraniyal anevrizma, serebral kavernöz malformasyon, serebral damarsal malformasyonlar, kafa içi kanama, kronik hematom, hemosiderin halka

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operatively as yellowish and firm area. Intraoperative diagnosis was also cerebral cavernous hemangioma. Histopathological evaluation showed a thick monolocular vessel with arteriolized wall with a freshly formed thrombus inside (Fig. 1C-1D). Histopathological diagnosis was saccular aneurysm. The follow-up of the patient was uneventful.

DISCUSSION

The hypointense area in the brain parenchyma around the vascular lesion (hemosiderin rim) on T2-weighted MRI produced by hemosiderin, a degradation product of the hemoglobin iron, also causes selective T2 proton relaxation enhancement and represents chronic hemorrhage \( ^{3} \).

Concomitance of hemosiderin rim may be seen in different cerebral pathologies. The most typical MRI description of cerebral cavernous malformation includes a heterogeneous reticulated “popcorn-like” appearance, with a complete

Figure 1. (A) Axial T1-weighted cranial MRI reveals superior and middle temporal gyri located, hyperintense lesion, (B) Axial T2-weighted image reveals punctuate hyperintense areas in lesion and hypointense surrounding rim, (C) Aneurysm wall formed by thickened fibrous tissue without tunica media filled with red blood cells (Hematoxylin-eosin, x40 original magnification), (D) High power field reveals lymphocytic and siderophages in and around wall of aneurysm (Hematoxylin-eosin, x400 original magnification).
hypointense hemosiderin rim. There may be little or no contrast enhancement (2). Subacute intracerebral hemorrhages initially display a rim of hyperintensity on T1-, or possibly hypointensity on T2 weighted images (3). In our case, lesion showed heterogeneous signal intensity and hypointense rim in the surrounding white matter which resembled to a cerebral cavernous malformation.

Distal middle cerebral artery and thalamo-perforating artery aneurysms generally present to the clinic with subarachnoid haemorrhage which easily suggests the diagnosis of aneurysm as the leading cause demonstrable with preoperative angiography (1,4-6). Current case was presented with an atypically located aneurysm with similar radiological features of cerebral cavernous malformation, and a history of seizure. Possible explanations of why this aneurysm did not cause subarachnoid haemorrhage, and demonstrated radiological images similar to cerebral cavernous malformation can be summarized as (1) the location of the aneurysm in the distal or perforating branch of middle cerebral artery enabled hemostatic forces of the surrounding supportive brain parenchyma to be effective on the aneurysm wall (2) thrombus formation in the lumen of aneurysm which slows down blood flow (as revealed with heterogeneous signal intensity in MRI) preventing acute devastating high volume haemorrhage.

In clinic, intracranial aneurysms mostly show up with devastating features of subarachnoid or intracerebral haemorrhage. On the other hand epilepsy is one of the major presenting symp- toms of cerebral cavernous malformation. In our case patient presented with a 2 year-history of epilepsy and in his cranial MRI typical features of cerebral cavernous malformation were seen, and definitive diagnosis of cavernoma was made based on these findings.

This case represents an extremely rare presentation of intracranial aneurysm in terms of clinical and neuroradiological findings and also shows that a preoperative vascular imaging study (e.g. MR- or CT-angio) even in case of suspected cavernous angioma is mandatory to exclude the possibility of a small vascular arteriovenous malformation or an aneurysm. This case is also a good example demonstrating that a definite diagnosis of brain pathology can be established after histopathological evaluation.

REFERENCES