Chronic intracerebral hemorrhage

Chronic encapsulated intracerebral hematoma is a unique type of intracerebral hematoma accompanied by a capsule that is abundant in fragile microvasculature occasionally causing delayed regrowth.

It is well established that it is associated with arteriovenous malformations; however, CEIH associated with cavernous malformation (CM) is extremely rare [1)]

Case reports

2016

A 37-year-old man who had undergone radiosurgery for an arteriovenous malformation (AVM) causing intracerebral hematoma in the left parietal lobe presented with headache, vomiting, and progressive truncal ataxia due to a cystic lesion that had been noted in the left thalamus, leading to progressive obstructive hydrocephalus. He underwent left frontal craniotomy via a transsylvian fissure approach, and the serous hematoma was aspirated. The hematoma capsule was easy to drain and was partially removed. Pathological findings demonstrated angiomatous fibroblastic granulation tissue with extensive macrophage invasion. The concentration of vascular endothelial growth factor (VEGF) was high in the hematoma (12012 pg/mL). The etiology and pathogenesis of encapsulated hematoma are unclear, but the gross appearance and pathological findings are similar to those of chronic subdural hematoma. Based on the high concentration of VEGF in the hematoma, expansion of the encapsulated hematoma might have been caused by the promotion of vascular permeability of newly formed microvasculature in the capsule [2)].

2015

Kono et al. report the first case of a patient with chronic encapsulated intracerebral hematoma who developed excessive perifocal edema and symptoms 20 years after his initial diagnosis [3)].

2014

A 12-year-old female was admitted to our hospital because of a one week history of progressive headache and nausea. Brain computed tomography scan and magnetic resonance imaging showed an intracerebral hematoma surrounded by edema in the right frontal lobe. One week later, her headache and nausea worsened, and a brain computed tomography scan revealed the enlargement of hematoma. A right frontal craniotomy was performed. The capsule, mass, and hematoma were totally removed. Histological examination confirmed the diagnosis of CEIH associated with CM. Immunohistochemical analysis revealed increased expression of vascular endothelial growth factor (VEGF) and the VEGF receptor-1 in the endothelium and fibroblasts. Our findings suggest that the activated VEGF pathway might have positively contributed to development of CEIH in the present patient [4)]

2011

An 80-year-old male presented with a chronic encapsulated intracerebral hematoma (CEIH) with surrounding edema under the right frontal lobe manifesting as slow exacerbation of disturbance of orientation and gait. He had a history of cerebral infarction with an asymptomatic cavernous angioma in the right frontal lobe. The CEIH was diagnosed as bleeding from the cavernous angioma, and surgical removal was performed. The hematoma was chronic and covered by a thick capsule. In addition, mass tissue covered with the organized hematoma was found near the capsule, which was excised and found to be a cavernous angioma. CEIH is a special type of intracerebral hemorrhage, and bleeding from a cavernous angioma is occasionally seen. CEIH should be considered in the case of a hemorrhagic intracranial lesion with a chronic, progressive course with capsule formation and edema around the lesion. The source of bleeding is unknown in about half of the reported cases, and occult vascular malformation may be involved, necessitating care in diagnosis [5].

[1] , [4]
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[2]
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[3]
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[5]
Miyahara K, Fujitsu K, Yagishita S, Ichikawa T, Takemoto Y, Okada T, Niino H, Shiina T. Chronic encapsulated intracerebral hematoma associated with cavernous angioma–case report. Neurol Med Chir (Tokyo). 2011;51(1):52-5. PubMed PMID: 21273746.