Subdural hematoma and arachnoid cyst

Intracranial arachnoid cysts (AC) are usually asymptomatic but may present with seizures, mass effect or with bleeding manifestations. Subdural hematoma (SDH) on the other hand is usually found in the elderly in the setting of cerebral atrophy wherein the potential subdural space [closed in the young due to apposition of brain to the dura] opens up. Numerous studies have stated AC's to be a predisposing factor for SDH in the young [1].

Male children, juveniles, and young adults with recent head trauma or sport-related injury are most commonly inflicted [2].

The bleeding is often confined to the side ipsilateral to the arachnoid cyst. Occurrence of contralateral subdural hematomas in patients with temporal fossa arachnoid cysts has rarely been observed and is reported less frequently in the medical literature [3].

Treatment

Burr hole drainage is the first-choice surgical procedure in symptomatic patients and is still effective in some recurrent cases. Fenestration or resection of the AC membrane is not a requisite in patients with previous asymptomatic AC [4].

Case series

Twelve of 541 cases of chronic subdural hematoma (CSDH) surgically treated in the Department of Neurosurgery, Juntendo University, Izunagaoka Hospital, Shizuoka, Japan had associated arachnoid cyst. The clinical and radiological characteristics of the cases of CSDH associated with arachnoid cyst were retrospectively analyzed and compared with those of CSDH without arachnoid cyst. Arachnoid cysts were located in the middle fossa (eight cases), convexity (two cases), and posterior fossa (two cases). Three cysts were less than 20 mm in diameter. The 12 patients with CSDH and arachnoid cyst (mean age 27.8 +/- 19.7 years) were significantly younger ($p < 0.001$) than the patients with CSDH without arachnoid cyst (69.5 +/- 13.7 years). Five of the 12 patients were pediatric cases (< 15 years old). The clinical symptoms were also significantly different. The most frequent symptom was headache followed by vomiting in the patients with arachnoid cyst, while gait disturbance and hemiparesis predominated in patients without arachnoid cyst. Hematoma evacuation through burr holes improved the symptoms in all patients with arachnoid cyst. We conclude that even a small arachnoid cyst can be a risk factor for CSDH after mild head injury in young patients and symptoms of increased intracranial pressure are common. Hematoma evacuation is adequate at first operation. If the preoperative symptoms persist, additional arachnoid cyst surgery should be considered. The present results also suggest that CSDH formation may be preceded by subdural hygroma caused by the rupture of arachnoid cyst [5].

Case reports

A 29-year-old man who presented with headache and dizziness of 2 months' duration. Brain computed

tomography revealed a huge chronic subdural hematoma over the left frontoparietal lobe, with an incidental finding of an arachnoid cyst over the left sylvian fissure [6].

1)
Krishnan P, Kartikueyan R. Arachnoid cyst with ipsilateral subdural hematoma in an adolescent - causative or coincidental: Case report and review of literature. J Pediatr Neurosci. 2013 May;8(2):177-9. doi: 10.4103/1817-1745.117869. PubMed PMID: 24082948; PubMed Central PMCID: PMC3783737.
2) , 4)
Wu X, Li G, Zhao J, Zhu X, Zhang Y, Hou K. Arachnoid Cyst-Associated Chronic Subdural Hematoma: Report of 14 Cases and a Systematic Literature Review. World Neurosurg. 2018 Jan;109:e118-e130. doi: 10.1016/j.wneu.2017.09.115. Epub 2017 Sep 28. Review. PubMed PMID: 28962953.
3)
Pillai P, Menon SK, Manjooran RP, Kariyattil R, Pillai AB, Panikar D. Temporal fossa arachnoid cyst presenting with bilateral subdural hematoma following trauma: two case reports. J Med Case Rep. 2009 Feb 9;3:53. doi: 10.1186/1752-1947-3-53. PubMed PMID: 19203370; PubMed Central PMCID: PMC2646743.
5)
Mori K, Yamamoto T, Horinaka N, Maeda M. Arachnoid cyst is a risk factor for chronic subdural hematoma in juveniles: twelve cases of chronic subdural hematoma associated with arachnoid cyst. J Neurotrauma. 2002 Sep;19(9):1017-27. PubMed PMID: 12482115.
6)
Chan JY, Huang CT, Liu YK, Lin CP, Huang JS. Chronic subdural hematoma associated with arachnoid cyst in young adults: a case report. Kaohsiung J Med Sci. 2008 Jan;24(1):41-4. doi: 10.1016/S1607-551X(08)70072-X. PubMed PMID: 18218569.