

# Calcified Chronic Subdural Hematoma Associated with Intracerebral Hematoma

Jong-Soo Park, M.D.,<sup>1</sup> Eun-Ik Son, M.D.,<sup>1</sup>  
Dong-Won Kim, M.D.,<sup>1</sup> Sang-Pyo Kim, M.D.<sup>2</sup>

*Departments of Neurosurgery,<sup>1</sup> Pathology,<sup>2</sup> Keimyung University School of Medicine, Daegu, Korea*

Calcified chronic subdural hematoma is relatively common, however, its rupture into the subcortical white matter is very rare. A 37-year-old patient with a large, calcified, chronic subdural hematoma which ruptured intracerebrally forming a frontal lobe hemorrhage is reported. Craniotomy for removal of the hematoma and calcification achieved marked reduction in seizure frequency.

**KEY WORDS :** Calcified chronic subdural hematoma · Seizure · Intracerebral hematoma · Craniotomy.

## Introduction

Calcified chronic subdural hematoma is relatively common since the first description in 1884<sup>1,9,10</sup>. In the elderly, observation is recommended for asymptomatic calcified chronic subdural hematoma without acute or progressive neurological disorders<sup>3,7</sup>. However, the incidences of clinically exacerbated due to its rupture into the subcortical white matter is very rare.

## Case Report

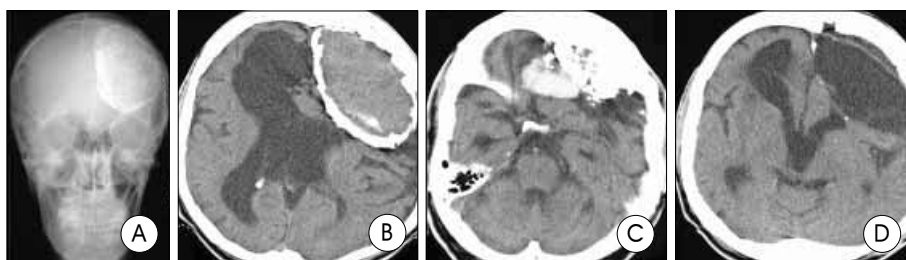
A 37-year-old male patient having a 15-year seizure history was admitted to hospital, who presented highly frequent seizure recently. The patient had been in difficulties maintaining his normal life because of the cerebral palsy since the childhood and no recent head trauma history was found. When admitted, he was alert and had a little larger head circumference. Laboratory examination revealed no bleeding tendency. In the plain skull film, the left frontotemporal bone was thickened and an oval-shaped large calcification lesion was observed. Brain computed tomography scans demonstrating a hyperdense extracerebral mass with calcified margin at the left frontotemporal lobe and severe brain atrophy, ventricular dilatation and hematoma inferomedially at the frontal lobe were observed. By performing

craniotomy, calcified chronic subdural hematoma and the membrane were completely eliminated and then intracerebral hematoma was aspirated (Fig. 1). According to the intraoperative findings, the dura mater was very thickened, the outer membrane was partially calcified, and the mass contents showed a yellowish brown semisolid state. The inner membrane is as thick as, or thicker than, the outer membrane and severely adhered to the arachnoid membrane, which was dissected and removed. On the histopathological examination of the inner membrane of the calcified chronic subdural hematoma, there are hypertrophy due to the calcification and highly vascular granulation proliferation with scattered chronic inflammatory cells are also noted (Fig. 2). The seizure was considerably controlled after the operation.

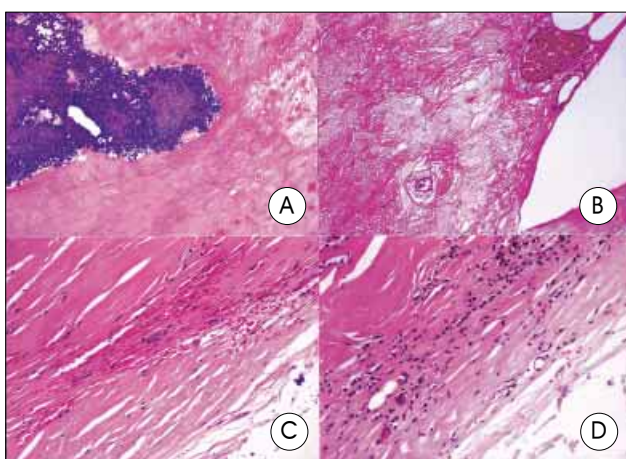
## Discussion

Calcification and ossification occurs in 0.8-10% of chronic subdural hematoma patients<sup>5</sup>. The calcified chronic subdural hematoma is manifested mainly by seizure, dementia, mental retardation, growth retardation or headache, but sometimes incidentally found without any symptom. The mechanism of calcification is that poor circulation and absorption in the subdural space and intravascular thrombosis<sup>1</sup>. Moreover, there is a view that a local factor around the hematoma is involved in the calcification as well as the bilateral chronic subdural hematoma, which develops the calcification only in one side<sup>7</sup>. Additionally, abnormal inherent metabolic tendency can play a role in calcification. However, the mechanism of calcification is still unclear and the periods of calcification are quite different<sup>2</sup>. Like the histopathological findings from this present case, the calcified

• Received : March 21, 2003 • Accepted : May 30, 2003  
• Address for reprints : Eun-Ik Son, M.D., Department of Neurosurgery, Keimyung University School of Medicine, 194 Dongsan-dong, Jung-gu, Daegu 700-712, Korea  
Tel : 053)250-7306, Fax : 053)250-7356  
E-mail : drson@dsmc.or.kr



**Fig. 1.** Plain skull film (A) showing a very large, round calcification in the left frontotemporal region and thickening of the overlying cranium. Noncontrast brain computed tomography scans (B and C) demonstrating a huge, well-defined hyperdense lesion with linear wall calcification and a cortical hematoma in the frontobasal lobe. Postoperative CT scan (D) demonstrating disappearance of calcified chronic subdural hematoma and intracranial hematoma.



**Fig. 2.** Histopathological examination of the inner membrane of the calcified chronic subdural hematoma. There are densely hyalinized tissue with some dystrophic calcification (A) and congested blood vessels (B). Focal interstitial fresh hemorrhage (C) and small neovascular proliferation with scattered chronic inflammatory cells are also noted (D) (H & E,  $\times 200$ ).

chronic subdural hematoma is structurally distinctive from the chronic subdural hematoma, and the inner membrane is as thick as, or thicker than, the outer membrane and has densely hyalinized tissue with some dystrophic calcification and congested blood vessels<sup>4,5</sup>.

The calcified chronic subdural hematoma associated with intracerebral hematoma is extremely rare and generally reported in the patients who have a hemorrhage tendency such as disseminated intravascular coagulation disorder (DIC)<sup>4</sup>. It is postulated that minor trauma to the abnormal vascular networks situated in between the inner membrane of the calcified hematoma and the cortex was the cause of intracerebral hematoma, which spreads into subcortical white matter and grows like a neoplasm<sup>4</sup>. Though there are many different views of the treatment for the calcified chronic

subdural hematoma, observation is recommended for asymptomatic calcified chronic subdural hematoma without acute or progressive neurological disorders in the elderly<sup>3,7</sup>. Nonetheless, surgical procedure should be considered for the infants or young patients<sup>11</sup>, or the patients having acute or progressive neurological disorders<sup>3,6,8</sup> or with intracerebral hematoma in order to prevent additional brain damages.

## Conclusion

The calcified chronic subdural hematoma associated with intracerebral hematoma is very rare. The mechanism and treatment are still unclear, but surgical procedure should be considered to prevent the recurrent hemorrhage and the growth possibility of this lesion.

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