

# Calcified Chronic Subdural Hematoma – Case report and literature review

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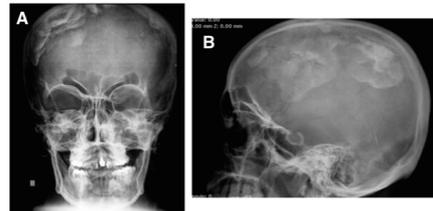


## Introduction

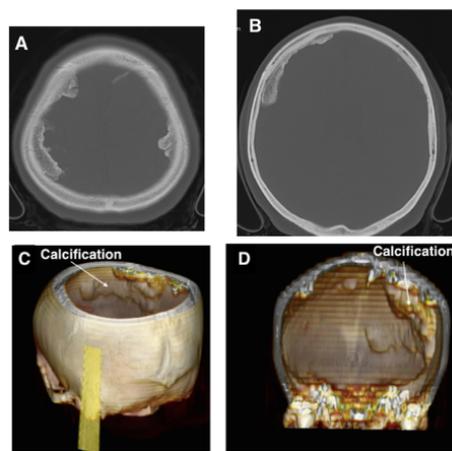
Calcified chronic subdural hematoma (CCSDH) represents a rare disease, accounting for only 0.3-2.7% of all chronic subdural hematomas, which may occur secondarily to trauma, subdural effusion, meningitis, or as a complication of chronic shunting for hydrocephalus. The majority of patients with CCSDH are asymptomatic, although the clinical presentation may be characterized by a slow progression of neurological signs and symptoms.

## Methods

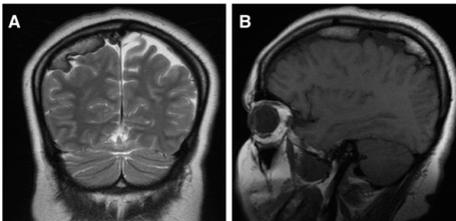
We report two cases of CCSDH; a woman of 38 years old with clinical diagnosis of rhinosinusitis (case 1), and a man of 56 years-old presenting with chronic headache, who were submitted to radiological examinations and was evidenced subdural collection calcified (case 2). These patients were treated conservatively because they had no neurological changes and no significant symptoms.



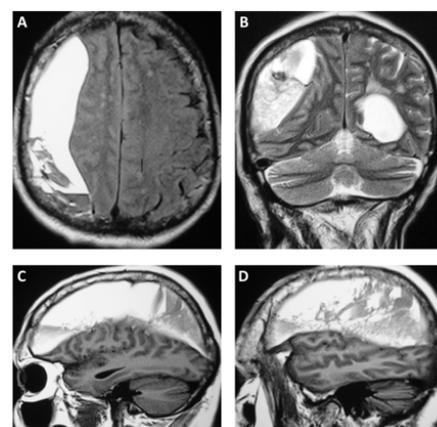
**Figure 1.** X-ray of frontal and parietal left calcification bone in case 1. (A) Front incidence. (B) Lateral incidence.



**Figure 2.** CT scan of case 1, (A and B) hyperdensity next to the skull, showing bilateral subdural chronic calcification. Pathogenesis of calcification that contributes to developing calcification: Metabolic predisposition, vascular thrombosis and poor circulation and absorption in the subdural space. The hematoma may progress gradually from hyalinization to calcification. (C) CT 3D reconstruction. In axial view. (D) Bilateral Chronic calcification into the skull in coronal view on CT 3D reconstruction. Interval between CSH and development of CSH varies from 6 months. (CT: computed tomography).



**Figure 3.** MRI of case 1 (A) Coronal scan with left parietal calcification. (B) sagittal view of calcification in subdural space. (MRI: magnetic resonance).



**Figure 4.** Evidenced extensive brain MRI CCSDH of case 2. An axial section in FLAIR, extensive subdural collection (crescent-shaped), hyperintense concerning CSF (A). The coronal section in T2 sequence, showing subdural collection with biconvex appearance, also hyperintense concerning CSF (B). The sagittal section in T1 showing hyperintense subdural lesion concerning CSF (C and D). (MRI: magnetic resonance; CCSDH: calcified chronic subdural hematoma; CSF: cerebrospinal fluid).

## Results

Although chronic subdural hematoma (CSH) is a well-known disease entity and common, CCSDH is quite rare. Calcification can occur unilaterally or bilaterally, in small or large dimensions. However, when calcification is extensive, bilateral and involves the entire hemisphere, this condition is referred to as “armored brain” given the appearance of an encased brain. The clinical presentation of patients with CCSDH is characterized by a slow progression of neurological signs and symptoms. CCSDH has been observed as the late complication of head injury or new sequelae of post meningitis subdural effusion. Pathogenesis of calcification is poorly understood. It is proposed that metabolic and vascular factors may play a role. Vascular thrombosis may have a contributory role. The hematoma may progress gradually from hyalinization to calcification, and finally ossification through irritation of the tissue. After hemorrhage calcification usually takes six months to many years to develop. An indication of the surgery includes features of raised intracranial pressure, headache, or neurological deterioration, although the therapeutic management of the patients should be determined individually. Surgical treatment of CCSDH is based on some techniques, such as twist drill aspiration, burr hole aspiration or microsurgical dissection.

## Conclusions

CCSDH are rare entities, which are well tolerated due to their indolent nature even though the radiologic findings might be quite impressive and without direct clinical correlation. The therapeutic management of the patients should be determined individually.