

Chronic calcified extradural hematoma in a child: Case report and review of literature

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Abstract: The authors report a rare case of a 14-year old boy with chronic calcified extradural hematoma presenting eight years following head injury.

Keywords: Chronic extradural hematoma, calcification, head injury

INTRODUCTION

Extradural hematomas (EDH) mostly develop immediately after head injury with dramatic neurological deterioration requiring urgent evacuation. Chronic ossified or calcified extradural hematomas are rare clinical entities presenting frequently in children¹. A thorough follow up is mandatory in children who are being conservatively treated for extradural hematoma. However, precise mechanism of calcification of EDH is not well understood. We report a rare case of chronic extradural hematoma with calcification presenting with mild off and on headache in a child, and review possible suggested mechanisms of its occurrence.

CASE REPORT

14- year old boy presented to us with complaints of mild off and on headache following head injury due to fall from height 8 years back, for which he was managed conservatively. CT scan revealed left frontoparietal chronic extradural hematoma with calcified walls (Fig 1 and 2).

A left frontal trephine craniotomy was done and liquefied altered blood with thick hard calcified walls, adherent to duramater, was encountered. Plane was well preserved between calcified walls and duramater and hematoma was removed after superficial dissection. Postoperative course was uneventful. Postoperative CT

scan revealed total removal of hematoma with satisfactory re-expansion of brain.

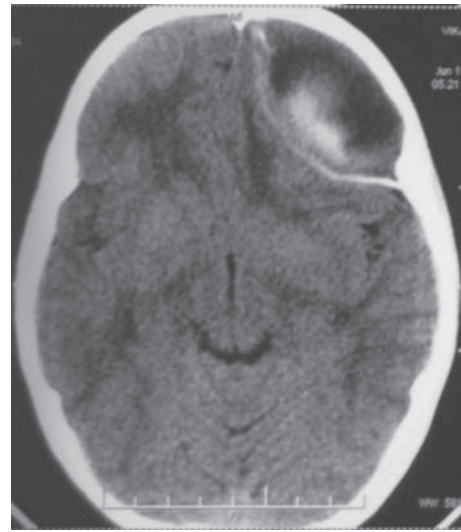


Fig 1: Non contrast axial CT scan of the patient showing a left frontal extraaxial lesion with hyperdense margins and mass effect

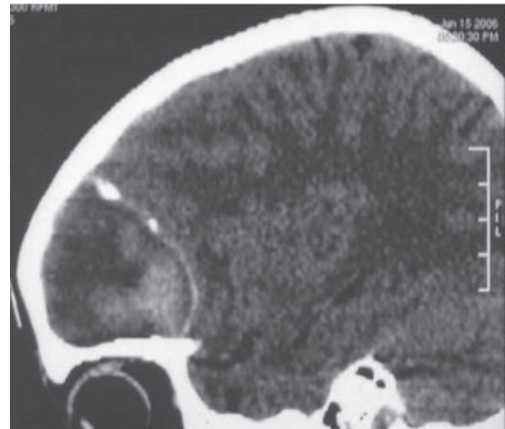


Fig 2: Noncontrast CT scan (sagittal reconstruction) of the same patient showing hyperdense calcified walls

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DISCUSSION

Head injuries are major public health problem worldwide. Since the introduction of CT scan, incidence of surgical and non-surgical EDH among patients with traumatic brain injury has been reported to be in range of 2.7-4% with mortality around 5% in children and 7-12.5% in comparable adults. On review of literature, calcified chronic extradural hematoma has been reported in isolated case reports¹⁻⁶.

Epidural hematomas can have varied clinical presentations. Most commonly, they present as an acute neurosurgical emergency necessitating urgent evacuation. Less commonly, they may be initially asymptomatic; remaining so without enlargement or sometimes, may also enlarge producing progressive symptoms, even after many days or years. The presenting symptoms usually are headache, seizures or patient may be asymptomatic. These cases usually occur in younger age group and calcification is seen only on inner wall of extradural hematoma adjacent to dura.

Although precise mechanism of an osseous transformation is still not well understood, it has been hypothesized that damage to vascularized tissues such as bone and dura provokes inflammation, repair and remodeling in tissues⁷. This natural sequence of healing is more rapid in children than in adults. Moreover, expansion of an EDH may result from repeated bleeding of inner table of skull⁸ or because of oozing from dural surface veins⁹.

Nakamura et al¹⁰ and other investigators have proposed that chronic EDH starts with formation of fibroblast layer adjacent to dura within four days after bleeding. This subsequently develops into connective tissue layer from hematoma margin to cranial vault, which undergoes hyalinization and subsequent calcium deposition under the condition of poor circulation or malabsorption of hematoma content.

In conclusion, conservative management of EDH is not always effective in children. Calcification or even ossification of EDH should be considered in head injured children with persistent symptoms, who are being treated conservatively. Therefore, close surveillance with serial CT scans is mandatory and urgent evacuation of EDH should be considered for children with progressive neurological deterioration.

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