Asymptomatic chronic ossified epidural hematoma in a child: a rare entity

Kadir KOTİL, Mustafa Ali AKÇETİN

A 6-year-old boy presented with an asymptomatic ossified chronic epidural hematoma. He was neurologically intact and had no complaints. This is the first report with a computed tomography image of cerebral compression due to an asymptomatic ossified epidural hematoma. Computed tomography indicated an ossified epidural hematoma in the left frontal region. In children, surgery for asymptomatic ossified chronic epidural hematoma with significant cerebral compression should be considered to relieve cerebral compression and prevent possible future brain damage.

Key Words: Child; hematoma, epidural, cranial/radiography/surgery; tomography, X-ray computed; ossification, heterotopic/diagnosis.

CASE REPORT

A 6-year-old boy who had a head injury 3 weeks ago had no complaints. He had an unremarkable history except for the fall. He had no metabolic, endocrinologic, or systemic diseases. Neurologic examination and the results of laboratory analyses were normal. There was no fracture on plain radiography of the skull. The cranial computed tomography (CT) showed a left frontal ossified EDH. There was no traumatic lesion on CT, as well. An ossified hematoma is thick hyperdense layer along the inner border.

We performed a left frontal craniotomy. At surgery, we encountered a hard, osseous tissue that

Department of Neurosurgery, Haseki Training and Research Hospital, Istanbul, Turkey.

Correspondence (İletişim): Kadir Kotil, M.D. Bağdat Cad., Hasan Alp Yücel Sok., Senil Apt., No: 34/14, 34728 Çiftehavuzlar, İstanbul, Turkey. Tel: +90 - 212 - 529 44 00 Fax (Faks): +90 - 212 - 529 44 60 e-mail (e-posta): kadirkotil@gmail.com

Haseki Eğitim ve Araştırma Hastanesi, Beşik Cerrahisi Kliniği, İstanbul.
was 7 mm in thickness and that entirely adhered to the dura mater. It did not have a capsule, and upon superficial dissection it was removed with dura mater. Unfortunately, the specimen could not be examined pathologically.

**DISCUSSION**

Since 1994, EDHs with calcification have been published as isolated cases.\(^1\)\(^{-10}\) There are a few cases with acute asymptomatic EDH without ossification.\(^{10,11}\) A literature review did not reveal any cases with asymptomatic chronic EDH presenting 3 weeks after a head injury. Kawata et al.\(^5\) reported 2 pediatric cases with rapid ossification of an EDH, 4 months and 12 days after head injury, respectively. Nagane et al.\(^4\) reported an ossifying and calcifying EDH that was detected 40 years after a head injury. Although children with a nonsurgical EDH present in a similar manner when compared with adults, critical neurologic evaluation is more important in children.

If the patient’s neurologic status is not good, expansion of the hematoma or lack of resolution causing a mass effect should be kept in mind. EDHs in children require very careful observation, because some pediatric cases require emergency craniotomy due to large EDH or seizure.\(^3\)\(^,\)\(^4\)

Although the precise mechanism of an osseous transformation is still not well understood, we know that damage to vascularized tissues such as bone and dura mater provokes and initiates a tissue response, including inflammation, repair and remodeling.\(^7\)\(^,\)\(^8\)\(^,\)\(^10\) This natural sequence of healing is more rapid in children than in adults, mainly depending on the type and site of injury and the patient’s age and metabolic status. Although skull growth ceases at the age of 7 years, diploe appears by 4th year and reaches maximum by age 35 years.\(^11\)\(^\) Our case had no metabolic bone disease or endocrinologic disorder. Expansion of an EDH may result from repeated bleeding of the inner table of the skull.\(^6\)\(^\) Extended studies to assess hereditary coagulation disorder, including protein S and C deficiencies, factor V Leiden mutation and antithrombin III deficiency were all normal.\(^9\)

A characteristic intracranial “double-outlined” contour on plain skull radiographs and CT scans represented bone formation and calcification of the hematoma capsule adjacent to the dura.\(^9\)\(^\) The hematoma was in the left frontal region and did not cause any shift effect (Fig. 1). Extirpated calcified EDH was 4.0x3.5 cm and 2.5 cm in thickness. We performed unilateral frontal osteoblastic craniotomy and found an ossified layer of tissue that firmly adhered to the underlying dura mater. Although some authors presume that the ossification starts at the junction between the dura and the hematoma capsule,\(^4\)\(^,\)\(^7\) there was no capsule under the hematoma in our case.

In conclusion, EDHs may be asymptomatic and chronic. Therefore, these clinical entities should be considered in children with head injuries. If there is a chronic EDH with ossification, we strongly recommend surgery in these asymptomatic cases.

**REFERENCES**


