Case Report

Bilateral asymmetric epidural hematoma

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Abstract

Background: Acute bilateral extradural hematoma is a rare presentation of head trauma injury. In sporadic cases, they represent 0.5–10% of all extradural hematomas. However, higher mortality rates have been reported in previous series.

Case Description: The authors described the case of a 28-year-old male presenting head injury, comatose, Glasgow Coma Scale of 6, anisocoric pupils without pupillary light reflex. Computed tomography showed asymmetric bilateral epidural hematomas, effacement of the lateral ventricles and sulci, midline shift and a bilateral skull fracture reaching the vertex. Surgical evacuation was performed with simultaneous hematoma drainage. Patient was discharged on the 29th postoperative day with no neurological deficit.

Conclusion: The correct approach on bilateral epidural hematomas depends on the volume, moment of diagnosis, and neurological deficit level. Simultaneous drainage of bilateral hematomas has been demonstrated to be an effective technique for it, which soon decreases the intracranial pressure and promotes an efficient resolution to the neurological damage.

Key Words: Bilateral, extradural, hematoma, trauma, traumatic brain injury

INTRODUCTION

Trauma is the leading cause of death among young people. Head injury is associated with at least 50% of the fatalities related to trauma. One of the most important complications of head injury is intracranial hematomas, which occur in 25–45% of severe cases and 3–12% of moderate cases.

Although extradural hematomas (EDH) are an uncommon (1–2%) of all cases), their mortality rates ranges from 10% to 40%, but it has been decreasing due to early treatment and improvement in diagnostic and monitoring tools.

Acute bilateral EDH is a rare presentation of head trauma injury. Some of their cases have been reported in literature and they represent 0.5–10% of all EDH.

CASE REPORT

A 28-year-old male was admitted 3 h after a motorcycle accident. During admission, he was comatose with...
a Glasgow Coma Scale (GCS) of 6, his pupils were anisocoric (the right one bigger than left one), without any pupillary light reflex. His past medical history was unremarkable.

A Computed tomography (CT) was performed and showed asymmetric bilateral epidural hematoma (the major one at the right side measuring $109.1 \times 44.2 \times 60$ mm, with a volume of $144.5 \text{ cm}^3$ and the left one with a volume of $61.3 \text{ cm}^3$, with a total volume of $205.8 \text{ cm}^3$), an effacement of the lateral ventricles and sulci, a shifty midline, and a bilateral skull fracture reaching the vertex [Figures 1 and 2].

The focal lesions were indicated to immediate surgery and he underwent emergency surgery to evacuation the epidural hematomas. The left temporal hematoma was the first to be drained. The patient was on supine position, head bent to the right. A left frontotemporal incision was performed and linear temporal bone fracture was found. Trepanation and decompressive craniectomy was performed and the hematoma was drained. The right hematoma was drained sequentially, the patient was on supine position, head round to the left. Right frontoparietal incision was performed, opening the temporal muscle. The linear fracture was identified, right frontotemporal craniotomy was done, and the hematoma was drained. Intraoperative findings included middle meningeal arteries hemorrhage, which was controlled, and the surgery was performed without further complications.

The patient had clinical complications in the intensive care unit (ICU), but his health improved after 2 weeks. Repeated CT head scan showed no residual collections [Figure 3]. He was discharged on the 29th postoperative day, and at discharge, he attained a GCS score of 15/15 with no focal neurological deficit.

**DISCUSSION**

Cases of bilateral extradural hematomas (BEH) are rare in the literature. However, higher mortality rates (42–100%) have been reported in previous series of BEH. Unlike the case presented, they usually occur due to trauma and are detected by CT scan. Although, in few cases, a subsequent hematoma can occur later on without being detected in the initial CT. Therefore, another CT must be done in case the patient’s condition does not either improve or deteriorate after the hematoma removal.

BEH is usually found in head injury cases. Nevertheless, Kuwayama has described the first case of spontaneous bilateral epidural hematomas. They are associated with skull fracture, which frequently are linear, in 95–100% of patients. When the fractures are across the midline, bleeding may result from the superior sagittal sinus, although, in this case, the hematoma is generally under the line fracture. The arterial bleeding is the most important factor for the hemorrhage produced by the epidural hematoma. In our case, the bleeding was
originated by the middle meningeal artery, the main artery for these hematomas.[2,6,8,10,13,14,15,22]

After the diagnosis of BEH, immediate surgery is necessary. Unlike our case, of asymmetric EDH, a simultaneous approach should be first considered since it promotes a quicker treatment to the increased intracranial pressure and functional recovery even in patients under critical neurological conditions. However, subsequently hematomas removal can also be performed. The hematoma causing neurological deterioration should be first removed followed by the evacuation of contra lateral one and, in cases of symmetric BEH, the one in the dominant site should be removed first. Mortality in these patients is higher when there are large hematomas (>150 cm size).[5]

The intraoperative brain swelling in the epidural hematomas is essential for the management of these lesions, because it may be the first sign of the expansion of hematoma in the contra lateral side of the lesion. If the patient does not improve after the hematoma removal or if there is any neurological deficits, further brain imaging is indicated in order to evaluate the efficacy of the drainage and the possible hematoma expansion.[7,9,17]

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