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Case Report

Acute intracranial epidural hematoma located in the clivus in an adult: case report

Hematoma epidural intracraneal agudo localizado en el clivus en un adulto: caso clínico

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ABSTRACT

Clivus epidural hematoma is rare. It occurs due to high-speed traffic accidents. The clinical picture is not very suggestive. Magnetic resonance imaging has been useful in its detection. In most cases it has a good prognosis. **Case presentation:** *Male, 34 years old, victim of a traffic accident. Cranial computed tomography revealed an epidural hematoma in the clivus. He underwent conservative treatment with a favorable result.* **Conclusion:** *It occurs more in childhood, but it can affect adults. The clinical picture is initially scarce. Conservative treatment has been indicated with excellent results.*

Keywords: *retroclival epidural hematoma; clivus epidural hematoma; head trauma injury.*

RESUMEN

El hematoma epidural en clivus es raro. El ocurrió un accidente de alta energía. El cuadro clínico es algo sugestivo. La resonancia magnética ha sido útil para detectarlo. En la mayoría de los casos tiene buen pronóstico. **Reporte de caso:** *varón, 34 años, víctima de accidente de tránsito. La tomografía computarizada de cráneo reveló un hematoma epidural en el clivus. Se sometió a tratamiento conservador con resultados favorables.* **Conclusión:** *Ocurre más en la infancia, pero puede afectar a los adultos. El cuadro clínico es inicialmente escaso. Se indicó tratamiento conservador con excelentes resultados.*

Palabras-clave: *hematoma epidural retroclival; hematoma epidural en clival; traumatismo craneoencefálico.*

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1 INTRODUCTION

Acute intracranial epidural hematoma (AIEH) located in the clivus has been rare[1-5]. Not exclusive to childhood, it has been reported in adults[1,3,4,6]. Its pathophysiology is still unclear[3]. Magnetic resonance imaging has been considered the exam of choice[7]. Initial treatment is conservative with excellent results[1-3].

The authors report a case of AIEH in an adult patient, located in the clivus, and discuss its pathophysiology, management and prognosis.

2 CASE PRESENTATION

Male patient, 34 years old, victim of traffic accident on public road. He was admitted to the emergency room, after local prehospital care service. Due to the low level of consciousness he was sedated and intubated. He presented no obvious signs of focal neurological deficits, and was hemodynamically and respiratory stable. A non-contrast-enhanced computed tomography (CT) scan of the head was performed and revealed the presence of acute epidural hemorrhage located in the clivus (Figures 1 and 2). He underwent conservative treatment with cervical immobilization, analgesics and rest, with intensive neurological surveillance. Twenty hours after admission, he regained consciousness, was extubated and neurological surveillance was maintained. Control CT revealed absence of hematoma located on the clivus (Figure 3). He was discharged from the hospital on the eighth day of hospital stay, with Glasgow Outcome Scale 4, without neurological deficit.

3 DISCUSSION

This hematoma usually occurs in victims of high-speed traffic accidents[2,3], which happened to our patient. Izumida and Ogura[8] reported a case of AIEH of the clivus in an adult patient who suffered mild trauma. It is more common in childhood due to anatomical characteristics that facilitate the appearance of ligament injuries and retroclival hemorrhage[9]. As an example of the larger relative size of the head in relation to the body, which exerts a greater leverage on the neck, the smaller size of the occipital condyles, the more horizontal disposition of the atlanto-occipital joint, the greater weakness of the cervical musculature and the greater laxity of the ligaments and joint capsules make the child more susceptible to this type of hematoma[9].

The possible involved mechanism is due to the mechanism of acceleration and deceleration that cause hyperextension and hyperflexion in the craniocervical junction, and it can also be associated with fracture of the clivus[10,11], injury to the tectorial membrane can compromise adjacent vessels of the basilar plexus and branches arteries of the hypophyseal meningeal trunk. According to Tubbs et al.[2] an injury to the tectorial membrane, its removal from the surface of the clivus can cause the presence of this hematoma and in particular the impairment of the VI cranial nerve.

Figure 1. Non-contrast-enhanced axial CT scan of the skull demonstrates a retroclival hyperdense lesion compatible with an epidural hematoma.

Figure 2. CT of the head, sagittal section without contrast demonstrates a hyperdense retroclival lesion compatible with an epidural hematoma.

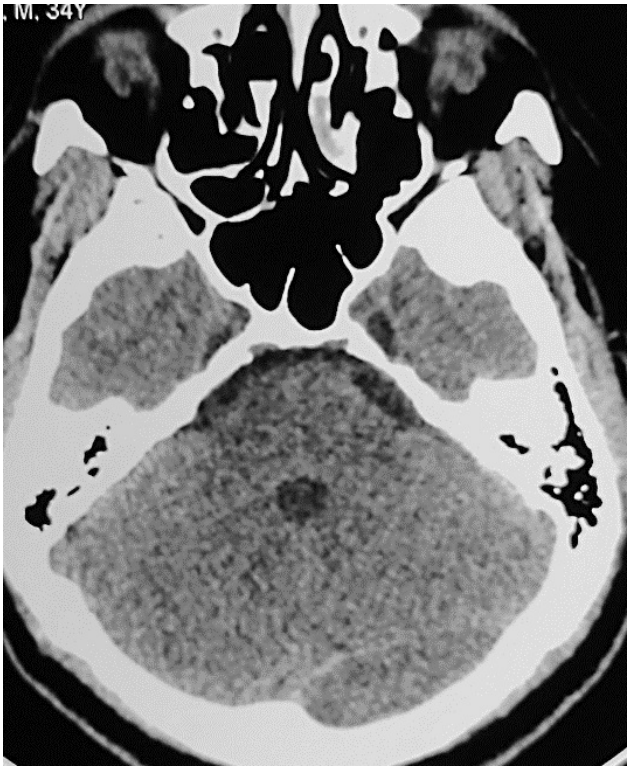

Figure 3. Control. Axial CT scan of the head without contrast, absence of hematoma.

Supratentorial AIEH generally results from an arterial lesion (medial meningeal artery and its branches), while in this case it is of venous origin[3,12]. The clinical picture is usually silent and evolves slowly, but its deterioration can be sudden and fatal, resulting from a picture of obstructive hydrocephalus that was not diagnosed and treated in time[3,4]. The state of consciousness initially assessed through GCS did not allow predicting the prognosis[1,2,13-15]. The involvement of cranial nerve VI is due to the relationship between its path with the clivus and the tectorial membrane[1]. Other cranial nerves that may be affected are IX, X, XII[16]. In severe cases, it may present tetraparesis or tetraplegia and respiratory impairment[9].

Computed tomography (CT) examination can distort the finding of the hematoma or even mask its existence, due to the involvement of surrounding structures[11]. Skull CT examination of the shows a hyperdense image along the dorsum of the sella, clivus and odontoid process of the axis. Magnetic resonance imaging (MRI) is the exam of choice for diagnosis, due to a better definition of the anatomical relationships between the hematoma and surrounding structures[1,3,7,12,17].

The first option of choice in the treatment is conservative and presents excellent results[1-3,5,17]. In case of mild clinical manifestation and without ligament injury, the treatment is always conservative. According to Ratilal et al.[3], this type of hematoma is presumed to have a more benign course with conservative treatment. Cervical immobilization is necessary in cases associated with instability of the craniocervical junction, and in more severe cases, surgical immobilization is indicated. In our case, he underwent conservative treatment with satisfactory results. Surgical treatment performed through an anterior transoral approach[18] or posterior[19] has been indicated when there is a clinically progressive neurological condition with bulboprotuberal involvement, such as paralysis or respiratory abnormalities[10,14,20]. If a ligament injury is presented, a surgical stabilization has been indicated[17]. Therefore, surgical treatment has been performed in special cases and with excellent results.

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4 CONCLUSION

AIEH clivus in adults is a rare entity. Most of the cases described are related to high-energy accidents, mainly traffic accidents. It does not course with a suggestive neurological picture. Thus, it should be suspected in case of high-energy trauma in traffic accidents. Magnetic resonance imaging is precise, it more accurately demonstrates its location and relationship with adjacent anatomical structures. Its initial treatment is conservative and with excellent results.

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