

Vertex epidural hematoma: A rare cause of post-traumatic headache and a diagnostic challenge

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Abstract

Background: Vertex epidural hematomas (VEH) account for only 8% of all epidural hematomas. However, these traumatic injuries may be underestimated or overlooked altogether when only computed tomography (CT) scans are used for diagnosis. The vertex may be a potential anatomic “blind spot” on this radiological method. In such cases, magnetic resonance (MRI) offers a great diagnostic aid.

Case Description: This manuscript reports a patient of a head trauma who developed progressive and intractable headache. MRI made the diagnosis of progressive VEH and highlighted the detachment of the superior sagittal sinus by the hematoma. Surgical treatment, because of the refractory clinical findings, was performed with good postoperative recovery.

Conclusion: Multiple trauma patients with progressive and refractory headache should have their head CT thoroughly reviewed and, if necessary, be investigated with MRI.

Key Words: Cranial epidural hematoma, cranial sutures, tomography

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INTRODUCTION

Only 8% of all epidural hematomas are located at the cranial vertex, with a reported mortality rate of 50% if these lesions are misdiagnosed.^[1,2,8,9] Epidural hematomas located in other regions typically present sudden and acute symptoms.^[1] However, vertex epidural hematomas (VEH) can generate clinical manifestations with slow rise. It may be underestimated when only computed tomography scan is used as a diagnostic method.^[3]

CASE DESCRIPTION

Patient was a 28-year-old victim of multiple trauma caused by a high-energy automobile accident. In the emergency room, the patient was lucid (15 on Glasgow Coma Scale), with mild headache [1 on verbal numerical pain scale (VNS)] and without neurological deficits.

Because of the high kinetic energy of the trauma, a CT scan was performed [Figure 1], which showed hyperdense lesion at the cranium vertex suggestive of acute epidural hematoma, without mass effect. We opted for the conservative treatment based on analgesia.

Within 5 days following admission, the patient presented fluctuations in the pain’s pattern and intensity, and on the sixth day, the pain became unbearable (9 on

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the VNS). Subsequently, a head MRI was performed which revealed the real magnitude of the VEH that was provoking extensive detachment of the superior sagittal sinus by the hematoma [Figure 2a-b].

An emergency craniotomy was performed immediately for hematoma drainage. On the immediate postoperative day, the patient was asymptomatic and the CT showed complete evacuation of the hematoma [Figure 2c].

DISCUSSION

The vertex hematoma is a potential “blind spot” on CT. It is difficult to diagnose because the hematoma is in near isodensity with the adjacent bone, the vertex may fall outside the scanning plane, and VEH may be relatively small to be detected by the CT.^[1] Harbury *et al.* reported that small vertex VEH can be difficult to diagnose on routine CT and a thin section CT or an MRI imaging should be performed to exclude the diagnosis in patients with trauma to the skull vertex.^[3]

The extradural hematoma of the vertex overlies and compresses the superior sagittal sinus and venous lacunae. It compromises the venous drainage of the cerebral hemispheres superiorly, and impairs the absorption of the cerebrospinal fluid. Hence, such cases present mainly with features of intracranial hypertension.^[7]

Miller *et al.* described that VEH may resolve spontaneously with time, and conservative treatment should be considered on a case-by-case basis.^[6] Initially, the conservative treatment was chosen in our case mainly because the CT image failed to demonstrate the real magnitude of the hematoma.

The surgery confirmed the extensive detachment of the superior sagittal sinus by the hematoma [Figure 3]. No skull fractures or dural lesions were identified. The dura and the superior sagittal sinus were suspended firmly with the inner surface of the skull to prevent postoperative bleeding.^[4,5]

CONCLUSION

CT scans play a central role in the initial evaluation of traumatic brain injury patients. However, we must be aware of the possible tomographic “blind spots” and limitations of this method so that, if necessary, we can supplement this radiological investigation with other methods. VEH is a rare diagnosis, but potentially severe, that must be followed strictly.

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Conflicts of interest

There are no conflicts of interest.

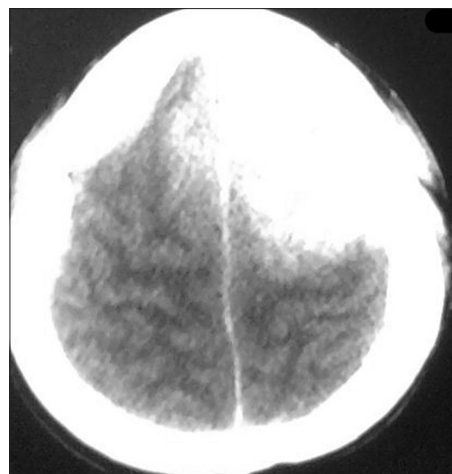


Figure 1: Brain CT showing biconvex high density in vertex

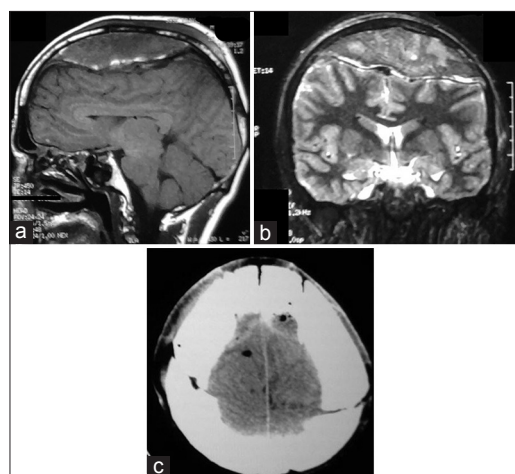


Figure 2: (a) Sagittal brain MRI T1-weighted identifying isointense image detaching the superior sagittal sinus. (b) Coronal brain MRI T2-weighted identifying isointense image detaching the superior sagittal sinus. (c) Brain CT showing complete evacuation of the hematoma

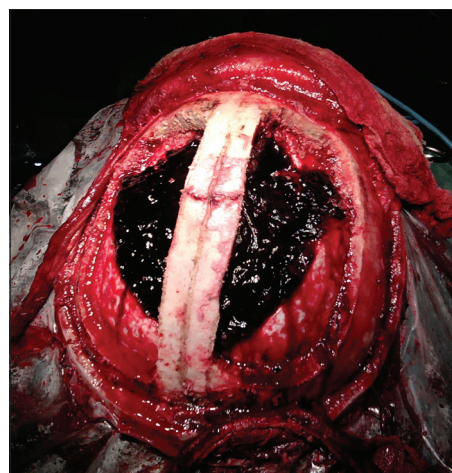


Figure 3: Intraoperative image showing the epidural hematoma detaching the superior sagittal sinus

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