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Letter to the editor

Successful conservative management of large vertex epidural hematoma



Dear editor,

We would like to report a large vertex epidural hematoma (VEDH), an unusual consequence of head injury. A fit 43-year-old man was admitted following a low kinetic back fall from a skateboard. He was not wearing a helmet when the back of his head hit the ground. He had 2 episodes of vomiting and suffered from headaches; there was no loss of consciousness. Examination showed a hematoma of the scalp, but the patient showed no vigilance disorder (GSC 15) or local symptoms. CT scan found a 35 mm-thick VEDH, with comminuted bi-parietal elevated skull fracture overlying the superior sagittal sinus (SSS) (Fig. 1). The estimated volume of intracranial bleeding was 105 cm³. Despite its relatively large size and significant mass effect, conservative management was chosen due to the absence of adverse neurological symptoms. The patient was requested to remain in a >45° beach-chair position to reduce blood pressure inside the SSS. Due to spontaneous improvement in both symptoms and imaging (volume 60 mL at 4 days and 54 mL at 1 week), the patient was discharged after 9 days' observation. He was, at the time of writing, fully active and back to work. Last follow-up CT and MRI showed complete resorption of bleeding, with no brain parenchyma abnormality or SSS thrombosis (Fig. 2).

Venous EDH can originate from ruptured arachnoid granulation, diploic emissary veins, or dural sinuses in more severe injuries. They may in rare cases expand and cause brain herniation. VEDH resulting from SSS tear may present a surgical dilemma: the venous bleeding, despite its low pressure, can create large hematoma, as in our report [1]. Management of VEDH is still under discussion and ranges from extensive surgical evacuation or burr-hole drainage to simple surveillance. Surgical options may be hazardous, as elevation of a fractured bone over an injured sinus can lead to massive

bleeding and air embolism. Moreover, repair and reconstruction is not reliable and may be complicated by thrombosis [2]. Ultimately, control of a bleeding sinus may require ligation. Interruption of the anterior third of the SSS or of a non-dominant transverse sinus is usually safe; in contrast, ligation further downstream will likely lead to complications from venous obstruction and raised intracranial pressure, which may be life-threatening if the posterior third of the SSS is involved [3].

If required, surgical evacuation can be achieved while leaving a bar of bone over the sinus. This strategy may be useful to avoid uncontrollable hemorrhage. Moreover, the bone strip provides reliable anchor points for dural hitch (suspension) sutures to prevent postoperative rebleeding [2]. During surgery, it is essential to achieve hemostasis rapidly and repair the sinus damage in order to restore venous drainage. Several techniques have been proposed (coagulation, application of hemostatic agent, suture, muscle patch, etc.), but there are no consensual guidelines [4]. Surgery does not seem to be the treatment of choice for comminuted cranial vault fracture either [5]. Dismantling and reconstructing a complex skull jigsaw to evacuate a clot may be tricky and time-consuming. Moreover, it may require metalwork for osteosynthesis, unlikely to be appropriate in a traumatic/septic situation.

Patients with bleeding from a venous sinus showed high rates of postoperative complications, and often less favorable outcome [3]. Despite the complex management of VEDH and its potential implications, the literature lacks precision and there are few recent studies [2]. The volume of the hematoma is not in itself a decisive factor in surgery. We opted for conservative management, in the absence of clinical or radiological signs of significantly elevated intracranial pressure. As criteria for VEDH evacuation remain uncertain, the decision to treat surgically or (preferably) not has to be made on an individual basis.

VEDH should preferentially be treated conservatively unless the resultant mass effect is associated with severe and/or worsening symptoms, regardless of volume.

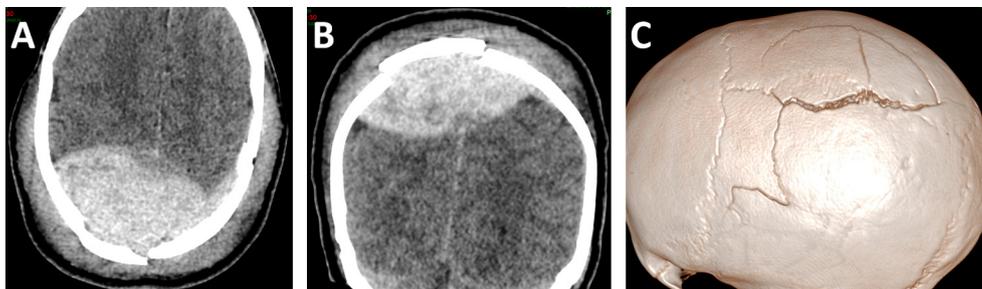


Fig. 1. Computed tomography (CT) scan without contrast enhancement, displaying the vertex epidural hematoma and the comminuted bi-parietal skull fracture overlying the SSS. A. Axial view, brain window. B. Coronal view, brain window. C. 3D reconstruction of the cranial convexity.



Fig. 2. Imaging at last follow-up, showing complete resorption of the VEDH with ongoing ossification of the fracture and no SSS thrombosis. A. Axial view, brain window. B. Coronal view, brain window. C. MRA of the venous system.

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Compliance with ethical standards

This study was conducted in accordance with the ethical standards of the Helsinki Declaration (2008). The patients gave full informed consent for the publication of this report.

Disclosure of interest

The authors declare that they have no competing interest.

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