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## Case Report

# Acute Posttraumatic Paraplegia Caused by Epidural Hematoma at the Vertex

Anna Messori, Fausto Pauri, Franco Rychlicki, Vanni Veronesi, and Ugo Salvolini

**Summary:** Vertex epidural hematomas (VEDHs) are well known but uncommon. Their clinical presentation may be misleading and missed by routine CT axial scanning; thus, diagnosis may be delayed, with possibly fatal consequences. We report a case of acute posttraumatic paraplegia caused by a VEDH, which was evident at CT and for which the patient underwent successful surgery.

Vertex epidural hematomas (VEDHs) are a well-known entity, but they are uncommon, may have a misleading clinical presentation, and may be missed by routine CT axial scanning; therefore, there may be a delay in the diagnosis, with possibly fatal consequences. We describe our experience with a case of acute posttraumatic paraplegia caused by a VEDH, which was suspected, evident at CT scanning, and successfully addressed by surgery only after spinal MR images ruled out spinal trauma. We also emphasize the importance of being well aware of this possibility.

## Case Report

A 41-year-old man was carried from an emergency department to our imaging unit because of paraplegia caused by a trauma sustained while playing amateur football. He had hazardedly attempted an overhead kick and fallen on his back with all his weight. He was fully alert, although he was told that he had had some transient diminution of consciousness. He did not complain of headache or vomiting.

He underwent spinal MR imaging first, but the spine and the spinal cord were normal. A cranial trauma was then correctly suspected; accordingly, repeat examination revealed a contusion in the extracranial soft tissues at the vertex and no sensory abnormalities. Cranial CT scanning was then carried out immediately, 29 min after admission to the imaging unit. Axial CT scans and coronal reconstructed images showed a conspicuous frontoparietal VEDH invading the interhemispheric space, with motor cortex compression bilaterally (Fig 1A and B). Bone window images showed a right parasagittal posterior parietal fracture and widened sagittal and left coronal sutures (not shown). He immediately underwent surgery, fol-

lowed by prompt and dramatic relief of symptoms and definitive resolution.

## Discussion

Initial physical examination at the emergency department revealed no cranial soft-tissue contusion in this case. In the presence of an alert patient with no complaints of headache, nausea, or vomiting, we focused our attention completely on his presenting symptoms, which led to spinal MR examination being performed first. If the absence of sensory disturbances and the presence of a striking leg hypotonia had been considered more accurately, the correct diagnosis might have been suspected immediately on a neurologic basis. The reported transient diminution of consciousness likewise supported the correct clinical diagnosis, suggesting unnoticed cranial trauma that could have been evaluated by cranial CT. Indeed, recommending a skillful anamnestic and clinical evaluation of each case is never excessive. Although “it’s easy to be wise after the event,” this rare situation proved to be a diagnostic pitfall despite the substantial experience of the people faced with it.

Even with a definite diagnosis of cranial trauma, routine imaging techniques may fail to show an epidural hematoma at this rare location. Cerebral angiography is a sensitive diagnostic method for VEDHs, showing inferior displacement of the superior sagittal sinus by the vertex effusion. However, CT, which has become the examination of choice in patients with acute head trauma, may miss some VEDHs. Because the head is routinely scanned in the very plane of the effusion, and the relative thickness of CT sections on routine scanning may cause bone volume-averaging effects at the vertex, relatively small VEDHs may be misinterpreted as artifacts or overlooked (1, 2). MR recently has been emphasized as a much more sensitive tool for VEDHs because of multiplanar imaging and lack of bone artifacts (3), but coronal and sagittal reconstructions of axial CT data can show even small VEDHs as well. In the case we report, however, the lesion was large and easily visible on axial CT scans.

In patients with VEDH, vertex bone fractures, suture diastases, or both are almost constant findings; therefore, whenever they are present on rou-

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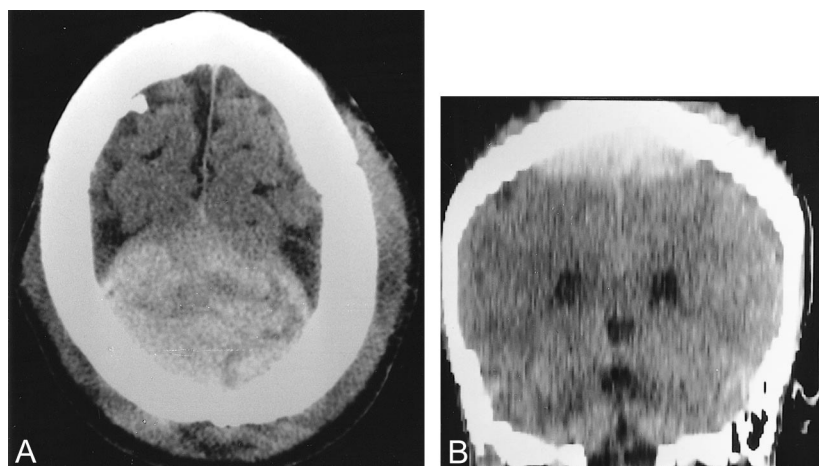


FIG 1. Epidural hematoma at the vertex.

A, Axial CT scan without contrast medium shows an area of hyperattenuation crossing the midline and compressing both posterior frontal and anterior parietal lobes.

B, Coronal reconstruction of the CT data without contrast medium allows better appreciation of the size of the hyperattenuating lesion and the extent of brain compression.

tine emergency radiologic examination, supplementary MR imaging or reconstructed, thin-section CT imaging is indicated. Careful observation for possibly delayed hematoma formation also is advised. MR and reconstructed thin-section CT imaging also are the methods of choice in the case of conservative management of VEDHs, which does represent a treatment option in selected cases.

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