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Liquid Acute Epidural Hematoma

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Epidural hematoma(EDH) occurs in 1.5 to 3.5% of children admitted with craniocerebral trauma(1). Computed tomography(CT) permits identification of an acute EDH by its biconvex lenticular shaped appearance and the blood density representing a solid clot(2). We report two cases of acute EDH seen as isodense biconvex mass lesions on CT and at surgery containing liquid blood.

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Case Reports

Case 1: A nine-year-old girl sustained head injury due to a fall from a height of 6 feet. She was unconscious for about half an hour and there was no history of bleeding from the nose or ear. After regaining consciousness, she complained of severe headache and vomiting and was admitted to this hospital 2 days after the injury. At admission, she was drowsy, arousable and had a right parietal bogginess with no focal motor or sensory deficit. There was no history of trauma in the past. Her hemoglobin and hematocrit were 11.8 g/dl and 34.8, respectively. Her coagulation profile was normal. Roentgenogram of the skull showed a linear fracture in the right temporoparietal region. Plain CT scan showed an isodense, biconvex, extra-axial mass lesion in the right temporoparietal region (*Fig. 1*).

During surgery, on making a right parietal burr hole, tarry fluid along with few clots gushed out under high pressure. The dura was seen pulsating at a depth of 3 cm. Turning of bone flap revealed a few clots adherent to the dura mater at places. No active bleeding source, membrane or dural tear was identified. Her post-operative course was uneventful and she made full recovery.

Case 2: A fifteen-year-old boy sustained head injury due to fall from a height of about 15 feet. He was unconscious since the injury, had repeated vomitings and was brought to this hospital 2 days after the injury in an unconscious state. There was no focal neurological deficit. Examination of the fundus revealed papilledema and his Glasgow coma scale (GCS) was 7. His hemoglobin and hematocrit were 10.6 g/dl and 32.5, respectively and the coagulation profile was normal. Roentgenogram of the skull showed a left frontal depressed fracture. Plain cranial CT scan showed a left frontal depressed fracture with an underlying isodense, biconvex, extra-axial mass lesion (*Fig. 2*).

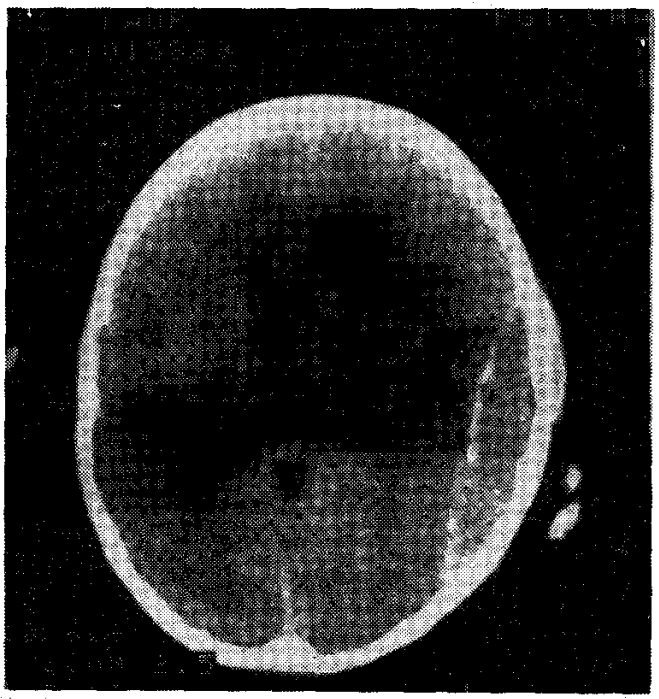

Fig. 1. Plain cranial CT scan showing isodense, biconvex, lenticular extra-axial mass.

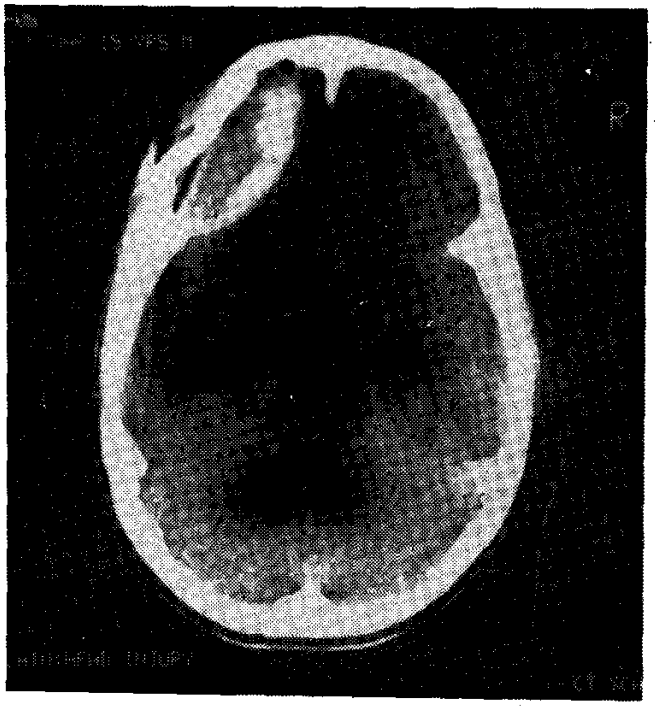

Fig. 2. CT scan showing isodense with peripheral hyperdense extra-axial hematoma.

At left frontal craniectomy, 60 ml of fluid extradural hematoma with a few clots was evacuated. No dural tear was identified. The post-operative course was uneventful and the patient made gradual but full recovery.

Discussion

An acute EDH is classically described as having a uniformly high attenuation value (hyperdense) on the CT scan(3). Very rarely an EDH may be isodense(4-7). The isodensity of an acute EDH is thought to be due to low hemoglobin(9-11 g/dl) and hematocrit(28-33), admixture of blood with cerebrospinal fluid, inhibition of clot formation or rapid clot dissolution(4-7). Low hemoglobin and hematocrit are probably the main contributory factors as demonstrated by attenuation measurement of blood components on computed tomography(7). This was further confirmed by New and Aronow(8), who demonstrated a linear correlation between the hematocrit of whole blood and CT attenuation values. In the anemic patient with a hemoglobin between 9 and 11 g/dl, the attenuation of extravasated blood may not differ from the normal brain.

In the presence of normal coagulation profile, hemoglobin above 11 g/dl and hematocrit of more than 33, and isodense EDH indicating liquid blood as seen in case 1 could possibly be explained on the basis of rapid clot dissolution. However, a small dural tear which could escape detection or heal spontaneously cannot be ruled out. In our second case, hemoglobin was below 11 g/dl and the hematocrit was below 33. This could possibly explain the isodensity of EDH.

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Duplicate Perineal Anus
A Rare Anorectal Malformation

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True duplication of the rectum and anus is a rare anomaly. Three patterns of

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