

Delayed Sequential Multiple Extradural Hematomas – Case Report and Review of Literature

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Abstract : Multiple extradural hematomas (EDH) ≥ 3 are an uncommon occurrence especially when they arise sequentially over a period of time. We present a case of delayed multiple EDH in a patient with trauma. A 31-year-old male presented to us with a moderate head injury (GCS-9). CT revealed diffuse axonal injury. He was electively ventilated and an intracranial pressure (ICP) monitor was placed. ICP increased over the next few hours. Repeat CT scan (8 hours after injury) revealed bilateral EDH (Right parietal and Left parieto occipital). He underwent emergency craniotomy and evacuation of both the EDH's. Subsequently a repeat CT scan (6 hours later) revealed a right parieto occipital EDH for which he underwent craniotomy and evacuation. Subsequently the patient made an uneventful recovery. Careful monitoring and appropriate management gives excellent results. We also review the relevant literature.

Key words: Multiple, sequential extradural hematoma.

INTRODUCTION

Double extradural hematoma account for 2-25% of all EDH in various series¹. Among these, multiple EDHs' (≥ 3) are even more rare especially when they occur in a temporal sequence. We present a case of sequential triple extradural hematoma and review the relevant literature.

CASE REPORT

A 32- year old gentleman presented in the casualty and emergency services of the hospital with history of a road traffic accident. On examination he was E3V1M5, pupils were bilaterally equal and reacting to light. CT scan on admission revealed a small left parietal contusion with traumatic SAH and diffuse cerebral edema. He also had fractures of left temporal bone and right parietal bone (**Fig 1a and 1b**) He was admitted to the intensive care, intubated and electively ventilated, in addition to antiedema measures and anticonvulsants. After approximately 8 hrs of intracranial pressure (ICP) monitoring his ICP started increasing. CT scan (**Fig 2a and b**) revealed a left parieto occipital and right parietal EDH. He underwent left parieto occipital and right parietal craniotomy and evacuation of hematomas. On the left side, the bleed was from the superior sagittal sinus, which was controlled with gelfoam and surgicel. The bleeding vessel could not be identified on

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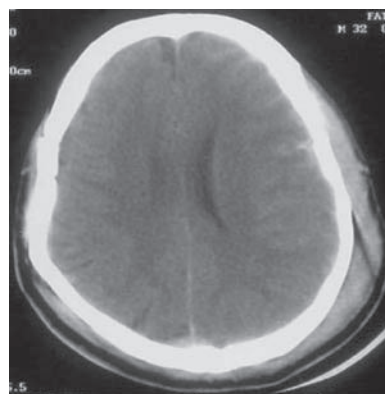


Fig 1 a: CT scan head (plain) - showing a small left parietal contusion (arrow) with traumatic SAH. No extradural hematoma seen

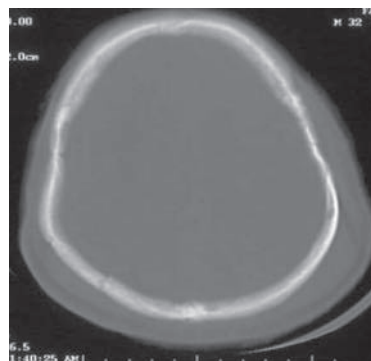


Fig 1 b: CT scan head (plain) - Fracture of right parietal bone (arrow)

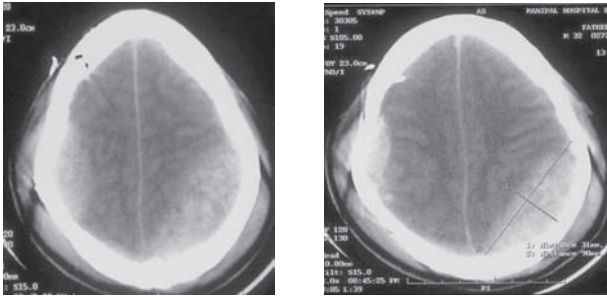


Fig 2 a and b: CT scan head (plain) – Showing a right parietal (Thin arrow) and left parieto-occipital EDH (Thick arrow)

the right side. Post operatively after 4 hours, the ICP again started rising. CT revealed a right parieto-occipital (Fig 3) hematoma, for which he underwent right parieto-occipital craniotomy and complete evacuation of haematoma. Repeat CT on the first postoperative day (Fig 4a and b) revealed complete evacuation of the EDH's. The recovery of the patient was uneventful and he was weaned off the ventilator gradually. His sensorium gradually improved and at the time of discharge was E4V4M6.

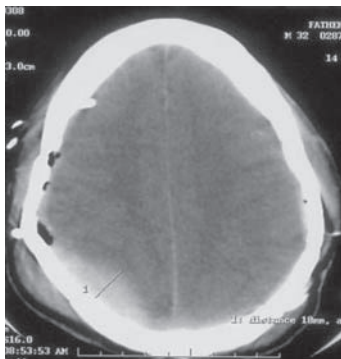


Fig 3: CT scan head (plain) - showing complete evacuation of previous EDH and a fresh right parieto-occipital EDH (arrow). CT scan head (plain)

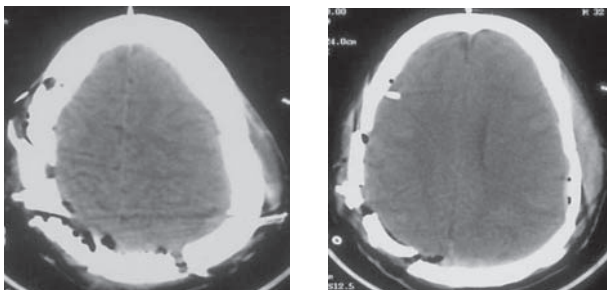


Fig 4 a and b: CT scan head (plain) - showing complete evacuation of the EDH.

DISCUSSION

Regarding the etiogenesis of multiple EDH's, it has suggested that a lateral force strips the dura at the site of

impact by the inward and outward bending of the skull². While on the opposite side – dural stripping occurs due to motion of the skull, aggravated further by negative intracranial pressure found at the antipode of the compression force of the skull³.

Double EDHs are uncommon and account for 2-25% of all EDH's in various series. Even uncommon are the multiple EDHs (≥ 3), especially when arising sequentially. We performed an extensive review of literature of all cases (>100) of bilateral EDH reported in available literature^{2,4-10}. Among these we found only five cases of multiple EDH^{1,6}. None of these occurred sequentially.

This present case has several unique features. It was delayed (a radiological definition implying the first CT scan post injury was normal), sequential in occurrence (arising in a temporal sequence) and also that the occipitoparietal EDHs occurred in sequence and not simultaneously.

In the present case, we found that the sagittal sinus was the source of bleeds in the parieto-occipital hematomas, while in the parietal haematoma the cause of bleeding could not be visualized. Similarly Dharker et al could not demonstrate active arterial bleeding in their series of bilateral EDH⁴. Frank reported that the slow development of bilateral EDH might be due to a mechanism different from that of unilateral EDH².

This case, an unusual presentation, is nevertheless important as correct and prompt diagnosis and management gives excellent results. This report stresses on intensive monitoring of head injured patients and necessity of prompt radiology for diagnosis.

CONCLUSION

Triple and multiple EDHs' are very rare when compared to double EDH. Prompt and intensive management gives an excellent outcome.

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