Case Presentation

An 8-year-old boy was riding a bicycle when a lorry hit him. He was thrown to the ground, and lost consciousness. There was no external bleeding noted by eyewitnesses. He was immediately brought to a nearby health center.

Upon arrival in a tertiary hospital, his GCS was E1V1M3 (5/15) and he was immediately intubated. His blood pressure was 100/49mmHg with pulse rate of 180 beats per minute. There was bruising at the right clavicle and left anterior chest wall. However, the percussion and auscultation was normal. The rest of the examinations were unremarkable.

CT brain and thorax was performed. There was hyperdensity in the posterior fossa just posterior to the clivus, extending to C2 level, in keeping with acute haematoma (Figure 1). No mass effect to the cerebellum or brainstem was seen. Additionally, mild cerebral oedema was seen. Lung contusions and small mediastinal haematoma were present.

Figure 1 Axial and sagittal reconstruction of CT brain showing acute haematoma in the posterior fossa (thin arrows). Thick arrow shows that the haematoma extends to C2 vertebral level.
**Question 1:** Name the intracranial compartment in which the acute haematoma is seen in Figure 1.

A. Subarachnoid space  
B. Subdural space  
C. Extradural / epidural space  
D. Intraparenchymal region  
E. Intraventricular region

**Question 2:** What is the most appropriate clinical management for this patient?

A. Immediate emergency surgery with follow up imaging  
B. Immediate emergency surgery without follow up imaging  
C. Elective surgery after an interval period, with follow up imaging  
D. Conservative treatment with follow up imaging  
E. Conservative treatment without follow up imaging
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Unexpected Site of Haematoma on Post-Traumatic Neuroimaging of a Child

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ANSWER TO JCHS-IQ-02-2019

Question 1: C
Question 2: D

Discussion

Post-traumatic haematomas in the posterior fossa are uncommon [1]. Extraparenchymal haematoma can occur in the subdural, subarachnoid and extradural/epidural spaces. Retroclival location of haematoma is also not frequently encountered [1-5]. Traumatic Retroclival Epidural Haematoma (RCEH) is a rare entity with greater prevalence in pediatric population compared to adults and should be suspected in children involved in road traffic accidents [2-4]. It is postulated that horizontal articulation between the cranium and the atlas as well as ligamentous laxity at the craniocervical junction in paediatric age group predisposes them to ligamentous injury and formation of retroclival hematoma [1-5]. As the diagnosis is frequently missed, three-dimensional reconstructed CT or MRI is considered imperative in the diagnosis of this condition [2].

Differentiation between RCEH and subdural haematoma is important in deciding surgical versus conservative management [1]. Due to the anatomy of the dural layers, RCEH descends down to the attachment of tectorial membrane at the body of C2 vertebra while subdural haematoma extends beyond the level of C2 [1].

Management of RCEH is largely conservative, depending on the presence or absence of mass effect onto the brainstem [2,4,5]. Follow up imaging usually show resolution of the haematoma [3,5].

Learning Points

- Extraparenchymal intracranial haematoma can occur in different spaces namely the subdural, subarachnoid and extradural/epidural spaces.
- Retroclival epidural haematoma descends down to the attachment of tectorial membrane at the body of C2 vertebra while subdural haematoma extends beyond the level of C2.

Conflict of Interest

Authors declare none.
REFERENCES


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