

CT- SCAN BE MADE COMPULSORY IN CASES OF RTA: NEED OF THE HOUR

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ABSTRACT

Extradural haemorrhage (EDH) is one of the commonest findings in cases of cerebral lesion. Most of the cases of EDH occurs in cases of trauma like road traffic accidents, fall from height, physical assault etc. Traumatic brain injury is a common cause of death and disability and one of the most critical health and social problems. It is one of the life-threatening conditions and requires both basic and advanced level skills to manage and thus reach a better outcome. Various treatment protocols, both in conservative and surgical aspects, have been formulated to save a patient's life with EDH. Advanced technologies, better management protocols and better facilities have led to a decrease in the mortality rates of these patients. However, diagnosis of EDH remains the crucial and outcome deciding factor in these cases. Computed Tomography (CT) scan is considered one of the essential diagnostic modalities in this scenario and holds an important position in deciding the patient's prognosis. EDH usually is stable. However, in some cases, the patient presents without symptoms for many days, along with negative CT scan findings for EDH. Thus, this type of case requires subsequent CT scans and continuous monitoring to detect the delayed progression. In this case report, we depict a post-mortem finding of delayed EDH, highlighting the importance of subsequent CT scans in trauma patients who present with negative findings in the initial period after trauma.

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INTRODUCTION

A 30-year male met with a Road traffic accident 05 days back. He was ejected off from the back seat of a motorbike which was being driven by his friend on a highway. The accident occurred due to sudden application of brakes to negotiate the unexpected appearance of a stray cattle in front of the bike. The patient sustained few abrasions over the body, no loss of consciousness or bleeding from any natural orifices. He has treated on OPD- basis at a nearby hospital for the injuries. The following 04 days were uneventful. On the 05th day, he started complaining of aphagia, drooling of saliva from the left angle of his mouth in the afternoon. During the night, he was unable to get up from the bed with decerebrate rigidity. He was then brought to our Emergency department on the 06th day in the morning, was pronounced brought dead after examination. The body was shifted to the mortuary for post-mortem examination.

On autopsy, there was abrasions with brownish coloured scab over the hands. No other injury was noted on external examination. During an internal examination, extradural haemorrhage of brownish coloured clotted blood mass of approximately 150cc, at the occipital region more on the right side (Image 1), a posterior meningeal artery on the right side was ruptured, no bony fracture. On removal of the dura

subarachnoid haemorrhage was noted diffusely over the brain parenchyma, oedema (Image 2). [Brain wt:1327gm]. The cause of death opined was Complication due to intracranial haemorrhage.



Image 1 Diffuse Subarachnoid Haemorrhage.

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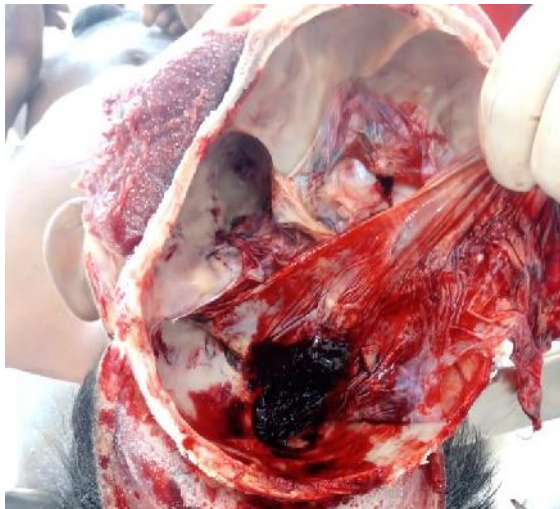


Image 2 Extradural haemorrhage of brownish coloured clotted blood mass

DISCUSSION

Extradural hematoma (EDH) is designated as an acute outcome of traumatic brain injury as it commonly manifests immediately after the injury. (1) However, many cases of delayed or progressive epidural hematoma (PEDH) are reported. (1) Based on the time of onset of signs and symptoms, EDH can be categorized into two broad headings, namely acute and sub-acute. (4) Patients suffering from neurological deficits which require operative procedure within 72 hours of injury are of acute variety. Those patients presenting within 96 hours of injury with a less well-defined lesion of the brain are grouped as sub-acute. (4) Delayed onset EDH is placed in the category of rare occurrences. (2)

A study conducted by Borovichev. al. among the 105 treated cases of acute traumatic extra-cerebral haemorrhages, concluded that 80 patients had EDH out of which seven had delayed onset., and thus entitled as uncommon. (2)

Unlike the conclusion that Ford and McLaurin have proposed in acute experimental models, that the primary reason for delayed traumatic EDH being the fount of bleeding or augmentation of the separation of dura mater from inside of the skull, it is proposed by many evidence-based studies that the brain equilibrium and the homeostasis maintained by intracranial pressure also plays an important role. (3)

In younger patients, vessels in the dura mater have a high possibility of getting ruptured in cases of trauma to the head compared to older patients where the dura mater gets gradually adherent, reducing the risk of EDH. (1)

PEDH is defined as an appearance of new hematoma(s) or a conspicuous increase in the size of hematoma(s), to a 25% or more increase in at least one dimension of one or more lesions seen on the first post-injury CT scan. (1)

A study conducted by Hao Chen *et al.* concluded that among 412 patients examined, 38 patients developed PEDH, of which the manifestation varied from 2 hours to 7 days with an average of 23 hours. PEDH appeared after injury within the first 6 hours in 29.0% cases 7 hours to 24 hours in 36.8% cases, one day to 3 days in 26.3% cases and 3 days to 7 days in 7.9% cases. (1)

PEDH is rare after 3 days of injury. (1) Borovich *et al.* have documented a case with a gap period of 11 days between head

trauma and detection of EDH. (2) In our case, the death occurred after 6 days of trauma. CT scan was not performed during the first 4 days of injury. Many reports suggest that the patients under the category of head trauma should undergo routine repeat CT scan without considering the ICP or neurological status within 24 hours of admission or of the emergency decompressive procedure. (4,5,6,7)

It is already documented in various studies that CT scan is necessary in cases of GCS score <15 after 2 hours of injury; Suspected open/depressed skull fracture; Any sign of basal skull fracture; >2 episodes of vomiting; Age >65 years; Amnesia before the impact of >30 minutes; Dangerous mechanism (i.e., pedestrian struck by motor vehicle, occupant ejected from a motor vehicle, or a fall from a height of at least 3 ft or five stairs). Our case fulfils the last criteria of traumatic injury, which warrants the use of CT scan. (8)

The crucial factor in performing the first CT scan is the timing to prognosticate the manifestation of PEDH. (4) Subsequent CT scan is also required to differentiate delayed epidural hematoma and late presentation of symptoms, which in turn predicts the outcome and may change the modalities of treatment. (4) The fact that EDH is formed immediately after a head injury has also been disagreed by the recent increase in early CT scanning in head trauma patients. (2)

CONCLUSION

In the above discussed case, the life of the young fellow could have been saved provided the CT-scan was done at the initial stage. Following which apt treatment in time could have started, changing the current outcome. With the increase in number of imaging centres as compared to previous few decades, the cost has markedly decreased. So the authors propose that the CT-scan should be made compulsory in cases of head injury.

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