STUDY OF HEAD INJURIES WITH REFERENCE TO EXTRADURAL HAEMORRHAGE

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ABSTRACT

OBJECTIVES
An autopsy study of extradural haemorrhage in head injuries was done. Extradural haemorrhage is a common manifestation in trauma in vehicular accidents, head injuries due to blunt force, falls, being hit by a moving object, etc.

RESULTS
The presence of EDH in injuries with blunt weapons, vehicular accidents, falls, minor accidents were 48.71%, 33.33%, 16.67%, 0.6%.

CONCLUSION
Extradural haemorrhages are very common in blunt weapon injuries followed by vehicular accidents, falls and minor accidents.

KEYWORDS
Extradural haemorrhage, Blunt Injuries, Vehicular accidents, Falls, Minor accidents.

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INTRODUCTION: Any trauma to head or face that has the potential for damaging the brain can have devastating consequences. Normally the brain is protected within the bony skull, but it is not well restrained within this compartment and injuries to the brain result from differences between the motion of the solid skull and the relatively ‘fluid’ brain. The clinical significance of any space occupying lesion within the cranial cavity is the effect that the raised intracranial pressure caused has on brain structure and function. Bleeding compresses the brain and, if it continues for sufficient time, and in sufficient quantity, can raise the intracranial pressure. As pressure increases, blood flow to the brain decreases and, if the pressure reaches the point where it equals or exceeds arterial blood pressure, the blood flow to the brain will cease. The dura is strong and bluish connective tissue membrane and is firmly attached to the skull. Extradural haemorrhage is caused almost exclusively due to trauma. Extradural haemorrhage is a common manifestation in head injuries due to blunt trauma due to falls, blow with blunt weapon, traffic injuries, crushing of the head, etc., At the moment of impact, the skull moves relative to the dura beneath it, and the dura is stripped from the bone. This produces an empty extradural space at the site of trauma.

A blood vessel may be injured at the same time and results into haemorrhage depending upon the site of blood vessel.

METHODS: The present study has been carried out in the Department of Forensic Medicine, Government Medical College, Ananthapuramu on 78 cases containing cases of falls, vehicular accidents, blunt injuries to head during the period 2013-2015. Data was collected from the police, relatives, and photographic evidences from the scene, post-mortem findings.

Inclusion Criteria: Head injury cases due to blunt force.

Exclusion Criteria: Head injury cases due to sharp force.

RESULTS:

<table>
<thead>
<tr>
<th>Injuries due to</th>
<th>No. of cases with EDH</th>
<th>Percentage of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blunt weapon injuries</td>
<td>38</td>
<td>48.71%</td>
</tr>
<tr>
<td>Vehicular accidents</td>
<td>26</td>
<td>33.34%</td>
</tr>
<tr>
<td>Falls</td>
<td>13</td>
<td>16.67%</td>
</tr>
<tr>
<td>Minor accidents</td>
<td>1</td>
<td>1.28%</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1: Table showing proportion of various types of cases with Extradural Haemorrhage
Extradural haemorrhages are seen in the form of clots. These are usually present in the temporoparietal area, or in the frontotemporal area or parieto-occipital area. Occasionally, these are also seen in frontal or posterior fossa. Of all the 78 cases, 13 were due to falls with 16.67%, 26 were due to vehicular accidents with 33.34%, 38 were due to blunt injuries with 48.71%, 1 was a minor accident with 1.28%.

**DISCUSSION:** Accumulation of blood and blood clot between the inner aspect of the skull and the outermost layer of brain membranes (dura matter) is known as extradural haemorrhage.\(^2\) It is the least common of all the three brain membrane haemorrhages.\(^3\) EDH is most commonly due to tear of middle meningeal artery and an associated fracture is present.\(^4\) Pure extradural haemorrhage only is less common and it is most commonly with subdural haemorrhage.\(^5\) In a typical case, there is a history of head injury which starts the bleeding, and will usually cause temporary unconsciousness followed by normal consciousness and the time interval between them is known as Lucid Interval.\(^6\) Bleeding from damaged perforating veins, dural sinuses, in which case the development of symptoms will be slower.\(^7\)

Study conducted by Graham et al\(^7\) showed that this type of haemorrhage is common in 5-10% of fatal head injuries. Study conducted by Koc et al\(^8\) showed significant percentage of EDH (20-30%) can also occur in frontal and posterior cranial fossa and is more common in children in these regions. Separate studies conducted by Phonprasert et al\(^9\) and Servedai et al\(^10\) showed that imaging studies have confirmed that about 50% cases are associated with subdural haemorrhage and/or contusional brain injury. Studies conducted by Viljoen and Wessels\(^11\) showed that acute and chronic EDH can be differentiated by histopathological examination. Henderson et al\(^12\) said in their report that it can also occur spontaneously. A study conducted by Mustafa and Subramaniam,\(^13\) Matsumoto et al\(^14\) showed that the extradural haemorrhages occur due vascular malformations. A study conducted by Rodriguez et al\(^15\) showed that EDH occurs also with anticoagulant therapy.

**CONCLUSION:** A study on extradural haemorrhage in head injuries is conducted on 78 cases. Of them the presence of EDH in falls, vehicular accidents, injuries with blunt weapons, minor accidents were 17.9%, 33.33%, 48.71%, 0.6%. Extradural haemorrhages are very common in blunt weapon injuries followed by vehicular accidents, falls and minor accidents.

**BIBLIOGRAPHY:**