

Incidence of Head injuries at District Barkhan Baluchistan

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ABSTRACT

Objective: The purpose of this study was to find out the incidence of head injury resulting from assault conducted at the DHQ Hospital Barkhan during period of three years.

Subjects and Method: A retrospective study of 211 cases of head injury resulting from assault was conducted at the DHQ Hospital Barkhan during period of three years (Jan 2009 to Dec 2011).

Result: Total no of cases were 211, among these 123 cases proved to be fatal while 88 cases survived. Among the fatal cases, firearms were the most common assault weapon, were used in 37% (n=78) of cases followed by blunt instruments 27% (n=58). Sharp weapons were the least common weapon used in 20% (n=20). The multiple cranial bone fracture was detected in skull examination.

Conclusion: Fatality among attack victims with firearm injuries to the head is very high. The location of meningeal haemorrhage whether in single or multiple layers has little influence on the outcome while haemorrhage in the deeper layers has higher fatality. Thus these may be considered as high risk factors in violent attacks to the head.

Key words: Head injury, Assault, Barkhan, Incidence

INTRODUCTION

Fatal head injuries are one of the most effective methods of homicide. The recent rise in the trend of murder cases involving head injury is a serious concern to society. Assailants usually select a part of the body where the maximum damage can be inflicted with minimum effort.¹ The ultimate outcome of the attempt depends on a number of factors e.g. type of weapon used, target site on the body, number of blows etc. The presence or absence of a skull fracture, its type and site along with the type of intracranial haemorrhage has immense significance in the final outcome in cases of such head injuries.² The thickness of the cranium is not uniform all throughout as there are thin plates of bones such as the frontal and temporal plates and the thickness is greater along the sutures.^{3,4} Those of the head are the most common and the most important ones in forensic practice. The dominance of head injuries in road traffic accidents is due to the fact that, when the victim is pushed or knocked to the ground, he/she often strikes the head and also, that the brain and its coverings are vulnerable to blunt trauma that would not so frequently be lethal if applied to other body parts.⁵⁻⁷

MATERIAL AND METHODS

A retrospective study of 211 cases of head injury resulting from assault was conducted at the DHQ Hospital Barkhan during period of three years (2009-2011). Among these 123 cases proved to be fatal while 88 cases survived. These 88 patients can be considered to be victims of attempted homicide. All the cases suffered head injury due to an attack, with or without injuries to other parts of the body. The cause of death in the fatal cases was solely due to head injury. Nine cases died in hospital and the rest either died on the spot or on the way to the hospital. Information regarding the victims was collected from the inquest report, interviewing the family members and a proper external examination in fatal cases in hospital records in nonfatal cases. The data so obtained were analyzed and presented in the study.

RESULTS

Among the fatal cases, firearms were the most common assault weapon, were used in 37% (n=78) of cases followed by blunt instruments 27% (n=58). Sharp weapons were the least common Weapon used in 20% (n=20) [Table 1]. The multiple cranial bone fracture was detected in skull

examination. Following fracture was detected in examination Frontal fracture 18% (n=37), parietal fracture 11% (n=23), temporal fracture 10% (n=21), occipital fracture 13% (n=27), Frontal + Parietal fracture 33% (n=16), Frontal + Temporal fracture 9% (n=20), Parietal + Temporal Fracture 8% (n=17), Parietal + Occipital fracture 6% (n=13) and Temporal + Occipital fracture 9% (n=20), of the cases [Table 2].

Table 1: Type of weapon used (n = 211)

Type of weapon	No.	%
Only blunt weapon	58	27.0
Only sharp weapon	42	20.0
Blunt and sharp weapons	33	16.0
Firearms	78	37.0

Table 2: Site of skull fracture (n = 211)

Type of weapon	No.	%
Only frontal	37	18.0
Only parietal	23	11.0
Only temporal	21	10.0
Only occipital	27	13.0
Frontal + Parietal	33	16.0
Frontal + Temporal	20	9.0
Parietal + Temporal	17	8.0
Parietal + Occipital	13	6.0
Temporal + Occipital	20	9.0

DISCUSSION

Our study also showed that comminuted fracture of the skull was the commonest type of skull fracture among the fatal cases. In other words it can be said that the chances of fatality is greater with comminuted fracture than with fissure fracture. The damage to any tissue by mechanical force depends on the amount of energy absorbed by the tissues. Sunary et al⁸ and Rajendra et al⁹ in their studies showed that the occurrence, degree of deformation and extent of fracture is related to the striking power, area of strike and physical properties of the skull at the point of impact. Presence of a comminuted or depressed comminuted fracture indicates the application of a great amount of force as compared to a fissure fracture. The greater the force used, the greater is the force transmitted to the underlying brain causing damage. The chances of fatality further increase when firearms, as noted in our study,

produce comminuted fractures. Thali et al¹⁰ and Thali et al¹¹ also reported in their experimental studies of gunshot wounds to a skull-brain model documented the dynamic creation of skull and brain wound morphology. Head injury is a worldwide public health problem and is the principal cause of death in persons below the age of 40 years in most reporting countries regardless of their state of economic development.^{12,13} This also indicates the degree of force applied to the head. As the firearms were the commonest weapon used, the force on impact was maximum which was transmitted to the adjacent bones resulting in multiple bone fracture. The formation of radial fracture result in the release of circumferential hoop stresses induced by the bullet and concentric heaving fracture may result if additional stress release is required.¹⁴⁻¹⁶ Frontal, parietal and temporal bones were the site of fracture in most of the cases. Sunay et al⁸ also reported linear fractures to be most common in the frontal and temporal region. The occipital bone showed the least involvement in fracture, as it is the thickest among the cranial bones. Fracture of the occipital bone requires a great amount of force, hence when the occipital is fractured the magnitude of the force is considerable and sufficient to cause death in the ordinary course of nature. Also reported in their study that epidural and subdural haemorrhages were more common with linear fractures whereas with depressed fractures laceration and contusion of the brain was more common. Gennarelli et al¹⁷ and Lobato et al¹⁸ have shown that the type of lesion is as important as the severity of injury when determining the outcome of head injury cases.

CONCLUSION

Fatality among attack victims with firearm injuries to the head is very high. The location of meningeal haemorrhage whether in single or multiple layers has little influence on the outcome while haemorrhage in the deeper layers has higher fatality. Thus these may be considered as high risk factors in violent attacks to the head.

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