

Frequency of Extra-dural Hematoma in Patients with Head Injury

AZMAT ULLAH KHATTAK, MIAN IFTIKHAR-UL-HAQ, FAROOQ AZAM

Department of Neurosurgery, PGMI / HMC, Peshawar

ABSTRACT

Objectives: To determine the frequency of extra-dural hematoma in patients with head injury.

Patients and Methods: This cross sectional descriptive study was done in neurosurgery department of Hayat-abad Medical Complex, Peshawar, from 2nd February 2012 to 1st September 2012. All patients of head injury, from all ages and both genders were included. Patients in whom EDH caused by bleeding disorders or vascular malformations of the dura mater and post surgical EDHs were excluded from the study. CT scan brain was done for all patients to confirm their diagnosis. The information regarding patient demographical details, clinical presentation and site and size of hematoma was documented in patient's Performa. The data was analyzed by SPSS version 17.

Results: A total of 281 patients with head injuries were included in the study. Out of 281 patients, there were 191 (67.9%) males and 90 (32.02%) females. The mean age was 27 years. Majority of patients 81 (28.8%) were in the age range of 21 – 30 years. EDH was found in 31 (11.03%) patients. Eleven patients (3.91%) had their hematomas in temporal region. Temporo-parietal region was involved in 9 (3.2%) patients. Frontal and parietal region was affected in 5 patients (1.78%) each. One patient had extra-dural hematoma in posterior cranial fossa.

Conclusion: Extra-dural haematoma is found in 11% of head injury cases. It is more common in males as compared to females. It is most common in 20 – 40 years of age, temporal and parietal cases are most frequently involved regions. The mortality in head injury patients can be reduced if extra-dural hematoma diagnosis and operation done early.

Key Words: Head injury, Extra-dural hematoma.

Abbreviations: EDH = Extra-dural hematoma, CT Scan = Computerized Tomography Scan, TBI = Traumatic Brain Injury.

INTRODUCTION

Head injury can be defined as any alteration in mental or physical functioning related to a blow to the head. In the United States; 1.5 million individuals per year incur a head injury.^{1,2} Both direct impact and counter coup injuries can result in focal bleeding beneath the calvaria. Such bleeding can result in an intra cerebral focal contusion or hemorrhage as well as an extra-cerebral hemorrhage. Extra-cerebral hemorrhages are subdural hemorrhages and epidural hemorrhages.^{3,4}

Traumatic extra-dural hematoma (EDH) is a well recognized surgical complication of head trauma. The incidence of EDH among traumatic brain injury (TBI) patients has been reported to be in the range of 2 –

15%. It is more common in younger age groups.^{5,6} EDH is rare in extremes of ages. Males are affected more than female. EDH results from interruption of dural vessels, including branches of the middle meningeal arteries, veins, dural venous sinuses, and skull vessels.^{4,7}

EDHs are more frequently located in the temporo-parietal and temporal regions as compared to other locations.^{3,8}

CT scanning is the most accurate and investigation of choice for the diagnoses of EDH and it will show the typical biconvex or lens shaped hyperdense lesion. Traumatic extra-dural hematoma is a neurosurgical

emergency and timely surgical intervention for significant EDH is the gold standard.^{9,10}

MATERIAL AND METHODS

This cross sectional descriptive study was done in neurosurgery department of Hayatabad Medical Complex, Peshawar, from 2nd February 2012 to 1st September 2012. A total of 281 patients of head injury, from all ages and both genders were included.

Exclusion Criteria

Patients in whom EDH caused by bleeding disorders or vascular malformations of the dura mater and post surgical EDHs were excluded from the study.

CT scan brain was done for all patients to confirm their diagnosis. The information regarding patient demographical details, clinical presentation and site and size of hematoma and site of skull fracture was documented in patient's Performa. The data was analyzed by SPSS version 17. Frequency and percentage was calculated for categorical variables. Mean \pm SD was calculated for age. Results were presented as tables.

RESULTS

Out of 281 patients, there were 191 (67.9%) males and 90 (32.02%) females (Table 1).

Table 1: Gender Distribution.

Gender	Number	Percentages
Male	191	67.9
Female	90	32.02

Table 2: Age Distribution.

Age (Years)	Number	Percentages
0 – 10	29	10.3
11 – 20	45	16.01
21 – 30	81	28.8
31 – 40	57	20.2
41 – 50	45	16.01
51 – 60	13	4.63
Above 61	11	3.9

In this study the mean age was 27 years. Majority of patients 81 (28.8%) were in the age range of 21 – 30 years (Table 2).

Glasgow coma scale was used to assess the level of consciousness. Most of the patients 139 (49.5%) had GCS in the range of 13 to 15 (Table 3).

The commonest presentation was headache i.e. 231 patients (82.2%). 197 patients (70.1%) had vomiting as presenting complaints. 99 patients (35.2%) had a history of loss of consciousness (Table 4).

Table 3: Glasgow Coma Scale.

GCS Score	Number	Percentages
3 – 8	33	11.7
9 – 12	109	38.8
13 – 15	139	49.5

Table 4: Clinical Presentation.

Clinical Features	Number	Percentages
Headach	231	82.2
Vomiting	197	70.1
Loss of consciousness	99	35.2
Focal neurological deficit	71	25.3

Total 164 patients were admitted in head injury ward for head trauma treatment. Extra-dural hematoma was found in 31 patients (11.03%). The commonest location was temporal region i.e. 11 (3.91%) patients (Table 5).

Table 5: Site of Hematoma.

Site of Hematoma	Number	Percentages
Temporal	11	3.9
Temporal – parietal	9	3.2
Parietal	5	1.78
Frontal	5	1.78
Posterior fossa	1	0.35
Total	31	11.03

DISCUSSION

Head injury remains the most common cause of death and disability in young people. Several types of head injury are amenable to neurosurgical intervention, and improved outcomes have been reported in patients receiving prompt treatment of post-traumatic extra-axial cerebral mass lesions, including extra-dural hematoma.^{11,12}

Head injuries are common in younger age groups. People in their twenties and thirties are having higher chances of sustaining head traumas. Because at this age groups they work hard and remain prone to the road traffic accidents, industrial hazards and of course physical violence. In the present study, the commonest age group is 21 to 30 followed by 31 to 40. Khan MJ also reported the same results.¹³

Male are more than double in gender distribution of head injuries in the current study. The higher incidence of head injuries in male is worldwide. The reason is the nature of jobs, higher risk of trauma and warfare injuries. Borovich B also observed male effected in head trauma.¹⁴

The predominant complaints in our patients were headache (82.2%) and vomiting (70.1%). Headache in head injury patients is significant because headache may be due to underlying raised intracranial pressure though in majority cases it is due to local trauma. Vomiting is another important symptom in head injury patients. There can be several reasons for vomiting in head injury patients which include raised intracranial pressure, disturbance of vestibulocholear system swallowing of blood. Khaled CN has observed headache / Vomiting 63.61% and altered sensorium 60.66% of patients.¹⁵

Majority of the patients in this study were in minor head injury i.e.49.5%. Moderate head injury patients (i.e. GCS 9 – 15) are 32.31%. Borovich B observed similar trend in head injury patients in his study.¹⁴

In our study the frequency of extra-dural hematoma was 31 (11%). In the literature the frequency of extra-dural hematoma in head trauma patients is 2 – 15%.^{5,6} Ozkan U et al has reported 5.5% in his study.¹⁶ Khan MJ et al has observed 2% of extra-dural hematoma in head trauma patients.¹³

The commonest site of extra-dural hematoma is temporal and temporoparietal. This is due to the fact that temporal bone is the thinnest bone of the skull. Comparatively light blow can cause extra-dural hematoma.⁹⁷ This study also shows involvement of temporal and temporoparietal region far more than any other part i.e. 35.17% and 28.57% respectively in compari-

son to parietal alone and frontal region where extra-dural hematoma occurs in less than 15% cases. Posterior fossa involvement is very rare as depicted from study results. Khaled CN et al¹⁵ and mushtaq et al¹⁷ reported the same pattern of hematoma distribution.

CONCLUSION

Extra-dural haematoma is found in 11% of head injury cases. It is more contain in males as compared to females. It is most common in 20 – 40 years of age, temporal and parallel cases are most frequently involved regions. The mortality in head injury patients can be reduced if extra-dural hematoma diagnosis and operation done early.

Address for Correspondence:

Mian Iftikhar-ul-Haq

Training Medical officer

Department of Neurosurgery, PGMI / HMC,

Peshawar

Email: drmiulhaq@gmail.com

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Authors Information

Dr. Azamat Ullah Khatak	<i>Assistant Professor</i>	<i>Department of Neurosurgery, PGMI / HMC, Peshawar</i>
Mian Iftikhar-ul-Haq	<i>Medical Officer</i>	
Farooq Azam	<i>Associate Professor</i>	