

A Prospective Study of Otorhinolaryngeal Manifestations in Head Injury Patients at a Tertiary Care Hospital

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Abstract: ***Aim:** To find out the most common otorhinolaryngeal manifestation of head injury patients. **Method:** Head injuries are silent epidemics that contribute to worldwide death and disability more than any other traumatic event. With increased use of motor vehicles by the general population along with inadequate traffic control, head injuries form a major chunk of cases presenting in a hospital casualty. Alcohol consumption and lack of use of safety helmets and seat belt are contributing factors as well. These head injuries are often associated with otorhinological trauma. An ENT surgeon plays an important role in a patient of head injury. Our study aims to evaluate incidence of otorhinological manifestations in a head injury patient and an attempt to study variation based on site of injury, age, sex, etc. **Conclusion:** ENT manifestations are an integral part of head injury and one must be vigilant when dealing with these cases*

Keywords: Head injury, otorhinolaryngeal manifestations

1. Introduction

It is estimated that approximately 2 million people suffer from head injuries annually out of which 0.5 million succumb to death. During the year 2021 a total number of 4, 12, 432 road traffic accidents have been reported in the country claiming 1, 53, 972 lives. However this may not be a true statistic as a vast array of these patients lose their lives before reaching the hospital.

Humans have evolved as social, sympathetic and altruistic beings. At the same time the time rapid industrialization and technological advancement often compels us to conform to a faster paced life. To beat those ticking clocks, people over and over ignore the dictums that have been set, and find themselves victims of mishaps, and the results may vary from a few petty abrasions to far more Grievous and life threatening.

Road traffic accidents continue to be the leading cause of head injuries. The incidence of RTA's is rising due to increased use of vehicles by the enormous population, inadequate traffic control system, abuse of alcohol, lack of use of safety helmets and seat belts while driving. Other causes of head injury are assaults and industrial accidents.

Oto - rhino - laryngological problems associated with Road Traffic Accidents are grave and life threatening. All the important structures are located in the head and neck. These also serve as window to the brain. The nose is prominent structure on the face and bones of face are liable to get traumatized.

Facial cosmesis and restoration of physiology of sensory organs are very important and cannot be over emphasised. These not only cause anatomical distortion, but also affect the psychological wellbeing of the patient

Due to advent of newer technologies of investigations and treatment like high resolution CT scan, MRI, newer endoscopic surgeries the management of head and neck

injuries is significantly changed in past two decades. Accurate assessment of injuries is possible because of new techniques. This study highlights the necessity of the ENT surgeon's inclusion in the trauma team and the present study has been done to evaluate various ear, nose and throat manifestations and investigations which help in earlier diagnosis.

2. Materials and Methods

Study area: Tertiary care hospital

Study design: Observational study, prospective study.

Study period: 18 months

Patient were enrolled for 12 months (1 JANUARY 2021 - 31 DECEMBER 2021)

Data collection and analysis was done for 6 months (1 JAN 2022 – 30 JUNE 2022)

Study population

Inclusion Criteria

- Head injury patients with ENT manifestations presenting in casualty / OPD
- Those willing to participate in the study

Exclusion Criteria:

- Non - consenting patients
- Unconscious patients
- Brought dead patients / died within 15 mins
- Patients with severe systemic illness

Sample size and sample technique -

- **Sample size** - 300 participants
- **Sampling technique** – simple random sampling (consecutive)

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Justification of sample size - Keeping in mind the given duration of the study and concerned patient flow in this setup, it was decided to recruit all available subjects sequentially till the sample size is reached

3. Methodology

- A hospital - based prospective study was done. The study was conducted on 300 newly consulted/admitted patients according to the above - described inclusion and exclusion criteria in the period 1 JANUARY 2021 - 31 DECEMBER 2021.
- 300 consecutive cases with head trauma and associated ENT manifestations were included in the study.
- Consent was taken from the patients/parents.
- Proper detailed history of the patient was taken and detailed examination was done.
- Appropriate clinical photographs were taken.
- Appropriate treatment was given to the patient.
- No personal details of the patient were revealed, keeping the doctor patient confidentiality into consideration.
- Data was collected by filling the case record Performa.
- Data was pooled from case record forms and was statistically analyzed using appropriate tests.

4. Results

Table 1: Table showing distribution among various age groups in both sexes in head injury patients

Age Group	Number of Patients (n= 300)	Percent	Male	Percent	Female	Percent
0 - 10	8	2.66	4	1.66	4	1.66
11 - 20	24	8	14	4.66	10	3.33
21 - 30	68	22.66	42	14	26	8.66
31 - 40	71	23.66	55	18.33	16	5.33
41 - 50	43	14.33	29	9.66	14	4.66
51 - 60	32	10.66	27	9	5	1.66
61 - 70	41	13.66	29	9.66	12	4
>70	13	4.33	7	2.33	6	2
total	300	100	207	69	93	31

In our study 2.66 patients belonged to the age group 0 - 10 y; 8 % patients in 11 - 20 age group; 22.66 % patients were 21 - 30 and 23.66 % patients were 31 - 40. The patients belonging to age group 41 - 50 were 14.33 %; 51 - 60 were 10.66 %; 61 - 70 were 13.66 % and those above 70 were 4.33 %

The cause of head injury was road traffic accident in 53.3 % patients; whereas it was assault and fall inn 18.33 % and 27 % cases respectively 1.66 % had other causes such as industrial mishaps

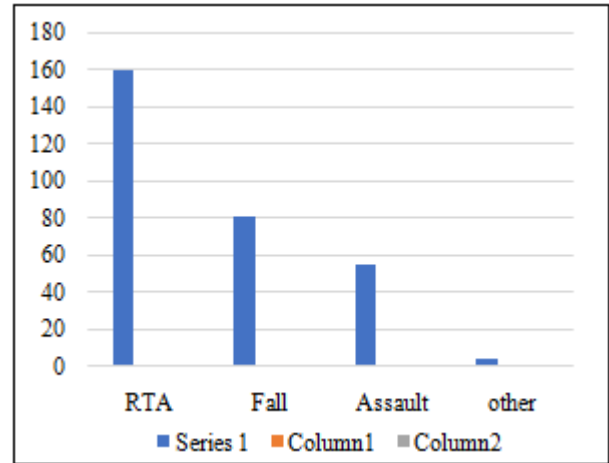


Figure 1: Distribution based of various modes of insult leading to head injury

Table 2: Symptomatological distribution among patients

symptoms	Number of cases	percentage
Nasal bleed	184	61.33
Nasal obstruction	56	18.66
Facial deformity	40	13.33
Ear bleed	112	37.33
Hearing impairment (post traumatic)	29	9.66
Giddiness / vertigo	65	21.66
Trismus / malocclusion of jaw	12	4
Sub conjunctival heamorrhage	7	2.33
Nausea / vomiting	37	12.33
Loss of consciousness	68	22.66
convulsions	4	1.33

37.33 % patients had ear bleed, 32.66 % had injury to pinna, 24.66 % had injury to EAC, 12 % had mastoid injury and 10.33 % had TM perforation or hemotympanum

We found CSF otorrhoea in 0.66 % patients and temporal bone fracture was present in 0.66 % whilst 0.33 % showed facial paresis

21.66 % gave complains of vertigo or dizziness and 12.66 % gave complains of tinnitus

CLW nose was present in 10.33 % patients, 3.66 % showed septal deformity, nasal bleed was present in 61.3 %, nasal fractures were present in 32.66 %, le forte's fractures were seen in 2.66 %, 13 % showed other maxillofacial involvement

12 % had missing teeth, 14 % has lacerations involving oral cavity, 10.66 % had neck abrasion/ laceration/swelling.0.66 % showed cervical spine #.

On radiological evaluation, 3 (1%) had mandible #, 29 (9.6%) had nasal bone # displaced, 1 (0.3%) had impacted jaw, undisplaced nasal bone # in 69 (23%), neck disc compression in 1 (0.3%).

2 had temporal bone #, 12 had maxillary hemosinus, 20 had maxillary wall #, 6 had zygomatic #, 1had frontal bone # and 1 had anterior wall eac #.

5. Discussion

The majority of cases involve damage to the ear, nose, and throat, necessitating additional care from ENT surgeons in addition to general and neurosurgeons. Injuries to the auricle, external auditory canal, temporal bone fractures, traumatic perforation of the tympanic membrane, CSF otorrhoea, hearing loss, fractures of the nasal and facial bones, cut throat injuries, and laryngeal injuries are the most common ENT manifestations after head injury. These problems are grave and life - endangering. The head and neck contain all the vital structures. These act as windows into the brain as well. The bones of the face are susceptible to stress since the nose is a prominent feature on the face. The importance of restoring the physiology of the sense organs and improving facial aesthetics cannot be overstated. The management of head and neck injuries has drastically changed over the past two decades as a result of the introduction of modern technology for investigations and therapy, such as high - resolution CT scan, MRI, and newer endoscopic operations. Thanks to improved screening modalities, injuries may be assessed accurately.

This study underlines the need of having an ENT surgeon on the trauma team. It also evaluated numerous ear, nose, and throat presentations and examinations that aid in early diagnosis.

According to studies, populations with a poor history of seatbelt use, such as obese drivers, men, and drivers under the influence of alcohol, show higher use of seatbelts in places where the primary seatbelt requirement is enforced. For instance, drunk drivers are 15% more likely to utilise a seatbelt in states with primary enforcement laws than they are in states with secondary enforcement laws. Similarly, obese drivers in states with primary enforcement of the seatbelt requirement are 14% more likely to use a seatbelt than obese drivers in states with secondary enforcement of the seatbelt law. The principal enforcement law's implementation demonstrates an obviously higher rate of seatbelt use, which lowers the number of serious TBIs among drivers and passengers engaged in MVCs. A study demonstrates the level of significance for seatbelt use, rating it as a more essential predictor in injury severity than driver error and demographics like age and gender. The effectiveness of seatbelts in lessening TBI severity is further supported by our findings.

The etiological elements emphasised in our study can be changed to improve outcomes for the populace. Educating population at risk Strict adherence to traffic laws and ordinances can lower the frequency of MVA. To lessen the frequency of insurgent attacks and communal disturbances and hence lower the incidence of these casualties, government must establish operational conflict management units. Most of the time, the otorhinolaryngological evaluation and treatment of head - injured patients are delayed because of the severity of the injuries, the level of consciousness of the patient, and the presence of other injuries that need immediate care. To prevent unfavourable consequences and even mortality, these otorhinolaryngological presentations in patients with head trauma also require early detection and urgent treatment.

6. Conclusion

Head injuries are like snowflakes and finger prints, no two cases are the same. Road traffic accidents still continue to be the leading cause of head injuries. They are a complex phenomenon of multiple causation and there is no single remedy that will avoid it. Younger age group, low educational status, alcohol intoxication and ignorance by pedestrians are the major causes of RTA

The spectrum and horizon of emergency workload in otorhinolaryngology has widened and the pattern of distribution of emergency workload has re - equated with the rise in road traffic accidents and violence on a rise. Coordination between trauma surgeon, neurosurgeon and otorhinolaryngologist remains the cornerstone in care of such patients and to improve their quality of life