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Frequency of different ENT injuries and maxillofacial fractures in central India, Chattisgarh, India

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ABSTRACT

INTRODUCTION: In India maxillofacial injuries are among the common ones that present to emergency department. Maxillofacial injury can be defined as injury to the facial soft tissue, skeleton and other associated structures resulting deformity or destruction of jaw and eyes. **MATERIAL & METHOD:** The cases were documented as per proforma, noting name, age, sex, education, religion, socioeconomic status, occupations, mode of trauma and clinical history were recorded and also noted the past H/o of different complaints of ear, nose, throat and face. X-rays and CT scan were done to identify fractures of different maxillofacial region. **RESULTS:** Results of this study showed that among 150 patients, 122 (81.33%) were males, maximum 62 (41.33%) patients were in 21-30 years of age group, the face was the commonest site of maxillofacial injuries (73.33%), followed by nose (67.33). The nasal bleeding (78.67%) was commonest noted symptom and assaults were the most common cause (48%) of facial injury and nasal bone was the commonest fractured bone (32.66%), **CONCLUSION:** The incidence of maxillofacial injuries were maximum in age group of 21-30 years and male were more prone for maxillofacial trauma. The most common symptom in present series was epistaxis. Nasal bone was the most commonly fractured bone and assault was the commonest cause of facial injury as compared to road traffic accident. This study showed that increase number of interpersonal violence responsible for facial injury.

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1. Introduction

Trauma is a major cause of morbidity and mortality in general population worldwide. Maxillofacial injuries are among the common ones that present to emergency department¹. Maxillofacial injury can be defined as injury to the facial soft tissue, skeleton and other associated structure resulting in deformity or destruction of jaw and eye; however quite often it is also associated with involvement of head and neck tissue which may affect even special sensory organ or sensory function. The face is the most prominent portion of the head and neck region gets commonly involved in such injuries. Sometimes injuries resulting deformities of face; produces severe and significant psychological stress apart from functional disability. Motor vehicle accidents are primary contributor to facial injury in developing countries. The major cause of facial trauma in road accident is due to poor vehicular maintenance, improper driving skills lack of will to follow traffic rules and mixture of slow and fast traffic.² In India, 50% of facial fracture and 70% of head injury occurs due to road traffic accidents³. Accidental fall is emerging as a commonest cause for facial trauma in United Kingdom. Large number of preschool age group suffered facial trauma from accidental fall in the home environment. In young adults fainting, epileptic fits and accidental

fall from height, while in elderly slip and fall is the most common cause of facial trauma and about 11% falls are associated with alcohol consumption.⁴ Incidence of industrial injury in India is as high as 24.4% as compare to United States; revealed only 0.7 %.⁶ Sport related facial injury is commonly sustained during boxing. Blast injuries are specific form of blunt trauma with high mortality rate and maxillofacial and otologic involvement.⁷ Periorbital fracture may results due to globe injury itself or herniation of orbital contents in to sinuses.

MATERIAL & METHOD:

This study was carried out on patients attending casualty, OPD and indoor at ENT department of Pt. JNM medical colleges and associated Dr B.R.A.M. hospital Raipur, C.G. between January 2003 to June 2004. The cases were documented as per proforma; noting their name, age, sex education, religion, socioeconomic status, occupation and mode of trauma by RTA, accidental fall, Industrial injury, sport, self inflicted wound, assault, chemical/ electrical burn, or animal bites and noise or barotraumas. The clinical history was noted as time and date of trauma, H/O intoxication, and unconsciousness after injury, headache and vomiting. Also noted the past H/o of ear discharge, deafness, sinusitis, different complaints of ear, nose, throat and face were recorded. Clinical and local examination was done. Face was examined for any lacerated and incised wound, abrasion or hematoma and injuries to eyes like blackness, chemosis, congestion and sub-conjunctival hemorrhage. Both ears were examined for injury, presence or

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absence of bleeding or CSF discharge. Nose was examined for external injury/ deformity, bony crepitus, bleeding or watery discharge from nose, anterior rhinoscopy and nasal patency test was done. Posterior rhinoscopic examination was done for potency of choana, posterior bleeding, any foreign body etc. Neck was examined for external injuries. Examination of oral cavity was done for injuries to buccal mucosa, tongue, teeth, fracture of jaw, palate and occlusion. Spontaneous nystagmus was observed. Fistula test was done by elevating the pressure in external auditory canal by alternate pressure over tragus and nystagmus was recorded. For Romberg's test patient was asked to stand his feet together; his eyes closed and arms out stretched. The observation was recorded if the patient sways to any side. Beside Romberg's test; finger nose test was done by asking the patient to touch his nose with outstretched arm and with eyes closed, first by one arm and then by other. X-rays and CT scan were done to identify different maxillofacial fractures.

OBSERVATION:

Table: 1 Age wise distribution of cases

| Age in years (n=150) | No. of cases | % of cases |
|-------------------------|--------------|------------|
| 0-10 | 13 | 8.67 |
| 11-20 | 21 | 14.0 |
| 21-30 | 62 | 41.33 |
| 31-40 | 37 | 24.67 |
| 41-50 | 09 | 6.0 |
| 51-60 | 05 | 3.33 |
| Above 60 | 03 | 2.0 |
| Total | 150 | 100 |

Table: 2. Distribution of cases on basis of Etiological injuries

| Etiology | No. of cases | Percentage (%) of Cases |
|-----------------------|--------------|----------------------------|
| RTA | 57 | 38 |
| Assault | 72 | 48 |
| Fall | 08 | 5.3 |
| Self inflicted injury | 05 | 3.3 |
| Animal bites | 05 | 3.3 |
| Blast injury | 03 | 2 |
| Total | 150 | 100 |

Table: 3 Frequency of symptoms present during ENT traumatic injuries.

| Symptoms in facial injury | No. of cases | Percentage (%) of Cases |
|-----------------------------|--------------|----------------------------|
| Nasal bleeding | 118 | 78.67 |
| Malocclusion of jaw | 43 | 28.66 |
| Trismus | 28 | 18.66 |
| Sub conjunctival hemorrhage | 19 | 12.66 |
| Nasal obstruction | 14 | 9.33 |
| Respiratory distress | 12 | 8 |
| Ear bleeding | 11 | 7.33 |
| Flattening of face | 08 | 5.33 |
| Black eye | 13 | 8.66 |
| Nasal deformity | 17 | 11.33 |
| Giddiness/ Vertigo | 05 | 3.33 |
| Deafness | 04 | 2.66 |

Table: 4 Involved facial region No. of Cases Percentage (%) of Cases. Ear 23 15.33 Nose 101 67.33 Throat 68 45.33 Neck 41 27.33 Face 110 73.33 Total 150 100 Incidence of involvement of ear, nose, throat, neck and face in trauma cases

Table : 4 Incidence of involvement of ear, nose, throat, neck and face in trauma cases

| Involved facial region | No. of Cases | % of cases |
|------------------------|--------------|------------|
| Ear | 23 | 15.33 |
| Nose | 101 | 67.33 |
| Throat | 68 | 45.33 |
| Neck | 41 | 27.33 |
| Face | 110 | 73.33 |
| Total | 150 | 100 |

Table: 5. Frequency of fractures in different facial bones during ENT injuries according to etiology

| Aetiology | Nasal | | Mandible | | Maxilla | | Zygomatic o-orbital | | Teeth alveolus | | Total | |
|----------------------|-------|-------|----------|-------|---------|------|---------------------|------|----------------|------|-------|-------|
| | No | % | No | % | No | % | No | % | No | % | No | % |
| RTA | 18 | 12 | 22 | 14.67 | 09 | 6.0 | 04 | 2.67 | 08 | 5.33 | 61 | 40.67 |
| Assault | 28 | 18.67 | 07 | 4.67 | 02 | 1.33 | 00 | 0.0 | 09 | 6.0 | 46 | 30.67 |
| Fall | 00 | 0.0 | 04 | 2.67 | 00 | 0.0 | 00 | 0.0 | 03 | 2.0 | 07 | 4.67 |
| Animal bites/mauling | 03 | 2.0 | 00 | 0.0 | 00 | 0.0 | 02 | 1.33 | 00 | 0.0 | 05 | 3.33 |
| Total | 49 | | 33 | | 11 | | 06 | | 20 | | 119 | |

RESULT:

Results of this study showed that among 150 patients, 122 (81.33%) were males and 28 (18.67%) were females. Of these, maximum 62 (41.33%) patients were in 21-30 years of age group (i.e., 11 females and 52 males), while female prevalence was highest (18.97%) in the age group of 31-40 years. Majority of patients 93, (62.0%) were residing in rural areas. Of these sufferers, 119 (79.33%) were belonged to middle socioeconomic status, whereas 1.45% from high socioeconomic status. 131 (87.33%) subjects were hindus, rest were from other religions. Patients with facial injury; 47 (31.34%) had positive history of alcohol consumption, rest others had no such history. The face was the commonest site of maxillofacial injuries (73.33%), followed by nose (67.33), throat (45.33%), neck (27.33%) and ear (15.33%) was least common injured organ in ENT injury. The commonest symptom present in this study was nasal bleeding (78.67%) others are in decreasing frequency were; malocclusion of jaw (28.66%), trismus (18.66%), Sub-conjunctival hemorrhage (12.66%), nasal deformity (11.33%), nasal obstruction (9.33%), respiratory distress (8.0%), ear bleeding (7.33%); among them 2% patient had rupture of tympanic membrane, blackening of eye (8.66%), flattening of face (5.33%), giddiness/ or vertigo

(3.33%), and deafness (2.66%). In present study 116 (77.34%) present with fractures of facial bones while rest 34 (22.67%) shows facial injuries without fractures of any facial bones. As in the present study assault was the most common cause (48%) of facial involvement while other common causes were RTA (38%), fall (5.33%), self inflicted injury (3.33%), animal bite/mauling (3.33%), and blast injuries (2.0%). During ENT injuries nasal bone was the commonest fractured bone (32.66%) and mandibular fracture was the second most common fracture (24.67%). The frequency of other bone fractures were; teeth (8.67%), maxilla (7.33%), alveolus/ or gums (4.67%) and zygomatico-orbital (2.67%). In this study road traffic accidents were the most common cause of fractures of mandible (14.67%), maxilla (6.0%) and zygomatico -orbital (2.67%) bones and second most common cause for fracture of nasal bone (12.0%) and teeth and alveolus (5.33%), while assault was most common cause of nasal bone (18.67%) teeth and alveolus (6.0%) fracture and second common cause for fracture of mandible (4.67%) and maxillary (1.33%) bone.

DISCUSSION:

In the present jet age of advanced, civilization and mechanization trauma is the major cause of morbidity and mortality in general population worldwide. Maxillofacial injury has become a major health hazards, In India maxillofacial injuries are among the common ones that present to emergency department. In the present series highest incidence of facial injury was observed in the age group 21-30 year, next common age group was 31-40 year, similar observations were made by Gwyn et al, 8 and Nair and paul⁹. The predominance of male in the present series is consistent with finding of the previous published work, where male: female ratio was seen as 84.62% male and 15.38% female Abiose et al¹⁰. 31.34% patients consumes alcohol in this study, however Alquirany et al¹¹ also reported higher incidence of alcohol consumption (46.9%) along with assault, while in 6.6% patient sustained injury was due to fall under the influence of the alcohol. The commonest symptom present in this study was noted to be nasal bleeding (78.67%) others are in decreasing frequency were malocclusion of jaw (28.66%), trismus (18.66%), subconjunctival hemorrhage (12.66%) and nasal obstruction (9.33%). The nose is the most commonly involved part of face, because of its weak skeletal frame work and its prominence similar observation to Luce et al¹ and Foster et al.¹² Nasal obstructions observed in 16.2% of cases in Dickson and sharpe¹³ study which was dissimilar to our study. Chamyal and Ahluwalia¹⁴ was observed deafness in 44% cases, bleeding from ear in 40% cases, tinnitus in 36% cases, CSF otorrhoea in 4% and dizziness in 60% cases. The low incidence of ear involvement in present series may be due to inclusion of only facial injury and not the head injury as it was included in comparative study. Cases of head injuries were presented to the neurological unit for facial injury during acute stage. As in the present study assault was the most common cause of facial injuries while other common causes were RTA (38%), fall (5.33%), self inflicted injury. Starkhammer and olofsson¹⁵ also described the type of fracture and their etiology. Assault was responsible for higher number of nasal bone fracture (41.08%) while road traffic accidents were responsible for higher number (34.10%) of zygomatico-maxillary fracture; however Brook and Wood¹⁶ reported that assault was responsible for malar and mandibular fracture while maxillary fracture most commonly occurred due to road traffic accidents. Physical assault often

leads to most simple fracture of nose and mandible. As in the present study the nasal bone was the most common facial bone fracture (32.66%) followed by mandibular bone (24.67%), similar to our study Schultz¹⁷ and Starkhammer and olofsson (1982)¹⁵ were reported higher incidence of nasal bone fracture 37% and 37.16% respectively. Few western and most of the Indian studies observed mandibular fractures occur commonly. Abiose¹⁰ and Nair and paul⁹ (1986) reported extremely higher incidence (75%), and (66.4%) of mandibular fracture respectively. Sawhney and Ahuja³ (1988) and 18gupta et al (1997) also reported mandibular fracture 35.5% and 57.6% respectively.

CONCLUSION:

This study suggests an increase numbers of interpersonal violence responsible for facial injury. There has been changing trend in the etiological factor in the facial trauma, notably a reduction in the severe facial injuries due to RTA and increase in the injuries caused by assault due to changing behavior of society. Male were more prone to be involved in maxillofacial injuries. The most common symptom in present series was epistaxis. Nasal bone was the most commonly fractured bone. The assault was the commonest cause of facial injury as compared to road traffic accident. RTA was responsible for all type of facial bone fracture while assault was mainly responsible for nasal bone fracture. Face was found to be involved in maximum cases followed by nose. Among all facial bones, mandibular fracture most commonly occurred due to road traffic accident. In present series assault was the most common cause of facial injury. This increasing trend may be due to increased population leading to more competition, unemployment and stressful life in family are an important aspect of family violence and increased enmity and alcohol intoxication may have been the cause of such maxillofacial injuries. As a result of legislation on alcohol restriction for drivers and compulsory wearing of seat belts, introduction of front passenger airbags and safety glass in cars windscreen and construction of better roads has resulted in decreased number of RTA in the Western countries.

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