ISSN 2515-8260 Volume 06, Issue 01, 2019

ORIGINAL RESEARCH ARTICLE

A RETROSPECTIVE REVIEW OF HEAD INJURIES AND ASSOCIATED FACIAL INJURIES

Dr.Tony.P.Mathew[1], Dr.Syed Khaja Hussain Alikunju[2]

[1]Associate Professor, Department of Oral & Maxillofacial Surgery, Pariyaram Dental College, Kannur, Kerala, India.

[2]Assistant Professor, Department of Oral & Maxillofacial Surgery, Government Dental College, Thrissur, Kerala, India.

Corresponding author: Dr.Syed Khaja Hussain Alikunju

Abstract

Facial fractures and concomitant cranial injuries carry a significant potential for mortality and neurological morbidity in young adults.

Aim

To analyze the characteristics of head injuries and associated facial injuries and the management options and outcome following craniofacial trauma.

Materials and methods

This retrospective study was performed at Justice K. S. Hegde Charitable Hospital and AB Shetty Memorial Institute of Dental sciences, Deralakatte, Mangalore. After Ethical Committee approval, hospital charts and radiographs of 100 consecutive patients treated for craniofacial trauma by the Department of Oral and Maxillofacial Surgery and Department of Neurosurgery between January 2004 to December 2004 were reviewed.

Results

There were total 100 patients in the present study who sustained cranial and/or maxillofacial injuries. Majority of the patients were in 2nd to 4th decade (79%) with a male to female ratio of 8.09:1. Road traffic accidents were the common cause of craniofacial trauma (54%) followed by fall from height (30%). Loss of consciousness was the most common clinical symptom (62%) followed by headache (33%). Zygoma was the most commonly involved facial bone 48.2% (alone 21.2%, in combination 27.2%). Majority of the patients had mild head injury and were treated conservatively. Reasons for surgical intervention for intracranial lesions were compound depressed fracture, contusion and intracranial hematoma. Operative indications for facial fractures were displaced facial bone fractures. Major causes of mortality were associated systemic injuries.

Conclusion

Adult males are the most common victims in craniofacial trauma and road traffic accidents are responsible for the majority. Most of the patients sustain mild head injuries and needs

ISSN 2515-8260 Volume 06, Issue 01, 2019

conservative management. Open reduction and internal fixation with miniplates is recommended for displaced facial bone fractures.
Key words Craniofacial trauma, facial fracture, head injury

Introduction

Facial fractures and concomitant cranial injuries have been the focus of numerous investigations, over the past few decades. These reports generally have been primarily descriptive in nature, with few of them attempting to determine the relationship between specific types of facial fracture and concomitant injury.

Historically, the facial architecture has been perceived to be a cushion against impact, protecting the neurocranium from severe injury. However, it has been suggested that the face may actually transmit forces directly to neurocranium, resulting in more serious brain injury. The bones of the skull and face collectively make up the most complex area of the skeletal real estate in the body. Analysis of the fractured face requires knowledge of not only normal anatomy, but also of the common fracture patterns of the face.

Maxillofacial fractures occur in a significant proportion of trauma patients. The epidemiology of facial fractures varies with the type, severity, and cause of injury. An understanding of the cause, severity and temporal distribution of maxillofacial trauma can aid in establishing clinical and research priorities for effective treatment and prevention of these injuries. Approximately 20% of patients with maxillofacial injuries may have an associated head injury. Although head injury is well recognized in those patients admitted with maxillofacial trauma, there is little information available regarding those patients admitted with head injuries who also have maxillofacial injuries.

Maxillofacial fracture may disguise in patients with accompanying traumatic intracranial injuries. The leading cause of morbidity and mortality in head trauma patients is traumatic intracranial hematoma. “In view of high incidence of closed head injury in facial fracture population, as well as the potential for mortality and neurological morbidity, the practicing oral and maxillofacial surgeon should be cognizant of this condition and its management."

A clearer understanding of the patterns of facial injuries will also assist healthcare providers to plan and manage the treatment of traumatic facial injuries. Such epidemiological information can also be used to guide the future funding of public health programs geared towards prevention. In this study we analyzed epidemiology, clinical characteristics, and management options in patients with craniofacial trauma.

Objectives

1. To analyze the characteristics of head injuries and associated facial injuries.
2. To study the patterns of facial injuries in patients with head injury.

ISSN 2515-8260 Volume 06, Issue 01, 2019

3. To study the management options and outcome following craniofacial trauma.

Methodology

This retrospective study was performed at Justice K.S.Hegde Charitable Hospital, and AB Shetty Memorial Institute of Dental Sciences, Deralakatte, Mangalore. Following Ethical Committee approval, hospital charts and radiographs of 100 consecutive patients treated for craniofacial trauma in the Department of Oral and Maxillofacial Surgery and Department of Neurosurgery between January 2004 to December 2004 were reviewed.

Age, gender, etiology and pattern of injuries, anatomic site of facial fractures, associated cranial injuries and treatment details were noted and analyzed. All clinical records, investigations and treatment charts were reviewed and following data were obtained.

1. Age
2. Sex
3. Cause of injury
4. Type of head injury
5. Severity of head injury
6. Type of facial injury
7. Other injuries
8. Management of injuries
9. Complications

The craniofacial fractures were identified according to anatomic location, age, and sex of the patient, cause of injury, additional injuries and systemic injuries. The Ommaya classification of head injury was used and patients with head injuries were categorized into three; mild, moderate, and severe (based on the period of loss of consciousness and amnesia). Neurologic injuries ranged from loss of consciousness to depressed skull fracture requiring neurosurgical intervention.

Maxillofacial trauma included trauma of the craniofacial skeleton (extending from the frontal bone to the mandible). The types of cranial fracture were classified by anatomic location as frontal, sphenoid, temporal, parietal and occipital. Fractures of the facial skeleton based on facial bone imaging were grouped as

Lower face (LF)	Mandible
Mid face (MF)	Maxilla, nose, zygoma and orbits
Upper face (UF)	Frontal

Systemic injuries were grouped into following categories:

Integument	Lacerations and abrasions
Abdomen	Injuries to liver, kidney, bladder and bowels
Pulmonary	Haemothorax, pneumothorax

ISSN 2515-8260 Volume 06, Issue 01, 2019

Ophthalmologic	Loss of vision, fractures
Orthopedic	Long bone fractures

Patients with signs and symptoms of suggestive possible intracranial injury and/or facial bone fracture underwent computed tomography (CT). The final diagnosis of facial fracture was made by the attending radiologist. Brain trauma was handled by neurosurgery department and complex facial fractures were repaired by the Oral and Maxillofacial Surgery department.

RESULTS

There were a total of 100 patients in the study who sustained cranial and/or maxillofacial injuries.

Age distribution

Majority of patients were in the 2nd to 4th decades (79%). Patients below 10 years (8%) and over 50 years (15%) were less commonly affected (Table-1).

Sex distribution

Eighty percent of patients in our study were male and incidence of craniofacial injuries in female was 11 percent (male to female ratio-8.09:1) (Table 2).

Mechanism of injuries

Road traffic accidents (RTA) were the commonest cause of craniofacial trauma (54%) followed by falls from height (30%). Assault (9%), occupational injuries (5%) and sports injuries (1%) were less common causes of craniofacial trauma. One patient sustained injury in a train accident (Table-3).

Clinical features

Loss of consciousness was the most common clinical symptom (62%), followed by headache (33%). Other clinical features were vomiting (27%), nasal bleed (30%) and oral bleed (10%) (Table-4).

Pattern of facial fractures

Out of 100 patients, 33 (33%) patients had associated facial injuries. Zygoma was the most commonly involved facial bone 48.2% (alone 21.2%, in combination 27.2%). This was followed by mandible 42% (alone 36%, in combination 6%). Maxilla was involved in 39.4% (alone 15.2%, in combination 24.2%) (Table-5).

Pattern of injury and incidence of loss of consciousness

ISSN 2515-8260 Volume 06, Issue 01, 2019

Loss of consciousness was more common in patients with intracranial injury or in patients with concussion following head injury (56%). However, loss of consciousness was most common with mandible fracture (14.7%) followed by zygomatic (8.2%) and maxillary (4.9%) fractures (Table 6).

Pattern of injury and Glasgow coma scale

Majority of the patients (93%) sustained mild head injury, two and five patients sustained moderate and severe head injury respectively. All patients who sustained moderate (GCS 10-12, two cases) or severe head injury (GCS 6-9, five cases) had associated intracranial injury. All patients with facial bone fractures sustained mild head injury (GCS 12-15) (Table-7).

Alcohol intoxication

There was history of alcohol intake in 10 patients (Table-8).

Associated injuries

Five patients sustained abdominal injuries (Haemoperitoneum-2, renal injury-1, splenic injury-1 and intestinal injury in 1 patient). Two patients sustained spinal injuries (fracture of T12 vertebrae and fracture of LI vertebrae respectively). Five patients sustained orbital injuries (orbital wall fracture in three cases). Other injuries were long bone fracture (5 cases), rib fracture (3 cases) and haemothorax (2 cases) (Table-9).

Management

Majority of patients (93%) had mild head injury and were treated conservatively. Causes of surgical intervention for intracranial lesions were compound depressed fracture of frontal bone (two cases- wound debridement and internal fixation), decompression of left temporal contusion (one case) evacuation of intracranial haematoma (extradural haematoma-2 cases, chronic subdural hematoma-4 cases) and suturing of scalp lacerations in 7 cases. Operative indications for facial fractures were displaced mandibular fractures (9 cases), zygomatic fractures (6 cases), maxilla fractures (3 cases) and zygomatic+ maxilla fractures (7 cases). In all these patients, open reduction and internal fixation was performed and fixation was achieved with miniplates. Isolated undisplaced fractures of mandible were treated conservatively with arch bar fixation alone (Table-10).

Complications and mortality

Two patients developed wound infection and were treated conservatively. Two patients were expired in this series. One patient had associated intra-abdominal injury (splenic rupture) and another patient sustained pulmonary trauma and succumbed to haemothorax and aspiration pneumonia.

DISCUSSION

ISSN 2515-8260 Volume 06, Issue 01, 2019

There were a total of 100 patients in this study who sustained cranial and/or maxillofacial injuries.

Age distribution

Majority of the patients were in the 2nd to 4th decades (79%). Patients below 10 years (8%) and above 50 years (15%) were less commonly affected. In literature too, a vast majority of facial injuries were experienced by males, and patients aged 21 to 30 years constituted the group with the highest frequency of facial injury.

Sex distribution

Eighty percent of patients in our study were male and the incidence of craniofacial injuries in females was 11 percent (male to female ratio-8.09:1). These findings are consistent with previous studies; also overall ratio of male to female have ranged from 3:1 to as high as 11.1:1 in literature. The male gender has a risk for all types of trauma in almost all research studies, and the fact has been supported by this study. This may be because males younger than 3 years have less freedom of movement to engage in risk taking activities or are less likely to show risk taking behavior. They are also more vulnerable to bite and fall injuries.

Mechanism of injuries

Road traffic accidents (RTA) are the commonest cause of craniofacial trauma in most of the series. Ajagbe et al states that “RTA occur largely because of recklessness and negligence of the driver, poor maintenance of vehicles, driving often under the influence of alcohol or drugs and complete disregard for traffic laws." In the presented series also, road traffic accidents were the commonest cause of craniofacial trauma (54%) and this was followed by fall from height (10%). Fall as a common cause of injury may be attributed to the location of the hospital setup in a coastal area, where lot of people depend on coconut trees for their livelihood. Craniofacial trauma due to falls, altercations, sports and warfare is less common in literature.

Assault with an instrument (9%), occupational injuries (5%) and sports at a frequency (1%) were less common causes of craniofacial trauma. One patient sustained injuries in a train accident. Interpersonal violence, especially the use of fists, was found to be the leading cause of mandibluar fractures in one series. Interpersonal violence among males is prevalent and it has a strong association with consumption of alcohol and drug abuse. A low incidence of assault victims may be explained by under-reporting by the patients.

Alcohol intoxication is the confounding factor for a reduced level of consciousness in patients with head injury. CT scan is recommended when the level of alcohol intoxication is enough to reduce their GCS. There was a history of alcohol intake in 10% of the patients. Though this is low in comparison to literature, one needs to take extra care while managing these patients.

Pattern of facial fractures

ISSN 2515-8260 Volume 06, Issue 01, 2019

Isolated mandibular fractures are the most common in most of the series ranging from 12.9% to as high as 72.9%. This is followed by mid-facial fractures ranging from 25.9% to 29.5%. However, in the presented series zygoma was the most commonly involved facial bone with an incidence of 48.2% (zygoma alone in 21.2%, in combination fractures 27.2%). This was followed by fracture of mandible in 42% (mandible alone 36%, in combination fracture 6%). The maxilla was involved in 39.4% (alone in 15.2%, in combination 24.2%). In contrast to another study, maxilla, orbit and nasal bones were most frequently fractured in an epidemiologic survey of maxillofacial injuries among motorcyclists. Maxillary and zygomatic complex fractures are also more common in patients with craniofacial trauma. Frequently affected bones were the floor of the orbit and nasal bones.

Loss of consciousness and Glasgow Coma Scale (GCS)

Head trauma presenting with facial injuries may pose only as maxillofacial fractures, but it also affects the skull and the brain with its meninges. High velocity impacts breaking facial bones, may result in rupture of intracranial vessels, leading to hemorrhages in different compartments. These accompanying injuries can be more life threatening than facial injuries themselves. Loss of consciousness was more common in patients with intracranial injury and in patients with concussion due to head injury, as seen in the presented series (56%). However, loss of consciousness was less common with facial fractures. A majority of the patients in our series (93%) sustained mild head injury, two patients sustained moderate head injury and five patients suffered from severe head injuries. This shows a higher incidence than the findings of Davidoff et al (61-71%). All patients who sustained moderate (GCS 10-12, two cases) or severe head injury (GCS 6-9, five cases) had associated intracranial injury. This reflects the severity and complexity of injury in a patient with craniofacial trauma.

Associated injuries

Five patients sustained abdominal injuries (Haemoperitoneum in 2 patients, renal injury in 1 patient, splenic injury in 1 patient and intestinal injury in 1 patient). Incidence of associated injuries was low in comparison to literature, where a large proportion of patients (35%) had associated injuries such as abdominal, chest and limb fracture. Two patients sustained spinal injuries (fracture of T12 and LI vertebrae respectively). Five patients sustained orbital injuries (orbital wall fracture in three cases). Other injuries were long bone fracture (5 cases), rib fracture (3 cases) and haemothorax (2 cases).

Richard H. Haug et al in 1991 reviewed 563 patients with facial fractures and concomitant cervical spine fracture and found upto 10% of the patients to have associated spinal injuries and also stated the fact that, before mobilizing the patient spine immobilization is mandatory.

Management

ISSN 2515-8260 Volume 06, Issue 01, 2019

Although they represent serious injuries, the workup and treatment of facial fractures is often delayed until more pressing problems have been addressed, such as the establishment of an adequate airway, hemodynamic stabilization, and the evaluation and treatment of other more serious injuries of the head, chest and skeleton. Once these problems have been managed, it is time to work up facial fractures.

Most patients had mild head injury and were treated conservatively. Causes of surgical intervention for intracranial injuries were compound depressed fracture of frontal bone (two cases of wound debridement and internal fixation), decompression of left temporal contusion (one case) evacuation of intracranial haematoma (extradural haematoma-2 cases, chronic subdural haematoma-4 cases) and suturing of scalp lacerations (7 cases).

Operative indications for facial fractures were displaced mandibular fractures (9 cases), zygomatic fractures (6 cases), maxillary fractures (3 cases) and zygomatico maxillary fractures (7 cases). In all these patients, open reduction and internal fixation was performed and fixation was achieved with mini plates. Isolated, undisplaced fractures of mandible were treated conservatively with arch bar fixation alone.

Our management approach to facial fractures were according to the guidelines described in literature. The current approach to facial fracture repair requires the repositioning of the fracture segments into anatomic position, with a focus on the supports in relation to each other and to the cranial base. Modern therapy also mandates rigid stabilization of the vertical and horizontal facial supports to withstand the forces of mastication. For displaced facial fractures, rigid internal fixation is routinely recommended with titanium plates and screws. For undisplaced fractures, conservative methods may still provide acceptable results.

Complications and mortality

Two patient developed wound infection and they were treated conservatively. Two patients expired in this series. One of these patients had associated intra abdominal injury (splenic rupture) and the other patient sustained pulmonary trauma and succumbed to haemothorax and aspiration pneumonia. In literature, incidence of post-surgical complications ranged from 5%-5.7% and these complications included infection, asymmetry, and malocclusion. It has to be mentioned that the experience of the surgical team is an important factor in achieving satisfactory functional and aesthetic result and in minimizing complications.

Mortality rate in our series is 2% and the major cause of mortality is systemic injury. Overall mortality in one series was 0.84% (2 patients) and the cause of mortality was pulmonary infection. Major factors responsible for mortality in patients with facial fractures are usually old age, a lower GCS, higher Injury Severity Score (ISS) and lower RPS (Revised Probability of Survival). Non-surviving patients had a dramatic predilection for mid and upper facial fracture pattern and death due to neurological injury.

ISSN 2515-8260 Volume 06, Issue 01, 2019

Limitations

The nature of a retrospective study inherently results in flaws. These problems involve gaps in information and incomplete records. Furthermore, all data rely on the accuracy of the original examination and documentation. Some items may have been excluded in the initial examination or not recorded in the chart. As this was a retrospective study and the information was obtained by chart review, it relies on the accuracy of both the history provided and the history recorded. In some cases, the information was provided by witnesses to the events; however, in other cases it was provided by the patient. Additionally, the history was recorded by different health care providers in no uniform fashion. The above data work is on the assumption that the history is an accurate representation of the events that transpired. Ideally, the investigators would use a standard methodology in history taking to better ensure accuracy regarding data.

SUMMARY AND CONCLUSION

- Patients in the 2nd to 4th decades were most commonly affected in the presented study.
- Male predominance was recorded in the series with a male to female ratio of 8.09:1
- Road traffic accidents were the main cause for maxillofacial injuries.
- The vast majority of patients sustained mild head injuries (93%).
- Zygoma was the most common facial bone involved in fractures followed by the mandible.
- Associated pulmonary and abdominal injuries were the major cause of mortality.
- Open reduction and internal fixation with miniplates is the common treatment in our institute for displaced facial bone fractures.

The management of fractures of the face remains a challenge for oral and maxillofacial surgeons, demanding both skill and a high level of expertise. A clear understanding of the patterns of facial injuries will assist health care providers to plan and manage the treatment of traumatic facial injuries. The above presented study reports and epidemiological information can also be used to guide the future funding of public health programs geared toward prevention.

REFERENCES

1. Brain R Plaisier. Anil P Punjabi, Dennis M Super. Richard H. Haug. The relationship between facial fractures and death from neurologic injury. J Oral Maxillofac Surg 2000; 58: 708- 12.

2. Haug RH. Wible RT. Likavec MJ, et al. Cervical spine fractures and maxillofacial trauma. J Oral Maxillofacial Surg. 1991; 49: 725.

3. Beirne JC, Butler PE. Brady FA. Cervical spine injuries in patient's facial fractures: A 1-year prospective study. Int J Oral Maxillofac Surg. 1995;24: 26.

ISSN 2515-8260 Volume 06, Issue 01, 2019

4. Haug RH, Savage JD, Likavec MJ et al. A review of 100 closed head injuries associated with facial injures. J Oral Maxillofac Surg. 1992; 50: 218-222

5. Haug RH, Adams JM, Conforti PJ et al. Cranial fractures associated with facial fractures: A review of mechanism, type and severity of injury. J Oral Maxillofac Surg. 1994; 52: 729-733

6. Conforti PJ, Haug RH, Likavec M. Management of closed head injury in patients with maxillofacial trauma. J Oral Maxillofac Surg 1993, 51:298-303. 7. Ommaya AK, Rockoff SD. Baldwin N. Experimental concussion. J Neurosurg. 1964; 21:249-65.

8. Zargar M, Khaji A, Karbakhsh M. Zarei MR. Epidemiology study of facial injuries during a 13 month of trauma registry in Tehran. Indian J Med Sci 2004:58:109-114

9. Egol, R. Fromm, K.K. Guntupalli, M. Fitzpatrick, D. Kaufman, S. Nasraway. D. Ryon and J. Zimmerman, Task Force of the American College of Critical Care Medicine, Society of Critical Care Medicine. Guidelines for intensive care unit admission, discharge, and triage. Crit. Care Med. 1999;27: 633-638.

10. Keenan HT, Brundage St. Thompson DC, Maier RV, Rivara FP. Does the face protect the brain? A case-control study of traumatic brain injury and facial fractures. Arch. Surg. 1999;134:14-17.

11. Schiltz, F. Frerebeau F. Segnarbieux S, et al. Craniofacial trauma in severe head injury. Neurosurg Rev. 1989.12 Suppl 1:106-14.

12. Rogers SN, Bradley S. Michael SP. The diagnostic yield of only one occipito- mental radiograph in cases of suspected midfacial traumador is one enough Br J Oral Maxillofac Surg 1995:33:90-2.

13. Swann IJ, Teasdale GM. Current concepts in the management of patients with so-called 'minor' or mild head injury. Trauma 1999; 1:143-5.

14. Batainch AB. Etiology and incidence of maxillofacial fractures in the north of Jordan. Oral Surg Oral Med Oral pathol Oral Rehabil Radiol Endod 1998:86:31-5.

15. Ugboko VI. Odusanya SA. Fagade OO. Maxillofacial fractures in a semi- urban Nigerian teaching hospital .A review of 442 cases. Int J Oral Maxillofac Surg 1998;27:286-9.

ISSN 2515-8260 Volume 06, Issue 01, 2019

16. Marker P. Nielsen A, Bastian HL Factures of the mandibular condyle. Part I: Patterns of distribution of types and causes of fractures in 348 patients. Br J Oral Maxillofac Surg 2000;38:417-21.

17. Haug RH, Prather J, Indresano AT. An Epidemiologic survery of facial fractures and concomitant injuries. J Oral Maxillofac surg 1990:48:926-32.

18. Ellis E III, Moos KF, El-Attar A, et al: Ten years of mandibular fractures: An analysis of 2137 cases. Oral Surg 59:120, 1985 4310. Keenan HT, Brundage St. Thompson DC, Maier RV, Rivara FP. Does the face protect the brain? A case-control study of traumatic brain injury and facial fractures. Arch. Surg. 1999;134:14-17.

19. Al Ahmed HE, Jaber MA. Abu Fanas SH, Karas M The pattern of maxillofacial fractures in Sharjah, United Arab Emirates: a review of 230 case. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2004, 98(2):166-70

20. HYL Lynne, Kumar M, MM Charles. Head and neck trauma in hospitalized pediatric patients. Otolaryngol Head Neck Surg 2004;130:255-61.

21. Down KE, Boot DA, Gorman DF. Maxillofacial and associated injuries in severely traumatized patients: implications of a regional survey. Int J Oral Maxillofac Surg 1995; 24(6):409-12.

22. Hung YC, Montazem A. Costello MA. The Correlation Between Mandible Fractures and Loss of Consciousness. J Oral Maxillofac Surg 2004;62:938-942 23. Olson RA, Fonseca RJ, Zeitler DL: Fractures of the mandible: A review of 580 cases. J Oral Maxillofac Surg 1982:40:23

24. Ajagbe HÁ, Daramola JO, Oluwasanmi JO. Civilian-type facial injuries. A retrospective study of cases seen at the University College Hospital, Ibadan. Nigeria. Niger Med J 1977; 7:432-6.

25. Hogg NJV, Stewart TC. Armstrong JE, Girotti MJ. Epidemiology of maxillofacial injuries at trauma hospitals in Ontario, Canada, between 1992 and 1997. J Trauma 2000;49(3):425-32.

26. Telfer MR, Jones GM, Shepherd JP. Trends in the aetiology of maxillofacial fractures in the United Kingdom (1977-1987). Br J Oral Maxillofac Surg 1991:29(4):250-5.

27. Covington DS, Wainwright DJ. Teichgraeber If, Parks DH.Changing patterns in the epidemiology and treatment of zygoma fractures: 10 year review. J Trauma 1994:37:243-8.

ISSN 2515-8260 Volume 06, Issue 01, 2019

TABLES

Table – 1 Age distribution (n=100)

Age group	Frequency
0-10	8(8.0%)
10-20	14(14.0%)
20-30	32(32.0%)
30-40	16(16.0%)
40-50	15(15.0%)
50-60	10(10.0%)
>60	5(5.0%)

Table-2 Sex distribution(n=100)

Sex	Frequency
F	11(11.0%)
M	89(89.0%)

Table-3 Mechanism of injuries

Type of injury	Frequency
Assault	9(9.0)
Fall	30(30.0)
Occupational	5(5.0)
RTA	54(54.0)
Sports	1(1.0)
Train accident	1(1.0)

Table-4 Clinical features

Symptom	Frequency
Headache	33 (33%)
Vomiting	27 (27%)
Nasal bleed	30 (30%)
Oral bleed	10 (10%)
Seizures	5 (5%)
Loss of consciousness	62 (62%)

Table-5 Pattern of facial fractures(n=100)

Facial injuries	Frequency
Mandible	12(36.0%)
Maxilla	5(15.2%)

ISSN 2515-8260 Volume 06, Issue 01, 2019

Maxilla + Mandible + Zygoma	1(3.0%)
Zygoma	7(21.0%)
Zygoma+Mandible	1(3.0%)
Zygoma+Maxilla	7(21.2%)

Table-6 Pattern of injury and incidence of loss of consciousness

Diagnosis	**Loss of consciousness**
Head injury	38
Mandible	9
Maxilla	3
Maxilla+ Mandible + Zygoma	1
Zygoma	5
Zygoma+ Mandible	1
Zygoma + Maxilla	4

Table-7 Pattern and Glasgow coma scale

Diagnosis	**GCS**		
	6-9	10-12	13-15
Head injury	5	2	60
Mandible	0	0	12
Maxilla	0	0	5
Maxilla + Mandible + Zygoma	0	0	1
Zygoma	0	0	7
Zygoma + Mandible	0	0	1
Zygoma + Maxilla	0	0	7

Table-8 Role of alcohol (n=100)

Alcohol	**Frequency**
Yes	10(10.1%)
No	90(90.0%)

Table-9 Associated injuries

System	**Frequency**

ISSN 2515-8260 Volume 06, Issue 01, 2019

Abdominal injuries	5
Haemoperitoneum	2
Renal injury	1
Splenic injury	1
Intestinal injury	2
Spine fracture	2
Orbital fracture	5
Long bone fracture	5
Rib fracture	3
Haemothorax	2

Table-10 Type of injury and management

Treatment	Head injury	Mandible	Maxilla	Maxilla+ zygoma+ mandible	Zygoma	Zygoma+ mandible	Zygoma +maxilla
Conservative	45	1	1	0	1	0	0
Closed reduction	0	2	0	0	0	0	0
ORIF	2	9	3	1	6	1	7
Craniotomy+ decompression	1	0	0	0	0	0	0
Evaluation of hematoma	6	0	0	0	0	0	0
Suturing of lacerated area	7	0	0	0	0	0	0