

Associated Injuries in Maxillofacial Trauma

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Abstract

Introduction: A modern fast-paced life, and an increasingly violent and intolerant society have made facial trauma a form of social disease. This has resulted in changes in the pattern and clinical features of facial injuries—ranging from mild to massive disfigurement of maxillofacial skeleton along with functional loss. Traumatic injury contributes to the global health burden.

Aims And Objectives: To identify the associated injuries in maxillofacial injuries in western Uttar Pradesh, India.

Material and Method: Emergency Department in Chatrapati Shivaji Subharti Hospital Meerut.

There were total 90 patients who came with complaint of road traffic accident, interpersonal injuries, sport related injuries, fall from height, blast injuries, penetrating injuries, firearm injuries, animal bite, human bite, resulting in head injuries, facial trauma, cervical injuries and neck injuries, crushed injuries from 1st JUNE 2017 till 30th JUNE 2019 were taken into consideration.

Most of the patients admitted here were referral cases from nearby territories and nursing homes. We collected data from the hospital records regarding name, age, sex and place from where they were brought. The radiographs of patients who were referred and hospitalized for treatment were reviewed.

Results: Maximum number of patients belong to 21 years – 40 years of age with male predominance. Road side accident came out to be major cause of facial injury. Ophthalmic injuries were the most common associated injuries.

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I. Introduction

Facial skeleton injuries may present alone or as poly trauma at the emergency department of the hospitals⁽¹⁾. Road traffic accidents (RTAs) are responsible for most multiple injuries^(2,3) and the maxillofacial region is involved in a significant proportion of cases⁽⁴⁾. Traumatic injury contributes to the global health burden^(5,6). Oral and Maxillofacial Injuries (OMFIs) are commonly associated with general body injuries. Traumatic injuries to the head are of particular concern, due to the risk of intracranial injury. These types of injuries can be present with facial bone fractures, which may initially go unnoticed if a patient has multiple system traumas or other pressing medical concerns⁽⁷⁾. The risk of missed diagnosis of fracture may also increase when trauma patients are admitted to hospitals with limited or no accompanying information about their injuries or do not have any visually apparent facial injuries. For example, patients can enter emergency departments intoxicated, sedated, intubated, with varying levels of consciousness, or otherwise unable to clearly report injuries. In multiple injured patients, all organ systems must be evaluated by protocol and continuously monitored

throughout the initial resuscitation and operative treatment⁽⁸⁾. Maxillofacial trauma when associated with concomitant injuries has a significant potential for increased morbidity. According to several previous studies it is highlighted that facial injuries occur alone or in combination with other fractures e.g. upper and lower limb injuries, hip bone injuries and chest injuries; these injuries occur due to high and low force of impacts like from road traffic accidents (RTA), assaults, gunshot, blasts, sports, fall, etc, and mostly all age groups are affected⁽⁹⁻¹²⁾. More than 1 million peoples died and around 15 to 20 million peoples are affected in road traffic accidents (RTA) annually according to the statistics of World Health Organization (WHO)⁽¹³⁾.

II. Material And Method

Emergency Department in Chatrapati Shivaji Subharti Hospital Meerut.

There were total 90 patients who came with complaint of road traffic accident, interpersonal injuries, sport related injuries, fall from height, blast injuries, penetrating injuries, firearm injuries, animal bite, human bite, resulting in head injuries, facial trauma, cervical injuries and neck injuries, crushed injuries from 1st JUNE 2017 till 30th JUNE 2019 were taken into consideration.

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III. Observation

TABLE 1: AGE DISTRIBUTION

AGE DISTRIBUTION	Frequency	Percentage
1) <=20	23	25.56%
2) 21-40	51	56.67%
3) >40	16	17.78%
Total	90	100.00%

TABLE 2: SEX

SEX	Frequency	Percentage
F	5	5.56%
M	85	94.44%
Total	90	100.00%

TABLE 3 : CAUSE OF INJURY

CAUSE OF INJURY	Frequency	Percentage
ASSAULT	6	6.67%
FALL FROM HEIGHT	4	4.44%
FALL OF OBJECT	1	1.11%
HIT BY ANIMAL	1	1.11%
RTA	78	86.67%
Total	90	100.00%

TABLE 4: TYPE OF HEAD INJURY

TYPE OF HEAD INJURY	Frequency	Percentage
CEREBRAL OEDEMA	11	35.48%
CONTUSION	7	22.58%
OCCIPITAL BONE FRACTURE	1	3.23%
EDH	2	6.45%
FRONTAL BONE FRACTURE	4	12.90%
SAH	2	6.45%
SCALP HAEMATOMA	2	6.45%
SDH	1	3.23%
TEMPORAL BONE FRACTURE	1	3.23%
Total	31	100.00%

TABLE 5: OPHTHALMIC INJURY

OPHTHALMIC INJURY	Frequency	Percentage
CORNEAL INJURY	2	4.55%
ECCHYIMOSIS	36	81.82%
OPTIC NERVE UNJURY	1	2.27%
EYE LID LACCERATION	1	2.27%
PERIORBITAL OEDEMA	2	4.55%
SUBCONJUNCTIVAL HAEMORRHAGE	2	4.55%
Total	44	100.00%

TABLE 6: CHEST INJURY

CHEST INJURY	Frequency	Percentage
ABRASION	2	20.00%
FLAIL CHEST	3	30.00%
PNEUMOTHORAX	5	50.00%
Total	10	100.00%

TABLE 7: ABDOMINAL INJURY

ABDOMINAL INJURY	Frequency	Percentage
BLUNT TRAUMA	2	16.67%
HAEMOPERITONEUM	1	8.33%
KIDNEY INJURY	1	8.33%
LIVER AND SPLENIC INJURY	1	8.33%
LIVER INJURY	5	41.67%
SPLENIC INJURY	2	16.67%
Total	12	100.00%

TABLE 8: LOWER LIMB INJURY

LOWER LIMB INJURY	Frequency	Percentage
BOTH BONE FRACTURE	2	20.00%
FEMUR FRACTURE	3	30.00%
FIBULA FRACTURE	4	40.00%
MALLEOLOUS FRACTURE	1	10.00%
Total	10	100.00%

TABLE 9: UPPER LIMB INJURY

UPPER LIMB INJURY	Frequency	Percentage
ABRASION	2	22.22%
CARPAL FRACTURE	3	33.33%
HUMEROUS FRACTURE	3	33.33%
ULNA FRACTURE	1	11.11%
Total	9	100.00%

IV. Discussion

The factors and concomitant injuries associated with maxillofacial trauma are diverse and vary from area to area depending on age, gender, ethnicity, culture and socio economic status. In our study of 90 subjects most common injury was ophthalmic injury seen in 44(48.89%) subjects. Out of 44 subjects most common ophthalmic injury was Ecchymosis with frequency of 36(81.82%) subjects followed by corneal injury, periorbital oedema and subconjunctival haemorrhage with frequency of 2(4.55%) subjects each followed by optic nerve injury and eye lid laceration with frequency of 1(2.27%) subjects each.

Head injury was present in 31(34.44%) subjects. Out of the 31(34.44%) subjects most common head injury noted in our study was Cerebral oedema with frequency of 11(35.48%) subjects followed by Contusion with frequency of 7(22.58%) subjects, Frontal bone fracture with frequency of 4(12.90%) subjects, EDH (Extradural haematoma) with frequency of 2(6.45%) subjects, SAH (Sub Arachnoid Haemorrhage) with frequency of 2(6.45%) subjects, Scalp haematoma with frequency of 2(6.45%) subjects, Occipital bone fracture with frequency of 1(3.23%) subjects, SDH (Sub Dural Haematoma) with frequency of 1(3.23%) subjects, Temporal bone fracture with frequency of 1(3.23%) subjects.

Abdominal injury present in 12(13.33%) subjects. Out of 12 subjects most common abdominal injury was Liver injury with frequency of 12(13.33%) subjects followed by blunt trauma with frequency of 2(16.67%) subjects, Splenic injury with frequency of 2(16.67%) subjects, Haemoperitoneum with frequency of 1(8.33%) subjects, Kidney injury with frequency of 1(8.33%) subjects.

Chest injury present in 10(11.11%) subjects. Out of 10 subjects most common chest injury was Pneumothorax with frequency of 5(50.00%) subjects followed by Flail chest with frequency of 3(30.00%) subjects followed by Abrasion with frequency of 2(20.00%) subjects.

Lower limb injury present in 10(11.11%) subjects. Out of 10 subjects most common lower limb injury was Fibular fracture with frequency of 4(40.00%) subjects followed by Femur fracture with frequency of 3(30.00%) subjects, Both bone fracture with frequency of 2(20.00%) subjects, Malleolus fracture with frequency of 1(10.00%) subjects.

Upper limb injury present in 9(10.00%) subjects. Out of 9 subjects most common upper limb injury was Carpal and humerus fracture with frequency of 3(33.33%) subjects each followed by Abrasion with frequency of 2(22.22%) subjects, Ulnar fracture with frequency of 1(11.11%) subjects. The least common was bladder injury present in 1(1.11%) subjects. This was found comparable with studies like

Hudson et al.^[14] stated that Eighty percent of the skulls suffered naso-orbito-ethmoid fractures involving the cribriform plate. The squamous portion of the temporal bone fractured in two skulls, both of which had hypoplastic frontal sinuses.

Cruse et al.^[15] found that 40% of their patients with nasoethmoid orbital fractures had CSF rhinorrhea. These patients must therefore have some connection between the subarachnoid space and the nasal cavity.

Fernando et al.^[16] studied that frontal bone fractures were most commonly (78%) associated with "raccoon eyes," compared with sphenotemporal fractures (47%) and occipital fractures (50%).

João Matheus Scherbaum Eidt et al^[17] stated that The main associated body injury observed were skin abrasion in 217(15.7%) patients followed by cranioencephalic trauma in 177(12.8%) patients, lower limb injuries present in 39(2.8%) patients, upper limb injuries present in 37(2.7%) patients, Thorax injuries present in 21(1.5%) patients, Spine injuries present in 11(0.8%) patients, Abdomen injuries present in 4(0.3%) patients. No injuries were present in 910(65.7%) patients.

ON Obuekwea et al^[18] conducted a retrospective study over a period of six-month from December 1999 to May 2000 stated that the commonest associated injury was head injury (55.8%).

Béogo Ret al^[19] conducted a retrospective descriptive study between 2001 and 2010 and stated that the most common associated injury was cranial trauma (9.9%), followed by limbs fractures (9.1%), chest trauma (2%), spine injury (0.5%) and eye ball rupture (0.5%). A poly trauma was recorded in 3.2% of the patients who had sustained a cerebral trauma, a spinal injury or a thoracic trauma.

Suneel kumar Punjabi et al^[20] conducted a study from 1st January 2011 to 30 December 2011 stated that associated injuries, lower limb injuries were more commonly associated with facial trauma as compared to upper limb, tibia (12.35%) and ulna (11.23%) being the most common.

V. Results

Maximum number of patients belong to 21 years – 40 years of age with male predominance. Road side accident came out to be major cause of facial injury. Ophthalmic injuries were the most common associated injuries.

VI. Conclusion

Young adult males were more frequently involved in facial trauma. Maxillofacial injuries are result of mostly due to highly velocity traffic. Accidents was the most common cause of injury in our part of the country which necessitates use of proper implementation of traffic legislation. Ophthalmic injuries was the most common associated injury with facial trauma.

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