Original Article

Pattern of Maxillofacial Trauma seen at ENT Department of a Tertiary Care Hospital

Fazal I Wahid[1], Habib-ur-Rehman[2], Muhammad Saleem[3], Iftikhar Ahmad[4]

ABSTRACT

Objective: To determine the pattern of maxillofacial trauma seen at Dept. of Ear, Nose and Throat Head and Neck Surgery of a tertiary care hospital.

Methodology: This descriptive study was conducted at the Department of Ear, Nose, Throat (ENT), Head and Neck Surgery, Postgraduate Medical Institute, Lady Reading Hospital, Peshawar from June 2010 to Dec. 2010. It included 108 cases sustaining maxillofacial trauma. The patients of any age and either sex were included while patients having trauma to other systems besides maxillofacial trauma were excluded from study. The universal rule of ABC (Airway, Breathing, circulation) regarding managing emergency was adopted for all the patients. After stabilizing the patient necessary surgical procedure was performed and concerned departments were consulted.

Results: Our study included 108 cases of maxillofacial trauma constituting 97 male and 11 female, with male: female ratio of 8.8:1. The age of the patients ranged from 08-60 years with mean age of 30.55 $\pm$ S.D 19.88 years. Most of the cases were from rural area (59.3%) and 75 cases (69.4%) were received in first 8 hours of incidence. Fire arm injuries 42% was on top followed by road traffic accidents 25% (n=27). Majority of cases (90.7%) were homicidal and mandiblular fracture was 49.07% followed by maxillary fractures.

Conclusion: It is concluded that homicidal firearm injury is the commonest while road traffic accident is second most common causative factor for maxillofacial trauma. These can be minimized by proper implementation of traffic rules, free education of the people, free availability of essential primary health care, best tertiary care at hospital level and spread of weapon amongst public should be banned.

KEY WORDS: Trauma, Maxillofacial, Maxilo-mandibular fractures.

Pak J Med Sci October - December 2011 Vol. 27 No. 5 1042-1045

How to cite this article:

Wahid FI, Habib-ur-Rehman, Saleem M, Ahmad I. Pattern of Maxillofacial Trauma seen at ENT Department of a Tertiary Care Hospital. Pak J Med Sci 2011;27(5):1042-1045

1. Fazal I Wahid,
2. Habib-ur-Rehman,
3. Muhammad Saleem,
4. Iftikhar Ahmad,

1-4: Department of ENT, Postgraduate Medical Institute (PGMI), Lady Reading Hospital (LRH), Peshawar, Pakistan.

Correspondence:

Dr. Fazal-I-Wahid,
Junior Registrar,
ENT, Head & Neck Surgery Department,
Postgraduate Medical Institute (PGMI),
Lady Reading Hospital (LRH), Peshawar.
E-mail: drfazal58@yahoo.com

* Received for Publication: March 24, 2011
* Revision Received: August 8, 2011
* Revision Accepted: August 15, 2011

INTRODUCTION

All aspects regarding trauma have a great importance in the world today, being among the main causes of morbimortality.[1] Each day, about 16,000 people die because of trauma.[2] Among the innumerous injuries seen in the trauma centers, facial trauma is one of the most prevalent.[3] As face is the most exposed and least protected part of the body so loss of the tissue and defects that may be involving various structures of the face ranging from skin to the bony skeleton leads into cosmetic and functional losses to the patient.[1,4] There are a number of possible causes of facial trauma such

as motor vehicle accidents, explosions, accidental falls, sports injuries, interpersonal violence, natural disasters and work-related injuries.[2,5]

Soft tissue injuries include abrasions, lacerations, avulsions, bruises, burns and cold injuries.[6] On the maxillofacial region, mandible and nose fractures are the most prevalent, followed by the zygomatic bone.[4,7] In the beginning of the 20th century Rene Le Fort mapped typical locations for facial fractures; these are now known as le Fort I, II and III fractures that is helpful regarding management of maxillo-facial trauma.[2,6,8] Facial injuries like other injuries may present with pain, bruising, epistaxis, visual impairment, hearing loss, dysphagia, dysphonea, difficult breathing and facial deformity depending upon the severity of injuries.[9] Trauma to the maxillofacial area mandates special attention.[7,10]

Due to their close proximity and frequent involvement, the vital structures in the head and neck region must be evaluated whenever the head and face are injured.[11] Additionally, the psychological impact of disfigurement associated with facial and maxillary trauma can be devastating.[3,12] This study highlights the burden of maxillofacial trauma in a developing country.

METHODOLOGY

This descriptive study was conducted at the department of Ear, Nose, Throat (ENT), Head and Neck Surgery, Postgraduate Medical Institute Lady Reading Hospital Peshawar from June 2010 to Dec. 2010. It included 108 cases sustaining maxillofacial trauma admitted in E.N.T department. The patients of any age and either sex were included in this study. The Patients having trauma to other systems besides maxillofacial trauma and those admitted second time in ENT department were excluded.

The universal rule of ABC (Airway, Breathing, circulation) regarding managing emergency was adopted for all the patients. After resuscitating the patient a detailed history was taken and thorough examination of the ENT, Head and Neck was carried out followed by systemic examination. Routine investigations were performed in all cases. Computed tomography and MRI were done where indicated. An informed consent was taken and emergency procedures were carried out depending upon the situation. Soft tissues repair, tracheostomy, nasal bone and maxillary bone reduction was carried out. According to the need of the patients consultation of other units like neurosurgery, ophthalmology, maxillofacial and plastic surgery was obtained. The study was approved by the hospital ethical committee. All the patients were followed on weekly basis for three months and in some patient complication was encountered. The statistical analysis was performed using the statistical program for social sciences (SPSS version 11). The frequencies and percentages were presented for qualitative variables and Mean±SD were presented for quantitative variables.

RESULTS

Our study included 108 cases of maxillofacial trauma constituting 97 male and 11 female, with male: female ratio of 8.8:1. The age of the patients

Fig.1: Plain X-ray of the face showing fracture on the left side of the mandible.

Fig.2: Picture of the patient having wound on left side of the face with left side mandibular fracture due to road traffic accident, Nasogastric and Tracheostomy tubes are in situ.

ranged from 08-60 years with mean age of 30.55 ± S.D 19.88 years. Demographic distribution of the patients was that from rural area 64 cases (59.3%), urban area 25 cases (23.2%), Tribal area 14 cases (12.9%) and 5 cases (4.6%) were from Afghanistan.

Among these patients 75 cases (69.4%) were received in first 8 hours, 21 cases (19.4%) in 16 hours and 12 cases (11.1%) were received in 24 hour after the occurrence of incidence. Fire arm injuries accounting 42% was on top followed by road traffic accidents 25% (n=27) and bomb blast injury 20.3% (n=22) (Table-I). Majority of cases (90.7%) were homicidal. The bony skeleton involved was mandibular fracture 49.07% followed by maxillary and mixed fractures 25% and 21% respectively (Fig.1) Surgical procedures performed were tracheostomy in 68.51% cases and soft tissues repair in 32% cases (Fig.2).

DISCUSSION

Geographical location, socioeconomic status, rule regulations implementation and frequent change on our planet influence the causes and incidence of maxillofacial trauma.[13] The predominance of men involvement in maxillofacial trauma is global. In our study male to female ratio is 8.8:1. It is in accordance to the literature reported range of 2.6:1 to 11.8:1.[1,2,6,14] In our study most of the patient belonged to rural area 64 cases (59.3%) which are also reported in others studies, the reason being probably low literacy level in these areas.[9,15]

Time is very important factor in reducing the mortality due to trauma and most of the patients (69.4% n=75) in this study were received in first 8 hours of the incidence which is in accordance with the reports from developed countries having good free emergency services.[6,13] Interpersonal violence is the most prevalent cause of facial trauma as revealed in the literature.[16] Similarly in our study 90.7% (n=98) cases were homicidal. Regarding the causes of maxillofacial trauma there are different reports.[11,15,17]

Some of the studies reveal that road traffic accidents is the commonest causative factor while others repot fire arm is main cause.[5,6,9,18] The reason may be cultural variation across the world. We studied that firearm injury is the commonest cause (42.6%, n=46) of maxillofacial trauma followed by road traffic accident and blast injuries accounting 25.0% and 20.3% respectively.

In this study road traffic accidents accounts for 25% which is due to neglecting traffic rules laid down by government which is comparable the study of Saud MA who revealed that main factor responsible for road traffic accident was not following traffic rules.[19] It is also complemented by a local study conducted by Bhatti MA[23] and international study conducted by Prasad BK.[1]

In our study fire arm injury was predominant cause (42.6%) of maxillofacial trauma which is in accordance to study of Sonkhya N[21] and Cheema SA.[22] In our study mandiblular fractures are

Table-I: Characteristics of patients sustaining maxillofacial trauma (n=108).

	Characteristics	*No. of cases*	*Percentage*
Type of Trauma	Fire arm Injury	46	42.6%
	Road Traffic Accidents	27	25.0%
	Bomb blast Injury	22	20.3%
	Others	13	12.0%
Nature of Trauma	Homicidal	98	90.7%
	Suicidal	10	9.25%
Extent of Trauma	Soft tissues+ Bone	90	83.33%
	Mandibular Fractures	53	49.07%
	Maxillary Fractures	27	25.00%
	Mixed Injuries	23	21.29%
	Nasal Bone Fractures	16	14.81%
	Eye Injury	11	10.18%
	Soft tissues+ Cartilage	10	9.25%
	Soft Tissues	8	7.40%
	Neurovascular Injury	05	4.62%
Procedures Performed	Tracheostomy	74	68.51%
	Soft Tissues repair	35	32.40%
	Nasal bone reduction	16	14.81%
	Maxillary bone reduction	09	8.33%
Departmental referral	Maxillofacial Deptt.	27	25.00%
	Plastic Surgery Deptt.	07	6.48%

predominant 49.07% (n=53) which is similar to the local study of Khan SU[23] having mandiblular fracture 53% (n=159) and international studies.[9]

The next common fracture in our study was maxillary fracture 25% (n=27) and similar finding is also reported by Stewart MG (32%, n=19).[24] Tracheostomy was performed in 74 patients (68.51%) while in 32.40% (n=35) only soft tissues were repaired which is in accordance to other studies.[22] Nasal and maxillary bones reduction was carried out in 25 cases (23.14%) and similar reports are found in literature.[23]

In our study 27 patients (25%) were referred to maxillofacial department for proper treatment of mandiblular fracture as reported by Rajenda BP.[24,25] We encountered complication in 10 cases (9.2%) in the form of wound infection which is in accordance to national and some international studies.[2,11]

CONCLUSION

It is concluded that homicidal firearm injury is the commonest while road traffic accident is second most common causative factor for maxillofacial trauma. Based on our study results, we would like to suggest that there should be proper implementation of traffic rules, free education of the people, essential primary health facility, best tertiary care at hospital level and control on weapon amongst public.

ACKNOWLEDGEMENTS

The author wishes to acknowledge the assistance given by the Habib-ur-Rehman, Muhammad Saleem, and Iftikhar Ahmad for their help and support in conducting this study.

REFERENCES

1. Prasad BK, Prasad C. Road traffic accident (R.T.A) as major killer: A report on medico legal autopsies in Bharatpur hospital. Kathmandu University Med J 2003;1:34-35.
2. Shah MM, Ali U, Zaman F, Khan D, Seema N, Jan A et al. Morbidity & mortality of firearm injury in Peshawar region. J Ayub Med Coll Abbotabad 2008;20:102-104.
3. Rana ZA, Khoso NA, Arshad O, Siddiqi KM. An assessment of maxillofacial injuries: A 5-Year Study of 2112 Patients. Ann Pak Inst Med Sci 2010;6:113-15.
4. Sonkhya N, Singhal P, Srivastava SP. Civilian Firearm injuries in Head and Neck. Indian J Otolaryngology and Head and Neck Surgery 2005;57:262-65.
5. Bhatti MA, Ajaib MK, Masud TI, Ali M. Road traffic injuries in Pakistan: Challenges in estimation through routine Hospital Data. J Ayub Med Coll Abbotabad 2008;20:108-111.
6. Ha G, Jeon MJ, Sakong J. Analysis of causes of injuries among children in Daegu. Korea. Korean J Pediatr 2010;53:942-50.
7. Kalia V, Singh AP. Greenstick fracture of the mandible: A case report J Indian Soc Pedod Prev Dent 2008;26:32-5.
8. Saud MA, Abdin H. Effect of Sealt Belt Law on the incidence, etiology, and severity of maxillofacial injuries in eastern province, Saudi Arabia: A four year retrospective study. J Pak Dent Assoc 2003;12:170-5.
9. Baek MK, Jung JH, Kim ST, Kang G. Delayed treatment of Zygomatic Tetrapod Fracture. Clin Exp Otorhinolaryngol 2010;3:107-109.
10. Adebayo ET, Ajike SO, Abite MG. Audit of oral and maxillofacial surgical conditions seen at Port Harcourt. Nigeria. Ann Afr Med 2008;7:29-34
11. Soni A. Blast injury lower face: an unusual and rare case. Indian J Plast Surg 2006;39:81-4.
12. Adebayo ET, Ajike SO. Change in the pattern of paediatric maxillofacial fractures seen in Kaduna, Northern Nigeria. Ann Afr Med 2008;7:48-50.
13. De Sousa A. Psychological issues in acquired facial trauma. Indian J Plast Surg 2010;43:200-5.
14. Subhashraj K, Ravindran C. Maxillofacial intervention in trauma patients aged 60 years and older. Indian J dent Res 2008;19:109-11.
15. Das UM, Nagarathna C, Viswanath D, Keerthi R, Gardicherla P. Management of facial trauma in children: A case report. J Indian Soc Pedod Prev Dent 2006;24:161-3.
16. Saraswat V. Injury pattern In Low Intensity Conflict. Indian J Anaesth 2009;53:672-7.
17. Shirani G, Motamedi MK, Ashuri A, Eshkevari PS. Prevalence and pattern of combat sport related maxillofacial Injuries. J Emerg Trauma Shock 2010;3:314-7.
18. Cheema SA. Gun shot trauma of the maxillofacial region: an analysis of 66 cases. Pak J Surg 2006;22:86-90.
19. Guruprasad Y, Giraddi G. Unusual Case of Gunshot Injury to the Face. J Clin Imaging Sci 2011;1:3.
20. Khan SU, Khan M, Khan AA, Murtaza B, Maqsood A, Ibrahim W et al. Etiology and pattern of maxillofacial injuries in the armed forces of Pakistan. J Coll Physician Surg Pak 2007;17:94-7.
21. Stewart MG, Chen AY. Maxillofacial Injuries and Violence against Women Arch Facial Plast Surg 2009;11:48-52.
22. Abbas I, Fayyaz M, Shah I, Khan MI, Qazi SH, Munir N et al. Demographic distribution of maxillofacial fractures in Ayub Teaching Hospital: 7-year review J Ayub Med Coll Abottabad 2009;21:110-2.
23. Dibaie A, Raissian S, Ghafarzadeh S. Evaluation of maxillofacial traumatic injuries of Forensic Medical Center of Ahwaz, Iran in 2005. Pak J Med Sci 2009;25:79-82.
24. Rajendra PB, Mathew TP, Agrawal A, Sabharawal G. Characteristics of associated craniofacial with head injuries: An experience with 100 cases. J Emerg Trauma Shock 2009;2:89-94.
25. Ahmad N, Javed M, Inayatullah. Management of mandibular fracture in Lady Reading Hospital Peshawar. JPMI 2005;19:396-99.