Thi-Qar Medical Journal (TQMJ):Vol.(24),No.(2),2022
Web Site: https://jmed.utq.edu Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

Clinical Evaluation of Maxillofacial Injuries among Patients attending AL Kindy Teaching Hospital /Baghdad/ Iraq (Retrospective Analysis)

Ahmed Naeem Mahdi[1]
Mohammed Habeeb Safeallah[2]
Abdulazeez Muayad Abdulkarem[3]
1,2 Department of Maxillofacial Surgery /Al-Kindy Teaching Hospital
3 Department of Maxillofacial surgery / College of dentistry / Al-Muthana University
Correspondence to :; mohs_77@yahoo.co.uk

ABSTRACT

Background: Trauma affect maxillofacial region represent a high challenging difficulties for healthcare specialist worldwide. Especial attention was produce with a high diversity and incidence of traumatic facial injuries.

Objective:

This study was conducted to evaluate the etiology and pattern of maxillofacial injuries, in addition to the treatment plan among patients in AL Kindy teaching hospital / Baghdad- Iraq

Materials and methods: A total of 1965 patients were attending to the Al Kindy teaching hospital / oral and maxillofacial department, suffering from maxillofacial injuries were involved in a retrospective analysis conducted in a period of 3 years from July 2019 - July 2022. From 1965 patients, only 165 patient's records who were manage at department of emergency or in maxillofacial department were analyzed as indoor patients. Gender, age, etiology of trauma, type and location of injuries, with management methods must happen were recorded.

Results:

Result of 1965 individual**,** associated trauma were recorded about one hundred sixty five (165) patients. The most etiological factor was (RTA). Mandible was the major bone fractured. Predominant maxillofacial treatment plan were inter maxillary fixation. In addition to that, suturing of soft tissues laceration were recorded a high percentage among treatment method. the "Fisher's exact test" was recorded a statistically significant differences between cause of maxillofacial fractures, with the type of fracture.

Conclusions:

Application of a sever road with safe measures in a different regions in Iraq, to prevent and minimize mortality and morbidity related to the RTA is very important. Trauma of facial skeleton should be approaching with a good knowledge of possible related injuries may be happen.

Keywords: Maxillofacial trauma, Facial injuries, Road accidents,

Introduction

Maxillofacial part has a complicated anatomical structures including soft with hard tissues. Trauma may damage the path airway, lead to life threatening and bleeding tendency in addition to head trauma. Olfaction senses, hearing and sight may be disrupted, additionally, intense psychological problems following a severe facial disfigurement.[1] Maxillofacial injuries is divided into injuries including the upper, middle and lower third, of the face. It involves a hard and soft tissues of oral and maxillofacial. Specialists of maxillofacial have an important role in the evolution of injuries emergency treatment, also they currently be advances and the forefront in the treatments methods. [2]

Impair facial expression due to motor nerve and soft tissue damage with tissues scarring may an important the nonverbal status of communications. The psychological complication is most happen among traumatic injured patients who complained of cosmetically deformity.[3] Improper anatomical managements of underlying bones and related facial soft tissues injuries may lead to defect to speech and occlusion functions . Minimizing of the damage soft and hard tissues, with no any consideration for oral, dental and facial rehabilitation will be more complicate the prosthetic application managements after the healing of the trauma[1] Important goals of managing oral and facial trauma should include returning the traumatic person to as close to their before injury condition at the earliest possible time, in addition to an early and soon return to function. In conditions of severe maxillofacial trauma, may be different surgical procedures required to achieve these goals.

Materials and Methods:

The patients:

In this retrospective study, the census of sampling were applied. Patient's record was completely informed consent before starting the current study. Patients who admitted to department of the Maxillofacial Surgery in AL Kindy teaching Hospital in Baghdad /Iraq from 2019-2022, were included in the current study. The total number of the patients was calculated at 1965 individuals, they were seek hospital treatment. The criteria which exclusion during study were as following: 1) an immediate treatment for outpatients with no need hospitalization; 2) non-completed medical records; 3) patients with simple soft tissue injuries who were treated in emergency room and no need to hospitalization; and 4) any patients with maxillofacial trauma associated with brain injuries (because there is no neurosurgical department in AL Kindy teaching Hospital). In addition to these conditions, and due to Covid 19 during period from 2019-2022, only patients with emergency care were treated. There for

and after excluding previous certain cases, only 165 patients as a study sample to analysis in the study.

Methods:

The demographic data, the age and gender, of the study sample (165 patient's record) were collected, in addition to the patients' medical history records were reviewed to take all information related to the time of referral case, the cause of traumatic injuries, patients complaints, the involved damaged bones, concomitant bone with soft tissues injuries and other damage parts. Additionally, the archived of radiology reports of the patient also used.
The facial trauma was classified according to the location as maxillary, mandibular, maxilla-mandibular, zygomatic bone, in addition to the dental and soft tissues trauma, which well diagnosed in a primary clinical examinations supported with a CT scan report.

Statistical Analysis:

Study was analyzed statistically using SPSS Version 21, using descriptive statistical analysis, (distribution and continuity) (percentage and number) to represented the study data. P value recorded less than 0.05 was considered as significant in the finding of the study.

The ethical considerations:

Ethical considerations related to the study, were consider during the work in the study, also individual' names with medical history information completely remained secret and confidentiality protections, Medical history was solely used for the study.. Proposal research of a current study was approved by the ethics committee in Al Kindy hospital.

Limitations:

Incomplete records, missing patient data and improper reporting from patients. Additionally, operating rooms have ventilators need to support COVID-19 patients rather than others, at the time of study preparation.

Results:

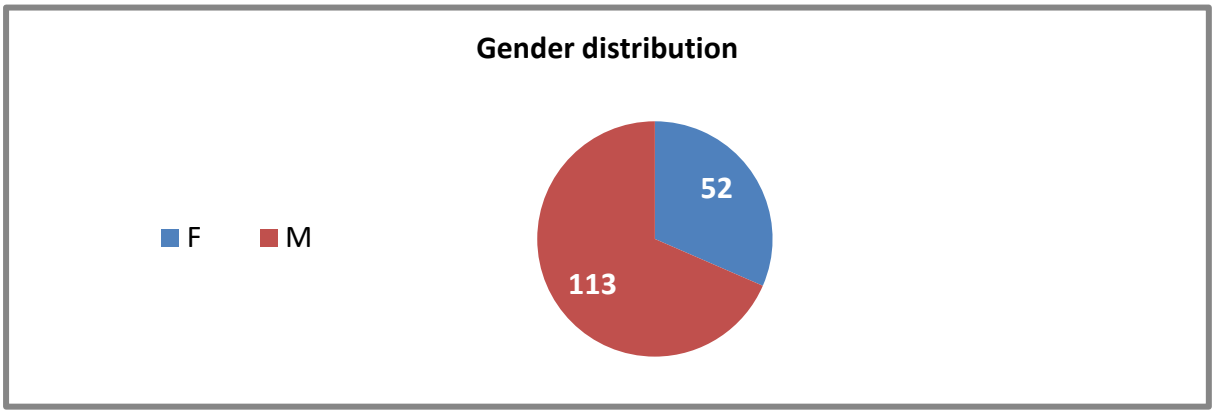

Figure (1): Gender distribution

The findings showed that, from 165 studied subjects were included in the current investigation, 113 individuals (68.48%) were male, also 52 subjects (31.5%) were female. Figure (1)

Table 1: Etiology

Etiology	Patients N&%
Road Traffic	81 (49.09%)
Falling Downs	27(16.36%)
Natural Disasters	8(4.84%)
Assault	19(11.51%)
Firearm Injury/Blast	18(10.90%)
Others	12(7.27%)
Total	165(100%)

The table illustrated that, road traffic accounted for the majority of traumas resulting in maxillofacial injuries (49.09%), followed by falling downs (16.36%). The results were recorded natural disasters had the minimum prevalence (4.84%). In 165 patients, assault and firearm injury/blast were reported nearly the same percentage (11.51%) and (10.90%) respectively. Other etiological causes were reported only 12 cases (7.27%). (Table 1).

Table 2: Types of injuries

Site	Patients N&%
Mandibular Injuries	65(39.39%)
Maxillary Injuries	18(7.87%)
Zygomatic	21(12.72%)
Maxillo-Mandibular	9(5.45%)
Soft Tissue	32(19.39%)
Dental	13(7.87%)
Others	12(7.27%)
Total	165(100%)

The findings of the current study, recorded that, mandible fracture was recorded as the most commonly fractured bone (39.39%), followed by soft tissue injuries (19.39%). In addition, zygomatic fracture reported a high percentage (12.72%). The findings of the study recorded that, mandibular fracture in combination with maxilla had the minimum percentage (5.45%). In 165 patients, maxillary and dental injuries were reported the same percentage (7.87%). Other sites of trauma were reported only 12 cases (7.27%). (Table 2).

Thi-Qar Medical Journal (TQMJ):Vol.(24),No.(2),2022
Web Site: https://jmed.utq.edu Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

Table 3: Type of treatment

Type Of Treatment	Patients N&%
Inter Maxillary Fixation (IMF)	57(34.54%)
Suturing Of Soft Tissues Laceration	46(27.87%)
Fixation Of Dentoalveolar Fracture	28(16.96%)
Open Reduction Internal Fixation	25(15.15%)
Others	9(5.45%)
Total	165(100%)

The findings of the study, showed that, the predominant maxillofacial treatment plan were Inter maxillary fixation (IMF) (34.54%), followed by Suturing of soft tissues laceration (27.87%). In addition to that, Fixation of dentoalveolar fracture and Open reduction internal fixation were recorded nearly the same percentage among treatment method (16.96%) & (15.15%) respectively. In 165 patients, other methods of trauma treatment were reported only 9 cases (5.45%). (Table 3).

Table (4): Relationship between the etiology of bone fractures, with the type

	Cause												Total	
	Road Traffic		Falling downs		Natural Disasters		Assault		Firearm Injury/Blast		Others			
	N		N	%	N	%	N	%	N	%	N	%	N	%
	Mandibular	27	44.26	25	40.98	0	.00	9	14.75	0	.00	0	.00	61	36.97
	Maxillary	5	35.71	1	7.14	1	7.14	3	21.43	2	14.29	2	14.29	14	8.48
	Zygomatic	15	65.22	0	.00	0	.00	3	13.04	2	8.70	3	13.04	23	13.94
	Maxillo-Man	5	55.56	0	.00	0	.00	3	33.33	0	.00	1	11.11	9	5.45
	Soft tissue	11	33.33	0	.00	5	15.15	1	3.03	14	42.42	2	6.06	33	20.00
	Dental	8	61.54	1	7.69	0	.00	0	.00	0	.00	4	30.77	13	7.88
	Others	10	83.33	0	.00	2	16.67	0	.00	0	.00	0	.00	12	7.27
Tota	81		27	16	8	4.85	19	11.52	18	10.91	12	7.27	165	100

(Fisher exact =106.339, p value=0.000 Sig.)

Table 4 , illustrated that, road traffic consider as the main cause of mandibular fracture and recorded a higher percentage (44.26 %), followed by falling downs (40.98%), while natural disasters and firearm injury/blast were not related with mandibular fracture in the current study.

In cases of road traffic and assaults, the maxillary fractures were recorded (35.71%) and (21.43%) respectively as a single fracture, Additionally, road traffic and assaults, were recorded a high percentage in relation to the compound fracture (Maxillo-Mandibular fracture), (55.56%) and (33.33%) respectively.

Falling downs and natural disasters were recorded the same effect on relation to the maxillary fracture in this study (7.14%).

Regarding zygomatic fracture, the findings of the study recorded a higher percentage (65.22%) in relation to the road traffic, compared with other causes of fractures.

Regarding soft tissues damage due to maxillofacial injuries, firearm injury/blast occupied a high percentage in all trauma cases (42.42%) compared with other causes of injuries. Additionally, the same table

illustrated that, road traffic comprised a high percentage (61.54%) in relation to dental fractures in available study." Fisher‘s exact statistically test" was recorded significantly differences in the cause in maxillofacial fractures, with the type of fracture. (Fisher exact =106.339, p value=0.000 Sig.).

Discussion

During 3 years, from July 2019 to July 2022, 165 patients in the current investigation, were investigated and treated by specialists of maxillofacial surgery department, analysis of the study findings maybe provide a high information about the distribution of facial trauma in the Maxillofacial Department in AL Kindy Hospital in Baghdad /Iraq, also help to build an important database and good information that may help to improve medical managements with dental health programs to minimizes and prevent any facial injuries.

Geographical area, type of culture, socioeconomic condition, gun and road safety regulations play a role in the causes and incidence of maxillofacial trauma[4] The findings of the study, male to female ratio was (2:1) this result is in agreement with other researches, as well as agree with international studies [5,6,7]. In spite of that, findings in Pakistan [8] was very high ratio 32:1.This results may be due to generally males were socially more active, so high involved in the life-threatening sever activities, violence with sports, than women.

Maxillofacial trauma are mostly caused by road accidents, assaults accidents, industrial accidents, natural disasters and trauma due to falling downs. The results of this study reported that RTA were the major predominant etiology of trauma, comprising about 49.09% of the etiological factors of injuries similar. the finding was 62.0% in India [11], 40.0% in United States[11], 24.70% in England, 48.0% , in France, 55.20% , in Jordan [9] 44.0% a and in Pakistan. [10]. These results may be related to lack of knowledge about specific laws against roles of drinking during driving, applications and laws related to the usage of seat belts in addition to the speed limitation for the roles of roads . However, cultural with regain differences, sports and others activities, in addition to occupational condition might related to the etiology and causes of traumas there for lead to discrepancies in various studies

Current investigation, reported that assault is also consider as important causative factor (11.51%)), this result is in agree with different researches [11,12,13,]. These findings may be related with, more patients received treatment in Al Kindy hospital with a low socioeconomic condition in addition to different social with health problems which play a role in increasing assault status. The high incidence in urban violence predominant and observed in certain regain are strongly related with social/economic status which conflicts to many subject, especially the youngsters, are commonly subjected. Regarding to consideration this complicated scenario, in addition to the current tendency related with sever urban violence with economic/social conflicts status to more increase, there

for we should believe that a possible interpersonal violence reduction as a predominant causative factor of trauma appear in a particular way, very difficult with unlikely than a reducing in maxillofacial trauma due to rod accidents**.**

Investigations reported that mandible bone was the predominant involved (**39.39**%), then Zygomatic bone (**12.72**%). These findings are agree with findings were recorded by different authors.[14,15,16,17,18,19,20]

Study was reported by Zandi *et al*, and Hussain *et al*., reported that Zygomatic was a predominant prevalent kind of trauma [21,22,23] and consider as the second major fracture in the current invistigation. Authors [24,25] reported that fractures in the zygomatic bone were a high frequent. Sliight differences were found related to the fractures frequency may be related to etiological variations of fractures in different investigations. Additionally, the major important factor which lead to a high number of rod accidents increasing in using of motorbikes and, consequently lead to a facial fractures [26]. According to the study by Huelke and Compton [27], find that, although car and rod accidents are most common, motorbike accidents are considered high serious. In spite of the roles of speed limitation enforced and respected in, for instance, Thailand, rod accidents may be t due to difficulties to accept to wear helmets due to the high hot of weather [28] Very high motorbike speeds, in addition to the disrespect low for traffic rod, and a continually disregard for the importance of wearing a helmet are most problems, this due to high hot of weather and more discomfort, which cause a very serious, fatal rod accidents.

From all of injures in the current study, maxillofacial fractures due to firearm bullet injuries were about (10.90%) which is nearly agree with the finding by Paes. [29] . Study by Taher et al., [30] recorded 69.0% of the injuries were due to firearm bullets, while 24.4% was cause by rod accidents. Ugboko [31]

The present investigation reported that, lacerations of soft tissue and avulsion s of wound were a major prevalent soft tissue damage reported in current findings 19.39% (*n*=32). This result was lower than reported in India [32] reported 42.0% percentage, while in Brazil [33], reported a higher percentage at 58.50%. Isolated nasal bone trauma were excluded from the current investigation because in fact and in our hospital settings, the ENT specialists manages these kinds of trauma.

References

1-Vujcich N, Gebauer D. Current and evolving trends in the management of facial fractures. Aust Dent J. 2018 Mar;63 Suppl 1:S35-S47.

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

3- Abbott P. Guest Editor. The Management of Dental Trauma. *Aust Dent J* 2016; **61**(Suppl): 82– 94.

4- DM, Best AM. Current trends in the treatment of maxillofacial injuries in the United States. J Oral Maxillofac Surg 2000;58:207-15

5- Zia UH, Lahri IA, Hussain F, Kumari M. An analysis of maxillofacial trauma patients treated during May 2002–April 2003 at dental section, BMC, Quetta. Pakistan Oral Dent J 2003;23:87–90.

6- Sojot AJ, Meisami T, Sandor GK, Clokie CM. The epidemiology of mandibular fractures treated at the Toronto general hospital: A review of 246 cases. J Can Dent Assoc 2001;67:640–4

7- Tan WK, Lim TC. Aetiology and distribution of mandibular fractures in the National University Hospital, Singapore. Ann Acad Med Singapore 1999;28:625–9

8-Aziz K, Khalil IUR. Road traffic accidents in Peshawar. Ann King Edward Med Coll Lahore 2002;8(2):103–4

9-Bataineh AB: Etiology and incidence of maxillofacial fractures in north of Jordan. J Oral Surg Oral Med Oral Pathol 86:31, 1998

10-Cheema, F. Amin. Incidence and causes of maxillofacial skeletal injuries at the Mayo Hospital in Lahore, Pakistan. British Journal of Oral and Maxillofacial Surgery 44 (2006) 232–234.

11- Paes JV, de Sá Paes FL, Valiati R, de Oliveira MG, Pagnoncelli RM. Retrospective study of prevalence of face fractures in southern Brazil. Indian J Dent Res. 2012;23:80-6.

12-Gassner R, Tuli T, Hächl O, Rudisch A, Ulmer H. Cranio-maxillofacial trauma: a 10 year review of 9,543 cases with 21,067 injuries. J Craniomaxillofac Surg. 2003;31:51-61.

13-Lee JH, Cho BK, Park WJ. A 4-year retrospective study of facial fractures on Jeju, Korea. J Craniomaxillofac Surg. 2010;38:192-6.

14-Adebayo ET, Ajike OS, Adekeye EO. Analysis of the pattern of maxillofacial fractures in Kaduna, Nigeria. Br J Oral Maxillofac Surg. 2003;41:396-400.

15-Brasileiro BF, Passeri LA. Epidemiological analysis of maxillofacial fractures in Brazil: A 5-year prospective study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2006;12:28-34

16-Kadkhodaie MH. Three-year review of facial fractures at a teaching hospital in northern Iran. Br J Oral Maxillofac Surg. 2006;44:229- 31

17-Iida S, Kogo M, Sugiura T, Mima T, Matsuya T. Retrospective analysis of 1502 patients with facial fractures. Int J Oral Maxillofac Surg 2001;30:286-90

18-Tanaka N, Tomitsuka K, Shionoya K, Andou H, Kimijima Y, Tashiro T, et al. Aetiology of maxillofacial fracture. Br J Oral Maxillofac Surg. 1994;32:19-23.

19- Scherbaum Eidt JM, De Conto F, De Bortoli MM, Engelmann JL, Rocha FD. Associated injuries in patients with maxillofacial trauma at the hospital são vicente de paulo, passo fundo, Brazil. J Oral Maxillofac Res. 2013;4

20- Joshi SR, Saluja H, Pendyala GS, Chaudhari S, Mahindra U, Kini Y. Pattern and Prevalence of Maxillofacial Fractures in Rural Children of Central Maharashtra, India. A Retrospective Study. J Maxillofac Oral Surg. 2013;12:307-11

21-Simons-Morton B, Lerner N, Singer J. The observed effects of teenage passengers on the risky driving behavior of teenage drivers. Accid Anal Prev. 2005;37:973-82.

22-Zandi M, Khayati A, Lamei A, Zarei H. Maxillofacial injuries in western Iran: a prospective study. Oral Maxillofac Surg. 2011;15:201-9

23-Hussain K, Wijetunge DB, Grubnic S, Jackson IT. A comprehensive analysis of craniofacial trauma. J Trauma.1994;36:34-47

24-Lee MC, Chiu WT, Chang LT, Liu SC, Lin SH. Craniofacial injuries in unhelmeted riders of motorbikes. Injury.1995;26:467-70.

25-van As AB, van Loghem AJ, Biermans BF, Douglas TS, Wieselthaler N, Naidoo S. Causes and distribution of facial fractures in a group of South African children and the value of computed tomography in their assessment. Int J Oral Maxillofac Surg 2010;35:903-6

26-Subhashraj K, Ramkumar S, Ravindran C. Pattern of mandibular fractures in Chennai, India. Br J Oral Maxillofac Surg. 2008;46:126-7

27-Huelke DF, Compton CP. Facial injuries in automobile crashes. J Oral Maxillofac Surg. 1983;41:241-4.

28-Lee KH, Steenberg LJ. Equine-related facial fractures. Int J Oral Maxillofac Surg. 2008;37:999-1002.

29-Paes JV, de Sá Paes FL, Valiati R, de Oliveira MG, Pagnoncelli RM. Retrospective study of prevalence of face fractures in southern Brazil. Indian J Dent Res. 2012;23:80-6.

30-Taher AA. Management and complications of middle and upperthird facial compound injuries: An Iranian experience. J Craniofac Surg. 1993;4:153-61

31-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.

32-Subhashraj K,Nandakumar N, Ravindran C. Review of maxillofacial injuries in Chennai, India: A study of 2748 cases British Journal of Oral and Maxillofacial Surgery 45 (2007) 637–639

33-Brasileiro BF and Passeri LA. Epidemiological analysis of maxillofacial fractures in Brazil: A 5-year prospective study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2006;102:28-34**.**