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MID FACE FRACTURE;
RIGID FIXATION AND ITS OUTCOME

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ABSTRACT… Background: Mid Face fractures remain one of the common injuries managed by Oral & Maxillofacial Surgeons as routine practice. The goal of treatment in these fractures is the three-dimensional fixation and restoration of the severely disturbed anatomical structure of mid face so as to achieve pre-injury form and function. **Study Design:** Descriptive case series study. **Setting:** "Oral & Maxillofacial Surgery Department, Institute of Dentistry, Liaquat University of Medical & Health Sciences, Jamshoro". **Period:** January 2011 to November 2015. **Materials and Methods:** Sample size of 64 patients. **Results:** Among 64 study subjects, 46(71.90%) patients were male and 18(28%) patients were female, with male to female ratio 2.5:1. The age distribution showed that 11(55%) patients were <25 years, 23(45%) patients were <30years, 12 patients were <35 years and 8 patients were <40 years of age. The etiology of fracture showed that 42 fractures were due to RTA, 10 due to assault, 8 due to fall and 4 sports injuries. In thirty six Zygomatico-maxillary buttress procedure, in twenty four the fronto-zygomatic, and infraorbital rim fixation were done; but a mixture of web sites was needed in several cases. **Conclusion:** This study utilizing miniaturized scale plates has given us accurate and promising outcomes subsequently might be used and considered as a legitimate device for the management of middle third facial fractures.

Key words: Lefort Fracture, Zygomatic Fracture, Titanium Microplate

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INTRODUCTION

Middle third of the facial skeleton is formed by maxilla and provide facial appearance. It is an elastic bone, this cushioning effect of the midface minimize the impact to the brain.

Road side accident is leading cause of middle third fracture. Apart from this assault and violence, skilled industrial work or sports contact injuries and athletics games are other causes.[1]

Lefort introduce a base line classification for maxilla fracture, and suggested Lefort I, low level fracture, Lefort II, Pyramidal fracture, Lefort III high level fracture. As the decades progressed, a few techniques of administration of mid-face breaks have been attempted. The early and well known utilization of outside obsession gadets, had burdens, in that delayed inter-maxillary obsession and broad additional oral machines around the face and noggin were utilized, which was irritating to the patient.

The street in the administration of, as mono-cortical semi-inflexible obsession with mini-plates, which is surpassed every one of the weaknesses of the past techniques.[2]

Early surgical repair is a foremost and open lessening and inward obsession with anatomic decrease to reclamation of pre-damage facial bone engineering and capacity.

The customary mini-plates had innate weaknesses through overlying delicate tissue contortion, especially when utilized as a part of orbital area, nasal or frontal portion areas. When this sought of technique is risky than an auxiliary strategy would be required for the expulsion of plates with screws.

The sizes of existing mini-plates with screws

(smaller than normal obsession) are not effortlessly versatile for the utilization in facial frame where overlying delicate tissue spread is thin All the aforementioned deficiencies were overcome by the microplate framework.[3,4]

The rational of the study was to find out the better method for management of Mid face fracture in terms of achieving stable fixation with minimized morbidity and issues with rigid fixation."

MATERIALS AND METHODS

This descriptive case series study was done at "Department of Oral & Maxillofacial Surgery, Liaquat University of Medical & Health Sciences, Jamshoro" from January 2011 to November 2015. Standard titanium based micro-plate of 1.3mm with the distance across titanium screws were chosen in this study. The plate had a usually thickness of around estimated 0.5mm and self tapping screws with opened heads utilized, normally the length of screw was 6mm to 8mm. The bore utilized was made of titanium which had breadth of 1mm."

All out 64 patients with mid face crack were chosen to take part, of which 46 were males and remaining 18 were females having the age between 2nd and 4th decade.

All patients were worked under general anaesthesia, somewhere around second and fifth day taking after damage. They were released on fifth 5 day after the management.

"The entry point required for midfacial wounds will obviously rely on the level of break and related issues of the orbital, naso ethmoid, frontal and zygomatic districts. When all is said in done four cuts were required for the complete presentation of all crack destinations in this study:

- "Molar to molar circumvestibular incision, giving access to the maxilla upto the inferior orbital rims"
- "Subciliary incision to expose the inferior orbital rim"
- "Lateral eye brow incision to expose the frontozygomatic suture area"
- "Open sky incision for access to the nasal bridge, frontonasal region, upto the level of the frontal sinus and the medial canthal ligaments""

All Incisions were marked with bonney's blue ink, through these incisions, periosteal stripping of the fractures was done and completed, which uncovers the genuine degree of the displacement and separation of fracture portions and finally micro-plating system was applied in all cases

All patients were assessed for month to month premise for a time period of 24 months for to rule out post operative complication.

RESULTS

Among 64 study subjects, 46(71.90%) patients were male and 18(28%) patients were female, with male to female 2.5:1. The age distribution showed that, 11(17%) patients were <25 years, 23(36%) patients were <30years, 12(18.75%) patients were <35 years and 8(12.5%) patients were <40 years of age. The etiology of fracture showed that 42 fractures were due to RTA, 10 due to assault, 8 due to fall and 4 sports. (Table-I)

		Frequency (n)	Percentage (%)
Gender	**Male**	46	71.90%
	Female	18	28%
Age	**< 25 years**	11	17%
	<30 years	23	36%
	<35 years	12	18.75%
	<40 years	08	12.5%
Etiology	**RTA**	42	65.6%
	Assault	10	15.6%
	Fall	08	12.5%
	Sports	04	6.25%

Table-I. Distribution of Patients Gender and Age

At the time of post operative time period radiographs assumed control over a time of 6 months uncovered that cracks were steady after obsession and none uncovered a non union.

The aforementioned methodologies and purposes

of fixation were utilized as a part of 56 patients who had open introduction of the breaks. The most every now and again utilized methodology was the maxillary vestibular entry point in mix with different methodologies. The following regular utilized methodology was through the incision lower eyelid for to uncover infraorbital rim and orbital floor; in some situations, the cracks were balanced out through the parallel orbital edge (fronto-zygomatic zone).

The most continuous purpose of obsession was the Zygomatico-maxillary brace, being utilized as a part of 36 breaks that were settled by inner obsession, the frontozygomatic in 24, and the infraorbital edge in 12 and the zygomatic curve in 22 occasions; however a mix of locales were required as a rule. (Figure-I)
A gap was seen 8 patients between head of the

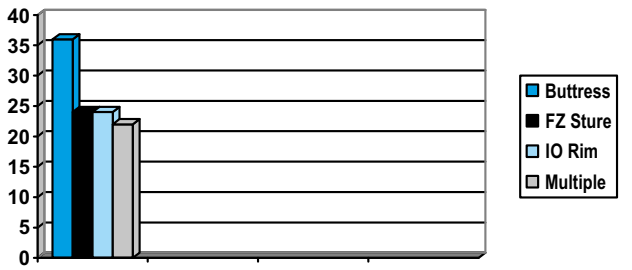

Figure-1. Showing Point of Fixation in Mid Face Fractures

screw and the surface of a 1.3mm smaller scale plate, however extricating of screws did not happen amid the whole catch up period.

12 patients whined of industrious torment in the area of the osteo-synthesis for the initial 12 weeks taking after surgery however bit by bit died down in the accompanying review visits.

In 16 patients maxillary sinusitis was diagnosed and that required treatment with wide range anti-biotics, taking after which they stayed asymptomatic.

Concerning the harm created to the infra-orbital nerve, parasthesia was available in 8 patients while recovery with sensation came back to typical inside 2 months taking after the surgery.

18 patients out of 64 were whining of scar over the entry point region."(Table-II)

	Post Operative	
	Frequency (n)	Percentage (%)
Space at head of screw	8	12.5%
Maxillary Sinusitis	16	25%
Paresthesia	8	12.5%
Persistent Pain	12	18.75%
Scar at incision	18	28%

Table-II. Frequency Distribution of Patients According to post-operative Complication

DISCUSSION

The overall management objects of treatment mid facial fractures is to restore right anatomic reclamation of the maxilla in connection to the cranial base above and more over underneath mandible, and the remaking of any related naso-orbito-ethmoid and zygomatic cracks. The plenty of methods, portrayed for the administration of these wounds throughout the decades authenticates the way that contention disarray still encompasses the administration of these breaks.

The middle third of face comprises of pneumatic depressions or sinuses equipped by vertically or on a level plane situated struts of bone.[7]

The powers of rumination are therefore appropriated around delicate territory of nose; paranasal sinuses with base of skull and this kind of supporting structure can bear or resist significant power from underneath however the bones are effectively cracked by moderately trifling strengths connected from different headings

The analysis of complex maxillary middle third fractures opines that anatomic remaking of the four front braces will permit both accurate alignment of maxilla in its right antero-back projection in connection to the cranial base and recreation of the definite vertical stature and flat projection of maxilla.[8]

The steady obsession of midface breaks by smaller than expected pressure plates. The utilization of pressure is every now and again unrealistic in the slim bones of the maxilla and can bring about portion uprooting, as the screws are fixed. Likewise pressure is less basic for the midface, since strong footing strengths are extremely insignificant.[9]

The impact of ignored treatment of cracked facial bones, stressed that patients ought to be dealt with typically inside third to fifth day taking after damage which is as in this study. In our concentrate, all patients were managed on third and fifth day.[10]

Early reproduction of the midface keeps away from delicate tissue shrinkage, solidness and scarring of delicate tissues in non anatomic positions.[11] This likewise forestalls relocation and renovating of pieces by scarring.[12]

The procedure of inner obsession of the cracked center third of the face has been generally bolstered.[13,14-17]

The maxillary buccal vestibule entry point, routinely utilized as a part of all cases to give the access to sidelong mass of maxilla, zygomatic support and maxillary sinus.[18] The Subciliary entry point was supported for introduction of cracks along the second rate orbital edge.[19] This entry point was utilized the vast majority of our cases.

The method of utilizing a lift inta-orally to lessen the cracked zygoma took after by us.[20]

Exact decrease of zygomatic curve in connection to the cranial base posteriorly and as well as midface anteriorly bringing about an external facial casing, with right antero-back projection with transverse facial width was accomplished.[21]

Fixation of single scaled down plate at the fronto-zygomatic suture region after lessening of cracked zygoma was taken after.[22-25]
The break at the fronto-zygomatic suture region is the main site in the midface which is affected by a muscle pull by the masseter, and consequently plating done at this site and the zygomatic brace avoids inferomedial relocation of the zygoma.

Taking after the decrease of center face and the fulfillment of typical occlusal design, intermaxillary obsession was done to keep up the occlusal relationship, all through the rest of the surgical method.

The inter-maxillary obsession was discharged strictly when obsession was finished at all broken destinations and when all the intra and additional oral injuries were shut.[17]

An open sky entry point was utilized as a part of 8 out 28 cases incorporated into our study.[26]

Twenty four patients had also the cracks of mandible of which 16 involving the parasymphysis, 7 at body region and 1 at symphysis, these mandibular breaks were decreased, adjusted and small plate osteo-synthesis done, comfortable start of the strategy, taking after which the mandibular capacity was checked, before the reproduction of midface.

Titanium micro-plate was picked inferable from such properties, pliability and flexibility, there was superb bone mending in each of the 64 cases, no recognizable tissue response was found. The small scale plates utilized as a part of the maxilla were 0.5mm in thickness. The position of different screws on either side of the breaks accommodates an all the more even conveyance of burden sharing between the plate and the bone has been connected in our study.[27]

In our concentrate no antagonistic difficulties identified with deferred excessive touchiness could be recorded and no dispersing was noted in post agent CT filters.

These small scale plates were by and large non unmistakable and subsequently could be utilized as a part of zones with dainty mucosal spread, over nasal extensions, frontal bone, frontozygomatic

range, infraorbital edge and over zygomatic curve, when contrasted with smaller than usual plate which is massive in these destinations.

CONCULSION

As for as the results of study indicated that micro-plates give the tremendous results in relation with functional and esthetics' issue which were major concern of patients for managing mid face fractures.

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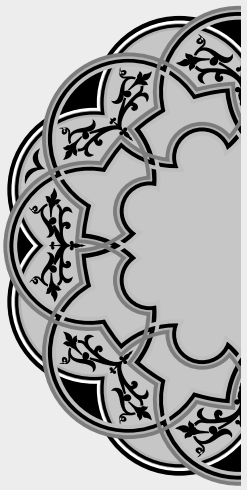

"We make a living by what we get, we make a life by what we give."

Winston Chruchill

AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Dr. Kashif Ali Channar	Intro & Methodology	
3	Dr. Altaf Ahmed Talpur	Discussion & Conclusion	
4	Dr. Munir Ahmed Banglani	References & Editing	