



Pediatric Facial Trauma: A Retrospective Study

KEYWORDS

eyelet wiring, arch bar, plate exposure

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ABSTRACT

Patients and Methods: 100 patient was included from feb 2013 to feb 2016. The medical records of all patients who underwent removal of bone plates after facial bone trauma were reviewed over a 3-year period. Data concerning age and gender distribution, etiology, type of fracture, treatment offered and complications were evaluated for each patient.

Results: Of 100 cases, 85 were males and 15 were females. Mean age was 9.3 year. most common etiology was fall from height 60 patients (60%), followed by road traffic accidents 34 patients (34%). Most common associated injuries was neurosurgical (20%) Most common fractured bone was dentoalveolar 60 patients (60%) followed by mandible patients 50 (50%), most common modality of treatment used closed reduction 55 patients (55%) followed by open reduction 45 patients (45%). Most common material used was stainless steel. Most common technique used for IMF eyelet 30 patients (30%) followed by arch bar 15 patients (15%). Mean day of hospitalization was 2.80 day. Most common complications was surgical site infection 7 patients (7%), followed by plate exposure in 2 patients (2%).

Conclusion: Long-term collection of epidemiological data regarding facial fractures and concomitant injuries is important for the evaluation of existing preventive measures and useful in the development of new methods of injury prevention and treatment. In the present study most common etiology was fall from height. Simple measures like increasing the side wall heights can prevent fall, also children must be allowed to play under supervision of adults. Prevention can also be done with better traffic rules and regulation by peoples. Patients can be better managed by choosing appropriate methods and to reduce complications. facial fractures in children most commonly occur in Dento-alveolar region, followed by mandible bone. The fractures tend to be minimally displaced and in majority of cases can be treated conservatively. Significantly displaced fractures are reduced and immobilized using rigid internal fixation according to principles used in adults. Fractures in condylar region usually are treated using non operative therapies as in most cases fracture heals and condyle is remodeled with successful anatomic and functional results

INTRODUCTION

Maxillofacial trauma can lead to considerable long-term complications in terms of aesthetic and functional^{1,2}. Maxillofacial fractures pattern vary from country to another and even within the same country in different regions and age. This variability is due to different socioeconomic status, sex distribution and environmental factors within same population groups, as per WHO statistics each year one million people die and between 15 and 20 million are injured due to Road Traffic Accidents³. A clear picture of the etiologic and demographic patterns of maxillofacial injuries can assist medical service providers to plan for better management of such cases.

MATERIAL AND METHODS:

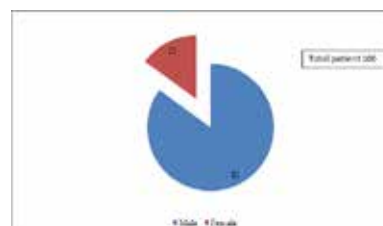
The medical records of patients seeking treatment for facial trauma were reviewed at the Department of Plastic and Reconstructive Surgery. In the study facial injuries were diagnosed after evaluation of the pediatric patients' history, physical examination, and radiological studies. The study population consisted of severely injured pediatric patients (age <15 years) with facial fractures from February 2013 to February 2016, who were admitted to our hospital for surgery and conservative treatment. The parameters assessed were age, sex, etiology and associated injuries, in

addition to the type of fracture, treatment offered, material used, IMF (intermaxillary fixation) technique, mean day of hospitalization and complications. The facial bone fractures were classified as frontal, nasal, zygoma, NOE (Naso Orbito Ethmoid), Dento-Alveolar (DA) maxilla, mandible (symphysis, Para symphysis, Body, Angle, Condyle, Sub condyle & coronoid). Complications were noted. Follow up was done as 1 week, On inter maxillary wires removal, 3 month and 6 months

RESULTS:

Total 100 patients were included in study. 85 were male and 15 were females. (chart 1)

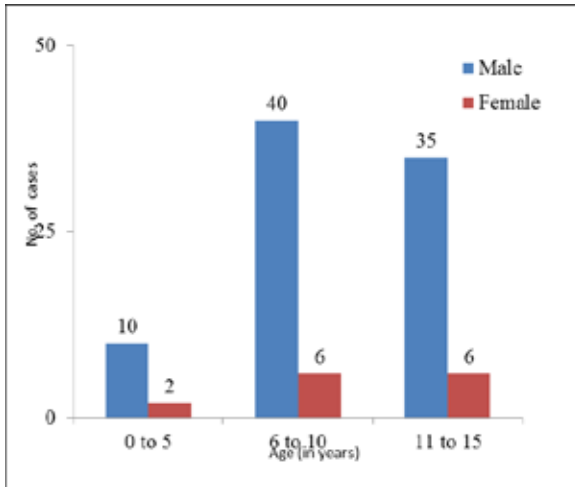
chart 1



2 Mean age was 9.3 year.

3 Incidence & etiology according to age and gender (chart 2)

chart 2



Most common **etiology** was: Fall from height (FFH) (chart 3,4)

chart 3

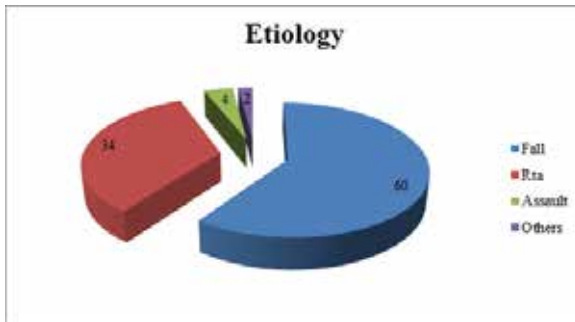
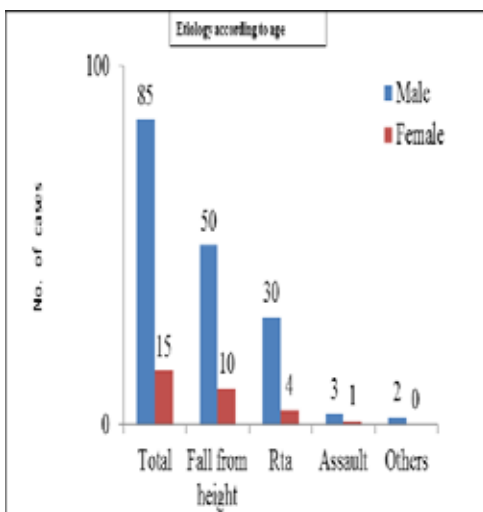
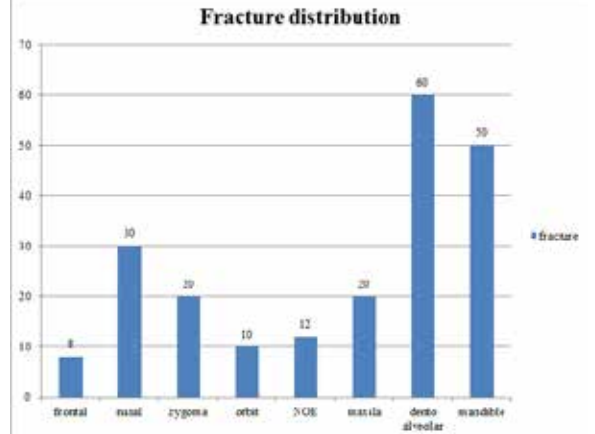


chart 4



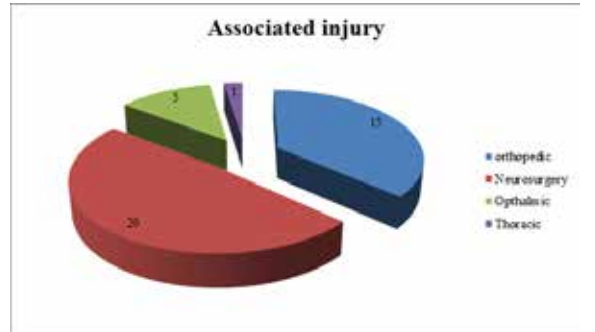
4. most common **site** of fracture was Dento alveolar followed by mandible. (chart 5)

chart 5



Most common **associated injury** was neurosurgical. (chart 6)

chart 6



most common modality of treatment used **close reduction(CR)**. (chart 7)

chart 7

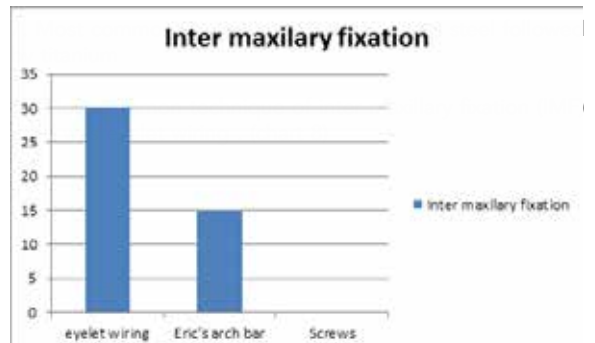
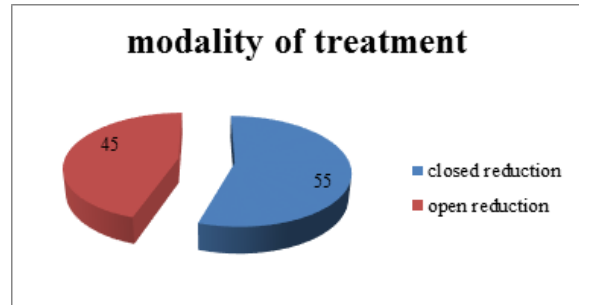
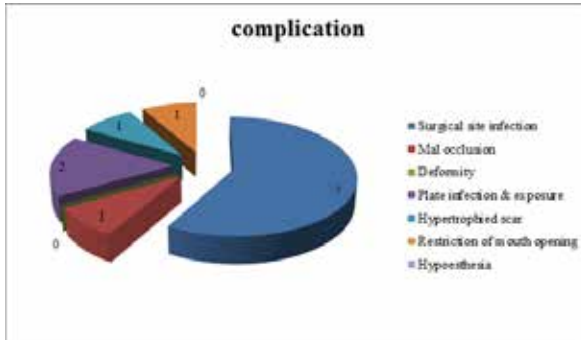


chart 8

10. Mean day of hospitalization was 2.80 days

11. Most common complication was: Surgical site infection. (chart 9)

chart 9



DISCUSSION

A large number of studies have reported on the etiology of facial trauma^{5,11}. The results of epidemiological investigations vary depending on the demographics of the population studied. Factors such as geographic region, socioeconomic status and temporal factors, including time of year and time of the study, can influence both the type and the frequency of injuries reported for a given population.⁵ This makes meaningful comparisons between epidemiological reviews difficult. The increasing prevalence of facial bone injuries emphasizes the necessity for epidemiological surveys to determine optimal prevention strategies and patient management. Such data can inform care-givers the causes and incidences of facial bone fractures.

Our present study evaluated the epidemiology, etiology, pattern, management and complications of pediatric facial trauma in a tertiary center. In our study males were more than females similarly in studies by Banjee et al¹⁷, & Himanshu et al¹⁵ males were more common than females. Mean age was found to be 9.3 years in study by David et al¹⁴ mean age was 8.7 year. Most common age group involved was 6 to 10 years (46%), in study by Himanshu et al¹⁵ most common age 13 to 16 years. Most common etiology was fall from height (60%) followed by RTA (34%) similarly in study by Kumaraswamy et al¹³ FFH was most common followed by RTA. Whereas in studies by David et al¹⁴ and Himanshu et al¹⁵, RTA was most common mode. In a study by Banjee et al¹⁷ violence was most common cause. In our study dentoalveolar was commonly fractured followed by mandible like study by Kumaraswamy et al¹³. In study by Mukherjee CG¹⁶, mandible was most commonly fractured followed by nasal bone. Most common associated injury was neurosurgical followed by orthopedic. Most common modality of treatment used was closed reduction followed by open reduction in contrast to study by Himanshu et al¹⁵ open reduction was most common modality. Most common material used was stainless steel to put eyelet and arch bar. Most common method of intermaxillary fixation was eyelet wiring. Mean days of hospitalization was 2.80 days. Most common complication was surgical site infection (7%) followed by plate exposure (2%)

Conclusion: Long-term collection of epidemiological data regarding facial fractures and concomitant injuries is important for the evaluation of existing preventive measures and useful in the development of new methods of injury prevention and treatment. In the present study most com-

mon etiology was fall from height. Simple measures like increasing the side wall heights can prevent fall, also children must be allowed to play under supervision of adults. Prevention can also be done with better traffic rules and regulation by peoples. Patients can be better managed by choosing appropriate methods and to reduce complications. Facial fractures in children most commonly occur in Dento-alveolar region, followed by mandible bone. The fractures tend to be minimally displaced and in majority of cases can be treated conservatively. Significantly displaced fractures are reduced and immobilized using rigid internal fixation according to principles used in adults. Fractures in condylar region usually are treated using non operative therapies as in most cases fracture heals and condyle is remodeled with successful anatomic and functional results.

Acknowledgement: This study was supported by all academic person from various departments of SMS Medical college Jaipur. We thank our colleagues [from department of burns and plastic surgery SMS medical college and hospital Jaipur Rajasthan] who provided insight and expertise that greatly assisted the study,

We would also like to show our gratitude to the patients for showing faith in us.

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