

Etiology of Pediatric Oromaxillofacial Trauma in Emergency Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin General Hospital Bandung in 3 years 2015-2017

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Abstract: ***Background:** Oromaxillofacial trauma that occurs in children could affect in hard and soft tissue, has a high incidence but never been recorded properly. The purpose of this study is to knowing the etiology of oromaxillofacial trauma in pediatric in Emergency Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin General Hospital in year 2015-2017. **Materials and Methods:** This was a descriptive study with pediatric traumatized subjects in Emergency Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin General Hospital in 3 years 2015-2017. Sampling was done using status data and patient reports are recorded and grouped according to characteristic variables. **Result:** The incidence of oromaxillofacial trauma in pediatric within 3 years was 228 cases, with prevalence of males (59%) was greater than women (41%) with mostly in group age 13-17 years (47,8%). Traffic accidents was the major cause (57,9%), followed with fallen while playing (42.1%) and due to fights (3.9%). **Discussion:** Epidemiological studies of oromaxillofacial trauma in pediatric can provide information about how children get the trauma, the age group that was often exposed to trauma which needs to be studied further and to enhance the oral and maxillofacial surgeon's knowledge so they can predict the prevention and the treatment. **Conclusion:** The incidence of oromaxillofacial trauma in pediatric are higher in males and occurred in adolescent group. The major cause was traffic accidents.*

Keywords: Oromaxillofacial Trauma, Pediatric, Etiology

1. Introduction

Patients with oromaxillofacial trauma in children differ from adults, although injuries caused by similar trauma and this can be hard and/or soft tissue trauma. Pediatric patients have a rapid healing ability, so complications are minimal. This is due to good vascularization of the face. Growth and ability of children to adapt, restoration of damaged oromaxillofacial tissue can be maximized and loss of function can be minimized.¹

In addition, there are certain characteristics of oromaxillofacial trauma in children that should always be remembered, including the immature facial anatomy, so that traumatic facial injury affects growth that leads to long-term follow-up of treatment in pediatric patients must be considered.^{1,2}

According to the law of the Republic of Indonesia number 23 of 2002 concerning child protection, article 1, paragraph 1, a child is a person who is not yet 18 (eighteen) years of age, including a child still in the womb. Meanwhile, according to WHO definition, the age limit of children is from child in the womb until the age of 19 year old.³

The epidemiological variation of oromaxillofacial trauma in children is divided according to type of trauma, severity and trauma, depending on the population studied. Oromaxillofacial trauma in children may occur as an

oromaxillofacial trauma alone or in combination with other trauma including upper and lower body trauma.⁴

The purpose of this descriptive study is to determine the characteristics of oromaxillofacial trauma in pediatric in Emergency Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin General Hospital in the period 2015-2017 with focus on gender, age, etiology, type of trauma and therapy.

2. Materials and Methods

This study is a descriptive study of data on oromaxillofacial trauma incidence in pediatric for 3 years consisting of 228 cases in Emergency Department of Oral and Maxillofacial Surgery Dr. Hasan Sadikin General Hospital in the period of 2015-2017. Data collected from status data and patient reports are recorded and grouped according to characteristic variables, then processed by gender, age, etiology, type of trauma and therapy given to the patient.

Etiologies of oromaxillofacial trauma in children are grouped into 3 groups: traffic accidents, falls during play, and fights. Types of oromaxillofacial trauma are grouped on soft tissue trauma (intra oral laceration wounds and extra oral laceration wounds). Hard tissue trauma (dentoalveolar fracture, maxillary fracture, mandibular fracture). Treatment at Emergency Department of Oral and Maxillofacial Surgery is divided into soft tissue trauma therapy (intra oral and extra oral suturing), hard tissue trauma therapy (tooth extraction,

alveolectomy, interdental wiring). The data are then analyzed and grouped by their variables.

3. Results

In this study there were 288 child patients who experienced oromaxillofacial trauma. There were 134 male patients (59%) and 94 female patients (41%). Table 1 shows the distribution of pediatric patients with oromaxillofacial trauma by gender category.

Table 1: Distribution by gender (n=288)

Gender	Patients	Percentage (%)
Male	134	59
Female	94	41

Patients are then grouped by age as in table 2, consisting of age 0-5 years, 6-12 years, 13-17 years. A total of 47.8% of pediatric patients with oromaxillofacial trauma were in the 13-17 age group, followed by the age group 0-5 years (27.2%).

Table 2: Distribution by age (n = 228)

Age (Year)	Patients	Percentage (%)
0-5	62	27,2
6-12	57	25
13-17	109	47,8

The etiology of oromaxillofacial trauma as in table 3, is a traffic accident (57.9%), followed by falls during play (42.1%) and fights (3.9%).

Table 3: Frequency of etiology oromaxillofacial trauma in pediatric (n=288).

Etiology	Patients	Percentage (%)
Traffic accident	132	57,9
Falls during play	96	42,1
Fights	9	3,9

The most common types of oromaxillofacial trauma in children were soft tissue injuries (94.3%), extra oral lacerations (39%), hard tissue injuries that is dentoalveolar fractures (58.3%), mandibular fractures (16.7%) and maxillary fracture (3.9%) can be seen in table 4.

Table 4. Frequency of oromaxillofacial trauma in children (n = 288)

Type of Trauma	Patients	Percentage (%)
Soft tissue injury		
Intraoral laceration	215	94,3
Extraoral laceration	89	39
Hard tissue injury		
Dentoalveolar fracture	133	58,3
Maxillary Fracture	9	3,9
Mandibular Fracture	38	16,7

Therapy received by patients in Emergency Department of Oral and Maxillofacial Surgery Dr. HasanSadikin General Hospital can be seen in table 5. The most widely accepted therapy of the patient is suture wound laceration both intra oral and extra oral (99.6%), interdental wiring (45.6%), tooth extraction (32.5%) and alveolectomy (28.9%).

Table 5: Type of oromaxillofacial trauma therapy frequency in pediatric in Emergency Department of Oral and Maxillofacial Surgery Dr. HasanSadikin General Hospital (n = 288)

Trauma Therapy	Patient	Percentage (%)
Tooth extraction	74	32,5
Alveolectomy	66	28,9
Suture intra oral and extra oral laceration	227	99,6
Interdental wiring	104	45,6

4. Discussion

Epidemiological studies of oromaxillofacial trauma in children can provide information about how children acquire a trauma, the age groups that was often exposed to trauma which needs to be studied further and to enhance the knowledge of Oral and Maxillofacial Surgeon so the they can predict the prevention and the treatment.¹

In this study, oromaxillofacial trauma more common in males compared with females. A similar feature was found in previous studies, which is possible because males are more active than females, especially outdoor activities.⁵

The etiology of oromaxillofacial trauma in children varies with age, children younger than 5 years are rarely affected by trauma, this may be because children in this age group are usually always under supervision. When children are older than 5 years, incidences and reasons for trauma increase, because children at this age group are usually given more freedom, with less strict supervision and more involved in physical activities.⁵

In pre-school age children, fracture that often occurs are maxillofacial fractures that caused by falling from high places, playing, or due to domestic violence. In school-aged children, fractures are more commonly caused by accidents either by motor vehicles, cars, and sports at school or fighting.

In this study, oromaxillofacial trauma was more frequent in the age group of 13 years to 17 years. This is in contrast to other studies in which the age group that often experienced maxillofacial fractures is aged 21-30 years, or aged 21-40 years. This is probably caused by the current age group of many adolescents given the freedom to drive motor vehicles, especially motorcycles.⁶

The general principles of oromaxillofacial trauma management are identification, reduction, repositioning, stabilization and fixation that should be applied while considering the impact on future growth in children. Dilemmas often arise when deciding on the best treatment for oral maxillofacial trauma in children, this is because the role and function of the jaw as a modulator of mandible growth and the potential for healing and remodeling of bone in children is greater than adults.²

If the installation of interdental wiring fixation is done for a short period of time, the treatment will inhibit the facial growth reversibly. When open reduction treatment becomes an option, it should be noted that the measures should not have an effect on facial growth due to placement of bone

plates, screws or wire. During the mixed dentition phase, it may be difficult to obtain a stable interdental wiring fixation in both closed reduction and open reduction treatments.⁵

There are several considerations for clinician in handling oromaxillofacial trauma in pediatric patients where facial bones in children tend to heal faster than adults and necessary intervention should be done as soon as possible. Some oromaxillofacial trauma in children can be treated only by observation or closed techniques. If open reduction and internal fixation are required, the clinician should obtain alignment of all suture lines and avoid excessive periosteal removal as this may lead to growth disorders.⁷

5. Conclusion

Incidence of oromaxillofacial trauma in pediatric in Emergency Department of Oral and Maxillofacial Surgery Dr. HasanSadikin General Hospital occurred in 134 (59%) male patients and 94 people (41%) female patients and the highest in the age group 13-17 years (47.8%). Traffic accidents are the main cause (57,9). The major cause was traffic accidents.

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