

PATTERNS OF MANDIBULAR FRACTURES IN CHILDREN - A RADIOGRAPHIC STUDY

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ABSTRACT

Fractures of the mandible are very common in children and adolescents. Among the ecological factors, Trauma is the most common cause. The anatomic position of the mandible attributes to the higher chances of mandibular fractures during physical activities. In this study, The radiographic images of all children reporting to the clinic with mandibular fracture were screened from July 2019 to Feb 2021. The patterns of fractures were studied and the data was processed in SPSS. The results were then presented as graphs. We found that most of the children that reported to the clinic with fractures were males (86.36%) and the regions showing most fractures were the parasymphysis region and the body of the mandible (27.3%). Among the cases only 36.3% showed condylar involvement.

KEYWORDS

Children, Mandibular fracture, Trauma, Radiographs, Parasymphysis, Body, Condylar involvement.

INTRODUCTION

Children are generally very robust and active in nature. This encourages them to take part in various physical activities and increases their chances of getting injured (C.Shanmugam, 2008). Mandibular fractures are the most common craniofacial fractures that occur in young and active children (Pickrell BB. et al, 2017), (J.L. Muñante-Cárdenas et al, 2002).

In a study conducted by Posnick, 39% of all the fractures were of the mandible (Posnick J.C. et al, 1993). The mandible consists of parasymphysis, body, angle, condylar and subcondylar regions (H.W. Jung et al, 2014). The reason for mandibular fractures being this prominent may be due to its anatomic position.

The management of fractures in children is very different from that of adults because there are chances of disruption of normal growth (Koening et al, 1994). Bilateral fractures of anterior regions of the mandible are also seen mostly in children. These are greenstick fractures and require no active treatment (Coban et al, 2017).

Trauma to the chin resulting in TMJ injury is also very common in children. The Condyle in children is small and short. Trauma to this region easily displaces the condyle posterosuperiorly (Lund K. et al, 1974). However in children having mixed dentition, unilateral condylar fractures can be treated with just analgesics and a good diet for a week. Any deviations can be corrected with small exercises (Leake D. et al, 1971).

In a study conducted on 37 young children aged 11 years and below, they found that the male to female ratio was 2:1. Unilateral fractures were more common than bilateral fractures and condylar involvement in fractures was 36.7% (Amaratunga N.A. et al, 1987).

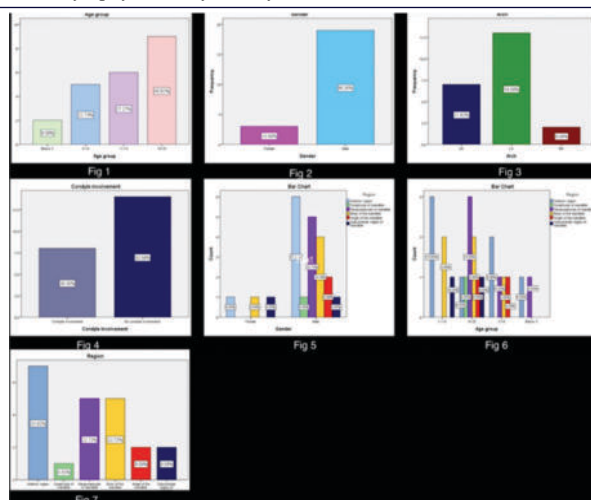
In this study, the radiographic images of children who reported to the clinic with mandibular fractures were studied and the pattern of fractures analyzed. The aim of this study was to analyze different patterns of mandibular fractures in children.

MATERIALS AND METHOD

This is a hospital based study. The radiographic images of the patients reporting to the clinic with mandibular fractures were taken. The patients were predominantly of South Indian population. The sample size consisted of 50 children with facial fractures aged between 3 to 17 years.

Sampling bias was reduced by randomization and stratification. The radiographs to be studied were collected from the DIAS (Dental Information Archiving Software). The 50 fracture patients were screened to find the number of mandibular fractures and patterns. The data collected was processed in the software SPSS. The results were then analyzed, compared and presented as bar graphs.

RESULTS AND DISCUSSION



From the graphs we found that the most fractures were seen in the age group 16 to 18 years (40.9%) followed by 11 to 15 years (27.2%), 5 to 10 years (22.7%) and below 5 years (9%) [Fig 1]. This can be due to the fact that as their age increases they get engaged in more physical activities, sports, fights, etc.

Among the patients that reported to the clinic with fractures 86.36% of the children were male [Fig 2]. This can be attributed to the fact that boys engage more into sports and fights due to their aggressive nature. On studying the arches, we found that 59% of the fractures occurred in the mandible, 31.8% in the maxilla and 9% in both arches [Fig 3]. This is due to the anatomic location of the mandible.

Unilateral fractures made up about 49% of the cases while bilateral fractures made up only 18.8% [Fig 4]. When the mandibular fractures were analyzed, it was found that the most common regions in mandibular fractures were the parasymphyseal region and the body of the mandible (27.3%) followed by angle of the mandible and subcondylar region (9.09%) and lastly the symphyseal region (4.55%) [Fig 5]. Among the cases 36.6% of the fractures showed condylar involvement while the others did not involve the condyle [Fig 6].

On comparing the age group with the region of fractures we found that the subcondylar fractures occurred only in the age groups of 11 to 18 years [Fig 7]. On comparing gender with the regions of fractures we found that symphyseal, parasymphyseal and angular fractures of the mandible only occurred in boys [Fig 8].

Finally on comparing condylar involvement with the region of fractures, we found that the condyle was mostly involved with parasymphyseal fractures (13.6%) followed by subcondylar and angular fractures (9.09%) [Fig 9].

CONCLUSION

Within the limits of the study we found that most of the children who reported to the clinic with facial fractures were males. More than 50% of the fractures were mandibular fractures. The parasymphyseal region and the body of the mandible were the most common sites for mandibular fractures. Condylar involvement was seen mostly in parasymphyseal fractures and subcondylar fractures occurred only in age groups 11-18 years.

ACKNOWLEDGEMENT

We would like to thank Saveetha dental college for providing us with this opportunity to conduct a study on patterns of mandibular fractures in children. We would also like to thank the reviewers for their contributions.

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