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ASSESSMENT OF KNOWLEDGE ABOUT LEFORT I FRACTURE AMONG DENTAL STUDENTS

Thanish Ahamed. S¹, Dhanraj Ganapathy², Subhashree. R³

¹Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai - 600077.

²Professor and Head, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai - 600077.

³Senior Lecturer, Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai - 600077.

¹151501072.sdc@saveetha.com, ²dhanraj@saveetha.com, ³subhashreer.sdc@saveetha.com

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ABSTRACT:

LeFort fractures are specific facial bone fracture patterns that occur in the setting of blunt facial trauma. LeFort fractures constitute a subset of injuries that result in discontinuity of the midface, a structure composed of the maxilla, inferolateral orbital rims, sphenoids, ethmoids, and zygomas. The aim of the study was to assess the knowledge and awareness about LeFort I fracture among undergraduate dental students. A custom made questionnaire comprising 10 questions to assess the knowledge about LeFort I fracture was formulated and circulated among 100 undergraduate dental students. The responses were then subjected to statistical analysis. Frequency distribution and percentage were calculated for all the responses. The present study suggests that among undergraduate dental students, the knowledge about the clinical presentation and the management of LeFort I fracture was inadequate.

INTRODUCTION

Fractures of the middle third of the face have increased in number over the past two decades. Trauma to the facial area results in injuries not only to dental structures but also maxillomandibular fractures.¹ In addition, these injuries frequently occur in combination with injuries of other parts of the body. The etiology of these fractures have various causes, such as traffic accidents, falls, assaults, sports, and others.²⁻⁴

Based on the fracture lines which are produced following injury, a French surgeon, Rene LeFort in 1901 classified the fracture patterns into LeFort I, LeFort II and LeFort III. LeFort fractures are specific facial bone fracture patterns that occur in the setting of blunt facial trauma.⁵ LeFort fractures constitute a subset of injuries that result in discontinuity of the midface, a structure composed of the maxilla, inferolateral orbital rims, sphenoids, ethmoids, and zygomas. Fracture to these bones may result in disruption of the facial buttresses, which provide strength and rigidity to the facial skeleton.⁶

LeFort I fractures are horizontal fractures of the anterior maxilla that occur above the palate and alveolus and extend through the lateral nasal wall and the pterygoid plates. It is also called a floating fracture, as there is a separation of the complete dentoalveolar part of the maxilla and the fractured fragment is held only by means of soft tissues.⁷ These fractures result in mobility of the tooth-bearing maxilla and hard palate from the midface and are associated with malocclusion and dental fractures.

Thus, the ability to quickly recognize and diagnose LeFort fractures is crucial for proper management of blunt-force facial trauma. Unfortunately, most of the studies in this field are conducted among general practitioners. Though, literature search reveals the effectiveness of these procedures, studies assessing knowledge and awareness about distraction osteogenesis is still lacking. Previously our department has published extensive research on various aspects of prosthetic dentistry⁸⁻¹⁸, this vast research experience has inspired us to research about LeFort I fracture. Therefore, the aim of this study was to assess the knowledge about LeFort I fracture among undergraduate dental students.

MATERIALS AND METHODS

A custom made questionnaire comprising 10 questions to assess the knowledge about LeFort I fracture were formulated and circulated among 100 undergraduate dental students of Saveetha Dental College and Hospitals, Chennai. The responses were then subjected to statistical analysis. Frequency distribution and percentage were calculated for all the responses. The study protocol was reviewed and approved by the Institutional Ethical Committee of Saveetha Dental College and Hospitals, Chennai.

RESULTS AND DISCUSSION

Table 1 shows the questionnaire used in this study to assess the knowledge about LeFort I fracture among dental students and the percentage of correct responses.

Table 1: Questionnaire to assess the knowledge about LeFort I fracture among dental students and the percentage of correct responses.

Sl. No	Questionnaire	Percentage of correct responses
1	Are you aware of types of maxillofacial fractures? Yes/ No	86
2	LeFort I fracture is ----- Maxillary fracture/ Mandibular fracture	82
3	What is the other name for LeFort I fracture? Pyramidal fracture/ Subzygomatic fracture	45
4	Does LeFort I fracture is a low level fracture? Yes/ No	55
5	Does Le Fort I fracture cause disruption of the cribriform plate of ethmoid bone? Yes/ No	50
6	LeFort I fracture can be ----- Either unilateral or bilateral/ Typically bilateral	44
7	LeFort I fracture may be associated with cerebrospinal fluid leak ----- Yes/ No	35
8	What do you think as the clinical presentation of LeFort I fracture ----- Raccoon eyes/ Floating palate/ CSF rhinorrhea	55
9	Management of LeFort I fracture? Intermaxillary Fixation (IMF)/ Infraorbital rim fixation and IMF	40
10	Common disturbance in a treated LeFort I injury ----- Reduced midfacial height/ Facial elongation	45

Among 100 undergraduate dental students, 86% and 82% of them were aware of the types of maxillofacial fractures and LeFort I fracture is a maxillary fracture, respectively. 55% of them were not known that the LeFort I fracture is otherwise called sub zygomatic fracture and 45% of them were not known that the LeFort I fracture is a low level fracture. Also, 44% of them have

reported that Le Fort I fracture causes disruption of the cribriform plate of ethmoid bone and LeFort I fracture can be either unilateral or bilateral.

35% of them reported that LeFort I fracture may be associated with cerebrospinal fluid leak and 45% of them were still unaware that floating palate is the typical clinical presentation of LeFort I fracture. Also, only 40% and 45% were aware that inter maxillary fixation is the management of LeFort I fracture and the most common disturbance in a treated LeFort I injury is reduced midfacial height, respectively.

This study assessed the knowledge about LeFort I fracture among 100 undergraduate dental students. Literature search reveals there are studies assessing knowledge and awareness about management of dental trauma among medical practitioners,¹⁹ nurses²⁰ and also amongst medical consultants.²¹ However, studies assessing the knowledge about midfacial fractures in specific among dental students is still lacking. To the best of our knowledge, this is the first study to assess the knowledge about LeFort I fracture among dental students.

Sood I et al¹⁹ assessed the knowledge and awareness among medical doctors toward emergency management of dental trauma. Kumar N et al²⁰ conducted a study to assess the knowledge and awareness of nurses in handling maxillofacial injuries and Shah N et al²¹ studied the knowledge, attitude and awareness of speciality of oral and maxillofacial surgery amongst medical consultants.

In the present study, even though 86% and 82% of them were aware of the types of maxillofacial fractures and LeFort I fracture is a maxillary fracture, respectively, only 40% were aware of intermaxillary fixation as its management. Surprisingly, 44% and 35% of them reported that Le Fort I fracture causes disruption of the cribriform plate of ethmoid bone and may be associated with cerebrospinal fluid leak respectively, both are classic features of LeFort III fracture. Also, 45% of them were still unaware that floating palate is the typical clinical presentation of LeFort I fracture. Hence, this study suggests that knowledge about the presentation and the management of LeFort I fracture among dental students is still inadequate.

CONCLUSION

Our study showed that among undergraduate dental students, knowledge about the clinical presentation and the management of LeFort I fracture was inadequate. Knowing to diagnose the condition is essential to formulate the treatment options. Hence, more clinical oriented training programs need to be conducted in this field to promote adequate knowledge about the fracture, its extent, presentation and management.

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CONFLICT OF INTEREST

There were no conflicts of interest as defined by the authors.

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