



## Assessment of Knowledge about Lefort I Fracture Among Dental Students

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### ABSTRACT

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 maxillo-mandibular fractures. 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. 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 of 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. Among 100 undergraduate dental students, 52% of them were aware of the types of maxillofacial fractures, and LeFort I fracture is a maxillary fracture, 34% of them have reported that LeFort I fracture causes disruption of the cribriform plate of the ethmoid bone, 35% of them reported that LeFort I fracture might be associated with cerebrospinal fluid leak and 25% of them were still unaware that floating palate is the typical clinical presentation of LeFort I fracture. Also, only 30% were aware that intermaxillary fixation is the management of LeFort I fracture. The present study suggests that among undergraduate dental students, the knowledge about the clinical presentation and the management of LeFort I fracture is inadequate.

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### INTRODUCTION

Fractures of the middle third of the face have expanded in number in the course of recent decades. Injury to the facial region brings about injuries not exclusively to dental structures yet in addition, max-

illomandibular fractures (Hovinga, 1975). Moreover, these injuries habitually happen in the mix with injuries of different pieces of the body. The etiology of these fractures have different causes, for example, car crashes, falls, ambushes, sports, and others (Brasileiro and Passeri, 2006; Passeri, 2005).

In light of the break lines which are created following injury, a French specialist, Rene LeFort in 1901 ordered the fracture patterns into LeFort I, LeFort II and LeFort III (Ahmed et al., 2004). LeFort fractures are explicit facial bone break designs that happen in the setting of obtuse facial injury. LeFort fractures establish a subset of injuries that bring about the irregularity of the midface, a structure involved the maxilla, inferolateral orbital edges, sphenoids, ethmoids, and zygomas. Crack to these bones may bring about the interruption of the facial braces, which give quality and unbending nature to the facial skeleton (Kaul et al., 2014).

**Table 1: Questionnaire to assess the knowledge about LeFort I fracture among dental students**

LeFort I fracture
Are you aware of types of maxillofacial fractures? Yes/ No
LeFort I fracture is ————— Maxillary fracture/ Mandibular fracture
What is the other name for LeFort I fracture? Pyramidal fracture/ Subzygomatic fracture
Does LeFort I fracture is a low-level fracture? Yes/ No
Does Le Fort I fracture causes disruption of the cribriform plate of ethmoid bone? Yes/ No
LeFort I fracture can be ————— Either unilateral or bilateral/ Typically bilateral
LeFort I fracture may be associated with cerebrospinal fluid leak ——— Yes/ No
What do you think as the clinical presentation of LeFort I fracture ————— Raccoon eyes/ Floating palate/ CSF rhinorrhea
Management of LeFort I fracture? Inter Maxillary Fixation (IMF)/ Infraorbital rim fixation and IMF
Common disturbance in a treated LeFort I injury ————— Reduced midfacial height/ Facial elongation

**Table 2: Responses of participants**

Responses	Aware	Not aware
Types of maxillary fractures	52%	48%
Disruption of the cribriform plate	34%	66%
Cerebrospinal fluid leak	35%	65%
Floating palate presentation	25%	75%
Intermaxillary fixation	30%	70%

LeFort I fractures are even fractures of the foremost maxilla that happen over the sense of taste and alveolus and reach out through the parallel nasal divider and the pterygoid plates. It is likewise called a coasting break, as there is a partition of complete dentoalveolar part of the maxilla and the cracked piece is held distinctly by methods for delicate tissues (Bagheri *et al.*, 2005). These fractures bring about the versatility of the tooth-bearing maxilla and hard sense of taste from the midface and are related with malocclusion and dental fractures (Bagheri *et al.*, 2006).

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. 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 of 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. The study protocol was reviewed and approved by the Institutional Ethical Committee of Saveetha Dental College and Hospitals, Chennai.

## RESULTS

Table 1 shows the questions distributed and Table 2 the responses obtained in this study to assess the knowledge about LeFort I fracture among dental students. Among 100 undergraduate dental students, 52% of them were aware of the types of maxillofacial fractures, and LeFort I fracture is a maxillary fracture, 34% of them have reported that Le

Fort I fracture causes disruption of the cribriform plate of the ethmoid bone, 35% of them reported that LeFort I fracture might be associated with cerebrospinal fluid leak and 25% of them were still unaware that floating palate is the typical clinical presentation of LeFort I fracture. Also, only 30% were aware that intermaxillary fixation is the management of LeFort I fracture.

## DISCUSSION

This study assessed the knowledge about LeFort I fracture among 100 undergraduate dental students. A literature search reveals there are studies assessing knowledge and awareness about management of dental trauma among medical practitioners, nurses and also amongst medical consultants. However, studies assessing the knowledge about midfacial fractures in specific among dental students are 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 al assessed the knowledge and awareness among medical doctors toward emergency management of dental trauma (Sood et al., 2017). Kumar N et al conducted a study to assess the knowledge and awareness of nurses in handling maxillofacial injuries (Kumar et al., 2020). Shah N et al studied the knowledge, attitude and awareness of speciality of oral and maxillofacial surgery amongst medical consultants (Shah et al., 2015).

In the present study, eventhough 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 intermaxillary fixation as its management. Surprisingly, 44% and 35% of them reported that Le Fort I fracture causes disruption of the cribriform plate of the 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 is inadequate. Knowing to diagnose the condition is essential to formulate the treatment options. Hence, more clinical oriented training programs need to be con-

ducted in this field to promote adequate knowledge about the fracture, its extent, presentation and management.

## Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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## REFERENCES

- Ahmed, H. E. A., Jaber, M. A., Fanas, S. H. A., Karas, M. 2004. The pattern of maxillofacial fractures in Sharjah, United Arab Emirates: A review of 230 cases. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 98(2):166–170.
- Bagheri, S. C., Dierks, E. J., Kademani, D., Holmgren, E., Bell, R. B., Hommer, L., Potter, B. E. 2006. Application of a Facial Injury Severity Scale in Craniomaxillofacial Trauma. *Journal of Oral and Maxillofacial Surgery*, 64(3):408–414.
- Bagheri, S. C., Holmgren, E., Kademani, D., Hommer, L., Bell, R. B., Potter, B. E., Dierks, E. J. 2005. Comparison of the Severity of Bilateral Le Fort Injuries in Isolated Midface Trauma. *Journal of Oral and Maxillofacial Surgery*, 63(8):1123–1129.
- Brasileiro, B. F., Passeri, L. A. 2006. Epidemiological analysis of maxillofacial fractures in Brazil: A 5-year prospective study. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 102:28–34.
- Hovinga, J. 1975. Fractures of the middle third of the face. *Modern Problems in Ophthalmology*, 14:513–532.
- Kaul, R. P., Sagar, S., Singhal, M., Kumar, A., Jaipuria, J., Misra, M. 2014. The burden of maxillofacial trauma at the level 1 trauma centre. *Craniomaxillofacial Trauma & Reconstruction*, 7(2):126–130.
- Kumar, N., Choudhary, R. S., Malhotra, K., Kathariya, R. 2020. Maxillofacial Nursing: Assessing the Knowledge and Awareness of Nurses in Handling Maxillofacial Injuries Through a Comprehensive Survey. *Journal of Maxillofacial and Oral Surgery*, 19(1):136–142.
- Passeri, L. A. 2005. Zygomatic Complex and Arch Fractures: A 5-Year Study in Brazil. *Journal of Oral and Maxillofacial Surgery*, 63(8):102–102.
- Shah, N., Patel, N., Mahajan, A., Shah, R. 2015. Knowledge, Attitude and Awareness of Speciality of Oral and Maxillofacial Surgery Amongst Med-

ical Consultants of Vadodara District in Gujarat State. *In Journal of Maxillofacial and Oral Surgery*, 14(1):51-56.

Sood, I., Gupta, K., Sharma, A. K., Gaur, A., Pathania, V., Thakur, V. S. 2017. Assessment of knowledge and awareness among medical doctors toward emergency management of dental trauma in State of Himachal Pradesh: A survey. *Indian Journal of Dental Sciences*, 9(5):1-1.