

# A Rare Case of Le Fort II Fracture and a Mesiodens

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**Abstract** Patients with facial fractures are commonly encountered in the speciality of maxillofacial surgery whereas patients with supernumerary teeth like mesiodens are a rare entity. Mesiodens is seen as a supernumerary tooth between the maxillary central incisors. The association of a mesiodens with a Le Fort fracture is a rare finding. This paper intends to report a case of Le Fort II fracture in association with a mesiodens and the management of the fracture and the tooth associated with it.

**Keywords:** *Le Fort II fracture, mesiodens, supernumerary teeth*

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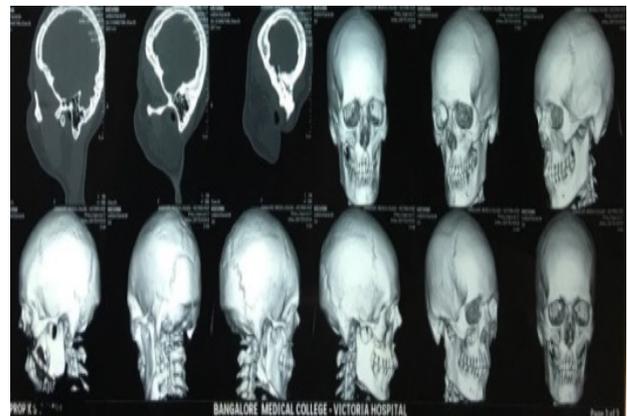
## 1. Introduction

Fractures of the midfacial region involving separation of the maxilla from the skull base are commonly described according to the classification described by Rene Le Fort in 1901. This is supported by the posterior fracture of the vertical maxillary buttress at the junction of the posterior maxillary sinus with the pterygoid plates of the sphenoid. The entire maxilla will move downward in relation to the skull base as a Le Fort II fragment, if the zygomaticomaxillary suture and the frontomaxillary suture are fractured. Le Fort II fractures are pyramidal fracture, which passes through the inferior orbital rim and nasal bones, lateral walls of maxillary sinuses and along the posterior alveolar ridge and pterygoid plates, with the teeth at the pyramidal base, and nasofrontal suture at its apex [1]. However, fracture in association with a supernumerary tooth like a mesiodens is a rare entity. The supernumerary teeth are extra teeth in comparison to normal dentition. It is more common in the central region of the upper or lower jaw; however, its occurrence in the mandible is rare. Mesiodens is the most common type of supernumerary tooth [2]. Mesiodens may occur either unilateral or bilateral, single or multiple which is known as 'mesiodentes' [3]. Mesiodens may present in normal individuals or as a part of some syndromes. It also has a positive family history as predisposing factors [4]. There are studies depicting the correlation between the oral lesions in combination with facial fractures [5]. Teeth in the line of the fracture are usually seen associated with mandibular fractures involving the dentate segment. A supernumerary tooth in the line of the fracture in the maxillary dentate area is very uncommon. These teeth are however associated with fracture but may not be seen directly in the line of fracture.

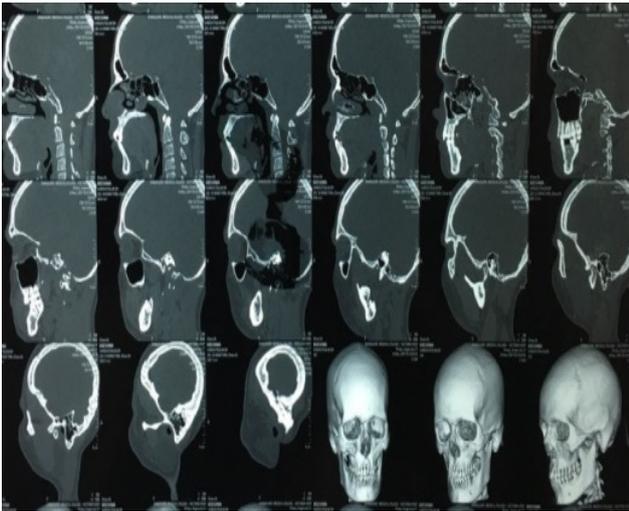
## 2. Case Report

A 29 year old male patient reported to our department

of oral and maxillofacial surgery with a history of trauma due to motor vehicle accident. He was treated at a local primary health care centre for the primary care followed which he was referred to our centre for the definitive treatment of fracture. A detailed case history revealed no injury or fracture in any part of the body except the facial fracture. There was no significant medical history, nor any history of allergy or unconsciousness. Clinical and radiological examination revealed examination revealed a unilateral Le Fort II fracture on the right side of the face with severe depression of the anterior sinus wall but not much displacement of the infraorbital rim [Figure 1]. There was no history of diplopia, or restriction of the eyeball movement. The computerized tomography scan of the face revealed a mesiodens associated with the fracture [Figure 2]. Intra oral examination revealed a large mesiodens situated palatally between the two maxillary central incisors with anterior crowding and rotation of the left central incisor [Figure 3a and Figure 3b]. There was a decreased overbite and overbite. Apart from getting treated for the fracture, the patient was also very much eager to get the mesiodens removed as he felt uncomfortable with it.



**Figure 1.** A CT scan revealing a right unilateral Le Fort II fracture of the midface and the associated supernumerary mesiodens tooth



**Figure 2.** A CT scan revealing a associated supernumerary mesiodens tooth with the fracture



**Figure 3a.** Preoperative intraoral clinical view of the mesiodens



**Figure 3b.** Preoperative intraoral clinical view of the mesiodens

After obtaining relevant consent and a complete laboratory investigation, open reduction and internal fixation was planned under general anaesthesia. The mesiodens was extracted prior to the placement of incision [Figure 4].



**Figure 4.** Intraoral picture after the extraction of mesiodens

After a thorough surgical scrub and draping, local anaesthesia of 2% Lidocaine with 180:000 adrenaline concentration was injected at the intraoral incision site. A high vestibular incision was placed to expose the fractured segments. The depressed anterior maxillary sinus wall was elevated and the occlusion was checked and corrected. The fractured segment fixed with a 6 holed miniplate with gap using 1.5 x 6 mm screws. The infraorbital fracture was also fixed using the same approach with a curved orbital 5 holed miniplate with gap which was placed just below the infraorbital nerve and fixed with screws of 1.5 x 6 mm dimensions [Figure 5]. The incision was sutured with resorbable sutures after adequate haemostasis was achieved.



**Figure 5.** Intraoperative picture showing open reduction and internal fixation of the Le Fort II fracture



**Figure 6.** A postoperative Orthopantomogram (OPG) showing the internal fixation of fracture with miniplates



**Figure 7.** Postoperative intraoral clinical picture depicting normal class I occlusion

Postoperative medications like antibiotics and analgesics were continued, anti-histamines were added and the patient was instructed not to blow the nose or cheek area. Postoperatively, the patient was evaluated clinically and radiographically for occlusion and facial contour [Figure 6 and Figure 7].

### 3. Discussion

The definitive management of any fracture includes restoration of function, stability, support and aesthetics of that area. We aimed at elevating the depressed maxillary fractured segment of the anterior sinus wall, stabilizing the infraorbital segment thereby reconstructing the facial bony contour. Our case had a rare presentation of a unilateral Le Fort II fracture associated with a mesiodens.

Association of supernumerary tooth like mesiodens with fracture is a rare finding although the tooth was not directly in the line of the fractured segment. It is seen that patients were most likely to have a dental injury in fracture of the mandible. The incidence of dental lesions was found higher in the maxilla in combination with fractures of the lower jaw than with fractures of the mandible [5]. A large prominent talon cusps may cause several clinical problems like, occlusal interference, displacement of the affected tooth, poor esthetics, periapical pathoses, periodontal pockets, carious lesions in the developmental grooves and pulpal exposure due to cuspal attrition, accidental cuspal fracture, pulpal necrosis, soft tissue irritation (tongue or labial mucosa), and possibility of temporomandibular joint pain [6-12]. Because of the above cited reasons, the mesiodens was extracted prior to the treatment of fracture and thereby restoring proper function and aesthetics in our case. It is seen that if the anterolateral margins of the nasal fossa are intact it excludes a type 1 Le Fort fracture, if the infraorbital rims are intact it excludes a type 2 Le Fort fracture and if the zygomatic arch is intact it excludes a type 3 Le Fort fracture, and if the nasofrontal suture is involved, then it either a type 2 or 3 Le Fort fracture. So our case had typical manifestations of a Le Fort II fracture in true sense confined to right side only as it involved the nasofrontal suture partially on the right side, zygomaticomaxillary suture and the dentate segment of the right maxilla.

The occurrence of mesiodens is more common in permanent dentition as compared to the primary dentition, is twice more prevalent in males compared to females, and has been considered as the most common dental abnormality [13]. It has been reported that mesiodens is more common in the maxilla as compared to the mandible [14]. The patient in our case was an adult male with full set of permanent dentition including fully erupted third molars in both the arches. The mesiodens may have different morphological types like conical or peg shaped, tuerculate and supplemental (tooth like), of which the conical form is the most common type [3,4,15]. The mesiodens in our case was large and almost resembled a normal incisor tooth and more like a supplemental type of a mesiodens.

Mesiodens may erupt normally, but usually they remain impacted or erupt in an inverted position and may follow an abnormal path of eruption or even take an ectopic position. In one fourth of the cases, mesiodentes do spontaneously erupt into the oral cavity. In the cases that have not erupted, they interfere with eruption of the other permanent teeth causing malocclusion [16]. Our case had showed a fully erupted mesiodens causing problems with overjet and overbite and slight occlusal interference which was the reason for removal of the supernumerary tooth. The supernumerary tooth in combination with the facial fracture is a rare entity which is reported very less in literature.

### 4. Conclusions

In the foregoing events it is seen that fractures in combination with supernumerary tooth is quite uncommon. These cases involve addressing the issue promptly by treating both the fractures and the abnormalities like the supernumerary tooth simultaneously together for a better outcome and effective management of the patient with such deformities.

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### Conflicts of Interest

There are no conflicts of interest.

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