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# ISOLATED HORIZONTAL FRACTURE OF LOWER BORDER OF MANDIBLE : A RARE OCCURANCE

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| **Shashank Jain** | corresponding author, Postgraduate, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal University, Mangalore, India |
| **Mohan Baliga** | Professor, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal University, Mangalore, India |
| **Souvick Sarkar** | Postgraduate, Department of Oral and Maxillofacial Surgery, Manipal College of Dental Sciences, Manipal University, Mangalore, India |

**ABSTRACT** Maxillofacial injuries constitute 37-67% of all injuries and amongst it mandible is the 3rd commonest bone of facial skeleton to be affected.[1-2] Various types of mandibular fracture depending upon the cause and site have been described. Most fractures of the mandible are contralateral owing to its unique shape and types of forces resulting in fracture.[3] WE hereby report a rare type of mandibular fracture reported to our unit and its management.

**KEYWORDS :** Isolated horizontal fracture, Lower border, Mandibular fracture

**Case report**

A 23 year old male patient presented to emergency triage having sustained blunt injuries to the chest/abdomen following a road traffic accident in the form of bike skid which were initially managed by dept of emergency medicine and referred to our unit for pain on the left side of lower jaw. He was oriented with no sign of head injury. Vitals were within normal limits and pupils were equally reacting to light. On examination, patient had stable occlusion but limited mouth opening with tenderness along the lower border on the left side of mandible. Facial nerve functions were intact and there was no evidence of anaesthesia or paraesthesia over left side of face. There was no deviation of mandible on mouth opening. Strangely, intra-oral examination revealed no derangement of occlusion. The scans revealed separation of the lower border from the remaining mandible from left angle to left premolar region. Once the patient was medically stable, he was taken up for open reduction internal fixation Under GA. Through submandibular approach the fracture site was exposed, reduced and fixed with 3 positional screws. (2mm diameter 8mm length each) (fig 1 & 2) Post-op period was uneventful and a 10 days post-op follow-up OPG was made. (fig 3)

**Discussion**

Anatomically the lower border of mandible is quiet thick and cortical in nature and the area where the fractured occurred is cushioned by powerful pterygomasseteric sling[4]. Several factors influence the location of mandibular fractures, including force, direction of impact and presence of impacted teeth. The direction of fracture line determines the degree of bone displacement[5]. But in the present case it is difficult to explain how this isolated shearing type of fracture of lower border only occurred.

The various fixation options that can be considered for this type of mandibular fracture includes circum-mandibular wiring, mini-plate fixation, lag screw, titanium mesh or self-tapping positional screws. Circum-mandibular wiring was not favoured in view of injury to vital structures. Mini-plate fixation was not feasible because of the horizontal orientation of fracture line which could complicate the orientation of mini-plates per-se.

The vertical distance of the inferior alveolar canal to the lower border of mandible ranges from 15mm at the mental foramen to 11.9mm at the angle region.[6] Thereby using a lag screw (12mm length) was not considered because of possible penetration into the canal. The most feasible option in this particular case according to author's discretion was 8mm length positional screws (2mm diameter) to avoid any possible injury to the inferior alveolar canal. Any possibility of closed reduction was not considered in view of fracture site and its location. Considering the age of the patient and the direction of fracture line, the above mentioned approach was adopted with successful outcome. A thorough literature search did not reveal any report of this type of isolated horizontal mandibular fracture.

**Conflict of interest**

None

**Ethical approval**

We obtained the patient's permission

**Figure legends**

**Fig.1:** Exposure of fracture site via submandibular approach showing horizontal fracture of lower border

**Fig.2:** Reduction and fixation with positional screws (2mm diameter, 8mm length each)

**Fig.3:** Post-op follow-up Orthopantomogram

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