

Management of Mandibular Parasymphyseal Fracture during COVID - 19: A Case Report

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Abstract

Break in continuity of bone due to injury from an external force lead to trauma. Mandible fractures have a vital place within the injuries of the other bones of the oral and maxillofacial system. Management of mandibular fractures involves cosmetic and functional aspects such as chewing, speaking, and swallowing. Parasymphyseal fractures are most common form of mandible fractures. They involve the breach in continuity of mandible leading to masticatory and occlusal problems due to the biomechanical forces. The purpose of this case report is to share the experience of surgical treatment of mandible fracture during COVID-19 pandemic.

Keywords: mandible fracture, parasymphyseal fractures, biomechanical forces, covid-19 pandemic

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I. Introduction

The corona virus characterized by the presence of pointed structures on the surface, resembling a crown includes a range of respiratory viruses and lead to respiratory failure (Yang, Peng, et al. 2020). The novel corona virus was identified in Wuhan, China, in December 2019 in patients presenting with pneumonia of unknown origin. After a rapid escalation, on January 9, 2020, the World Health Organization declared the discovery a new corona virus, first called 2019-nCoV and then officially named SARS-CoV-2, which had never been identified in humans before. On February 11, the respiratory disease deriving from SARS-CoV-2 infection was named COVID-19 (corona virus disease; Lu, Zhao, et al. 2020; Mahase 2020).¹

Maxillofacial fractures are one of the most frequent due to the prominent position in human body.² Mandible fractures count for the 38% of cases. Fractures of mandible can, lead to morbidities at high level. According to various studies, they account for 15.5 to 59% of all facial fractures.^{3,4,5,6,7} Their treatment is a responsible task, aiming both at restoring the mandible integrity and preventing any subsequent complications. These mandible injuries are of great importance as they lead to varying degree of physical, functional and cosmetic disfigurement they may cause. Biomechanical forces of compression acting on the inferior border and forces of tension acting on the superior mal masticatory functions Mandibular Parasymphyseal fractures lead to the loss of occlusion with step deformity border tend to pull the segments apart creating the gap/ step. Mandibular unfavourable Parasymphyseal fractures m need to be treated by open reduction and internal fixation to compensate both the forces and form a neutral zone. Management of injuries in the maxillo-facial complex remains a challenge for oral and maxillofacial surgeons, demanding both skill and a high level of expertise.^{9,10}

The maxillofacial surgeon come into contact With the oral cavity, first airways and with patient's secretions (such as saliva, mucus, blood) during the diagnosis and treatment process, puts them in a situation of high risk of contracting the infection and becoming, in turn, a source of contagion.¹¹ There is a high viral burden in the nose and the aerosolised form of the virus can persist for up to 3 hours in the air and 48 to 72 hours on select surfaces.

Hence, this case report was framed under restrict condition of COVID -19 pandemic to share my experince 'of surgical case done by me in the department of Shaheed Hasan Khan Mewati government medical college Nalhar, Nuh, Haryana.

II. Case Report

A 16 years male patient reported with alleged history of trauma due to road side accident in the dental department of Shaheed Hasan Khan Mewati Government medical college with no history of ENT (ear, nose and throat) bleed, loss of conscious, seizures and vomiting. Patient was examined thoroughly extraorally and intraorally and was found to have normal TMJ movements and no extra-oral or intra-oral lacerations. Intraorally, slight step was felt in right side mandible lateral incisor region and at an angle with tenderness and fracture tooth at maxillary left central incisor. Occlusion was found to be deranged due to pull of muscles. Patient was thoroughly examined and sent for NCCT of head and face X-ray (fig-1). X- ray reveals mandible

fracture at right angle and parasymphysis region. After confirmation of mandibular fracture patient had undergone for pathological investigation including COVID-19 test for corona disease. After negative confirmation of all the reports with COVID -19 report, the patient was taken for close reduction procedure with Erich's arch bar and elastics (fig-2). Patient had advised medicine tab. Amoxiclave 625mg x tds, tab. Metrogyl 400 mg x tds, tab. Ibugesic x BD, cap. Omaze 20 mg x BD for five days. After 40 days pt. reported in follow up and his arch bar removal done. Patient had achieved satisfactory occlusion and he was happy with treatment (fig-3,4)

All the healthcare supportive workers were strictly implement preventative measures as indicated by interim guidance of WHO. Healthcare Staff used Personal protective equipment (PPE): N95 face mask, eye protection, fluid-resistant gown, and surgical gloves. Being consideration of COVID -19 disease the number of personnel and materials used during the operation was reduce to half..

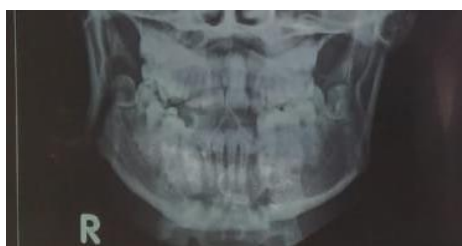


Figure – 1. pre operative NCCT face x-ray



Figure- 2. Upper/lower arch bar inter maxillary fixation



Figure – 3. Post operative NCCT face x-ray



Figure-4. 40 days follow up after arch bar removal done

III. Discussion

The COVID-19 virus is a new type of virus and its biological behaviour and the disease caused by it are still in the research phase and to date there is no clear specific therapeutic drug, in the line of treatment. So, prevention is the best way to reduce the risk of spreading the epidemic by medical activities. For this reason, it was important to share the diagnostic and therapeutic pathway with the specific Unit of Maxillofacial surgery health care workers.¹¹

Maxillo-facial injuries lead to the functional and cosmetic deformities affecting the normal healthy life of the person. Interpersonal violence, traffic accidents, gunshot wounds, sports injuries, falls are some of the factors leading to the mandible fractures.¹² Road traffic accidents in developing countries and interpersonal violence in rural areas are the major causes of mandible fractures.^{13,14,15} Generally, mandible angle fracture or combined angle-parasymphysis fractures are seen in cases of interpersonal violence and only parasymphysis fracture seen in road traffic accidents.^{16,17} In conclusion, management of mandible fracture is very important in order to gain satisfactory cosmetic and functional results.

IV. Conclusion

The pandemic situation of COVID-19 is still serious and for a long Time preventative measures must be necessary to prevent and / or slow down the spread of the infection. Although maxillofacial surgeons are frontline health care workers in the management of serious dental emergency condition but the choice of surgical technique must be based on careful evaluation and compliance with the treatment principles to simplify the intervention and reduce operating times.

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