Case Report

Journal of Case Reports in Dental Medicine (*J Case Rep Dent Med*) September 2020, Volume 2, Number 3: 60-63

Dentoalveolar Fracture with Mild Head Injury ; A case report

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Abstract

Objective: Case report of a 53-year-old man case of gum, with complaints of tooth, gum, and head pain due to trauma from motorcycle accident.

Methods: Complaints experienced by a single motorcycle accident and hit a wooden board with the position of the face hit first, patients have lost consciousness shortly after the accident. Complaints of pain in the upper lower lip and gum, avulsion on teeth 11,21 and mobility on teeth 12,22,31,32,41,42.

Results: The patient had previously treated in a community health service so that the airway inspections and handling were not carried - out. Observative was carried out in consultation with the Neurosurgery-section for a history of loss of consciousness, than the definitive care by attaching an Eyelet splint for a fixation to the maxillary anterior teeth, and fixation with Erich arch bar for the mobile mandibular anterior teeth. These actions was performed under general anesthesia.

Conclusion: Interdental Wiring (IDW) is an intraoperative fixation technique for dentoalveolar trauma, in this case eyelet splints and Erich arch bar were used. Patients with head trauma should be consulted to Neurosurgery department before the definitive treatment.

Keywords: Interdental Wiring (IDW), Erich arch bar, Eyelet splint, Dentoalveolar trauma

Cite this Article: Tajrin A, Ruslin M, Fauzi A, Rasul MI, Gazali M, Nurwahida, Hadira, Ariestiana YY. 2020. Dentoalveolar Fracture with Mild Head Injury ; A case report. Journal of Case Reports in Dental Medicine. 2(3): 60-63. DOI: 10.20956/jcrdm.v2i3.135

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Introduction

Maxillofacial trauma generally involves injury to soft or hard tissues of the face and oral cavity.[1,2] This trauma often affects injury to the face and jaw area caused by impacts of foreign bodies to burns. Trauma of the oral cavity can cause damage to soft tissues such as edema, abrasion, laceration and contusion together with mobility of teeth or avulsion.[1]

Maxillofacial trauma were found in about 15% of all emergencies, with 2% involvement of dentoalveolar trauma.[1,2] Traumatic dental injury can only affect the teeth structures and supporting tissues such as in children who falls in a playground, however, in cases of severe impact it can cause complex multisystem trauma such as in traffic accidents.[1,2,3]

Dentoalveolar trauma also found in patients with a history of abuse and sports injury.[1,2,5,8] Teeth in the maxillary anterior region were the most affected areas with a percentage of 82% where 64% are found in the central incisors, 15% in lateral incisors, and 3% in canine. Children, adolescents, and young adults are the age group with a high incidence of dentoalveolar fractures, with a ratio of male to female 2-3: 1.[1,2]

The clinical examinations are sometimes characterized by swelling lip with edema and ecchymosis. On palpation of the alveolar region crepitations can be found.[1,2,4,5]

In maxillofacial trauma due to traffic accidents often involves multisystem injuries. Anamnesis is performed in line with physical examination which include mechanism of injury, location and time of incidence, past illness and medications, history of loss of consciousness, nausea and vomiting.[5,7,8,9] Evaluation of the potential for aspiration, airway obstructions, and neurological disorders must be carried out before the management of dentoalveolar injuries.[5,7,8]

Case Report

A 53-year-old man had a single motorcycle accident, the patient was treated at a community health center hours before the hospital admission. Complaints of dizziness, pain in the lower lip, two front teeth of the upper jaw were released and the front teeth of the lower jaw felt rocking. Complaints felt after the patient had a single motor accident and his face hit a wooden board causing the two upper front teeth to came apart, the four lower front teeth felt rocking, and there were suture marks on the lower lip.

Patient had history of loss of consciousness immediately after the accident, and previously treated in Antang community health center than referred to Ibnu Sina hospital for further treatment. Patient had history of dizziness, no vomiting, and no history of bleeding from ear and nose. Patient had no history of asthma, no diabetes mellitus, no medicine allergy, and had no other systemic diseases.

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Received: 10 June 2020
Revised: 20 July 2020
Accepted: 25 August 2020
Available Online: 1 September 2020

Clinical examination results:

- General clinical state : limp
- Level of consciousness : compos mentis
- GCS : $E_4 V_5 M_6$
- Vital signs :
  - Blood pressure : 110/80 mmHg
  - Pulse : 88 x/minute
  - Respiration : 20 x/minute
  - Temperature : 36.5 ^{0} C
- Head :
  - Form : normocephalic
  - Hair : straight black hair color distributed evenly
  - Face : symmetrical, deformity (+), edema (-), cicatrix in left zy goma, laceration at front head and right earlobe sutured, lacer ation on the nasal tip.
  - Eyes : exophthalmos (-), enophthalmos (-), palpebral edema (-), anemic conjunctiva (-/-), icteric sclera, isochore pupils, rounded with diameter ± 2 cm/ 2 cm, directindirect light reflex (+/+), cyanosis (-), pale (-).
- Oral examination :
  - Extra oral : hematoma on upper lip, situational suture on lower lip, active bleeding (-), norma mouth opening
  - Intra oral : hematoma inside upper lip, avulsion of teeth 11,2 and mobility of teeth 12, 22, 31, 32, 41, 42. Gingival laceration on teeth region 31, 32, 41, 42. Calculus on teeth 31,32,41,42.
  - Occlusion : normal
  - Tonsils : normal
  - Pharynx : normal
  - Mallampati score: grade II
  - Neck : lesions (-), lymph nodes enlarge ment (-) and thyroid (-)
- Thorax:
  - Inspection : symmetrical breathing movements, mass (-), deformity (-)
  - Palpation : symmetrical pulmonary expansion, pain on palpation (-)
  - Percussion : resonant right/left
  - Auscultation : vesicular breathing sound (+/+), rhonchi (-/-), wheezing (-/-), heart sounds I II regular, murmurs (-).
- Abdomen:
  - Inspection : flat in shape, the movement follows breathing, mass (-)
  - Auscultation : normal peristaltic sound
  - Percussion : tympanic
  - Palpation : pain on palpation (-), spleen and liver are not palpable.

Another examination of this patient was haematology which consist of routine haematology counts and coagulation counts in normal limits. Thorax X-Ray also showing normal radiographic picture.

Management

Based on the history of the patient during the anamnesis and radiographic evaluation, the patient were consulted to neurosurgery department and the patient was under observation with no specific treatments, than consultation made to anaesthesiologist since the dentoalveolar fracture treatment was planned under general anaesthesia. The treatment consisted of debridement and sutures of wounds, closed repositioning and immobilization of maxillary and mandibular anterior dentoalveolar fractures with interdental wirings using eyelet splints for fixation of teeth 12, 22, reposition and fixation of teeth 31,32,41,42 using Erich arch bar. The collaborative treatment with the neurologist was continued after the surgery to ensure if there was post traumatic neurological disorders. The patient was hospitalised for several days and was given intravenous medications.

Discussion

A complete and accurate history taking of the maxillofacial trauma patients is a valuable support in establishing the diagnosis and determining the treatment plans, patient with head injury sometimes difficult to give explanations during the conversations, therefore additional information can be collected from the companion persons such as family, friends, police officer or who else were in the incidence place, and emergency room staffs.[1,2]

Maxillofacial trauma occasionally becomes a complex case, prevention of complications is done by a more thorough examinations and multidisciplinary consultations.[5-9]

Clinical examinations are performed on all visible regions, including the maxillary and mandibular regions, zygomatic region, orbital region, frontozygomatic suture, zygomatic process, nose, ear, jaw joint region, and the entire intraoral region.[2,5,8]

Based on the history, the patient experienced complaints of pain in the head, gums and teeth due to trauma from the motor fall. Facial trauma can cause increased secretions or tooth extraction which can add to the airway problem.[1,8] However, these patients have been treated previously at the

Figure 1 **Clinical Appearance of Intra Oral and Extra Oral.**

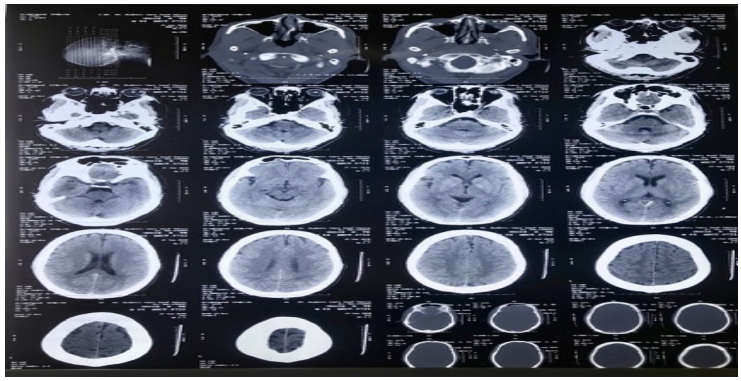

Figure 2 **CT-Scan Showed Haemorrhagic Cerebellum, Hematoma at Left Maxillary Sinus and Septal Deviation**

Figure 3 **Panoramic X-Ray Showing No Discontinuity in Jawbones, Luxation of Teeth 12,22, and Extruded Teeth 31,32,41,42.**

Figure 4 **Immobilitation with Erich Arch Bar and Eyelet Splints.**

community health service, therefore the airway inspections and handling were not conducted further.

The patient had history of loss of consciousness immediately after the accident, therefore consultation to neurosurgery department was made before the definitive treatment, general examinations was performed included history of allergy, blood pressure and cardiac function, routine blood count test and coagulation, history of other illnesses suffered before trauma.[1,8]

Radiographic examination was carried out to clarify the clinical diagnosis, determining the location of the fracture and other conditions in the head region, in this case a panoramic X-ray was performed to evaluate dentoalveolar and jaw bones involvement, CT-Scan were performed to assess the patient's neurological disorders.[1,2,6,8]

Informed consent was done before the procedure according to the procedure, by installing eyelet splints to fix the anterior maxillary teeth, and the Erich arch bar for anterior mandibular teeth. [2,4,5,8,9,10]

Replantation of the avulsed teeth 11,21 was not carried out because the patient did not find the teeth in the location of the trauma. On panoramic and thoracic radiographs, no teeth were found in the tissues or body cavities.

Conclusion

Trauma on maxillofacial region is caused by a variety of factors, ranging from traffic accidents, physical violence, from falls, sports injuries to injury from firearms. Maxillofacial trauma due to traffic accidents often involves multisystem injuries resulting in complications. Careful and complete examination and multidisciplinary consultations can prevent complications of maxillofacial trauma. Radiological examination with simple imaging or CT-Scan are needed to confirm the diagnosis and treatment plans.

Aknowledgment

None .

Conflict of Interest

The authors report no conflict of interest.

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