UNUSUAL TRAUMATIC FRACTURES OF THE MANDIBULAR SYMPHYSIS: TWO CASE REPORTS

ABSTRACT

Mandibular fracture is one of the most common facial bone injuries because of having various weak points which are affected easily during an external trauma. According to the dynamic mechanism of mandibular fractures, it is expected that a horizontal fracture of mandibular symphysis such as seen by our patients is extremely rare. This case report gives additive information to literature knowledge about unusual horizontal fractures of mandibular symphysis.

Keywords: Bone, Horizontal Fracture, Mandible, Mandibular Fracture, Trauma,
MANDIBULAR SIMFIZISTE NADIR GÖRÜLEN TRAVMATIK KİRİK: İKİ VAKA RAPORU

ÖZET

Mandibular kırıklar mandibulanın eksternal travmalarla karşılaştığında birçok zayıf noktası olduğu için sık görülen fasiyal kemik yaralanmalarıdır. Mandibular kırıkların dinamik yapısı dikkate alındığında vakamızda izlenen mandibular simfizisteki horizontal kırık oldukça nadir görülür. Bu vaka raporunda literatürde nadir görülen mandibular simfizisin horizontal kırığı hakkında bilgi vermektedir.

Anahtar Kelimeler: Kemik, Horizontal Kırık, Mandibular, Mandibular kırık, Travma

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INTRODUCTION

In maxillofacial region, jaw fractures are frequently encountered because of having various weak areas, which are affected easily when an external trauma occurs. It is anatomical features that make it more susceptible to fractures, and most fractures of the facial bone occur in mandible. Mandible fractures are the most seen type of the facial skeleton fractures, which are two times greater than the mid-facial fractures according to the literature knowledge. Mandibular fractures ratio to maxillofacial fractures change between 23% and 97%. Mandible constitutes 1/3 of the lower face and has a greater chance to be affected by direct external traumas. During a trauma, fracture incidence of mandible is high due to anatomical shape and structure; in addition, mandible forms the most prominence region of craniofacial complex. Traumas happened with different factors, cause maxillofacial fractures. Patients can be affected psychologically by orofacial injuries, which can usually affect the aesthetic and functional structures. Traffic accidents and violence are two principal etiologic causes and occurring proportions that can be different in one country to another. Mandible fractures are seen as jaws, alveol, segmental fractures or combination of these. It has been observed that fracture reasons and treatment methods have been changed in recent years. Etiologies of the fractures can be different in accordance to cultural, social and environmental factors. Region fractures, occurring frequently, are respectively condyle (29.1%), angle (24.5%), symphysis (22%), basis (16%), coronoid process (31%). Reduction, stabilization and fixation are the main aims for the treatment of the fractures. The treatment of the segmental fracture is, if the teeth are exists, tooth protection and operative dentistry treatment of them with the segmental fixation. On the other hand, it can be necessary to remove the fractured segment according to segments' volume and location. Also the insufficient oral hygiene is another reason for segments removal.

In this article, occurrences and treatments of the fractures in the two patients, are reported who applied to the clinic with unusual horizontal fractures in anterior mandible.

CASE REPORT I

52 years old male patient applied to the clinic with laceration, edema, pain and hematoma at the middle and lower 1/3 part of his face. In his history, he expressed that he got a stroke by an axe in a fight. In his extraoral examination, edema, hematoma and ecchymosis were seen at his lower lip and lower jaw. Bad oral hygiene, luxation of anterior teeth, mobile segmental fracture was also recognized in intraoral examination. In radiographic examination, segmental fracture was seen as a long horizontal line and another fracture was not appointed. Treatment was done under local anesthesia with the aid of clinic and radiographic findings. Antitetanus vaccine was applied because of not determined clearly tetanus immunity. In the anterior region of the mandible elevated gingiva was observed especially in the region of the incisive teeth. Vertical incisions were made for relieving the flap. Mobile bone segments with attached teeth and apical parts of the broken teeth were extracted and area was primarily sutured after reforming of the sharp bone edges and the soft tissues (Figure 1). In his 1st, 3th and 6th month controls, healing were observed without any complication than the patient were referred to Hacettepe University, Faculty of Dentistry, Department of Prosthodontics for dental prosthesis.

CASE REPORT II

32 years old male patient was referred to our clinic with edema, pain and ecchymosis on middle and 1/3 lower parts of his face. The patient, who was a truck driver, got a stroke to his lower jaw with truck body, while he was repairing the truck 2 days ago. He applied to an emergency department of a local hospital. In this center, emergency treatment was done and was referred to our clinic. In the extraoral examination, slight edema and laceration on the lower lip were observed. Also in intraoral examination, gingiva between the left canine and the right lateral teeth was disturbed in the anterior mandible region in patches and the related soft and hard tissues were mobile. Dentoalveolar segmental horizontal fracture between right canine and left impacted canine was seen in the orthopanoromic radiograph. Antitetanus vaccination was applied for precaution. The treatment was planned with clinic and radiographic findings under local anesthesia. Interdental incision was done and supported with vertical incision. Mobile and entirely separated horizontally segmental fracture were removed with the extraction of left and right central and lateral teeth (Figure 2). After extracting the impacted left canine, operation area was primarily sutured. Healing was followed, without any complication in postoperative period on up to sixth month.
Figure 1.
a) Preoperative panoramic radiography of the patient
b) Preoperative extraoral view of the patient
c) Extracted apical parts of the roots

Figure 2.
a) Preoperative intraoral view of the patient
b) Preoperative panoramic radiography
c) After the horizontal fractured segments and the teeth were removed
d) Horizontal fractured segments of the teeth
After six months remaining alveolar ridge was insufficient for conventional prosthesis therefore bidirectional distraction device was applied in related area for the treatment of the bone defect, which occurred after trauma. Resulted alveolar ridge height and width was satisfactory for dental implant rehabilitation. 2 Dental implants (Frialit, Xive®) were inserted into the related area. Aesthetic and functional problems eliminated with fixed dental implant supported prosthesis.

**DISCUSSION**

Mandible constitutes 1/3 of the lower face and has a greater risk for being affected by direct external traumas. Mandibular fractures incidence and frequencies are effected with socioeconomic conditions, culture levels, living style and standards of countries and regions.² ⁷⁻⁹ Factors of mandible fractures in peacetime are mostly traffic accidents, occurring especially in the underdeveloped countries.² ⁹ ¹° Also traffic accidents, falling and slipping downs are the most significant reasons at the childhood period. Mandible fracture incidence occurred by violence is much higher than other kinds of fracture incidence in a lots of countries.² ⁷⁻⁸ ¹¹⁻¹⁵ Violence is the first cause in Finland, Germany, Scotland, Kenya, Sweden and Pakistan; however in Holland, Nigeria, U.S.A., New Zealand, Japan, Canada, Saudi Arabia, Austria and Singapore traffic accidents are in the first place.¹⁶ According to a 10 years retrospective study in Finland; mandible fractures mostly occur on Saturdays when a densely traffic is seen for going weekend holidays.² Also alcohol has major effect on mandible fractures occurred with violence.¹⁷ ¹⁸ It is remarkable that fracture incidence related to violence are much higher in men dominant community.² ¹⁴

Mandible fractures are mostly seen on the weak portion of the mandible for example condyle, corpus, angulus and symphysis. Angulus fractures can be frequently seen at 3rd molar area as a result of stroke to mandible edge. In traffic accident condyle fractures is the most seen site.² ³ Mandible corpus and angulus are the most affected areas generally in all of the fractures especially seen after violence.² Vertical fractures are generally seen in symphysis after a direct trauma by a stroke to mandible anterior region. Horizontal fractures are unusual because stroke to mandible anterior region generally causes indirectly condyle fracture or/and directly vertical symphysis fracture. Horizontal fractures in mandible anterior region can occur as a result of a stroke with object with sharp edge that can cause loading of external force in a horizontal direction.¹ Dislocation rarely occurs due to settlement of the muscle on mandible anterior region. Considering the dynamic mechanism of mandibular fractures, it is assumed that a horizontal fracture of the mandibular symphysis, which was seen in these patients, is extremely rare.

In these cases, they got a stroke with a dump body and an axe, because of occurring with sharp-edge objects, vertically symphysis and condyle fractures did not occurred, interestingly only horizontal fractures were observed. The fractures were small as a size, so the fractured segments were removed instead of splinted to the adjacent mandibular body. If the fractures were bigger in size, splint could be preferred. Fractured segments were small in size therefore any other treatment method such as intermaxillary fixation, mini plate or lag screw were not kept in sight. Although some clinical statistics on mandibular fractures have been reported, only one report of a single horizontal fracture of the mandibular symphysis was found during our extensive search in the literature.¹ That point makes our case report interesting and valuable for the literature knowledge.

**REFERENCES**


