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Criteria for Assessing Teeth Dislocations

Islamov Shavkat Erjigitovich [1], DSc, Associate Professor
Nazirov Sirojiddin Nazirovich [2], PhD, Associate Professor
Karimov Nodirbek Bakhtiyorovich [1]
Khazratov Bekmurod Sherboevich [1]
[1] Samarkand state medical university, Samarkand, Uzbekistan
[2] State Educational Institution "Institute of Postgraduate Education in Healthcare" of the Republic of Tajikistan, Dushanbe, Tajikistan

Annotation: The article is devoted to the problem of tooth dislocations, which are more common in people of working age, mainly in men. The displacement of a dislocated tooth depends on the location of the active force. When a blow is applied to the front surface of a tooth, the crown of the tooth moves back and the apex of the root moves forward. A blow to the lateral surface of the tooth changes the direction of the crown in the direction of the impact, and the root in the opposite direction. Most often, dislocations occur in the incisors of the upper jaw, the roots of which are softer than those of other teeth. Fracture of the alveolar wall often occurs with dislocations of teeth located on the lower jaw. For dislocations of chewing teeth, a significant external force is required, the higher the serial number of the tooth in the row.

Keywords: teeth, dislocations, types, localization, mechanism of formation.

Introduction. Along with the general increase in traumatism, over the past three decades there has been an increase in the frequency and severity of maxillofacial injuries and associated injuries [1].

According to the authors, more than 75% of victims with associated injuries have multiple fractures of the facial bones; more than 56% have brain contusions, damage to the deep parts of the eye sockets and the base of the skull [2]. This is also evidenced by numerous data on the frequency of maxillofacial injuries among the total number of bone injuries in peacetime conditions, ranging from 3.2% to 3.8% [3,6].

The proportion of victims with facial trauma in the structure of inpatient dental patients, according to the materials of individual authors, is different and ranges from 21% to 40%. Data are given on the ratio of 4.1% of children with trauma among all patients of the children's department of the maxillofacial clinic. Up to 36% of the structure of children's maxillofacial trauma are patients with damage to the bones of the facial skull [4,5].

According to researchers, dentoalveolar trauma makes up to 50% of all damage; hard tissues of the maxillofacial region in children. Data are given on 0.9-3.9% of dental damage among maxillofacial trauma [7, 8, 9].

The aim of the research was to establish the type and nature of tooth dislocations.

Material and methods of the study. The object of the study was the materials of the forensic medical examination of cases of dental damage carried out in the outpatient department of the Tashkent city branch of the Republican Scientific and Practical Center for Forensic Medical Examination of the Republic of Uzbekistan in the period from 2020 to 2022.

Using a special computer program and questionnaire cards developed by us, including classification parameters (circumstances of the case, localization, nature, cause, mechanism, duration and its influence on the outcome), 237 forensic medical examination reports were examined, including 225 (94.9%) primary, 8 (3.37%) additional and 4 (1.68%) repeated (Group I).

A retrospective analysis of 152 medical records and outpatient cards of patients with jaw injuries who were treated in the inpatient and outpatient department of maxillofacial surgery of the Tashkent Dental Medical Institute (Group II) was also conducted.

The following research methods were used: follow-up, clinical, macroscopic, stereomicroscopic, radiological, statistical.

Results of the study and their discussion. The results of the studies indicate that in the vast majority of cases, the injury was caused by a fight 177 (45.5%), a car accident 80 (20.56%) and a fall 54 (13.88%). There were also cases of injury during sports, tooth extraction, etc.

In addition to tooth fractures, there were also tooth luxation 5.4% (21), complete tooth dislocation 3.86% (15), tooth intrusion or extrusion 2.31% (9), etc.

When establishing the mechanism of occurrence of dental injuries, a clear predominance of blows to the teeth area was noted in both groups 58.5%. Although bending was noted in general 38.04%, and in some cases shear 3.59%.

Most often, blows with a fist were noted 48.59%, less often with a stick, reinforcement 10.54% and other objects 32.39%. Also, blows with brass knuckles 3.34% and blows with a bat 5.14% were identified.

Tooth dislocation. This type of injury involves damage to the periodontium, alveolus, and gum. The injury may be combined with a rupture or rupture of the vascular-nerve bundle in the apical zone and tooth displacement. A mild degree of injury may be considered a concussion or tooth bruise.

Due to the absence of external signs of tooth injury and the rapid disappearance of pain from a bruise, victims rarely experience strong anxiety about the injured tooth, so they do not often consult a dentist. Usually, patients seek help if there has been a more serious injury to other teeth, and the dentist simultaneously detects a tooth bruise. Patients often learn about a former tooth bruise several months or years later, when the tooth discoloration or complications of traumatic tooth injury in the form of periodontitis or radicular cysts occur. Often, a tooth bruise in which the pulp is not damaged remains undiagnosed.

Luxation of the tooth. This type of damage is characterized by pain when biting, increased sensitivity to percussion, both vertical and horizontal, decreased electrical excitability of the pulp up to its complete absence, mobility of the tooth of I-II degree, but the tooth remains in its original position. When examining the oral cavity - hard tissues of the tooth without pathological changes, slight extrusion of the tooth is possible (due to hematoma), bleeding from the gingival groove, the gum surrounding the tooth is edematous or has a lacerated wound. On the radiograph - widening of the periodontal gap along its entire length.

Also, this type of injury includes lateral dislocation of the tooth. With this type of injury, the ligamentous apparatus of the tooth is significantly damaged, and the vascular-nerve bundle often ruptures.

The patient complained of a change in the position of the tooth after the injury, pain when biting. During examination, displacement of the tooth in the medial, distal, buccal-lingual direction is revealed, there is tooth mobility of varying degrees of severity, pain is noted when palpating the gum, a feeling of crepitus or the presence of protruding sharp edges of the alveolar bone is possible. The color of the tooth in the first days is not changed.

The radiograph reveals a tooth displacement, the root is without pathological changes, there is damage to the alveolus. The periodontal gap is narrowed on the side of the displacement and widened on the opposite side.

Intrusion or extrusion of the tooth. Depending on the degree of immersion of the tooth into the jaw bone (partially or completely), a distinction is made between partial or complete intrusion.

Partial intrusion is a relatively common injury. One or more front teeth may be damaged, most often the upper teeth, which are in visible intraocclusion. The patient complains that the tooth after the injury looks shorter than the others, the gum hurts at the site of the injury in the gum area, but there is no pain in the tooth. The damaged tooth is often immobile, there is swelling and bleeding of the gum in the area of the injury or the presence of a blood clot here. The color of the tooth is initially unchanged, it may darken later, the hard tissues of the tooth crown are not damaged. The excitability of the pulp is sharply reduced or absent due to the rupture of the pulp and, accordingly, its death. The radiograph shows the absence of a periodontal gap in the apical zone, tooth penetration, damage to the growth zone, and a fracture of the alveolus.

Complete intrusion is a rare type of injury. Usually, the upper teeth with incomplete root formation are damaged. Clinically, the tooth is not visible in the mouth, which can imitate a complete tooth luxation. The radiograph shows the entire tooth embedded deep into the alveolar process, sometimes the tooth can be rotated around its axis, the periodontal gap is absent, the alveolus in the apical part is destroyed. With minor penetration (within the apical periodontium) and the preservation of the vitality of the pulp (in teeth with incomplete root formation), the tooth itself moves into place as the root is formed.

Dislocation of a tooth (exarticulation). Complete dislocation of a tooth is rare compared to other types of dental trauma and is characterized by the complete exit of the tooth from the alveolar socket. Upon examination, the tooth is missing or is held only by a circular ligament. The gum and socket may be damaged to varying degrees. Morphological changes include pulp rupture, periodontal rupture, absence of a tooth in the socket, damage to the gum and alveolar bone.

Conclusion. Therefore, tooth dislocations were more common in people of working age, mainly in men. The displacement of a dislocated tooth depends on the location of the active force. When a blow is applied to the front surface of a tooth, the crown of the tooth moves back and the apex of the root moves forward. A blow to the lateral surface of the tooth changes the direction of the crown in the direction of the impact, and the root in the opposite direction.

Most often, dislocations occur in the incisors of the upper jaw, the roots of which are softer than those of other teeth. A fracture of the alveolar wall often occurs with dislocations of teeth located on the lower jaw. For dislocations of chewing teeth, a significant external force is required, the higher the ordinal number of the tooth in the row.

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