

CLINICAL EVALUATION OF A CRACKED AND FRACTURED TOOTH

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Annotation: Dental injuries are a generalizing term that combines damage to tooth structures and surrounding tissues that differ in their mechanisms. The frequency of dental injuries in the structure of dental pathology is steadily increasing, which is associated with an increase in injuries in general. In males, dental injuries are 1.5-2 times more common than in females. Dental injuries are often combined with damage to the jaws, so their treatment requires the interaction of specialists in the field of dentistry and traumatology. Due to anatomical and topographic features, injuries of the upper medial incisors (61%), mainly of the upper jaw, occur in most cases in patients with malocclusion (distal, open).

Keywords: enamel, dentin, dental injury, bite, fracture.

The variety of types of cracks and fractures, as well as the associated signs and symptoms, often makes it difficult to diagnose them. The depth of the crack or fracture line can directly affect the prognosis of the tooth and should be determined before deciding on treatment. Certain types of cracks can be simple, for example, a surface crack of enamel, or noticeable, like a fracture of a hillock.

The crack can spread through the root system of the tooth up to the involvement of the pulp or it can split the tooth into two separate fragments; it can be oblique and spread in the cervical region so that after removing the crown fragment of the tooth, the question arises about the possibility of its restoration. Any described situation may be accompanied by mild, moderate or severe symptoms or be asymptomatic.

a) Types of cracks. There are many attempts described in the literature to classify tooth cracks. Depending on the type of crack, you can evaluate the prognosis of the tooth and make alternative treatment options. Unfortunately, it is often very difficult to determine the depth of a crack without tooth extraction.

Cracked teeth can be divided into 3 main categories:

- cracks in the enamel;
- fractures (or cracks) of teeth;
- split teeth/roots.

Enamel cracks, as a rule, are located within the enamel, not spreading to the dentin, and occur naturally or as a result of injury. They are mainly found in permanent teeth, more often on the teeth of the lateral group. When transilluminating such teeth, the cracks will look like thin lines in the enamel capable of transmitting light, which indicates that the crack is located in a special way. Optical coherence tomography has been proposed to detect cracks in the enamel. Cracks in enamel are usually asymptomatic and do not require treatment unless they create a cosmetic defect. The tooth crack spreads deeper into the dentin than the surface cracks of the enamel, and primarily spreads mesiodistally, involving the marginal ridges. Staining

and transillumination will help identify a potential root fracture. Symptoms of a tooth fracture can range from complete absence to severe pain.

A tooth fracture does not always mean that the tooth is split into two parts; however, with inactivity or the presence of provoking factors such as supracontacts, the fracture can turn into a split root. A tooth fracture can be treated with conventional restoration, endodontically (non-surgically or surgically) and even tooth extraction, depending on the extent and location of the crack, the severity of symptoms and the possibility of their elimination. Because of this, it is quite difficult and unpredictable to observe teeth with cracks. A certain combination of factors, signs and symptoms observed simultaneously, which allows the doctor to suspect a certain pathology, is called a syndrome. However, given that a tooth root crack can be accompanied by many signs and symptoms, making a definitive diagnosis can be difficult. Therefore, the term "cracked tooth syndrome" should be avoided. Subjective and objective factors in the case of a cracked tooth are usually diverse, so a preliminary diagnosis of a cracked tooth is likely to be an assumption. Once this assumption is made, the patient should be carefully informed of any possible deterioration in the prognosis of the upcoming treatment. Since the degree of success in restoring cracked teeth is limited, early detection and prevention, as well as detailed informed consent, are crucial. A split of teeth/roots occurs when a crack spreads from one tooth surface to another, dividing it into two segments. If the crack is oblique and a smaller fragment can be removed, the tooth can probably be restored, for example, with a fracture of the tubercle. However, if the crack spreads below the bone level, the tooth may not be able to be restored, and endodontic treatment will not bring the desired success. Careful forecasting is necessary before starting any dental treatment, however, in the case of cracked teeth, it is often difficult. Due to doubts about the long-term success of the treatment of detected or suspected cracks, the doctor should carefully decide on further treatment and avoid endodontic treatment with a confirmed diagnosis of a split root.

b) Vertical fracture of the root. One of the most common causes of recurrence of endodontic pathology is a vertical fracture of the root, a deep tooth crack extending longitudinally along the long axis of the root. It often passes through the pulp towards the periodontium. A vertical fracture is usually located centrally, rather than obliquely, and usually passes through the marginal ridges. These fractures may occur before or as a result of endodontic treatment, or develop after treatment.

Since the diagnosis of vertical fractures can be difficult, they often remain undiagnosed, therefore it is necessary to determine the presence and depth of a vertical root crack before starting restorative or endodontic treatment — this can significantly affect the success of the entire treatment. The patient agreeing to endodontic treatment should be informed that the prognosis of the tooth is questionable. The doctor should be able to recognize subjective and objective signs indicating a vertical fracture of the root or a split tooth, make a prediction about the possibility of a cure and convey this information to the patient. For more information about vertical root fractures, see a separate article on the website - please use the search form above.

c) Perforations. Root perforation is a clinical complication that can lead to a lack of success in treatment. The communication formed during perforation between the root canal system and the periradicular tissues or oral cavity may worsen the prognosis of treatment. Root perforation may be the result of extensive carious lesion, resorption, or a doctor's error during instrumental treatment of the root canal or preparation for a pin.

The prognosis for the treatment of perforations depends on the size, location, time of detection and treatment, the degree of damage to the periodontium, as well as on the tightness and biocompatibility of the repair material. It was found that the success of treatment mainly depends on the immediate closure of the perforation and careful control of infection. To close the perforations, a mineral trioxide aggregate (MTA), Super EVA (zinc oxide cement kneaded on a compound of eugenol and epoxybenzoic acid), temporary reducing material IRM, glass ionomer cement (SIC) and composites are usually used.

To prevent a vital tooth crack, it is important to take into account the following: during examination, a color-altered crack can be detected crossing the marginal ridge of the occlusal surface of the molar or the crown of the incisor. In this case, further examination of hard tissues is required and the identification of inconsistencies in occlusal relationships that manifest themselves on balancing bumps.

- mobility of pins and pin teeth. The fracture of the tooth should be suspected if the carefully fitted pin suddenly becomes movable;
- in the anamnesis – repeated cementation of pins or pin tabs;
- unsuccessful outcome of surgical treatment.

Conclusions:

- clinical and radiological signs give only relative indications of the presence of VTK;
- a direct examination of a crack during a surgical revision is the only accurate way to identify it;
- it is recommended to introduce surgical revision into permanent practice to confirm

Literature

1. Dzhuraevna, K. M. (2023). THE FREQUENCY OF DENTAL DISEASES IN CHILDREN (LITERATURE REVIEW). *Лучшие интеллектуальные исследования*, 12(1), 159-168.
2. Dzhuraevna, K. M. (2023). FEATURES OF THE OCCURRENCE OF DENTAL DISEASES IN CHILDREN. *Лучшие интеллектуальные исследования*, 12(1), 178-185.
3. Dzhuraevna, K. M. (2024). Prevalence and Course of Dental Diseases Among Younger Patients. *Research Journal of Trauma and Disability Studies*, 3(5), 433-436.
4. Dzhuraevna, K. M. (2024). Features of Caries Morbidity in Preschool Children. *Research Journal of Trauma and Disability Studies*, 3(3), 300-305.
5. Dzhuraevna, K. M. (2024). Clinical and Morphological Aspects of Cracks on The Back Teeth in Adults. *Research Journal of Trauma and Disability Studies*, 3(5), 429-432.
6. Хайитова, М. Д. (2023). РАСПРОСТРАНЕННОСТЬ И РАСПРЕДЕЛЕНИЕ ТРЕЩИН НА ЗАДНИХ ЗУБАХ СРЕДИ ВЗРОСЛЫХ ПАЦИЕНТОВ (ОБЗОР ЛИТЕРАТУРЫ). *Лучшие интеллектуальные исследования*, 12(1), 186-195.
7. Хайитова, М. Д. (2023). Особенности Возникновение И Течение Кариеса Зубов. *Research Journal of Trauma and Disability Studies*, 2(12), 356-363.
8. Хайитова, М. Д. (2023). КЛИНОКО-МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ВОЗНИКНОВЕНИЯ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ У ДЕТЕЙ. *Лучшие интеллектуальные исследования*, 12(1), 169-177.
9. Хайитова, М., & Тайлакова, Д. (2023). ВЗГЛЯД СТОМОТОЛОГА НА ГИГЕНУ ПОЛОСТИ РТА У ДЕТЕЙ. *Инновационные исследования в современном мире: теория и практика*, 2(23), 58-59.
10. Abdusalimovna, K. M. (2024). Current Representations of Simple Prosthodontics. *Best Journal of Innovation in Science, Research and Development*, 3(3), 228-234.
11. Abdusalimovna, K. M. (2024). THE USE OF CERAMIC MATERIALS IN ORTHOPEDIC DENTISTRY. (Literature review). *TADQIQOTLAR*, 31(3), 75-85.
12. Abdusalimovna, K. M. (2024). THE ADVANTAGE OF USING ALL-CERAMIC STRUCTURES. *TA'LIM VA INNOVATSION TADQIQOTLAR*, 13, 49-53.

13. Abdusalimovna, K. M. (2024). CLINICAL AND MORPHOLOGICAL FEATURES OF THE USE OF METAL-FREE CERAMIC STRUCTURES. *TA'LIM VA INNOVATSION TADQIQOTLAR*, 13, 45-48.
14. Кузиева, М. А. (2023). Кликоморфологические Критерии Органов Ротовой Полости При Применении Несъемных Ортопедических Конструкций. *Research Journal of Trauma and Disability Studies*, 2(12), 318-324.
15. Abdusalimovna, K. M. (2024). MORPHO-FUNCTIONAL FEATURES OF THE METHOD OF PREPARATION OF DEPULPATED TEETH FOR PROSTHETICS. *SCIENTIFIC JOURNAL OF APPLIED AND MEDICAL SCIENCES*, 3(4), 301-307.
16. Abdusalimovna, K. M. (2024). Clinical and Morphological Features of the Use of Non-Removable Orthopedic Structures. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, 3(5), 73-78.
17. Kurbanova, N. V. (2024, July). Modern Views on the use of Metal-Ceramic Structures in Dental Prosthetics. In *Interdisciplinary Conference of Young Scholars in Social Sciences (USA)* (Vol. 8, pp. 15-18). <https://www.openconference.us/index.ph>.
18. Kurbanova, N. V. (2024). Modern Presentation of Calcium-Containing Drugs in the Course of the Study of Dental Diseases. *International Journal of Alternative and Contemporary Therapy*, 2(7), 12-14.
19. Kurbanova, N. V. (2024). Clinical and Morphological Features the Occurrence of Tooth Decay. *International Journal of Alternative and Contemporary Therapy*, 2(9), 128-132.
20. Narzulaeva Umida Rakhmatulloevna and Rakhmatova Fotima Ulugbekovna, "PATHOGENETIC MECHANISMS OF DISORDERS IN THE HEMOSTASIS SYSTEM OBSERVED IN PATIENTS INFECTED WITH COVID-19", *IEJRD - International Multidisciplinary Journal*, vol. 7, no. ICMEI, p. 3, Feb. 2023.
21. Narzulaeva, U. (2023). PATHOGENETIC SIGNIFICANCE OF HYPERLIPIDEMIA IN THE CLINICAL COURSE OF ARTERIAL HYPERTENSION. *International Bulletin of Medical Sciences and Clinical Research*, 3(11), 86-91.
22. Narzulaeva, U. (2023). PATHOGENETIC SIGNIFICANCE OF HYPERLIPIDEMIA IN THE CLINICAL COURSE OF ARTERIAL HYPERTENSION. *International Bulletin of Medical Sciences and Clinical Research*, 3(11), 86-91.
23. Нарзуллаева, У., Самиева, Г., & Пардаева, З. (2022). ПАТОФИЗИОЛОГИЯ РЕПЕРФУЗИОННОГО ПОВРЕЖДЕНИЯ МИОКАРДА. *Журнал вестник врача*, 1(2), 155–158. <https://doi.org/10.38095/2181-466X-2020942-154-157>
24. Самиева, Г., Нарзуллаева, У., & Самиев, У. (2023). Течение артериальной гипертензии у жителей засушливого региона. *Каталог монографий*, 1(1), 1–108. извлечено от <https://inlibrary.uz/index.php/monographs/article/view/27456>
25. Oripova, O. O., Samieva, G. U., Xamidova, F. M., & Narzulaeva, U. R. (2020). Sostoyanie plotnosti raspredeleniya limfoidnykh kletok slisistoy obolochki gortani va proyavleniya mestno immuna pri xroncheskom laringite (tahlil seksionnogo material). *Akademiya*, 4 (55), 83-86.
26. Rakhmatulloevna, N. U., & Abdurasulovna, B. M. (2022). GEMOREOLOGIK BUZILISHLAR VA ERITROTSITLAR AGREGATSION XOSSALARI O'ZGARISHINING PATOGENETIK MEKANIZMLARI. *JOURNAL OF BIOMEDICINE AND PRACTICE*, 7(6).
27. Saloxiddinovna, X. Y. (2024). Modern Views on the Effects of the Use of Cholecalciferol on the General Condition of the Bod. *JOURNAL OF HEALTHCARE AND LIFE-SCIENCE RESEARCH*, 3(5), 79-85.

28. Халимова, Ю. С., & Хафизова, М. Н. (2024). МОРФО-ФУНКЦИОНАЛЬНЫЕ И КЛИНИЧЕСКИЕ АСПЕКТЫ СТРОЕНИЯ И РАЗВИТИЯ ЯИЧНИКОВ (ОБЗОР ЛИТЕРАТУРЫ). *TADQIQOTLAR. UZ*, 40(5), 188-198.
29. Халимова, Ю. С. (2024). Морфологические Особенности Поражения Печени У Пациентов С Синдромом Мэллори-Вейса. *Journal of Science in Medicine and Life*, 2(6), 166-172.
30. Xalimova, Y. S. (2024). Morphology of the Testes in the Detection of Infertility. *Journal of Science in Medicine and Life*, 2(6), 83-88.
31. KHALIMOVA, Y. S. (2024). MORPHOFUNCTIONAL CHARACTERISTICS OF TESTICULAR AND OVARIAN TISSUES OF ANIMALS IN THE AGE ASPECT. *Valeology: International Journal of Medical Anthropology and Bioethics*, 2(9), 100-105.
32. Salokhiddinova, K. Y. (2024). IMMUNOLOGICAL CRITERIA OF REPRODUCTION AND VIABILITY OF FEMALE RAT OFFSPRING UNDER THE INFLUENCE OF ETHANOL. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, 4(10), 200-205.
33. Salokhiddinova, K. Y., Saifiloevich, S. B., Barnoevich, K. I., & Hikmatov, A. S. (2024). THE INCIDENCE OF AIDS, THE DEFINITION AND CAUSES OF THE DISEASE. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 195-205.
34. Nematilloeva, K. M., & Salokhiddinova, K. Y. (2024). IMPORTANT FEATURES IN THE FORMATION OF DEGREE OF COMPARISON OF ADJECTIVES IN LATIN. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 150-157.
35. Salokhiddinova, X. Y., & Nematilloeva, X. M. (2024). FEATURES OF THE STRUCTURE OF THE REPRODUCTIVE ORGANS OF THE FEMALE BODY. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 179-183.
36. Хафизова, М. Н., & Халимова, Ю. С. (2024). ИСПОЛЬЗОВАНИЕ ЧАСТОТНЫХ ОТРЕЗКОВ В НАИМЕНОВАНИЯХ ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ В ФАРМАЦЕВТИКЕ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 172-178.
37. Хафизова, М. Н., & Халимова, Ю. С. (2024). МОТИВАЦИОННЫЕ МЕТОДЫ ПРИ ОБУЧЕНИИ ЛАТЫНИ И МЕДИЦИНСКОЙ ТЕРМИНОЛОГИИ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 165-171.
38. Халимова, Ю. С., & Хафизова, М. Н. (2024). ОСОБЕННОСТИ СОЗРЕВАНИЕ И ФУНКЦИОНИРОВАНИЕ ЯИЧНИКОВ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, 55(2), 188-194.