

ANALYSIS OF DIAGNOSIS AND TREATMENT ALGORITHMS FOR TOOTH ROOTS RESORPTION

Xurramov Suhrobjon Abdunazarovich

1st year clinical resident

PhD, associate professor Ortikova Nargiza Khairullayevna

Department of Orthopedic Dentistry

Samarkand State Medical University, Samarkand, Uzbekistan

Annatatsiya: Root resorption is the process by which the hard tissues of the tooth and the surrounding bone are destroyed. The frequency of internal resorption is unknown, because the results can vary significantly when using different diagnostic methods. Scientific publications focus on external resorption, but internal resorption is also a problem for the practitioner. This article describes the results of an anonymous survey of doctors in order to analyze knowledge about root resorption and internal resorption, in particular.

Key words: resorption of tooth tissues, etiological factors of resorption, methods of diagnosis of resorption of tooth tissues, treatment of resorption.

Introduction. In their practical work, dentists should take into account many factors when planning treatment and evaluating the possible prognosis. There is a group of diseases that practitioners encounter much more often than it seems, and the impact of which on the outcome of treatment is clearly underestimated – resorption of teeth. Root resorption is a process in which the hard tissues of the tooth and surrounding bone are destroyed. An example of physiological resorption is the resorption of the roots of baby teeth during their replacement period. Resorption occurs under the action of cells, which are called, depending on the type of tissue they resorb, odontoclasts, cementoclasts or osteoclasts. Resorption of the roots of permanent teeth is a pathological process, since normally the outer and inner surfaces of the root are covered with a protective non-mineralized layer (cement-cementoblasts and precement, dentin-dentinoblasts and predentin), to which clastic cells do not attach. Pathological resorption

begins at the moment when any of these layers is damaged under the influence of etiological factors, and continues if the cause is not eliminated. (*Fig.1*)

There are 6 types of root resorption: transient, apical inflammatory, cervical inflammatory, resorption resulting from tumors or jaw cysts caused by systemic disorders, external root. Depending on the location, it can be divided into external and internal. The frequency of detection of internal resorption varies, according to various data, from 0.22% to 1.7878% of all teeth, but it is assumed that in reality the frequency of occurrence of internal resorption is unknown, since the results may differ significantly when using different diagnostic methods.



Fig.1 Tooth root resorption

For example, histological studies have shown a higher rate of detection of resorption than X-ray methods (including cone-beam computed tomography). It is assumed that intra-root resorption occurs from 0.01% to 55% of cases. This pathological process can occur in one tooth, or it can affect several teeth, regardless of their position in the dentition, so internal resorption is a problem for the practitioner,

Survey results. In particular, an anonymous survey was conducted to analyze knowledge about root resorption and internal resorption. Было проведено анонимное анкетирование. 82 people participated in the survey. All respondents are dental therapists with work experience from 2 years to 2-6 years (the average and most common period of practical medical activity is 10-12 years). 28% of respondents work in state medical institutions, 74% - in commercial clinics or combine their places of work. 58% of respondents were familiar with the term "root resorption", 56% indicated that they

had experienced resorption in their medical practice. Resorption has always been a random finding, detected by X-ray examination, only five dentists indicated the presence of symptoms such as discoloration of the tooth and the presence of a fistulous passage.

Among the possible etiological factors, the majority (6-7%) indicated tooth injury and tooth displacement during orthodontic treatment (and doctors separately indicated that etiological factors are the cause of external resorption). So, 2 to 8% of respondents believe that root resorption is caused by tooth whitening. The rest of the respondents associate the occurrence of resorption with a violation of the endodontic treatment technique, which leads to root traumatization, using thermoplasticized materials.

However, there are a large number of reasons that can lead to root resorption. Etiological factors can be divided into local and systemic. Local factors include those that lead to inflammation or necrosis of the pulp: caries, iatrogenic trauma, exposure to high temperatures, acute and chronic tooth trauma, excessive load during orthodontic treatment, exposure to high-concentration hydrogen peroxide during teeth whitening, root compression by nearby neoplasms, periodontitis, rough implementation of hygiene and periodontal procedures, leading to mechanical damage to the cement, the use of toxic dental materials that cause chemical trauma to the pulp. Systemic factors that can cause resorption include hormonal disorders (for example, hypothyroidism or hypoparathyroidism), hypertension, atherosclerosis, Papillon-Lefebvre syndrome, liver failure, vitamin A deficiency, pregnancy, shingles, radiation therapy. To diagnose root resorption, 100% of respondents will use X-ray methods (5-6% – CBCT, 4-4% - targeted intraoral radiographs). Internal tooth resorption is always an inflammatory process in the pulp, which is accompanied by changes in EDI indicators and temperature samples. Changes in the indicators are similar to changes in pulpitis (EDI from 20 UA to 100 UA with complete pulp necrosis, when conducting a temperature test, the duration of the pain reaction is longer than 20 s or its complete absence in necrosis). Taking this fact into account in clinical practice, by conducting a regular thorough examination of teeth exposed to etiological factors, it is possible to detect the resorptive process at an early stage until the damage reaches a large size and does not pose a serious problem. a threat to the preservation of the tooth. (**Fig.2. A, B**)

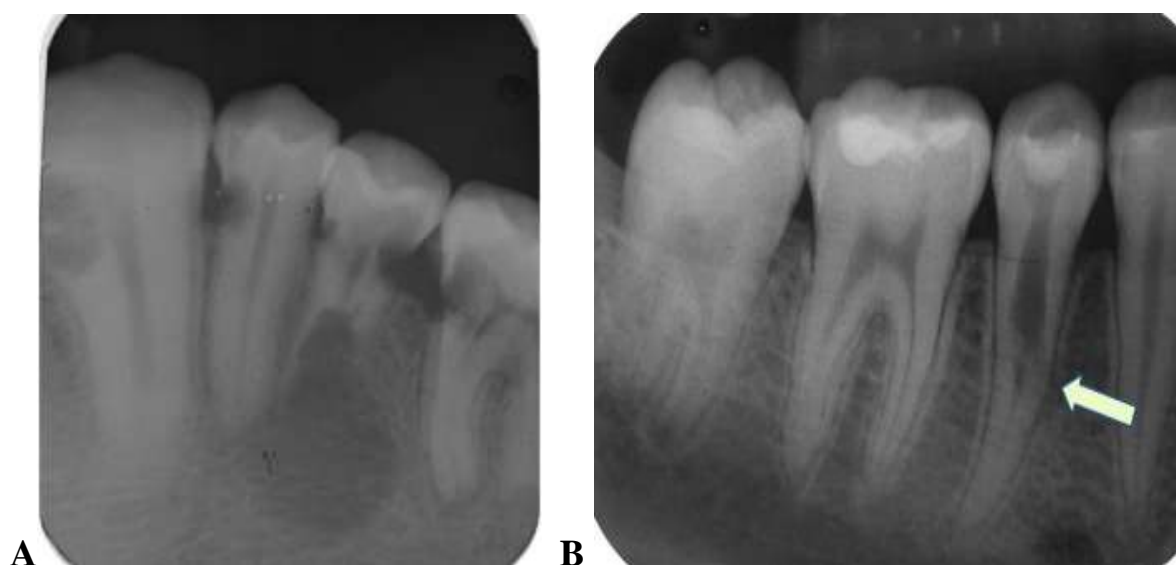


Fig.2. A. External inflammatory resorption

B. Internal root resorption and perforation

So, 6.4% of doctors indicated that they are familiar with the methods of treating dental resorption. Among the main ones, endodontic treatment was indicated. Four respondents suggested apexification, removal, and subsequent implantation as treatment options. 3.7% of respondents would use sodium hypochlorite 3% as irrigation solutions for endodontic treatment бы использовать 37% опрошенных, гипохлорит натрия, 4 – 7% sodium hypochlorite, 0.005% or 2% chlorhexidine bigluconate solution was chosen by 52% of respondents, and 1-1% of respondents chose distilled water as an irrigant.

73% of doctors consider it necessary to perform temporary canal obturation in the treatment of root resorption of teeth. Preparations containing calcium hydroxide or Cresodent were indicated as materials for temporary filling. The main purpose of temporary filling was to remove the smeared layer from the surface of the root canal walls. Удалять временный пломбировочный материал Dentists prefer to remove temporary filling material using irrigation with the use of ultrasound activation and tools for mechanical treatment of root canals. The same solutions are indicated as irrigants.

It is assumed that it is optimal to use calcium hydroxide as a material for temporary obturation, since when it is introduced into the channel, the pH level increases, this has a pronounced antibacterial effect, and also when it comes into contact with organic tissue residues in lacunae – calcium hydroxide causes denaturation and

hydrolysis of organic molecules. Calcium hydroxide slows down the process of bone resorption, as an increase in the pH level inhibits the activity of osteoclasts.

Sodium hypochlorite is recommended as an irrigation solution , but there is no clear opinion about the optimal concentration, because increasing the concentration increases the solvent and antibacterial properties, but at the same time reduces the strength of hard root tissues .Doctors unanimously chose gutta-percha as a filling material, but the filling methods indicated different. Thus, 56% of respondents preferred lateral condensation, 44% chose vertical condensation of thermoplasticized gutta - percha by the continuous wave method, combined method with the use of an injector, thermafil, arguing that it is necessary to fill the resorptive defect three-dimensionally, 24% also indicated the mandatory use of MTA, but noted only the need for apexification of the root tip, not mentioning the closure of perforations. holes, if any. Assessing the prognosis of a tooth with detected and cured resorption, 100% of dentists indicated that additional stress on the tooth is undesirable. If prosthetics are necessary, the tooth should be closed exclusively with a single crown, since there is a defect in hard tissues and there is a risk of root fracture. All 100% of respondents noted that they will benefit from training lectures, seminars, publications on the issue of dental resorption.

Conclusions: Due to the fact that internal resorption of the tooth root is detected quite rarely, and isolated clinical cases are described in the literature, there are no systematic clear recommendations for diagnosis and treatment. Doctors, not knowing the possible etiological factors and symptoms of the disease, skip resorption in the early stages, detecting it already when a large focus of destruction appears in the root, as well as complications and accompanying symptoms, when the treatment of such a tooth presents certain difficulties, and the prognosis is doubtful. The literature does not describe a single effective protocol for endodontic treatment of teeth with internal root resorption, research data are scattered, which causes dissociation of opinions regarding treatment among practicing dentists. According to the interviewed dentists, it is necessary to develop practical recommendations for the diagnosis and treatment of dental resorption, conduct lectures and seminars on this topic.

REFERENCES

1. Khairullayevna, O. N. (2024). CORRELATION BETWEEN THE GUM BIOTYPE AND ITS PREDISPOSITION TO RECESSION (Literature review). *Best Intellectual Research*, 21(2), 213-216.
2. Khairullaevna, O. N. (2024). ZAMONAVIY YUQORI ANIQLIKDAGI KOMPYUTER TEXNOLOGIYALARIDAN FOYDALANGAN HOLDA MURAKKAB TISH DAVOLASH UCHUN RAQAMLI PROTOKOL. *OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIR*, 43(7), 23-28.
3. Ortikova, N. X., & Emilevna, F. E. (2024). ROLE OF ORTHODONTIC TREATMENT OF PATIENTS TO IMPROVE FACIAL AESTHETICS.
4. Normuratovich, N. A. (2024). ASSESSMENT OF INFORMATION CONTENT IN THE PREVENTION OF DENTAL DISEASES AMONG THE POPULATION.
5. Khairulloevna, PO (2024). FEATURES OF DENTAL PROSTHETICS ON IMPLANTS. *Journal of Innovations of the New Century*, 54(3), 178-182.
6. Khairullayevna, PO (2024). THE MAIN FACTORS AFFECTING DRY MOUTH. *ANALYSIS OF MODERN SCIENCE AND INNOVATION*, 2(1), 172-182.
7. Xayrullayevna, A. R. A. O. N. (2024). CLINICAL ASPECTS OF PROSTHESES IN ANTERIOR MAXILLARY DENTAL DEFECTS. *International journal of advanced research in education, technology and management*, 3(9), 83-92.
8. Khairullaevna, O. N. (2024). Innovative Approach of Periodontal Therapy before Orthopedic Prosthetics. *International Journal of Integrative and Modern Medicine*, 2(7), 98–104. Retrieved from <https://medicaljournals.eu/index.php/IJIMM/article/view/792>
9. Khairullayevna, O. N. (2024). OPTIONS FOR SELECTION OF ANESTHETICS FOR PAIN RELIEF IN DENTISTRY. *Journal of new century innovations*, 54(3), 164-169.
10. Xayrulloevna, O. N. (2024). IMPLANTATLARGA TISHLARNI PROTEZLASH XUSUSIYATLARI. *Journal of new century innovations*, 54(3), 178-182.

11. Ortikova, N. Kh., & Rizaev, Zh. A. DENTAL FEAR AND ANXIETY IN CHILDREN, WAYS TO OVERCOME THEM.
12. Ortikova, N., Rizaev, Zh., & Kubaev, A. (2022). PSYCHOEMOTIONAL STRESS IN CHILDREN AT AN OUTPATIENT DENTAL APPOINTMENT. *Journal of Dentistry and Craniofacial Research*, 2(3), 59-63. <https://doi.org/10.26739.2181-0966-2021-3-11>
13. Khayrullayevna, O. N., & Ulugbek, K. (2023). AESTHETIC RESTORATION USING ZIRCONIUM CROWNS. *Intent Research Scientific Journal*, 2(9), 83-90.
14. Ortikova, N. K. (2023). DENTAL ANXIETY AS A SPECIAL PLACE IN SCIENTIFIC KNOWLEDGE. *SCHOLAR*, 1(29), 104-112.
15. Ortikova, N. (2023). ANALYSIS OF ANESTHESIA METHODS FOR DENTAL FEAR AND ANXIETY. *Central Asian Journal of Academic Research*, 1(1), 8-12.
16. Normuratovich, N. A. (2024). ORTHOPEDIC DENTIST-DEONTOLOGIST IN DENTAL FACIAL SURGERY COMPILATION OF FACTORS. *OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIR*, 43(7), 41-45.
17. Khairullaevna, O. N. (2024). CORRELATION DYNAMICS OF ERRORS AND COMPLICATIONS IN THE USE OF RESTORATIVE POST CONSTRUCTIONS. *Web of Medicine: Journal of Medicine, Practice and Nursing*, 2(3), 42-47.
18. Normuratovich, N. A. (2023). ASPECTS OF ADAPTATION TO DENTURES AND USING DRUGS CORRECTLY. *Intent Research Scientific Journal*, 2(9), 113-121.
19. Ortikova, N. Kh., & Alikulov, O. (2024). CORRECTION OF PHONETIC SPEECH FUNCTION OF A PATIENT AT THE STAGES OF ADAPTATION TO COMPLETE REMOVABLE PROSTHESES. *OBRAZOVANIE NAUKA I INNOVATSIONNYE IDEI V MIR*, 41(2), 137-142.
20. Shaxnoza, T., & Xayrullaevna, O. N. (2024). FEATURES OF THE USE OF MILLED ZIRCONIUM DIOXIDE ABUTMENTS WITH CERAMIC CLADDING. *European International Journal of Multidisciplinary Research and Management Studies*, 4(02), 41-45.

21. Xayrullayevna, O. N. (2024). IMPROVING THE DIAGNOSIS AND TREATMENT OF PRECANCEROUS DISEASES OF THE ORAL MUCOSA. *European International Journal of Multidisciplinary Research and Management Studies*, 4(03), 179-185.
22. Alimdjanovich, R. J., Khairullaevna, O. N., & Normuratovich, N. A. (2021, September). Correction of psychological stress in children with non-pharmacological methods of dental admission. In *Archive of Conferences* (pp. 108-114).
23. Khayrullaevna, P. O. N. (2024). FEATURES OF CHILDREN'S FEAR AT A DENTAL APPOINTMENT. *American Journal of Interdisciplinary Research and Development*, 25, 77-82.
24. Shaxnoza, T., & Xayrullaevna, O. N. (2024). FEATURES OF THE USE OF MILLED ZIRCONIUM DIOXIDE ABUTMENTS WITH CERAMIC CLADDING. *European International Journal of Multidisciplinary Research and Management Studies*, 4(02), 41-45.
25. Khairullayevna, O. N. (2024). THE RELATIONSHIP OF DENTAL ANXIETY WITH DEMOGRAPHIC INDICATORS. *European International Journal of Multidisciplinary Research and Management Studies*, 4(01), 331-337.
26. ORTIKOVA, N. (2020). Jamiyat va innovatsiyalar–Society and innovations. *bioethics*, 2181, 1415.
27. Ortikova, N. (2020). Globalization of bioethics during the COVID-19 pandemic. *Society and Innovation*, 1(1 / s), 677-682.
28. Xayrullayevna, O. N. (2024). ORTHODONTO-SURGICAL TREATMENT OF SKELETAL FORMS OF DENTAL ANOMALIES IN PATIENTS. *European International Journal of Multidisciplinary Research and Management Studies*, 4(04), 86-91.
29. Normurodovich, N. A. (2024). THE IMPACT OF PLASMA-ELECTROLYTIC OXIDATION OF TITANIUM. *European International Journal of Multidisciplinary Research and Management Studies*, 4(04), 92-98.
30. Alisherovich, R. A., & Astanovich, A. A. (2024). MODERN DIAGNOSTIC METHODS IN CHILDREN WITH FALSE MESIAL OCCLUSION. *European*



International Journal of Multidisciplinary Research and Management Studies, 4(05), 376-381.

31. Xusanovich, C. F. (2024). TREATMENT OF PERIODONTAL DISEASES USING LOW-INTENSITY MAGNETIC LASER RADIATION. European International Journal of Multidisciplinary Research and Management Studies, 4(04), 99-107.