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ASSESSMENT OF TOOTH MOBILITY FOLLOWING DENTAL TRAUMA

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Abstract

Pathological tooth mobility associated with acute and chronic dental trauma represents a significant clinical risk, as it may result in disruption of the neurovascular bundle and subsequent pulp necrosis, thereby necessitating timely diagnosis and appropriate therapeutic intervention. This study investigated the clinical characteristics of mobile teeth in a cohort of 220 patients presenting with acute or chronic dental trauma. Following standard diagnostic procedures, the degree of tooth mobility was assessed in conjunction with electrodontometry and thermal sensitivity testing.

In cases of acute trauma where the root fracture line was located in the apical region, the coronal fragment remained stable and did not require immobilization. Conversely, fractures involving the middle or coronal thirds of the root, as well as cases of tooth dislocation, necessitated immobilization. To prevent secondary displacement and further injury, splinting devices were required to incorporate reinforcing components. After splinting in cases of acute trauma (root fracture or dislocation), radiological imaging was essential to verify the accuracy of tooth repositioning; if inadequate adaptation of fragments was identified, repositioning was repeated.

Keywords: Tooth mobility, acute dental trauma, chronic dental trauma, dental splinting.

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Introduction

The management of patients with dental trauma, as well as the comprehensive treatment of periodontal diseases involving stabilization of mobile teeth, remains one of the most challenging issues in contemporary dentistry. Chronic traumatic forces, in combination with inflammatory periodontal conditions, lead to both destructive and functional alterations of the tooth-supporting apparatus. One of the most prominent clinical manifestations of these changes is pathological tooth mobility.

Dental splinting has become an integral component of treatment protocols for acute dental trauma accompanied by positional disturbances of teeth, such as subluxation, luxation, and root fractures in vital teeth, as well as for chronic traumatic injuries. Splinting facilitates redistribution of occlusal loads, elimination of traumatic occlusal contacts, and compensation for destructive periodontal processes. Immobilization, combined with selective occlusal adjustment, ultimately aims to reduce traumatic overload of the periodontium by distributing masticatory forces across a greater number of teeth, directing occlusal forces along the long axis of teeth, eliminating balancing supracontacts, and establishing a stable and physiologically balanced central occlusion. These measures also contribute to the normalization of masticatory muscle activity and prevention of temporomandibular joint dysfunction.

Aim of the Study

The objective of the present study was to determine the degree of tooth mobility following acute and chronic dental trauma.

Materials and Methods

The study included 222 patients with indications for splint fabrication in the anterior regions of the maxilla and/or mandible. The cohort comprised:

- 122 patients with chronic dental trauma
- 100 patients with acute dental trauma, including

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78 cases of root fracture
22 cases of tooth dislocation
Diagnostic and therapeutic procedures were performed on permanent maxillary and/or mandibular incisors and canines, which account for approximately 80% of traumatic dental injuries.
Diagnosis was established based on patient history, clinical examination (inspection and palpation of the oral mucosa and teeth, percussion, probing, and assessment of tooth mobility), and additional diagnostic tests, including electrodontometry, cold sensitivity testing, and radiological investigations.
Cone-beam computed tomography (CBCT) was employed to visualize root fracture lines, assess periapical tissues, and evaluate osseous structures in cases of tooth dislocation. Orthopantomography was used to determine the level and pattern of interdental septal resorption (horizontal or vertical) in patients with periodontal disease.
Tooth mobility was assessed in accordance with the classification proposed by D.A. Entin (1953), using either manual or instrumental methods. According to this classification:

- **Grade I mobility** corresponds to slight displacement of the tooth crown in one direction (vestibulo-oral).
- **Grade II mobility** involves visible displacement in two directions (vestibulo-oral and mesio-distal).
- **Grade III mobility** is characterized by displacement in three directions (vestibulo-oral, mesio-distal, and apical).

Results and Discussion

Evaluation of mobility in 100 teeth affected by acute trauma demonstrated a clear relationship between the degree of mobility and the anatomical location of the root fracture line.

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Among 78 teeth with root fractures, fractures located in the apical third were identified in 8 cases (10.3%). In all such instances, the coronal fragment remained immobile, and immobilization was not required.

Fractures involving the middle third of the root were diagnosed in 53 teeth (67.9%). In these cases, the coronal fragment exhibited Grade I–II mobility according to the Entin classification, and temporary immobilization was required in all cases.

When the fracture line was located in the coronal third of the root, observed in 17 teeth (21.8%), Grade III mobility was consistently identified. These teeth required immediate immobilization, with splinting duration extended by 2–3 weeks compared to cases involving middle-third fractures. Notably, approximately half of these teeth required long-term splinting.

Among 22 teeth with dislocation injuries, Grade I mobility was observed in 18.2% of cases, Grade II mobility in 45.4%, and Grade III mobility in 36.4%. All patients diagnosed with tooth dislocation required immediate immobilization.

It is essential to emphasize that splinting of teeth affected by acute trauma must be preceded by accurate repositioning relative to adjacent and antagonist teeth. Failure to perform repositioning or the use of splints without reinforcing elements may result in splint fracture and secondary displacement of tooth fragments. Such complications can lead to persistent periodontal inflammation, lack of fragment fusion, and progressive alveolar bone destruction.

Chronic Dental Trauma

Analysis of teeth affected by chronic trauma revealed that, among 122 teeth examined, Grade II mobility was present in 75.4% of cases, while Grade III mobility was identified in 24.6%. Teeth exhibiting only Grade I mobility were excluded from the study, as splinting in such cases does not present significant clinical challenges.

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All teeth with chronic trauma and Grade II–III mobility required splinting. Teeth with Grade III mobility were stabilized using specifically developed splinting techniques.

Conclusion

The findings of this study demonstrate that in cases of acute dental trauma with apical root fractures, the coronal fragment remains stable and does not require immobilization. When fractures involve the middle third of the root, the coronal fragment exhibits Grade I–II mobility and necessitates temporary splinting. Fractures located in the coronal third of the root are associated with Grade III mobility and require immediate immobilization with extended splinting duration, with long-term stabilization indicated in a substantial proportion of cases.

In tooth dislocation injuries, varying degrees of mobility were identified; however, all such cases required prompt immobilization. Assessment of tooth mobility plays a crucial role in diagnostic decision-making, while dynamic monitoring of mobility facilitates early detection of ankylosis in traumatized teeth.

Teeth affected by chronic trauma with Grade II–III mobility consistently required splinting, and advanced stabilization techniques were applied in cases of severe mobility.

References

1. Betelman AI. Prosthetic Dentistry. Moscow; 1965.
2. Dedova LN, Denisova YL, Rosenik NI. Dental trauma management. Dentistry. Aesthetics. Innovations. 2018;2(1):111–118.
3. Morozov KA, Matveev AP, Morozov EK, Kabanov YV. Tooth mobility in traumatic injuries. Stomatology. 2016;95(5):8–11.
4. Novak NV. Advanced splinting techniques in dentistry. Dentistry. Aesthetics. Innovations. 2018;2(1):67–74.

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5. Novak NV. Tooth contusions. Stomatologist. 2021;2(41):41–47.
6. Novak NV, Lopatin OA. Management of dental trauma. Dental Journal. 2022;23(3):129–135.
7. Novak NV, Pavlov OM, Novik AN. Chronic traumatic dental injuries. Stomatologist. 2023;2(49):38–46.
8. Novak NV, Starovoytova VS. Repositioning and splinting in dental trauma. Stomatologist. 2023;4(51):32–43.