

DOCTOR'S TACTICS FOR IMPACTED DISLOCATIONS OF TEMPORARY AND PERMANENT TEETH IN CHILDREN

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<https://doi.org/10.5281/zenodo.11639918>

Abstract

Impacted dislocation (embedded dislocation, tooth intrusion or intrusive luxation) is a partial or complete immersion of the tooth crown into the alveolus, and the root into the jaw bone as a result of trauma [3–5]. According to the literature, impacted dislocation occurs in 21.9% of cases of injury to temporary teeth and in 3.5% of cases of injury to permanent teeth in children [1, 3]. With an impacted dislocation of a temporary tooth, injury to the rudiment of the corresponding permanent tooth is possible, which can lead to its death, non-carious lesions of the permanent tooth (yellow spots, grooves on the enamel, Turner's tooth, microdentia), violation of the timing of eruption, change in the position of the erupted permanent tooth in the dentition and others [1–2, 5].

Keywords: impacted dislocation, treatment methods.

Medical tactics for impacted dislocation depends on many factors: the state of health of the child, his age, the condition of the tooth crown, the degree of formation of the tooth (in primary teeth and the degree of resorption of the tooth root), the condition of the periapical tissues, the depth and direction of the intrusion, the course of the inflammatory process that occurs after the injury. In practice, impacted primary teeth are most often removed. The so-called “wait and see” tactics are used in the case of impacted temporary teeth with unformed roots with shallow intrusion. In case of impacted dislocation of permanent teeth, the tactic of non-intervention (waiting) is used much more often. However, impacted permanent teeth are less likely to survive because permanent teeth are more likely to experience pulp necrosis, root resorption, or ankylosis after intrusion [2]. Possible outcomes of treatment of impacted dislocation can be: normalization of the position and healing of the tooth, ankylosis of the tooth in the impacted state, resorption of the tooth root, development of chronic apical periodontitis or root cyst, malformations of permanent teeth, death of the rudiments of permanent teeth with their subsequent sequestration. The purpose of this study is to study the incidence of impacted dislocation of temporary and permanent teeth in children depending on gender, age, group of teeth, and also to analyze the long-term results of their treatment.

Materials and methods.

We analyzed the medical records of 24 children with impacted dislocation aged from 1 year to 11 years, who were hospitalized in the department of maxillofacial surgery (maxillofacial surgery). Of these, 18 children had impacted dislocation of 28 temporary teeth, 6 patients had impacted dislocation of 12 permanent teeth. We also studied archival material from 23 children with impacted dislocation of teeth who sought

dental care at the clinic's emergency department in 2006–2007. We examined 7 children after the intrusion of 13 permanent teeth (4–5 years after the injury, 6 teeth were observed, 2–3 years — 4 teeth, 0.5–1 year — 3 teeth) and 15 children after the intrusion of 20 temporary teeth (4–5 years after injury - 3 teeth, 2–3 years - 9 teeth, 0.5–1 year - 8 teeth). To assess the outcome of impacted dislocation of temporary and permanent teeth, clinical criteria were used: the presence of a dislocated tooth in the socket, its stability, the color of the crown, pain on percussion, the condition of the mucous membrane, the position of the tooth in relation to neighboring teeth and antagonist teeth. In the absence of a temporary tooth and the presence of a permanent one, the timing of the eruption of the permanent tooth was specified, attention was paid to the shape of its crown, and the presence of non-carious lesions. All patients with intrusion of permanent teeth underwent an X-ray examination of the impacted teeth to determine the degree of formation of the tooth root, the presence of inflammatory changes in the periapical region, possible ankylosis, and, if indicated, an X-ray examination of the impacted temporary teeth was performed.

Results and discussion.

Among all patients undergoing hospital treatment, children with impacted dislocation of temporary and permanent teeth averaged 2.65 ± 0.54

It was revealed that impacted dislocation of temporary teeth occurs 2.3 times more often than permanent teeth (70.0 ± 7.25 and $30.0 \pm 7.25\%$, respectively). It should be noted that out of 28 impacted primary teeth, 25 ($89.29 \pm 5.95\%$) were removed. It has been established that impacted tooth dislocations occur 2 times more often in boys than in girls (66.67 ± 9.83 and $33.33 \pm 9.83\%$, respectively). Moreover, at the age of 1 to 5 years, such an injury occurs 1.4 times more often than in children 6–11 years old ($58.33 \pm 10.28\%$ and

41.67 ±10.28%, respectively). The data we obtained as a result of the analysis of the group membership of teeth with impacted dislocation indicates that in most cases the teeth of the upper jaw (both temporary and permanent) are subject to injury. In the primary dentition, the intrusion of the central incisors is 53.57±9.6% compared to the intrusion of other primary teeth (lateral incisors, canines and first molars - 46.43±9.6%). In the permanent dentition, only the upper incisors are injured, with the central incisors being injured 2 times more often than the lateral ones (66.67±14.21 and 33.33±14.21%, respectively). Analysis of the causes of impacted dislocation of temporary and permanent teeth in children on the basis of anamnestic data revealed that the most common cause of this pathology is household trauma (a blow to household objects, trauma in an organized group) - 54.16±10.39%. Street injury (fall on the street, from a bicycle, hit by a swing, etc.) is 29.17±9.48%, injury as a result of an accident is 4.17±4.17%. In 12.5±6.9% of cases, the cause of injury was not indicated in the medical history. Long-term examination of children showed the following. Of the 20 temporary teeth with impacted dislocation, 8 (40.0±11.24%) were missing from the socket due to their removal, 3 teeth had already been replaced. Of the 9 preserved temporary teeth, 2 (22.22±14.7%) had first degree mobility, not associated with physiological change. The crowns of 9 previously impacted temporary teeth are not changed in color, percussion is painless, the mucous membrane in the area of these teeth is pale pink. When assessing the position of the teeth in the dentition, it was revealed that 6 of 9 impacted temporary teeth (66.67±16.67%) occupy the correct position, 3 teeth (33.33±16.67%) are located above the occlusal plane and rotated along the axis. X-ray examination revealed that in 6 out of 8 (75.0±16.36%) children with impacted dislocation of primary teeth, the X-ray picture corresponded to the age norm (there were rudiments of permanent teeth, the cortical plate of the rudiments was not damaged, in 2 cases (25.0±16.36%), the radiograph revealed foci of bone tissue destruction in the area of the apexes of the roots of impacted temporary teeth, of which in 1 case (12.5±12.5%) there was a violation of the integrity of the cortical plate of the permanent tooth germ. The crowns of 3 permanent teeth, erupted in place of impacted temporary ones, have chalky spots on the cutting edge (Fig. 9), the shape of the crowns is not changed, percussion of the teeth is painless, the timing of their eruption and position in the dentition correspond to the norm. Of the 13 impacted permanent teeth, 4 (30.77±13.32%) were missing from the socket due to their removal soon after the injury. 3 teeth, out of 9 teeth available in the oral cavity, (33.33±16.67%) had degree I mobility, on the crowns of 3 teeth (33.33±16.67%) chalky spots were noted in the area of the incisal edge. Percussion of all permanent teeth with intrusion is painless, the mucous membrane in their area is pale pink. 6 teeth out of 9 impacted permanent teeth (66.67±16.67%) occupied the correct position in the dentition, 2 teeth had a supraocclusal position (22.22±14.70%), supraocclusion and rotation along the axis - 1 tooth (11, 11±11.11%). 6 out of 7

patients with impacted dislocation of permanent teeth need orthodontic treatment (85.71±14.29%), only 2 people (28.57±18.44%) are treated by an orthodontist. 2 out of 7 people (28.57±18.44%) have a removable denture in the oral cavity.

It was revealed that 5 out of 9 impacted permanent teeth (55.55±17.57%) have a radiological picture corresponding to the age norm; in 3 teeth (33.33±16.67%) the roots are not fully formed, in the area of 1 tooth (11.11±11.11%) inflammatory root resorption is determined. Conclusions 1. Children with impacted dislocation of temporary and permanent teeth account for an average of 2.65% of all children with traumatic injuries of the maxillofacial area who were hospitalized in the period from 2003 to 2007. 2. Impacted dislocation of temporary teeth occurs 2.3 times more often than permanent teeth; in temporary and permanent dentition, it occurs more often in boys than in girls and 1.4 times more often at the ages of 1 to 5 years, and in most cases the central incisors of the upper jaw are damaged. 3. The most common cause of impacted dislocation of temporary and permanent teeth is domestic trauma as a result of a fall (54% of cases). 4. Enamel hypoplasia was detected in all permanent teeth that erupted after impacted temporary dislocation; a third of permanent impacted teeth have chalky spots on the crown. 5. Advancement of permanent teeth after impacted dislocation and normalization of their position in the dentition were noted in 67% of cases; inflammatory resorption of roots was observed in 44% of cases. Thus, impacted primary teeth in most cases must be removed. The wait-and-see tactic in relation to permanently dislocated teeth is justified and gives positive results. However, only long-term observations of children who have suffered trauma to primary teeth make it possible to definitively diagnose post-traumatic disorders of permanent occlusion.

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