OPTIMIZING THE TREATMENT OF PATIENTS WITH DENTINOGENESIS IMPERFACTORY

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Аннотация. *В статье представлен новый метод лечения пациентов с несовершенным дентиногенезом. Было доказано, что использование этого метода позволяет избежать осложнений при лечении пациентов с наследственными нарушениями развития твердых тканей зубов.*

Ключевые слова: *наследственные нарушения развития, дентин, препарирование.*

Annotation. *The article presents the new method of treating patients with congenital developmental disorders of dental hard tissues. It has been found that using this technique allows to avoid complications during treatment of patients with congenital developmental disorders of dental hard tissues.*

Keywords*: congenital disorders, dentin, preparation.*

Introduction. Despite significant progress in the field of medicine, the problem of congenital human pathology remains in the world. Hereditary changes in the genetic apparatus also manifest themselves in the maxillofacial region, in particular, expressed in the form of disruption of the structure of dental tissues. In the International Classification of Dental Diseases (ICD-C), created on the basis of ICD-10, hereditary dental disorders are considered in the heading Class XI "Diseases of the digestive system", section K00 "Disorders of development and eruption of teeth", K00.5 "Hereditary disorders of tooth structure, not classified elsewhere": K00.50 amelogenesis imperfecta, K00.51 dentinogenesis imperfecta,

changes in teeth in incomplete osteogenesis, K00.52 odontogenesis imperfecta, K00.58 other hereditary disorders of tooth structure, dentinal dysplasia, shell teeth, K00.59 hereditary disorders of tooth structure, unspecified hypophosphatesia, marble tooth disease are considered in the headings of other classes, K00.8 other disorders of tooth development.

Dentin development anomalies may manifest as isolated pathology or be part of various diseases and syndromes. One of the most well-known forms of hereditary anomalies of dentin formation is dentinogenesis imperfecta. This disease occurs with a frequency of about 1:8000 people [1].

Clinical signs of dentinogenesis imperfecta are very characteristic. Teeth are of normal size and shape, erupt in the middle period. The intensity of color varies - most often watery gray with a pearly sheen or brown tint. Soon after the tooth erupts, the enamel chips off, its remnants have sharp edges. Progressive abrasion of enamel and a decrease in the height of the teeth and their volume are possible. Exposed dentin quickly wears off, it is 1.5 times softer than normal. Complaints of pain are usually not due to hyperesthesia, but due to gum trauma, due to abrasion of tooth crowns or trauma to the tongue and lips by sharp edges of the teeth. The specificity of clinical manifestations of dentinogenesis imperfecta, in particular obstruction of the root canals, necessitates a qualified approach by a dentist to the treatment of this pathology. When treating patients with dentinogenesis imperfecta, significant difficulties are caused by the lack of the possibility of full-fledged endodontic intervention due to obliteration of the pulp chamber and root canals. Obliteration of the canals entails the need for artificial creation of a bed for the LKSHV. Due to the fact that the "blind" manufacture of a canal for LKSHV is fraught with complications in the form of perforation of the tooth root, we proposed a method of tooth preparation using modern 3D modeling technology and the manufacture of a 3D template.

Purpose of the study — Optimization of treatment for patients with dentinogenesis imperfecta.

Materials and methods. We made a phantom model with a tooth with

impassable root canals. The model is a complete removable plate denture, in the artificial dentition of which the extracted tooth 25 is installed. A silicone impression was taken from the previously made phantom model, a plaster model was cast. At the next stage, an X-ray template was made, containing a built-in Lego cube and metal pellets, which are necessary as reference points for calibrating the settings of the machine with numerical control. The method of using surgical templates for dental implantation obtained by computer planning served as an analog for further actions, however, the orientation of the axis and depth of preparation in the MGUIDE computer program was made not in bone structures, as for dental implantation, but in hard tissues of the tooth. The radiographic template was installed on the phantom model and computed tomography was performed with recording in DICOM format. The MGUIDE computer program was used to orient the axis of direction and depth of tooth preparation. At the next stage, information on the axis direction and depth of preparation was sent to the MIS center in order to obtain a program for a milling machine with numerical control, which positions the guide sleeves that set the axis and depth of tooth preparation. After installing the guide sleeves, hard tooth tissue was prepared using an orthopedic template. For preparation, an angled handpiece and a custom-made steel bur with a limiter were used, the length of which corresponded to the drills from the MGUIDE surgical kit, but having a diameter of 1 mm in cross section.

Results and discussion. We have developed a method of "directed" preparation of hard dental tissues. After using an orthopedic template, radiographic and visual absence of root perforation was established. Conclusion. The method we have developed allows us to reduce the number of complications and improve the quality of treatment of patients with dentinogenesis imperfecta.

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