

Photoactivated deep fluoridation of dental tissues in endodontics

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Annotation. An endodontal treatment of sicknesses of the dental pulp and periapical tissues weakens tooth's hard tissues. The proposed method of deep total fluoridation of dentine with usage of ingredients of the set "Gluftored" that were administered into the root canal, tooth cavity and carious cavity and incrementally activated by energy of laser radiation or LED, strengthens the tooth tissues, makes them denser. In addition, they are disinfected at the expense of copper. After endodontal treatment the duration of the functioning of teeth increases.

The method of endodontal treatment of dental pulp and periapical tissues' diseases requires considerable excision of tissues in order to ensure a straight input for tools in root canals. Instrumental development of canals was accompanied by their washing with aggressive specimen. This weakens the hard tissues of the tooth and makes them brittle. To strengthen and improve the durability of the tooth after endodontal treatment, in addition to disinfect, deep fluoridation of tissues is can be used. Deep fluoridation method for the prevention of caries was proposed by Knappvost [2]. Deep fluoridation is conducted with usage of domestic set "Gluftored", which includes a liquid with ions F and crystals Cu and coarse dispersion, presented by highly dispersing hydroxide Ca or the analogy for the application «Dentin-Versiegelungsliquid», Humanchemie, Germany. Dentin tubules are air-locked closing formed crystals of calcium fluoride and additionally are disinfected with copper. In the process of fluoridation it was suggested to activate liquid and suspension step by step using the low-intensity laser radiation, □ 630 nm, or blue light, □ 460-480 nm, of LED activator of polymers polymerization [1]. The radiation's energy intensifies the chemical reactions, promotes deep inflowing of liquid and evenly spaced of formed crystals of calcium fluoride and copper crystals in the dentin tubules. The radiation stimulates the blood microcirculation in the parodontium and healing. *Goal.* To develop a methodology for total deep fluoridation of tooth dentin for endodontics, activating ingredients of the set "Gluftored" by light's energy. *Methods.* The root canal of the tooth prepared for the filling pack with the liquid "Gluftored" using an endodontal syringe short of reaching the opening of the canal by 3 mm. With fiber-optic cable influence on the liquid by laser light for 30-60 seconds at the distance of 3 mm

from the entrance. To drain canal and fill it from syringe with suspension "Gluftored", preliminary shaking it, affect by laser radiation for 30-60 seconds. Similarly, to conduct deep fluoridation of dentin of the tooth cavity and carious cavity, activating liquid and suspension. Root canal, tooth cavity and carious cavity it has to dry and fill. It uses the device of the cavity laser therapy "APT-01 Smile" (Russia), the average power is 15 mW. *Conclusion.* The deep total fluoridation of dentin before filling of the root canal, tooth cavity and carious cavity with usage of stepwise activation of liquid and suspension of the set "Gluftored" by energy of low-intensive laser radiation or the light of LED activator of polymerization, makes the tooth tissues stronger, additionally disinfects, provides long-term operation of tooth after endodontal treatment.

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