

## 22. DIAGNOSIS, TREATMENT AND PROPHYLAXIS OF DEEP CARIES



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**Introduction.** Dental caries is a dental disease with the longest evolution worldwide. It has a high frequency and the ability to expand, which gives it an endemic-epidemiological character. About 91% of people aged between 20 and 64 years old have dental caries. Deep caries is an infectious process that is characterized not only by the breakdown of the enamel but also of the dentin, so that a thin layer of healthy dentin remains between the carious cavity and the pulp chamber. In this case, dentinal canaliculi serve as a gateway for bacteria and their products into the pulp chamber, leading to pulp inflammation. The therapeutic tactics should be chosen depending on the type of pulp inflammation (reversible or irreversible). For these reasons, it is necessary to establish a correct diagnosis, relying on anamnesis, inspection, probing, radiological examination, electronic odontometry, and thermometry. The treatment of deep caries consists of applying a thin layer of calcium hydroxide filling (up to 1mm) in the deepest area of the cavity floor. Calcium hydroxide filling material has an odontotropic, remineralizing and bactericidal effect.

**Aim of study.** To study the methods of prophylaxis and diagnosis, as well as the modern methods of treatment of deep caries, which can increase the life of the tooth and reduce the risk of local and general complications among the patients.

**Methods and materials.** In the study, 20 patients with deep caries were examined and treated, of whom 12 men and 8 women aged between 19 and 45 years (20 teeth - 2 canines, 5 premolars, 13 molars). The patients were diagnosed with deep caries using clinical and paraclinical examinations. In order to increase the effectiveness of the treatment, to avoid accidental opening of the pulp chamber, and to increase the life of the tooth in deep caries, the Stepwise technique (two-step) was used. At the first stage, the deep carious cavity was extended within the affected dentin. Only the affected dentin was removed, after which Ultra-Blend plus curative calcium hydroxide filling was applied, which has odontotropic, antiseptic, bactericidal, and antitoxic effects. The tooth was restored with a temporary filling. The cavity was accessed again after 6-12 months, removing the remaining carious process up to the healthy dentin, and then the tooth was permanently restored with composite.

**Results.** Of all the examined and treated patients, only four had complications such as acute pulpitis. Thus, the use of the Stepwise technique and Ultra Blend plus curative calcium hydroxide filling had a success rate of 80%, making it effective in the treatment of deep caries if diagnosed correctly.

**Conclusion.** If a definitive diagnosis of deep caries is established and the signs of irreversible pulpitis are excluded, the Stepwise technique (two-step) shows high effectiveness, thus avoiding the accidental opening of the pulp chamber and only the affected dentin being removed. Due to the favorable properties of Ultra-Blend plus curative calcium hydroxide filling material, the carious activity was inactivated and dentinogenesis was stimulated, thus increasing the dentin layer between the carious cavity and the pulp chamber and providing the opportunity to remove the compromised dentin without any risks at the second stage, thus, increasing the life of the tooth and and reduce the risk of local and general complications among the patients.