

EFFICIENCY OF GLASS IONOMER CEMENT "MEGACEM" FERTILIZATION OF FISSURES IN CHILDREN

Sh.Inagamov, I.U.Tashkenbaeva, F.N.Bahramova, A.F.Nuriddionov
Tashkent state dental institute

Annotation. Glassionomer cement for fissure was fixed in 79 permanent and 75 primary teeth in 39 children aged 1 to 8 years. After a year, the effectiveness of fissure sealing (caries free sealed teeth) was 98.1%. Complete sealant retention was revealed in 84,8% teeth.

Key words: children, fissure sealing, effectiveness, glassionomer cement.

For the prevention of dental caries in children, along with the use of fluorides, the method of sealing fissures and pits is used [1,3,4,8]. However, the question of the effectiveness of various materials for sealing fissures, economic feasibility and the need for wide application of the method in the practice of dentists continues to be debated [5, 9, 10, 11].

Purpose of the study. Evaluation of the effectiveness of the application for sealing fissures of dairy and permanent teeth in children of light-cured glass ionomer cement.

Methods of research. In a prospective, open-label study, 39 children aged 1 to 8 years took part, sealing the fissure of the chewing surface of 154 teeth (79 permanent teeth, 75 dairy). Children aged 1 to 4 years were sealing fissures of milk molars, at the age of 5 - 8 years - sealing the fissures of the first permanent molars. To seal the fissure glass-ionomer cement "Megacem" was used. Prior to sealing, air conditioning was used, after sealing, a protective varnish. The preparation and use of the material was carried out in accordance with the manufacturer's instructions, insertion and distribution of all fissures, lightning with a photopolymerization lamp for 20 seconds.

Fissure sealing was performed by invasive and non-invasive methods. During the invasive procedure, fissure burs were used to expand the fissures. The results of the sealing of fissures were evaluated in a year by two criteria: the integrity of the sealant (complete, partial) and the condition of the hard tissues of the tooth in the area of sealing (presence or absence of caries).

A follow-up examination was carried out one year later in 34 children. Sealing results were evaluated in 105 teeth (68.2% of the initial number of hermetically sealed teeth). Analysis of the sealing results was carried out taking into account the type of teeth (permanent - 61, dairy - 44), fissure type (type I - 57 teeth, II - 17, III - 31), sealing methods (invasive - 61 tooth, non-invasive - 44). Data processing was carried out using standard software packages of

mathematical statistics, the reliability of the differences p) was estimated by the Student's criterion (t). Differences were considered reliable at $t > 2$, $p < 0.05$.

Results of the study. Examination of children one year after the sealing of the fissures of the chewing surface of molars revealed high efficacy of the test material. Complete safety of the preventive coating was detected in 89 teeth (84.3%), complete or partial loss of material - in 16 teeth (15.2%). In permanent teeth, the frequency of preservation of the preventive coating was significantly higher than in the milk teeth: 91.8 and 72.7%, respectively. Partial or total loss of material was detected in 8.2% of permanent teeth and in 27.3% of milk teeth. Differences between the results of fissure sealing in permanent and dairy teeth were statistically significant ($p < 0.05$). A study of the results of hermetic sealing in teeth with various types of fissures showed that in the fissures of type I the overall safety of the preventive coating was 82.5%, in type II fissures 76.5%, in fissures of type III 96.8%. The loss of material, complete or partial, was more often determined in fissures of types I and II than in fissures of type III: 17.5 and 23.5%, vs. 3.2%. Differences between the sealing results of fissures I and III types were statistically significant ($p < 0.05$).

The choice of the fissure sealing method, both in dairy and permanent teeth, had a significant effect on the results. If the fissures were extruded prior to sealing (invasive method), then the safety of the preventive coating was 96.4%, the frequency of deposition was 3.6%. The use of the test material without preliminary fissure expansion (noninvasive sealing) was 1.4 times less effective: the coverage frequency of the coating was 68.2%, the frequency of deposition of the material was 31.8% ($p < 0.05$).

The obtained data explain the lower efficiency of hermetic sealing of milk teeth, since the non-invasive sealing technique in milk teeth was used much more often than invasive: 70.5 and 29.5% of cases, respectively. In permanent teeth, on the contrary, non-invasive sealing technique was used less often than invasive: 21.3 and 78.7% of cases, respectively.

Comparison of non-invasive sealing data showed that the results in the permanent teeth were better than in the dairy: the frequency of complete preservation of the material was 76.9% in permanent and 64.5% in milk teeth, the frequency of deposition was 23.1 and 35.5%, respectively, although the differences were not statistically significant. Milk teeth were sealed by a non-invasive method, as a rule, in children aged 1 to 2 years, this age is characterized by high salivation, children's mobility, inability to sit with their mouth open and

perform the doctor's commands, direct resistance to treatment. All this causes the complexity of performing any manipulation in the mouth of small patients and, of course, affects the results of sealing the fissures of the teeth.

The study of the condition of hard tissues of teeth in the area of the sealed surfaces revealed no carious lesions with complete maintenance of the preventive coating. With complete or partial loss of the material, dental caries was detected in only 2 out of 16 teeth (12.5%), which was 1.9% of the total number of hermetically sealed teeth. Thus, sealing the fissure allowed to keep the healthy chewing surface of the teeth in 98.1% of cases.

The analysis of the conducted studies showed that the light-cured glass ionomer cement "Megacem" is not inferior in efficiency to other materials during the invasive method of sealing the fissures of permanent teeth.

Conclusions. In children aged 1 to 8 years, one year after the application of the light-cured glass ionomer cement "Megacem" to seal the fissures, the safety of the preventive coating was 84.8%. The effectiveness of fissure sealing, consisting in maintaining a healthy masticatory surface of dairy and permanent teeth, was 98.1% in children after a year of observation, regardless of the safety of the preventive coating. The results of sealing the fissures of permanent teeth were better than in the milk teeth. The most effective was the invasive fissure sealing technique, the results of which were 1.4 times better than the results of non-invasive sealing.

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