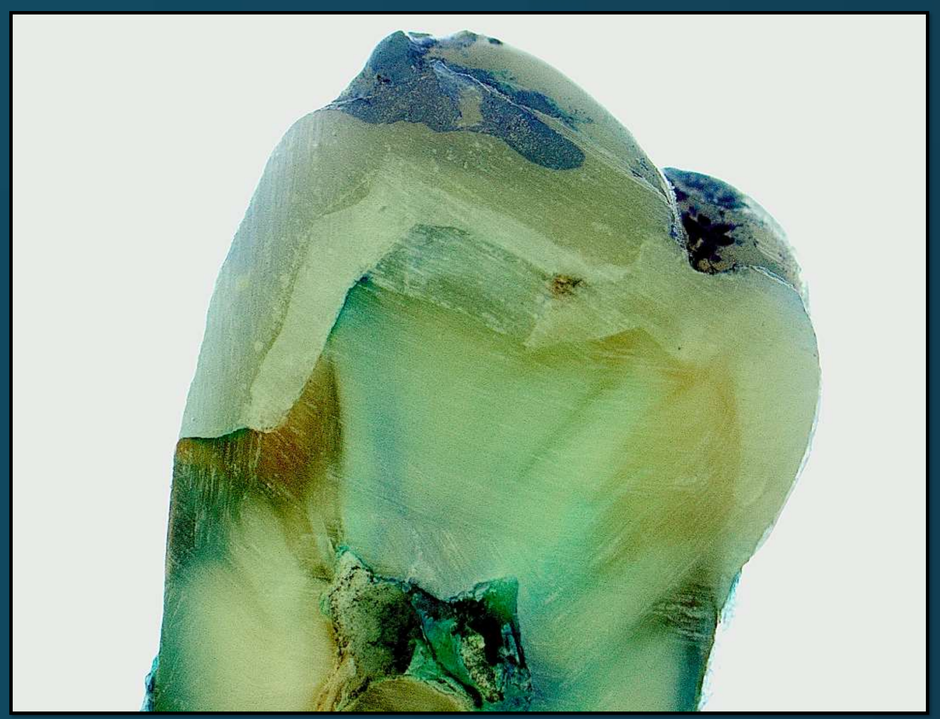
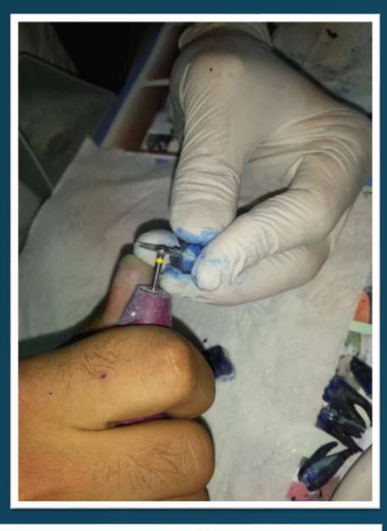
University “Goce Delcev” – Stip
Faculty of medical sciences, dental medicine

Approximal margin adaptation on class II – posterior interproximal cavity restored with open and closed sandwich technique

Nacevski Jane, Dimoski Hristijan, Kitanovski Stefan Kitanovski, Kovacevska Ivona, Denkova Natasa, Miteski Kiril

The sandwich technique is used for restoring class II caries where glass-ionomer cement is used as a liner under some composite restorations. There are two variations of the sandwich technique, the open sandwich and the closed sandwich technique. The open sandwich technique involves the placement of glass ionomer cement into the base of a proximal cavity and filling the preparation with glass ionomer up to the level of the dento-enamel junction. The final portion of the restoration is placed with composite resin to provide wear resistance and aesthetics on the occlusal surface. The closed sandwich technique involves placing the glass ionomer at the base of the proximal box so as it falls just short of the external cavo surface. After setting, the glass ionomer is etched and a dentine bonding agent is applied before placing a composite resin into the proximal box and occlusal surface, leaving the glass ionomer cement encased within the preparation.





AIM

The aim for this study was to proof the marginal adaptation on teeth restored with both open sandwich technique and closed sandwich technique. Where a good result indicates use of given technique in clinical practice, as a method of seconder caries prevention

Material and methods

In this study we will test the approximal margin adaptation on teeth restored using both open and closed sandwich techniques. On 30 extracted teeth we prepared class II cavities where 15 of them were restored using the closed and 15 using the open sandwich technique. The teeth around the margins of the restoration (the crown and root) were then isolated using varnish which is not permeable for methylene blue, then they were placed in a solution of methylene blue to check the micropermeability of the margins. In that solution the teeth were kept seven days and after that they were cut in longitudinal sections. Under microscope we checked the marginal adaptation of the teeth restored using closed and open sandwich technique i.e. if the margins on the longitudinal section were colored in blue.

Results

Total number of teeth / 30			
Open sandwich technique		Closed sandwich technique	
Good marginal adaptation	Bad marginal adaptation	Good marginal adaptation	Bad marginal adaptation
3 = 10% of all teeth	12 = 39,96% of all teeth	13 = 43,29% of all teeth	2 = 6,67% of all teeth

Conclusion

In out study we didn`t get the hoped results. The marginal adaptation on the open sandwich technique was very bad (in 39,96% of all teeth in the study, 79,92% of teeth restored with the open sandwich technique), only 3 teeth had good marginal adaptation. With the closed sandwich technique we got better results, namely 86,58% of teeth restored with the closed sandwich technique had good marginal adaptation and only 2 teeth had bad marginal adaptation. But for a certain result further studies must look into this matter.