Does Adhesion Provide Healthy Teeth?

Dear Reader,

It is well accepted scientifically that by sealing fissures, we are able to efficiently prevent occlusal caries. In clinical dentistry, the knowledge is well established and not challenged that marginal openings will be colonized with microorganisms, and therefore the risk of recurrent caries is greatly increased, not to mention the pulpal pathology involved with leaking restorations. This is the reason why adhesive techniques are mandatory with restorative technology today. We also seal the dentin of sensitive teeth in order to alleviate patients' pain and to prevent further destruction in the cervical area. Researchers are still looking along these lines for means of completely sealing all teeth in order to definitively eliminate caries.

Knowing this, we could say, yes: healthy teeth with adhesion. Yet what shall I do with a healthy tooth and a diseased periodontium? So maybe we should go in another direction and think about the causes of caries and periodontal disease. This was done more than 30 years ago by Axelsson and Lindhe. They knew that causal therapy is the best therapy, so they introduced individual prevention with the objective of implementing excellent plaque control in patients. This means that after a reconstruction, the patient is enrolled in a well-organized recall system, where, depending on his/her individual risk, he/she sees a dental hygienist between one and six times a year. At these appointments, not only the restorations are checked (30 years ago there were no good adhesives!), but also the status of oral hygiene. The patients are remotivated and re-instruction in oral hygiene techniques is given if needed. Then their teeth are professionally cleaned and fluoride is applied.

With such a regimen, the dental office is able to maintain oral health for years. This was shown very well in the classical study by Axelsson and Lindhe (Axelsson P, Lindhe J. Effect of controlled oral hygiene procedures on caries and periodontal diseases in adults. J Clin Periodontol 1981;8:239-248), where patients were fully reconstructed in 1972. Afterwards, they were split into two groups. The test group received a professional recall appointment as just described above 4x/year, while the patients of the control group were told just to see their local dentist for a checkup once a year. The results after 6 years were dramatic. While patients of the control group had accumulated many new restorations and lost a substantial amount of periodontal attachment, the test group remained virtually unchanged.

Meanwhile, the study population has been observed for over 30 years. In 1978, the control group was eliminated for ethical reasons. They were all given risk-related individual preventive care. From 1978 until 2002, 60% of the patients saw the dental hygienist once annually; 30% went twice a year, and only 10% of the patients required 3 to 4 visits a year. Of the initial 375 patients, 257 were checked after 30 years. Their age distribution in 3 groups was then as follows: group 1: 50 to 65 years old; group 2: 66 to 80 years old; and group 3: 81 to 95 years old. In 1972, the average number of teeth present per individual (all groups) was 25.7. After 30 years, they still had 25.1 teeth on average, which means that only 0.6 teeth per individual was lost over this time period. In other words, approximately every second patient lost just one tooth in 30 years!

What do we learn from these exciting results? Yes, with adhesive technology we can place almost perfect restorations, which perform the required functions, and there is no doubt that improvements are still possible which will lead to more reliable adhesives, enhancing the therapeutic arsenal. On the other hand, health must be provided by preventive care. A good dentist must always think in two ways: (1) Why is the patient sick, and which measures must be undertaken to prevent this in the future? and (2) How can I perfectly restore the existing damage and achieve excellent longevity? If both are done properly, our patients will have a brilliant dental future.

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