

SEALING OR RESTORING MANIFEST OCCLUSAL CARIES IN YOUNG PERMANENT TEETH – 5-YEAR RESULTS

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Aim: To investigate the possibility of treating manifest occlusal caries lesions with non-invasive sealants instead of conventional restorations.

Design: This prospective, randomized study is performed with two parallel treatment arms. It includes 521 occlusal caries lesions in 521 patients aged 6-17 years. All lesions were assessed to be in need of operative treatment based on clinical or radiographic assessment. The project was approved by the Ethics Committee. After randomization in the ratio of 2:1, 368 resin sealants and 153 composite resin restorations were carried out by 69 dentists from 2006 to 2009. Treatments were followed by annual clinical and radiographic controls. Chi-square tests were applied for statistical comparisons of sealings and restorations.

Results: With an average observation period of 5 years, the dropout rate was 6% and 15% of the patients were referred to private practice. Further 33% of the sealings were well-functioning, 16% were repaired/renewed and 30% replaced by restorations. Of the restorations 71% were well-functioning and 7% were repaired/replaced, which was significantly different compared with the sealant group ($p < 0.001$). Radiographic caries progression was recorded in 24% of the sealed teeth and 3% of the restored teeth ($p < 0.001$). The outcomes for sealed as well as restored lesions were furthermore influenced by factors related to the lesion, tooth and patient.

Conclusions: Although the restorations showed the best survival, the majority of the sealed lesions were successfully arrested during the 5 years follow-up indicating the possibility of extending the criteria for non-invasive sealing occlusal caries lesions in the young permanent dentition.