

A randomized controlled trial of using an intermediate bonding layer on the retention of sealants placed on pit and fissures enamel caries

Background

Dental sealants which apply on the pit and fissures carious lesions, also described as pit- fissures-caries sealing, is recommended to be effectively arrest the progression of noncavitated carious lesion. Retention is one of the important factors in evaluating the clinical success of the sealant.

Objective

To assess whether an adhesive bonding agent improve the retention of sealant placed on pit-and-fissures enamel caries.

Methodology

Forty children (mean age = 11.3 years) who had paired of permanent molars with pit-and-fissures enamel caries in the same ICDAS code and same location were recruited. The retention of sealants were reviewed in 6-month-interval by two blinded examiners ($Kappa = 0.80$) and analyzed by using McNemar's test.

Randomized split mouth design

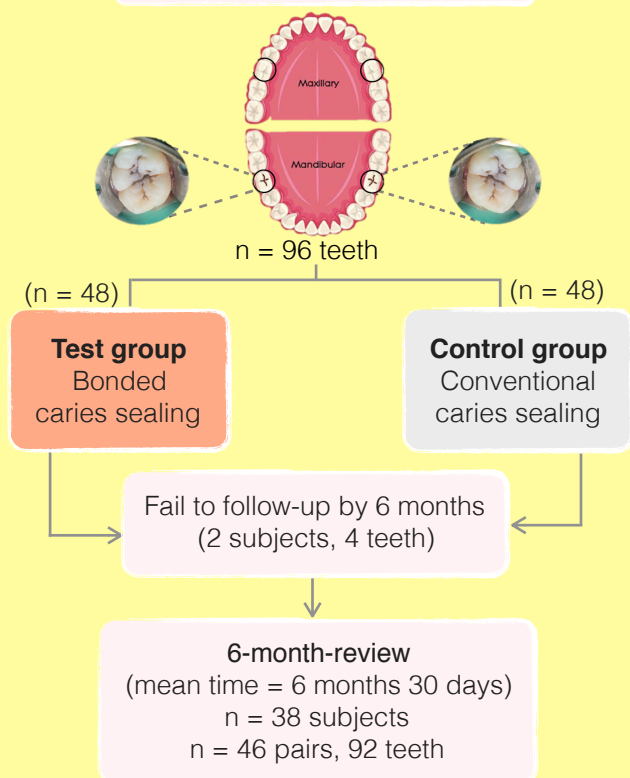


Figure 1 The study flow diagram.

Results

The differences in sealant retention between both groups were statistically significant ($p=0.00$).

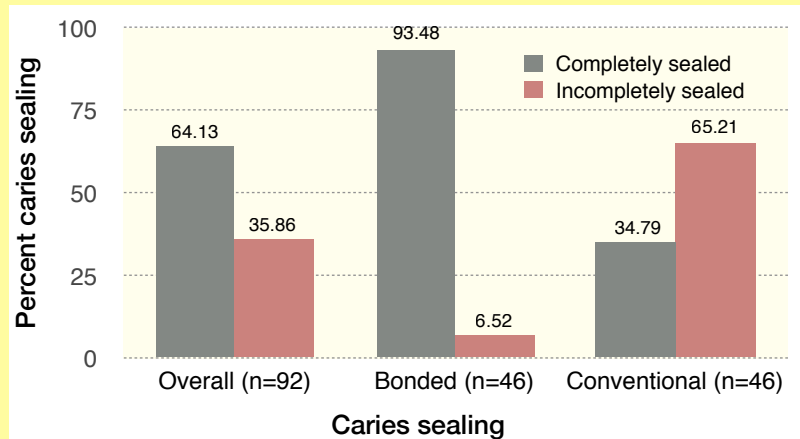


Figure 2 Percentage of sealant retention in overall caries sealing, bonded caries sealing, and conventional caries sealing.

	Conventional caries sealing		
Bonded caries sealing	Completely sealed	Incompletely sealed	Total
	(n)	(n)	
Completely sealed	16	27	43
Incompletely sealed	0	3	3
Total	16	30	46

Table 1 Retention of sealant placed on pit and fissure enamel caries between bonded caries sealing and conventional caries sealing.

Conclusions

The using of an ethanol-based bonding agent as intermediate adhesive layer of resin-based sealant placed on pit-and-fissures enamel caries seems to improve the sealant retention and showed significantly better retention than conventional technique at 6-months. Thus, a longer period of follow up should be performed and investigated.

Keywords: bonding agent, caries sealing, pit and fissure caries, retention, sealant