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Practice-based two-year evaluation of restorations placed with a self- etch adhesive

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INTRODUCTION

Self etch adhesives have the advantage of ease of use, with no need to wash off phosphoric and dry, but there have been suggestions that, with certain materials, selective enamel etching is desirable if restoration margin quality is to be optimised. This study therefore evaluates the in-practice performance of restorations, formed in Filtek Supreme XTE™ (3M ESPE, Seefeld, Germany), and placed in conjunction with the bonding agent, Adper Easy Bond (3M ESPE Seefeld, Germany), a self-etch dentine adhesive, with the restorations being placed in five dental practices by members of the PREP Panel - a practice-based research group in the UK and Ireland. This paper reports the initial two year evaluation of restorations.

METHOD

Each practice recruited sufficient patients to provide a minimum of 20 restorations per centre. The enamel margins of 50% of the restorations were etched with 35% phosphoric acid prior to application of the bonding agent, with the restorations which received the etching step being selected at random by drawing cards (etch or no selective etch). Restorations were evaluated at annual intervals, using modified USPHS criteria to assess anatomic form, margin integrity and discolouration, colour match and surface roughness.

RESULTS

49 restorations of mean age 23.1 months (range 20 – 26 months) in 34 patients (22 Female and 12 Male of mean age 53.7 years) have been examined by 27 Feb 2013. The restorations comprised of 12 Class I, 29 Class II, 2 Class III, 3 Class IV and 3 buccal veneers or Class V restorations, split between the selective etch group and the non etch group, as shown in Table 1.

66% (n= 16) of the restorations in posterior teeth involved the replacement of one or more cusps and 80% (n=39) were placed under rubber dam isolation. No secondary caries was detected. All of the restorations were rated optimal for colour match. No sensitivity was reported for the restorations reviewed to date at two-years.

Class of restoration	Selective etch	No etch	Total
I	8	4	12
II	15	14	29
III	2	0	2
IV	3	0	3
V/Veneer	2	1	3
Total	30	19	49

Table 1

The following tables present the USPHS assessments, with the one year data in parentheses.

Retention and lack of fracture

All the restorations were present and intact. (100%)

Margin Integrity

Selective etch	No etch	Overall
87% A (90%)	89% A (91%)	88% (91%)
13% B (10%)	11% B (9%)	12% (9%)

Marginal discolouration

Selective etch	No etch	Overall
80% A (88%)	58% A (76%)	71% (83%)
20% B (12%)	42% B (24%)	29% (17%)

Where the marginal discolouration score was not optimal an estimate (agreed by both examiners) was made of the percentage of margin discoloured.

Selective etch	No etch	Overall
4.7% (4.0%) (range (2– 10%)	8.1% (7.2%) (range 2 – 25%)	6.0% (6.0%) (range 2 – 25%)

Fig. 1 Restoration placed using selective enamel etch

Fig. 2 Restoration placed using self etch only

CONCLUSION

Within the limitations of the study, after two years of clinical service, restorations of Filtek Supreme XTE bonded with Adper Easy Bond, were found to be performing satisfactorily, with fewer of the restorations in the selective enamel etch group having marginal discolouration than in the self etch group

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