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Effect of sandblasting on shear bond strength composite resin veneer

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Abstrak

Efek sandblasting terhadap kekuatan rekat geser veneer indirek resin komposit. Perlekatan antara restorasi veneer indirek resin komposit (VIRK) dengan permukaan email diperoleh dari penggunaan resin semen multi-step (MS). Material self-adhesive dual-cured resin cement (SADRC) dengan satu tahap pemakaian mulai banyak diperkenalkan. Tujuan: Untuk mengetahui efek sandblasting (SB) terhadap kekuatan rekat geser VIRK pada email dengan menggunakan resin semen multi-step dan SADRC. Metode: Empat puluh spesimen yaitu bagian bukal email gigi premolar manusia, diratakan dan dipoles menggunakan silikon karbida. Spesimen VIRK dimasukkan dalam ruang Solidilite untuk penyinaran, kemudian dibagi menjadi 2 grup, tanpa sandblasting (n=20) dan dengan sandblasting selama 10 detik (n=20). Selanjutnya direkatkan pada email dengan menggunakan resin semen multi-step (n=10) dan SADRC (n=10). Setelah 2 jam disimpan dalam inkubator, kekuatan rekat geser spesimen diuji menggunakan Universal Mechanical Testing Machine. Data dianalisis statistik dengan uji one-way ANOVA. Hasil: Nilai rata-rata kekuatan rekat geser multi-step tanpa SB (18,95±7,80MPa) dan multi-step SB (19,30±8,21MPa) memiliki perbedaan bermakna dengan SADRC tanpa SB (4,85±2,12MPa) dan SADRC dengan SB (9,57±3,45MPa)(p<0,05). Simpulan: Sandblasting dapat meningkatkan kekuatan rekat geser VIRK pada email yang menggunakan resin semen multi-step dibandingkan dengan SADRC.

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Attachment between restoration and enamel surface in indirect resin composite veneer restoration (IRCV) is obtained using multi-step (MS) resin coment. Recently, a one step self-adhesive dual-cured resin coment (SADRC) was introduced. Objective: To determine the effect of sandblasting on shear bond strenght (SBS) of IRCV to enamel using MS resin coment and SADRC. Methods: Forty specimens of buccal surface of enamel human premolar were used. The specimens were flattened and polished using silicon carbide. IRCV cylindrical specimens were light-cured in Solidilite chamber and were divided into two groups: IRCV without sandblasting (n=20) and with sandblasting for 10 seconds (n=20) and then bonded to enamel using MS (n=10) and SADRC (n=10), respectively. After 24h SBS of specimens were tested using a Universal Testing machine. Data were analyzed statistically by one-way ANOVA. Results: The average SBS value of IRCV without SB and bonded with MS was 18.95±7.80MPa and MS with SB was 19.30±8.21MPa. They were differ significantly with SADRC without SB (4.85±2.12MPa) and SADRC with SB (9.57±3.45MPa)(p<0.05). Conclusion: Sandblasting significantly increased SBS VIRK to enamel using MS resin cement than SADRC.