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Comparative evaluation of the efficacy of laser and a chemomechanical agent on gingival retraction in maxillary anterior region in adult population – an in vivo study

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Abstract-

Aim – The aim of this study was to evaluate and compare the amount of lateral and vertical retraction achieved using a laser retraction system versus a new chemo-mechanical retraction system.

Methods: The study involved two maxillary anterior teeth in ten subjects, divided into two groups: in Group 1, 3M ESPE astringent retraction paste was used, while in Group 2, the Biolase EpicX diode laser was used for retraction. Intraoral scans were recorded before preparation and after retraction on both abutment teeth. The scans were superimposed using Siemens NX version 12.0 software, and measurements were recorded on the mesiobuccal, midbuccal, distobuccal, and midpalatal surfaces. Statistical analysis was performed using the Mann-Whitney U test.

Results: Based on the Mann-Whitney U test, Group 2 (the diode laser group) demonstrated greater lateral and vertical displacement compared to Group 1 (the astringent paste group). Furthermore, the amount of gingival retraction between Group 1 and Group 2 showed a statistically significant difference.

Conclusion: The diode laser retraction system produced more lateral and vertical displacement of the gingiva compared to the 3M ESPE astringent retraction paste.

Keywords: Gingival retraction; lateral displacement; vertical displacement; diode laser; 3M ESPE astringent retraction paste.

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