"QUANTITATIVE EVALUATION OF RETENTION OF CAST COBALT –CHROMIUM RING CLASPS REPAIRED USING DIFFERENT METHODS"

By

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ABSTRACT

Background and objectives: If a clasp on RPD is damaged or broken, the entire prosthesis may become unstable, lose retention, and becomes a source of discomfort to the patient. The purpose of this in vitro study is to evaluate the suitable soldering/ welding method that restores optimal retention of repaired ring clasps.

Methodology: A standardized mandibular metal molar die with mesial and distal rest seat is made to receive a ring clasp of the standardized design. This model is duplicated with refractory material on which 75 ring clasps were fabricated and cast and divided into 3 groups.

- Group A : The ring clasps were broken at the junction of the shoulder of the clasp and occlusal rest (n=30).
- Group B : The clasps were broken at the retentive terminal (n=30).
- Group C: Intact ring clasps (n=15).

The two main groups were divided into 4 subgroups based on the type of repair as AL, AG, BL and BG where L stands for laser welding and G stands for gas torch soldering. These repaired clasps were subjected for dislodging forces using universal testing machine.

Results: The intact ring clasps of group C showed highest retentive value with a mean of 15.1794± 1.7531 N. The retention loss in subgroup AL (8.36453± 2.00957) was less

compared to AG (11.75247±1.75800 N). In subgroup BL (12.47167± 2.06650N) the retention loss was almost similar to subgroup BG(13.91107± 1.17705N) .

Interpretation and conclusion: When the fracture site is at the junction of shoulder of the clasp and occlusal rest, then the repair results in better retention than the ring clasps which are repaired at the retentive terminal. Hence it is advised to repair the ring clasps when the fracture occurs at the junction of the shoulder and occlusal rest and to repeat the removable partial denture when the fracture occurs at the retentive terminal of the ring clasps.

Key words: Ring clasps; clasp retention; clasp repair; laser welding; gas torch soldering.