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**EVALUATION OF INTERFACIAL ADAPTATION BETWEEN VARIOUS TYPES OF FIBER
POSTS AND RESIN CEMENTS USING MICRO CT: AN IN VITRO COMPARATIVE STUDY**

Abstract:

Aim: The aim of this study was to evaluate the interfacial adaptation between different types of prefabricated fiber posts and different types of resin cement using Micro Computed Tomography (Micro CT).

Methods: Twenty-seven (n=27) removed premolars with same single root lengths were divided into (three) groups each of (n=9) according to type of fiber posts. Teeth were decorated, and placed in poly vinyl silicone frame, showing 2 mm of the crown. Teeth were exposed to endodontic restoration, and preparation of post space. Then, in accordance with the type of resin cement, the three groups were further separated into three subgroups (n=3). After post cementation, the specimens were subjected to Micro-CT and 3D reconstruction to evaluate and estimate the gaps at the line between the post and cement. Statistical analyses were be done using IBM SPSS Statistics version 20, and Two-Way ANOVA and Duncan's Multiple Range test were used to compare the results at 5% significant level.

Results: The study outlined a statistically significant difference at ($P \leq 0.05$) among groups regarding to gap formation in μm at the interface between fiber post and resin cement and group (F1C3: glass fiber post + TOTAL C-RAM) represent the highest gap volume formation (575.00 ± 32.71), while group (F3C1: everStick post + RelyX U200) represent the lowest gap volume formation (85.50 ± 21.09).

Conclusion: The interfacial adaptation between fiber post and resin cement can be affected by various kinds of resin cements and fiber posts used.

However, the gap develops between the cement and the internal canal wall, whereas the void was created when air became trapped within the cement itself. Micro-computed tomography (micro-CT) consider as less destructive method that can be used for in vitro evaluation the gaps and voids formation at interfaces of fiber posts cemented inside the root canals, by using a three-dimensional (3D) view [9]. Therefore, the study's primary goal was to use Micro CT to assess the gap creation at the interface between several types of fiber posts and resin cements.

Materials and Methods.

Ethical Approval: Before starting the investigation, an ethical approval was received from the Research Ethics Committee at the Faculty of Dentistry, Mosul University, Iraq, at clearance number (REC reference no. UoM.Dent/H.DM.2/23 on December 1, 2019). This is because the research study used extracted human teeth