4th International Conference on
Prosthodontics
April 19, 2022 | Webinar

Received Date: 07 December, 2021 | Accepted Date: 10 December, 2021 | Published Date: 09 May, 2022

Comparison of internal and marginal fit of PMMA 3-unit interim prosthesis fabricated with milling and 3D printing

Ahmadreza Moradi
Tehran university of medical science, Iran

As an important part of clinical fixed prosthodontics, interim (provisional, temporary) restoration is indicated during the period of time between tooth preparation and the final restoration cementation. The major advantage of interim restorations is gingival and pulpal tissues protection. Interim prostheses are fabricated either directly in a dental clinic or indirectly in a laboratory. These prostheses can be made by CAD/CAM system in two ways: subtractive and additive. CAD/CAM milling is a subtractive method by which different shapes are cut from a block or disk. 3D printing is an additive method through which geometric shapes are designed and formed layer by layer. Fitness, durability, aesthetics, mechanical stability, and health of the surrounding tissues are among the factors that play a crucial role in the success rate of manufacturing fixed dental prostheses. Absence of any of these factors can lead to various outcomes. In their study, Alharbi et al. reported that restorations made by 3D printing had a lower gap in all regions compared with those made by milling. Moreover, they stated that internal and marginal gaps was significantly influenced by the method of fabrication. However, Lee et al. reported no statistically significant difference between milling and 3D printing in the internal fit of crowns. Recent studies reported that restorations made by 3D printing had a lower gap in all regions compared with those made by milling. Moreover, they stated that internal and marginal gaps was significantly influenced by the method of fabrication. This study aimed to compare the internal and marginal fit of polymethylmethacrylate (PMMA) 3-unit interim prosthesis fabricated with milling and 3D printing. According to results in this study, fabrication method had a statistically significant effect on marginal, occlusoaxial, and occlusal gap. Therefore, clinicians are recommended to indicate PMMA interim crowns made by 3D printing with 50 microns thickness. However, it is noteworthy that the marginal and internal gaps of interim crowns made by milling fell in the accepted range, but were larger compared with those of interim crowns made by 3D printing.

Recent Publication

1. Wu J, Xie H, Sadr A, Chung KH. Evaluation of Internal Fit and Marginal Adaptation of Provisional Crowns Fabricated with Three Different Techniques. Sensors (Basel). 2021 Jan 22;21(3):740.
2. Peng CC, Chung KH, Yau HT, Ramos V Jr. Assessment of the internal fit and marginal integrity of interim crowns made by different manufacturing methods. J Prosthet Dent. 2020 Mar;123(3):514-522.
3. Homsy FR, Özcan M, Khoury M, Majzoub ZAK. Marginal and internal fit of pressed lithium disilicate inlays fabricated with milling, 3D printing, and conventional technologies. J Prosthet Dent.

moradi1376@yahoo.com