

عنوان مقاله:

The Comparison of Vertical Margin Discrepancy in Casting Fabricated With Metal Ring, Ringless and Metal Ring With Hygroscopic Expansion Investment Systems

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نویسندگان:

Mahmood Sabouhi
Morad Hedayatipanah

خلاصه مقاله:

Background: The use of casting ring to produce accurate casting has been challenged with the introduction of a ringless casting technique. This study compared the vertical margin discrepancy of castings fabricated with the ringless technique, conventional (ring and liner) technique and conventional technique with hygroscopic expansion investment systems. Objectives: The current study aimed to determine and compare the mean values of vertical margin discrepancies of castings in three investing procedures: the ringless technique and conventional investing technique. Materials and Methods: In the first step, ۳۹ coping wax patterns for Porcelain fused to metal restoration (P.F.M). With chamfer finish line were fabricated on the metal die and then divided into three groups of ۱۳. The first group used conventional investing (with ring and liner), the second group used the ringless technique and the third group used the conventional ring technique with liner and hygroscopic expansion. All groups were invested using Thermovest phosphate bonded investment. Then wax patterns were cast with Ni-Cr alloy (super cast). Castings were divested, cleaned and seated on the metal die after minimal internal surface adjustment. The vertical margin discrepancy was measured in four sites: on the buccal, lingual, mesial and distal surfaces of the die. Castings were measured on an optical microscope. The vertical margin discrepancy in each group was used for statistical analysis. Results: After statistical evaluation, the following results were obtained: the mean vertical margin discrepancy for conventional investing was $156.72 \pm 64.67\mu$; for the ringless technique it was $117.3 \pm 26.77\mu$; and for the conventional metal ring technique with hygroscopic expansion it was $96.15 \pm 38.31 \mu$. There is a significant difference between castings of the conventional investing technique and the ringless and ring plus hygroscopic expansion techniques ($P < 0.001$). No significant difference was found between the ringless and ring plus hygroscopic expansion techniques ($P = 0.183$). Conclusions: The castings fabricated from the ringless technique with non-precious alloy are acceptable. This investing system is useable for the fabrication of fixed restorations.

کلمات کلیدی:

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