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RESEARCH ARTICLE

RELIABILITY OF REPLICA IMPRESSION TECHNIQUE.

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Abstract

The aim of the present study was to evaluate the reliability of the replica impression technique using an all ceramic crown. The light body (President, Coltene Whaledent Pvt. Ltd. Switzerland) was used to cement an all ceramic crown on the epoxy die and evaluate the marginal and internal fit of the ceramic crown. The marginal and internal fit of the all ceramic crown was measured at varying points. The mean internal silicone film thickness was found to be 120 +/- 27microns. The range of the marginal sealing discrepancy was found to be greatest at the lingual margin of 57 microns. The replica impression technique is a very useful method to evaluate internal fit of an all ceramic crown.

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Introduction:-

Replica impression technique is being commonly used for evaluating marginal seal and internal fit of all ceramic crowns and fixed dental prosthesis. The technique is non-destructive, suitable for clinical use and requires easily available, non-expensive materials and easy to manipulate.

The working hypothesis is that the technique is reliable giving little or no variation of marginal and internal fit.

Materials and methods:-

1. The mandibular resin tooth of Fraesaco model is prepared to receive zirconia crown.
2. The impression of the preparation is made with putty wash impression technique.
3. The impression is poured in type III gypsum product that is high strength die stone to fabricate casts for scanning.
4. The casts are duplicated with low shrinkage epoxy resin to act as fit check.
5. The zirconia crown is made with computer aided design/ computer assisted milling (CAD/CAM) technology.
6. The zirconia crown is loaded with light body of addition silicone impression material (President, Coltene Whaledent Pvt. Ltd. Switzerland) and placed on the epoxy-resin die with 20N force.
7. Thus, the silicone replica formed represents the cement space.
8. Then, the silicone replica was cut in mid buccolingual direction and the silicone sections were measured at buccal and lingual margins, mid buccal and lingual axial surfaces, bucco-occlusal and linguo-occlusal line angles and mid occlusal surface with microscope.

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9. The same operator repeated 20 times the cemental space impression of zirconia crown on the epoxy die with light body of addition silicone impression material.

Results:-

Total of 280 points were measured. The mean internal silicone film thickness was found to be 120 +/- 27 microns. The range of the marginal sealing discrepancy was found to be greatest at the lingual margin of 57 microns.

Discussion:-

In this study, replica impression technique produced variations. The greatest variation found at the lingual marginal points can be used for comparison with other studies using different techniques.

Conclusion:-

Within limitations of the present in vitro study, it can be concluded that the replica impression technique is a very useful method to evaluate internal fit of an all ceramic crown.

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