

Consideration of marginal adaptation in ceramic restoration using Cerec 3

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I. Introduction

Cerec system may be an appropriate tool to treat a patient with esthetic desire who is in need of indirect restoration and wants it to be done in a single visit.

However, disadvantage of Cerec 3 system is inaccuracy of marginal fit. It was reported that the mean marginal gap of Cerec restorations was between 91 and 105 μ m in the recent study. Although these findings are far from the theoretically based requirements according to which the cementation film thickness should be between 25 to 40 μ m, most authors agree that marginal openings of 120 μ m seem to be accepted in the clinical range with regard to longevity. But lack of adequate fit is potentially detrimental to both the tooth and the supporting periodontal tissue due to cement solubility and plaque retention.

The following cases present Cerec 3 (Sirona Dental Systems GmbH, Bensheim, Germany) inlay and onlay in a single appointment. Marginal gap of each restoration was measured by replica technique *in vitro*

II. Case Presentation

<Case I>

1. Sex/age: 26/F
2. Chief Complaint (C.C): replacement of old amalgam restoration with esthetic restoration
3. Past Dental History (PDH): amalgam restoration on #24 10 yrs ago
4. Present Illness (P.I): ill-fit margin of amalgam restoration on #24
5. Impression: secondary caries on #24
6. Tx. Plan: Cerec inlay on #24

<Case II>

1. Sex/age: 25/F
2. Chief Complaint (C.C): decayed tooth
3. Past Dental History (PDH): N/S
4. Present Illness (P.I): distal surface carious lesion on #35
5. Impression: caries lesion on #35
6. Tx. Plan: Cerec inlay on #35

<Case III>

1. Sex/age: 26/M
2. Chief Complaint (C.C): replacement of old amalgam restoration with esthetic restoration
3. Past Dental History (PDH): amalgam restoration on #36 9 yrs ago
4. Present Illness (P.I): fracture of amalgam restoration on #36
5. Impression: secondary caries on #36
6. Tx. Plan: Cerec onlay on #36

III. Conclusion

Mean marginal gap was between 32 and 471 μ m

Although these restorations were not fulfilled the theoretically based marginal gap, luting space greater than 100 μ m was partially compensated by the hybrid composite resin with ultrasonic insertion techniques.

Extensive knowledge of adhesive bonding and appropriate planning are essential for the successful integration of CAD/CAM restorations.