

The Occlusal Stamp Technique: A Case Series

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Abstract: Even small occlusal changes after direct restoration are uncomfortable for the patient because the receptive organs of the jawbone system react sensitively to pressure. Ultimately, the patient compensates by adapting to the new conventional occlusal position, which leads to serious long-term craniofacial disturbances. The provided occlusal stamp technique is an easy-to-implement procedure that effectively and efficiently reconstructs the occlusal topography for direct composite resin restorations.

Keywords: Composite restoration, stamp technique, occlusal anatomy.

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I. Introduction

Nowadays age-old amalgam restoration is replaced by posterior composite restoration. This is because of mercury related health hazards and non-esthetic appearance (1). Another contributing factor for more use of composite resin restoration is the introduction of minimally invasive restoration procedures which stress on the conservation of sound tooth structure and use of adhesive materials (1). Posterior composite resin restorations are progressing towards an era of Bio-mimetic dentistry that means mimicking nature (2). Although composite restorations are gaining popularity among dentists, the production of aesthetic direct composite restorations requires the experience and skill of an excellent performer (3) In direct composite restoration it is difficult to achieve cusp-fossa relationship of teeth and creating occlusal harmony is a challenge for both operator's skill as well as precious clinical time. Time required for final polishing and adjustments is all the more as compared to amalgam restoration. To accurately reproduce tooth shape, occlusion and new aesthetic technique, the occlusal stamp technique was introduced by Dr. Waseem Riaz (3).

This new technique of stamp includes fabrication of an index before the cavity preparation. It can be used in cases where there is no frank cavitation or loss of tooth structure. This index is later pressed against final composite increment before curing and its positive replica is obtained. The pre-existing condition is mimicked with an advantage of reduced time required for removal of excess and polishing of restorations (4).

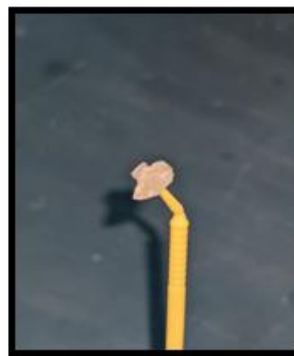
II. Case Report 1

A 27-year-old female reported to the Department of Conservative Dentistry and Endodontics, GDC Aurangabad complaining of mild sensitivity to cold and sweet in lower left back region of jaw. Oral examination revealed class I caries on tooth with respect to 36. After thorough analysis, it was decided to restore 36 using occlusal stamp technique.

Application of separating medium (vaseline) on the tooth surface was done using a brush. A stamp was made with application of flowable composite on the intact occlusal surface of tooth. The occlusal stamp was fabricated using a microbrush which was placed into the flowable composite and cured, which was further used to act as a guide to replicate the occlusal anatomy.



Pre-operative view with respect to tooth number 36 (Figure 1)



Occlusal stamp fabrication (Figure 2)



Class I cavity preparation with respect to 36 (Figure 3)



Acid etching with 37% phosphoric acid and rinsing (Figure 4)



Application of bonding agent and curing (Figure 5)



Placement of final increment with stamp in place separated by Teflon tape (Figure 6)



After final finishing and polishing
(Figure 7)



Pre-operative view
(Figure 8)



Post-operative view
(Figure 9)

Cavity preparation was initiated on the tooth. After caries removal the restorative process with composite restoration was initiated. Acid etching was done using 37% phosphoric acid. After rinsing and partially drying the tooth, bonding agent was applied according to manufacturer's instructions and cured. Incremental restoration of composite in the cavity up to 2mm shorter than the occlusal surface and light curing for 40 seconds was done. The last layer of composite was added and before curing, a small piece of Teflon tape was placed on the occlusal surface. Then the microbrush occlusal stamp was sealed in place over the tape and later it was removed. The excess material was removed and polymerization of composite was done. Finishing and polishing of the restoration was done.

III. Case Report 2

A 23-year-old male reported to the Department of Conservative Dentistry and Endodontics, GDC Aurangabad complaining of food lodgment in lower left back region of jaw. Oral examination revealed class I caries on tooth with respect to 36. After thorough analysis, it was decided to restore 36 using occlusal stamp technique. The same procedure was followed as described in Case 1.



Pre-operative view
(Figure 10)



Post-operative view
(Figure 11)

IV. Case Report 3

A 28-year-old male reported to the Department of Conservative Dentistry and Endodontics, GDC, Aurangabad complaining of decay in lower left back region of jaw. Oral examination revealed class I caries on tooth with respect to 37. Further, it was decided to restore 37 using the occlusal stamp technique. The same procedure was followed as described in Case 1.



Pre-operative view
(Figure 12)



Post-operative view
(Figure 13)

V. Discussion

The goal of any restoration is to restore function and normal appearance to promote patient compliance and acceptance of dental treatment. This case helps in achieving the above goal and maintains a harmonious cusp fossa relation to the antagonist and adjacent teeth. This technique is indicated in conditions where the tooth structure is intact and caries beneath (class I and class II and class I compound) and proximally carious endodontically involved teeth with absolutely intact occlusal topography (4). In this technique stamp is prepared by using flowable composite with low viscosity and incremental placement of composite restoration helps in less polymerization shrinkage. Teflon tape is used with stamp technique which needs to be removed before final curing of composite resin. The advantage of this technique is that it is a faster procedure and less time is required to achieve proper cusp fossa relationship, material consumption is less, no special instruments are required and also this technique replicates original occlusal anatomy. Secondly, degree of voids in final restoration is also reduced and helps in excluding oxygen from the top layer of composite and thus prevents its polymerization inhibiting effect (8). While the limitation of the technique is that the index is of less clinical efficacy for restoration failure management cases and possibility of stick falling off the stamp can pose a threat for aspiration or choking.

VI. Conclusion

The occlusal stamp technique is a new, simple, biomimetic procedure with quick results. This is an easy procedure that reconstructs the correct occlusal anatomy with proper cusp fossa relationship.

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