

Direct Posterior Composite Restoration by Using Stamp Technique: A Case report

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Abstract

Stamp technique is a new, unique and simple method to restore carious teeth with intact occlusal anatomy with composite restoration. It duplicate the occlusal anatomy with near perfection. This technique can be used in preoperative carious teeth having intact anatomy and not much destructed due to carious lesion. In this technique

an occlusal matrix is fabricated from an unhindered occlusal surface of tooth with an intention to reproduce precise tooth like restoration. So that it helps in regaining the original contact and contour of the tooth with an accurate functional occlusion. This procedure takes less time with more accuracy and also the time required for finishing and polishing is minimized.

Keywords: Composite restoration, stamp technique, occlusal anatomy.

Date of Submission: 16-11-2020

Date of Acceptance: 02-12-2020

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 become popular among dentists, crafting esthetic direct posterior composite restoration requires experience and excellent operator's dexterity (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. For precise production of tooth form, occlusion and esthetic newer technique that is Stamp technique was introduced by Dr. Waseem Riaz (3).

This new technique of stamp includes fabrication of an index before the cavity preparation which can be considered as a mini impression of the occlusal topography. 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 preexisting condition is mimicked with an advantage of reduced time required for removal of excess and polishing of restorations (4).

II. Case report

A 23 year old male reported to the clinic complaining of mild sensitivity to cold and sweet in upper left back region of jaw. Oral examination revealed class 1 caries on tooth 26. After thorough analysis, it was decided to restore 26 using stamp technique (Figure 1) Application of separating medium (vasline) on the tooth surface using a brush. A stamp was made with application of flowable composite (on the intact occlusal of tooth. A tip of microbrush was cut which acted as handle and immersed into composite followed by polymerization through light curing for making the stamp (figure 2). Curing light was applied for 15 seconds. The cured index was

removed from tooth surface and kept aside for later use (figures 3).



figure1: pre-operative view



figure2: fabrication of stamp

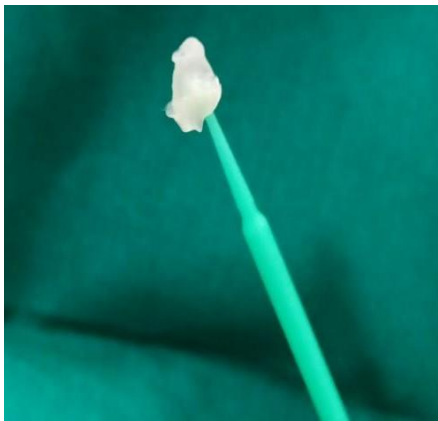


figure 3: occlusal stamp made using microbrush stamp technique



Figure 4: after cavity preparation

Cavity preparation was initiated on the tooth (Figure 4). After caries removal the restorative process with composite restoration was initiated. Acid etching was done using 37% phosphoric acid (Figure 5). After rinsing and partially drying the tooth, bonding agent was applied according to manufacturer's instruction and cured. Incremental restoration of composite was done in the cavity up to 2mm lower the occlusal surface and light curing for 20 seconds. 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 (figure 6) and later it was removed. The excess material was removed and polymerization of composite was done (figure 7). Minimal finishing and polishing was done.



Figure 5: acid etching with 37% phosphoric acid



Figure 6: placement of final increment with stamp in place separated by teflon tape



Figure 7: After final finishing

III. Discussion

The goal of any restoration is to restore the normal function and form which promote patient's compliance and acceptance towards 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. However, cling film can also be used instead of Teflon tape which does not require removal before final restoration (7).

The advantage of this technique is that it is faster procedure and less time required to achieve proper cusp fossa relationship, material consumption is less, no special instruments is 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 disadvantage of technique is that the index is of less clinical efficacy for restoration failure management cases and Possibility of stick falling off the stamp and can pose a threat for aspiration or choking.

IV. Conclusion

The stamp technique is novel, simple, biomimetic procedure and requires less time to do. It is an easy to follow procedure and recreate accurate occlusal anatomy with proper cusp fossa relation.

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Dr. Radhika S. Rathi, et. al. "Direct Posterior Composite Restoration by Using Stamp Technique: A Case report." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(11), 2020, pp. 53-57.