



**Case Report**

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## Stamp technique- A novel approach in pediatric restorative dentistry

*Binish Iftikhar<sup>1</sup>, Sanjay Chachra<sup>2</sup>, Gurpreet Kour<sup>3</sup>, Abhishek Dhindsa<sup>4</sup>, Manu Sharma<sup>3</sup>, Ambreena Khurshid<sup>1</sup>*

*1 MDS Student, Department of Paedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College Barwala, Golpura-134118, Haryana, India*

*2 Professor and Head, Department of Paedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College Barwala, Golpura-134118, Haryana, India*

*3 Senior Lecturer, Department of Paedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College Barwala, Golpura-134118, Haryana, India*

*4 Professor, Department of Paedodontics and Preventive Dentistry, Swami Devi Dyal Hospital and Dental College Barwala, Golpura-134118, Haryana, India*

### Abstract

Stamp technique is new and novel method for restoring mainly class I and sometimes class II with accurate occlusal topography with near perfection. Since proprioceptors of stomatognathic system react sensibly under pressure as such occlusal discrepancy after direct restorations, even if it is minor, leads to discomfort to the patients. Eventually patients compensate by adapting to new habitual occlusal position, which causes serious long term craniomandibular disturbances. The restoration of Class I cavities and erosively damaged teeth was the main consideration for Stamp technique but can be utilized for class II cavity restorations where marginal ridge is intact. This technique is possible in teeth where preoperative anatomy of the tooth is intact and not destructed by carious lesion. The stamp technique is performed in order to get a precise tooth-like restoration with an accurate functional occlusion. This case report presents a case of stamp technique for simple class I composite restoration. The intent was to replicate occlusal anatomy by making a copy of the original unprepared tooth structure to get absolute anatomy in few minutes.

**Keywords:** Stamp technique, Occlusion, Occlusal topography, Tooth like restoration.

### INTRODUCTION

An exponential progression in dentistry has occurred in the second decade of the new millennium be it from extractions to functional restorations, to finally, the era of 'bio-mimetic dentistry'. 'Bio-mimetic' literally means mimicking nature. Extraordinary esthetics are only getting better with introduction of newer techniques and refinement of old ones [1]. Also the older principle of extension for prevention is now being replaced by minimal invasive dentistry which is dependent on conservation of sound tooth structure. Although composite restorations have become popular among dentists, experience and excellent operator's dexterity are required for crafting an esthetic direct composite restoration. Direct restorations may be technique sensitive and not necessarily result in precise reproduction of tooth form and occlusion, time needed for finishing and polishing of the restoration is double compared with the amalgam restoration. With the aim to achieve an amalgamation of function and esthetic, a newer technique that is Stamp technique was introduced by Dr. Waseem Riaz [2]. This technique consists of fabricating an occlusal matrix that mimics the natural occlusal anatomy of posterior teeth, before cavity preparation takes place. This matrix is then pressed against the final composite increment before curing takes place and its positive replica is obtained. This technique is suitable in cases where caries is evident during the clinical examination or routine radiographic examination of teeth with intact marginal ridges and ideal occlusal anatomy. In posterior teeth, instead of caries exceeding the dentino-enamel junction in terms of depth, primary carious lesions may have an intact occlusal morphology and as such, the literature depicts a restoration technique using an occlusal stamp that can mimic the original tooth morphology by using the already existing clinical condition before the complete destruction of tooth surface thereby reducing the time required for the removal of excess and polishing of restorations.

### CASE REPORT

A 13 Years old male patient reported to the dental hospital for orthodontic correction. On clinical

\*Corresponding author:

**Dr. Binish Iftikhar**

Girls Hostel 3, Swami Devi Dyal  
Hospital and Dental College,  
Barwala, Golpura-134118,  
Haryana, India

Email: biftikhar37@gmail.com

examination occlusal caries without gross destruction was detected wrt 46 (Fig 1). Caries was large without involving marginal ridge. The cavitated tooth to be restored was isolated under rubber dam followed by application of single coat of petroleum jelly\ Vaseline on occlusal surface using a brush. An occlusal stamp was made with application of flowable composite

(Ivoclar Vivadent) on the intact occlusal surface of the tooth and a tip of microbrush was cut which acted as a handle and immersed into composite(Fig 2). This was followed by polymerization through light curing for making the stamp (Fig 3). Caries lesion was removed

completely (Fig 4) and a class I cavity was prepared (Fig 5). Bonding agent (Tetric N Bond, Ivoclar vivadent) was applied and light cured for 20 seconds (Fig 6 and 7). Incremental restoration of composite (Tetric N ceram, Ivoclar vivadent) was done in the cavity upto 1mm lower the occlusal surface and light curing for 20 seconds. The last layer of composite was added and before curing, a piece of Teflon tape was laid on the occlusal surface . Then the microbrush occlusal stamp was sealed in place over the tape (Fig 8) and later it was removed. The excess material was removed and polymerization of composite was done. Minimal finishing and polishing was done.



Fig 1: Pre-operative image

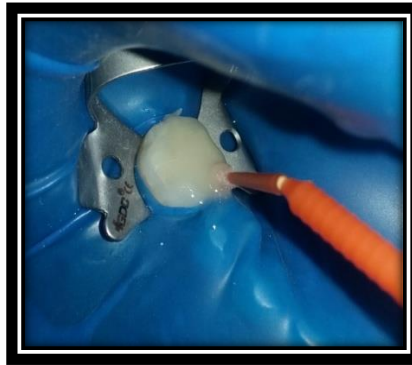


Fig 2: Flowable composite with brush



Fig 3: Occlusal stamp



Fig 4: Cavity preparation

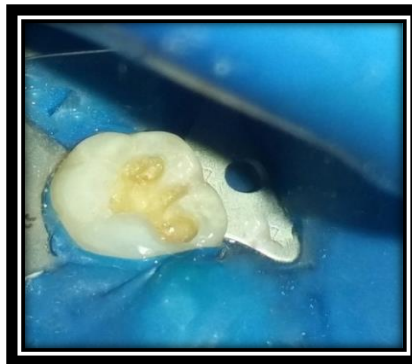


Fig 5: Class 1 cavity



Fig 6: Application of bonding agent



Fig 7: Pre-operative ima Curing of bonding

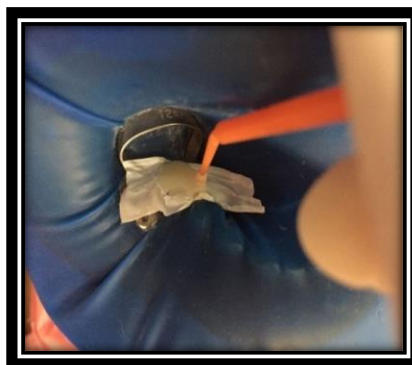


Fig 8: Placement of stamp



Fig 9: Final composite restoration

## DISCUSSION

In posterior teeth, in spite of undermining at the dentino-enamel junction primary carious lesions may present an intact occlusal morphology [3]. With little or no damage to the enamel, there is destruction of the dentin underneath. In order to reach the necrotized dentin, a sufficient amount of healthy enamel has to be removed. Thus, here lies the concept of using a composite stamp before the operative procedure. Main aim of the any restoration is to restore form and

function [4]. The restoration of actual topography of tooth surfaces will definitely promote patient's compliance and acceptance toward dental treatment. This case describes a simple technique to obtain a good surface finish and actual anatomy of the direct posterior composite with minimal time required using the stamp technique with flowable composite.

The stamp technique procedures for restoration of Class I cavities are very simple and possible. The flowable composite can be applied on the

occlusal surface without the need of isolation agent. However, in the presence of deep pits and fissures, using the isolation agent is recommended. In such condition, the isolative material fills the pits and fissures and does not allow the subsequent flowable composite to flux inside<sup>[5]</sup>. This leads to the more proper continuous surface of the final restoration as such extremely air spray should be bypassed while spreading the isolation agent on the tooth surface. In the present case, the material used to fabricate stamp was flowable composite, however many materials can be used like gingival barrier, pit and fissure sealant, transparent acrylic resin. To make this technique more cost effective one can use expired flowable composite or transparent acrylic resin<sup>[4]</sup>.

The correct occlusal anatomy of a filling leads to a functional restoration and avoids the primary occlusal trauma. To overcome the main disadvantage of polymerization shrinkage seen with composite restorations, it has to be done using incremental layer technique and to replicate the natural anatomy of occlusal surface, stamp is used in final layer before which Teflon tape was placed as a barrier material. Instead of Teflon cling film can also be used. There is no need to remove the cling film as we can cure through it.

Every technique has its pros and cons. The most underline pro is the reduced overall time once skill is mastered as the post-restoration finishing time is decreased due to desired good cusp-fossa relationship. This is a boon for the busy practitioners and helps improve their reputation amongst patients. Also, the degree of porosities present in the final restoration is considerably reduced due to the fact that the stamp matrix exerts pressure on the composite, thereby decreasing formation of micro bubbles as well as interference of oxygen with polymerization of the final layer of composite. These factors are major determinants for long-term success of composite restorations.

A relative con is that this technique requires skill and clinical acumen in order to be correctly performed<sup>[6]</sup>. Even though this technique has been used for Class-II cavities, majority of cases where pre-operative anatomy is preserved is of pit and fissure caries i.e. Class-I cavities are more preferred. As flowable composite is usually preferred in this technique, decreased strength is expected. Therefore, cases which are indicated for this technique should be selected.

With the minimal time required for finishing to obtain a good fossa-cusp relationship with the opposing dentition, stamp methods are suitable in a busy practice dealing with many patients<sup>[7]</sup>. Dentists are able to concentrate their office time with more complex cases and can increase her/his reputation.

## CONCLUSION

The stamp technique is the best technique which enables an easy way for the restoration of Class I and class II restorations with near to natural topography with least post restoration adjustments and less time.

## Conflict of Interest

The author reports no conflicts of interest.

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