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# Elevating the occlusal anatomy-composite restoration with stamp technique

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**Abstract**
The purpose of restoration is to bring the tooth to its normal form, function and esthetics. Composite Restorations are preferred because of their esthetic property and bonding ability to tooth structure. Cusp by cusp buildup in composite restoration is time consuming and depends on the skill of the clinician for achieving good results. Stamp technique for posterior composite restoration is a method for replicating the occlusal anatomy with near perfection. This technique is indicated when occlusal anatomy of the tooth is not lost due to carious lesion. This case report demonstrates a class I composite restoration with stamp technique.

**Keywords:** Composite, posterior restoration, stamp technique

## Introduction
The ultimate goal of restoration is to bring the tooth to its proper form function and esthetics. In the last decade there has been a shift in the field of restorative dentistry, giving rise to an era of "biomimetic" dentistry which focuses on emulating nature. The purpose of biomimetic restoration is to form a perfect seal between the tooth and restoration to achieve functional and esthetic harmony [1]. Direct composite restorations are popular due to their esthetic property and bonding ability to tooth structure [2]. Despite the widespread use of composite for posterior restorations, achieving a harmonious occlusal and cusp fossa relationship is quite challenging. Accurate replication of the tooth's original anatomy requires excellent operator skill and is time consuming at the same time [3, 5]. Moreover, the time required to finish a composite restoration is double as compared to amalgam restoration [4]. A London based practitioner Dr. Waseem Riaz introduced a new method known as "stamp technique" to overcome the problem of occlusal anatomic replication in direct composite restoration. This method suggests taking a mold from occlusal structure of tooth before cavity preparation. It is suitable for cases where the integrity of the occlusal surface is intact [6].

## Case report
A 21 year old female patient presented with a complaint of brownish discoloration in lower left back tooth. On clinical examination Pit and fissure caries were detected in relation to 36 with an intact occlusal surface (Figure 1).
Since there was no significant cavitation, composite restoration with the help of occlusal stamp was suggested. Patient was informed about the same and consent was obtained. Shade selection was done and tooth was isolated under rubber dam (Coltene, Switzerland) (Figure 2). Flowable composite (Te- Econom Flow, Ivoclar Vivadent, Liechtenstein) was placed over the occlusal surface and light cured for 20 seconds an occlusal stamp was obtained with the help of the applicator tip (Figure 3 and 4). Cavity preparation was done with a round bur (Mani, BR46, Japan) and remaining caries, if any was confirmed with caries detector dye (Figure 5).
Selective etching of enamel with 37% phosphoric acid gel (Eco-etch Ivoclar, Liechtenstein) was done and cavity was rinsed and dried followed by bonding agent application (Te-Econom Bond,Ivoclar Vivadent, Liechtenstein) (Figure 6 and 7). Cavity was then restored with composite resin (Te-Econom,Ivoclar Vivadent, Liechtenstein) in increments and light cured leaving 1mm for last increment.

After the placement of the last increment of the composite, the occlusal surface was covered with Teflon tape (Figure8) and stamp was placed on the tape with gentle pressure to replicate the occlusal anatomy and light cured for 20 seconds (Figure 9)

To mimic the morphology more accurately, brown stain was applied in the grooves and finishing and polishing was done with composite finishing and polishing kit (Eve Diacomp) (Figure 10).

## Figures

**Fig 1:** Pre-operative photograph showin decayed tooth wrt 36

**Fig 2:** Tooth under rubber dam isolation

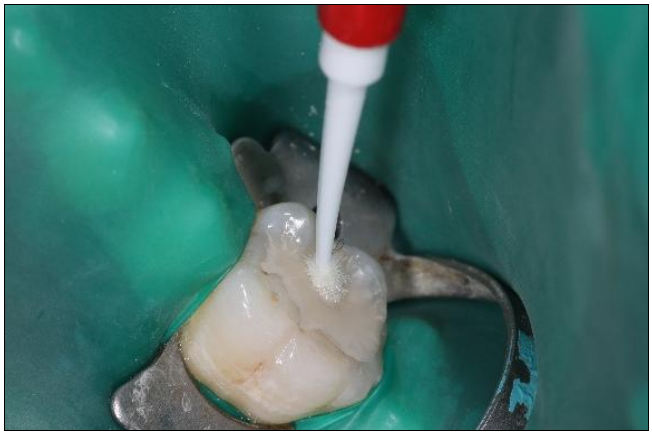

**Fig 3:** Obtaining occlusal stamp with the help of flowable composite and microbrush

**Fig 4:** Occlusal stamp

**Fig 5:** Prepared occlusal cavity with caries detecting dye

**Fig 6:** Selective etching

**Fig 7:** Bonding agent application

**Fig 8:** Composite restoration covered with teflon

**Fig 9:** Replicating anatomy with the help of occlusal stamp

**Fig 10:** Final composite restoration wrt 36

## Discussion

The biomimetic approach advocates duplication of natural teeth to have a proper occlusion between adjoining and opposing teeth. It aims to provide long lasting results, improved strength of remaining tooth structure and reduced strain on surrounding structure [3]. This approach mainly follows two principles. The first is to eliminate the masticatory strain which involves removing any factors contributing to excessive force on teeth and the second is to strengthen the bond between the material used for restoration and tooth thus enhancing longevity of restoration [7].

Composite restoration is commonly used as direct restorative material for biomimetic tooth restoration. The popularization of composite resin can be attributed to several factors such as esthetics, requirement of minimal tooth preparation, bondability to tooth, moldability within an extended working period and one visit polishing [8].

One of the most important issues to be addressed is polymerization shrinkage. Care must be taken to place the composite incrementally at the base of the cavity and stamp is placed over the final increment preceded by placement of Teflon tape to shape the occlusal anatomy [9].

Every technique has its fair number of pros and cons. The stamp when pressed against the final increment, exerts pressure thus minimizing the formation of micro bubbles and interference of oxygen with polymerization. It is more commonly employed in cases where preoperative anatomy is preserved. Furthermore, this technique requires clinical expertise to be executed accurately but at the same time it is a precise approach with minimal chair side time [10].

## Conclusion

With the advancement in the field of biomimetic dentistry, stamp technique provides a convenient approach in replicating the occlusal anatomy of the tooth near perfection with minimal chairside time. However this technique is usually indicated only for caries with intact occlusal surface. With the minimal time required to obtain a good cusp fossa relationship with opposing dentition, stamp technique is a boon in busy practice.

**Conflict of Interest:** Not available.

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