

Replica Of Anatomy Of Posterior Teeth Using Stamp Technique- A Case Report

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Abstract :

BACKGROUND- Composite resin restoration on posterior teeth through conventional technique is generally, a time consuming procedure with risk of contamination between layers. Therefore, there have been techniques developed to facilitate the work of dental professionals and achieve aesthetic and functional results such as occlusal stamp technique. One of the major factor after the restoration of teeth is reproducing the original tooth anatomy to near perfection. "Stamp technique" is a novel & easy technique for filling the such carious teeth which has undestructed occlusal topography. With high precision & accuracy when restoring to functional occlusion, stamp technique is of great use. It is usually a method for placing large composite restorations with accurate occlusal topography. Although convenient, it has found acceptance in only a small percentage of practitioner.

CASE PRESENTATION- *A 18 year old female reported of decayed tooth in lower left back posterior region of jaw. On clinical examination pit fissure caries was noticed in lower left second molar of jaw. Patient had no complaint of sensitivity in the same region. Since no tooth morphology was destructed and only pit fissure caries was observed, Occlusal stamp technique treatment procedure was opted. The purpose of this article is to demonstrate & discuss various aspects & application of this technique, highlighting the point that stamp technique enables the clinician to accomplish more in less time.*

CONCLUSION- *Stamp technique for direct composite restoration is a convenient, favorable & biomimetic procedure . The accuracy of topography replication is far greater than the plain manual method & can be adapted to unconventional cavities as well.*

KEYWORDS: *Stamp technique, Occlusion, Composite resin, occlusal stamp*

Introduction:

Dental practice has never been the same again since introduction of esthetic dentistry. There has been rapid advancement in dentistry since the 2nd decade of new millennium & has immensely enhanced the quality of care towards the population¹. The only clinical way for evaluating quality of treatment & minimal invasive is clinical radiography². Dentistry has evolved starting from extractions to restoring the tooth to functional occlusion & finally to make the exact replica of original teeth. There have been new refinements of older techniques & also introduction of newer ones. The earlier technique which was used was manually placing the esthetic composite restoration which was technique sensitive & requires experience. However, new technique came into existence which included combination of esthetics & function and was named as , "Stamp Technique". This newer technique includes making of occlusal index, which replicates the occlusal anatomy of molars before preparation of cavity³⁻⁵. Stamp technique can be used in cases which has intact occlusal anatomy. Before curing the final increment of composite, the occlusal index is pressed over the final increment to achieve the replica of pre-operative occlusal anatomy. This implies that caries which is not visible by our naked eyes or hidden caries without any cavitation can be treated using stamp technique⁶⁻⁹.

Clinical case report :

A 18 year old female, with no underlying systemic disorder reported to department of conservative dentistry and endodontics, SPDC, Wardha with the chief complaint of decayed teeth. On clinical examination, pit and fissure caries was seen with mandibular left second molar. Patient did not report sensitivity with the same. On radiographic examination, there was radiolucency seen involving enamel and dentin that suggested dentin caries with no pulpal involvement. It was noted that the tooth involved had no change in morphology of the tooth. In such case, occlusal stamp technique was preferred for resin composite restoration for mandibular left second molar.

Before starting the procedure, the tooth was cleaned with Prophy polishing brush and pumice to remove the stains or any residues present onto the tooth surface. Later shade selection was done using VITA shade guide and tooth was anesthetized using 2% Lignocaine . Isolation of the tooth was done with rubber dam. After isolation, Vaseline was applied onto the tooth. Stamp was made using flowable composite (Filtek flow 3M ESPE) for copying the the occlusal details of the tooth to be restored. Flowable composite material was placed onto the occlusal surface, applicator brush tip was immersed into the composite and it was cured.

After curing the stamp was removed and edge of the stamp was marked onto the buccal surface of tooth for orientation at the time of stamp repositioning. Cavity preparation of the tooth was started using BR 45 round bur (Mani DIA BURS). The remaining carious tooth structure was removed with spoon excavator to conserve the tooth structure. The tooth was air dried and checked for remaining carious tissue, if present was removed. The cavity was rinsed and disinfected with 2 % CHX (Consepsis, Ultradent). The cavity was dried and etched with 37 % phosphoric acid for 15 seconds. The cavity was washed with distilled water for 1 minute and dried with cotton pellets. The adhesive system (3M ESPE Adper Single Bond 2) bonding agent was applied onto the dried cavity. Subsequently the 2 mm increment of resin composite (3M filtek supreme) was placed onto the prepared cavity and a cling film was applied onto the surface and cured stamped composite was placed into position and pressed for 20 seconds exerting finger pressure. The stamp was removed and the occlusal surface of the composite was cured for 30 seconds. Rubber dam was removed and the occlusal contacts were checked. The adaptation was satisfactory and no need of adjustment of the restoration was needed. Later the restoration was finished and polished (Shofu super snap Mini Kit CA). The restorative treatment of the mandibular left second molar was completed.



Figure 1- Pre-operative: 36 showing occlusal caries



Figure 2- Fabrication of Occlusal stamp

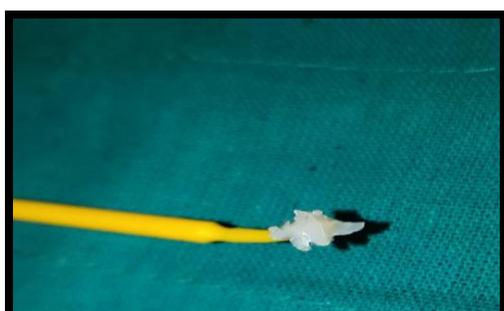


Figure 3- Occlusal Stamp



Figure 4- Caries Excavation

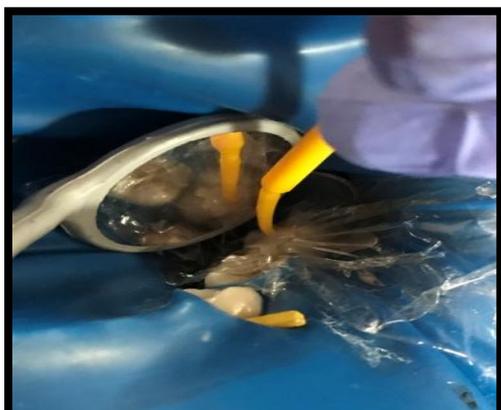


Figure 5 – Placement of occlusal stamp



Figure 6- Post operative

Discussion :

The occurrence of dental caries is reduced in the past few decades. The efficient use of fluorides is considered as the contributing factor in reduced caries incidence. However the caries can be treated with the restorative process. The ideal reconstruction of the posterior teeth occlusal anatomy poses a challenge for Restorative dentist. The occlusal stamp technique involves taking a previous dental impression of the occlusal tooth surface and using that impression to restore the tooth after cavity preparation. This technique requires skill and clinical acumen so that the procedure can be correctly performed¹⁰. In case of superficial pit and fissures flowable composite can be applied on the occlusal surface without the need of separating agent. However, in the presence of deep pits and fissures, using the separating agent is recommended. In such condition, the separating material fills the pits and fissures and does not let the subsequent flowable composite to flux inside. This leads to the more proper continuous surface of the final restoration. Thus, air spray should be avoided while spreading the separating agent on the tooth surface. This technique allows to re-establish the form, function and aesthetic of the dental structure, minimizing the need for post restoration adjustments and the porosity of the resin composite. The pressure exerted by the stamp on the composite resin decreases the formation of microbubbles as well as interference of oxygen in the curing of the last layer. These are considered long-term success factors. By using this method, care needs to be exercised to place the composite incrementally at the base of the cavity, and the stamp is used with the final increment to shape the occlusal anatomy. The clinician should stay alert when the procedure is being performed to prevent the incorrect placement of the stamp. However this procedure can be performed when the occlusal anatomy of the tooth is not distorted. So this a case specific technique and the case should be wisely selected before proceeding with the technique.

Conclusion :

The occlusal stamp procedure is effective for direct composite restoration in posterior teeth with minimal distortion of occlusal structure. It aims at accurately replicating the tooth anatomy eliminating post restoration occlusal adjustments.

REFERENCES:

- [1] Chandak M, Salgar A, Nikhade P, Shrivastava S, Sahni A, Chandak R. Comparative evaluation of efficacy and effectiveness of profile rotary instruments in conjugation with solvent for retreatment of resilon and gutta-percha: An In vitro study. *Journal of Datta Meghe Institute of Medical Sciences University*. 2017 Apr 1;12(2):115.
- [2] Khubchandani M, Baliga MS, Rawlani SS, Rawlani SM, Khubchandani KM, Thosar N. Comparative evaluation of different obturation techniques in primary molars: An in vivo study. *European Journal of General Dentistry*. 2017 Jan 1;6(1):42.
- [3] Alshehadat SA, Halim MS, Carmen K, Fung CS. The stamp technique for direct Class II composite restorations: A case series. *Journal of conservative dentistry: JCD*. 2016 Sep;19(5):490.
- [4] Attin T, Wegehaupt FJ. Impact of erosive conditions on tooth-colored restorative materials. *Dent Mater* 2014;30:43-9.
- [5] Ramseyer ST, Helbling C, Lussi A. Posterior vertical bite reconstructions of erosively worn dentitions and the “stamp technique” – A case series with a mean observation time of 40 months. *J Adhes Dent* 2015;17:283-9.
- [6] Pompeu JGF, Morais RC, Ferreira TO, et al. Occlusal Stamp Technique For Direct Resin Composite Restoration: A Clinical Case Report. *Int J Recent Sci Res*.2016; 7(7): 12427-12430.
- [7] Volschan BCG, Soares LMB. Cárieoculta: diagnóstico e tratamento. *J BrasOdontopediatriaOdontolBebe*. 2000; 3(15): 399-403.
- [8] Silva SREP, Imparato JC. Técnica da matrizoclusal: uma alternativa para o restabelecimento das estruturas anatômicas. *Bras.Clin. EstetOdontol*. 2000; 4(24):49-52.
- [9] Pontes MCC, Tollara M, Salim D, Imparato JC. Técnica alternativa para restauração de dentes decíduos posteriores através de matrizoclusal. *J. Bras. Clín. EstéticaOdontol*. 1999; 3(17): 28-32.
- [10] Ramteke, Shraddha, Seema Kambala, Surekha Godbole, Anjali Borle, and Tanvi Jaiswal. “Comparative Evaluation of the Retentive Qualities of Three Different Post Systems Used for Endodontically Treated Teeth for Providing Restoration - An in Vitro Study.” *JOURNAL OF EVOLUTION OF MEDICAL AND DENTAL SCIENCES-JEMDS* 8, no. 50 (December 16, 2019): 3754–58. <https://doi.org/10.14260/jemds/2019/813>.