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STENCIL'S METHOD OF POSTERIOR COMPOSITE RESTORATION : A CASE REPORT

Endodontic

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ABSTRACT

Composite restorations have made their presence took notice and also have solidified their position in the field of dentistry because of their esthetic varieties, longer life and their capability to provide an instant result.New materials, techniques and equipment are available that may help to overcome many of the concerns such as technique sensitivity and polymerization shrinkage. Compared to amalgam, its use not only improves aesthetics but, more importantly, promotes a minimally invasive approach to cavity preparation. Variety of techniques has been developed for achieving the goal of perfect occlusal morphology which is crucial for occlusal integrity.This paper describes how stencil's technique may be employed in the management of a carious lesion on the occlusal surface of a molar.Posterior teeth with initial lesions were confined to the occlusal surface of anatomically complex or fissured anatomy with or without signs of proximal caries which are ideal candidates for this technique.

KEYWORDS

Stencil's Technique, Composite Resin, Occlusal Integrity.

INTRODUCTION

Composite restorations have made their presence felt gloomily and also have solidified their position in the field of dentistry because of their esthetic varieties, longer life and their capability to provide an instant result which may sometimes be almost equivalent to laboratory based ceramic restorative materials.[1] On the other hand, Restoring posterior teeth with composites is a technique sensitive job.[2] Finishing and polishing procedures potentially risk damage to sound tooth structure, undercontour or overcontour the restoration and disfiguring the restorative margins.[3]The occlusal morphology of bicuspids and molars, participates actively in the mastication and it is important to those aspects related to occlusion.[4]However, manually crafting an esthetic direct composite restoration is a technique that requires experience and skill.[5]

One of the evolved techniques for achieving an amalgamation of both esthetics and function is the 'Stencil's technique'.The Chinese were the first to develop a paper based stencil, around 105 AD and used the invention to advance their printing techniques. According to Cambridge dictionary, the word stencil means 'a piece of card, plastic, metal etc. into which shapes have been cut, used to draw patterns onto surface'. Here, in dentistry the composite itself is used to prepare the stencil and used for establishing the near perfect occlusal anatomy to the restoration.

CASE REPORT

A 22 year old female patient reported to us with a chief complaint of discoloration on occlusal surface of left posterior tooth. On intraoral examination, class 1 carious lesion (ICDAS) was detected with 36 (Fig 1). Radiographic examination suggested the extent of caries was limited to dentin.The treatment was planned and described to the patient.

The tooth was isolated using rubber dam (Fig 2). Separating media was used on the occlusal part of tooth to validate easy removal of stencil. Now the TetricN flowflowable composite(IvoclarVivadent) was employed on the occlusal surface into which microbrush was inserted just before curing (Fig 3). The stencil was removed n checked for the fineness(Fig 4).

Once the stencil was obtained the caries was removed carefully (Fig 5). The acid etching procedure was carried out. After bonding, the Tetric N Ceram Bulk fill composite (IvoclarVivadent) was utilized for the restoration. The obtained stencil is then stamped over it to establish the prerecorded occlusal anatomy. The composite is then cured. Final restoration was polished (Fig 6).

DISCUSSION

Composite improvements in regard of physical and mechanical properties, besides esthetic appearance, were led to the progressive use of these dental materials in addition to more tooth tissue preservation. This was ideal for patients who could not afford the cost of the indirect restorations.

Fig 1 Preoperative

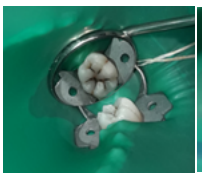

Fig 2. Rubber dam isolation

Fig 3. Stencil fabrication

Fig 4. Stencil

Fig 5. Caries removed

Fig 6. Final restoration

Posterior teeth with initial lesions were confined to the occlusal surface of anatomically complex or fissured anatomy with or without signs of proximal caries are ideal candidates for this technique. The overlying enamel surface must be relatively intact; lesions of hidden or occult caries.[4]

Mandarino et al[6] (1989) and Baratieri et al[7] reported the occlusal matrix use, empathizing the advantages of its use including less chairside work time, anatomical reconstruction loyalty and ease of use. This matrix is used with a preimpression previously to cavity preparing, when all dental elements are decayed but the occlusal shape is not changed. This matrix is usually obtained with colorless photo or autocured materials previously lubricated with a water-based lubricant in case of autopolymerizing, acrylic resin is used to impression. In the case presented above, the impression is taken with the flowable composite which flows efficiently and can be trusted for precise impression of occlusal anatomy. Other great advantages of using this matrix are occlusal surface reliable reproduction with more acceptable esthetics; cuspids, enamel bridge, versant and other anatomical structures recovery at the places it used to be, thus decreasing the need for major occlusal adjustment to better contacts points distribution; risk of occlusalprematurities in the restoration is substantially reduced; it is easily done technique; low costs and less operative time.[8]

SFC Dekon et al used a direct duplicate occlusal appliance (biteperf) and found it advantageous in having fast and accurate reproduction of the original anatomical details of the occlusal surface. The final result surprised with the presented restoration in terms of esthetic quality, despite the simplicity of the technique.[4]In the presented case, no

separate appliances were used for stencil preparation, rather the available materials such as flowable composite and microbrush were used.

Hirata R et al described two techniques for posterior Class I composite restorations: traditional incremental layering and a bulk-fill technique. They suggested that the decision as to which to use depends on the desired esthetic outcome (although results seem highly acceptable for both techniques), the time available for the operative steps, and the clinician's familiarity with the techniques and materials. Although both techniques are supported by scientific evidence, there seems to be a trend toward simplification of steps, benefits being less treatment time and reduced polymerization contraction stress in bulk-fill composites. Low-shrinkage bulk-fill composites can be used safely to fill posterior cavities, as long as the cavities are up to 4 to 5 mm deep. In our case, the depth of cavity was limited upto 3mm, thus bulk filled composite was preferred.[9] Hegde V compared fracture resistance of posterior teeth restored with high-viscosity bulk-fill resin composites in comparison to the incremental placement technique found no statistically significant difference in both the techniques.[10]

CONCLUSION

Stencil technique for direct composite restorations is a convenient, favorable and biomimetic procedure for posterior composite restorations. The accuracy of topography replication is far greater than the plain manual method thus can be adapted to unconventional cavities as well.

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