

Conservative Management Of Endodontically Treated Mandibular Molar By Indirect Composite: A Novel Approach

Kaushik Adeshra*, Sarfaraz Memon**, Ninad Bhatt***, Ronak Patel****

*Mds Prosthodontist Reader College of Dental Science and Hospital Amargadh **Mds Prosthodontist Senior Lecturer Manubhai Patel Dental College And Hospital Vadodara.***Mds Prosthodontist Senior Lecturer K. M Shah Dental College And Hospital.****Mds Prosthodontist

Abstract: Introduction: The patient's desire for esthetics, coupled with the decreasing use of amalgam, requires that clinicians be comfortable and proficient in the use and placement of tooth-colored restoratives. Case Report: A 30 yrs old male came with chief complaint of large metallic filling on lower left back region came to the department for esthetic restoration. Patient had dental history of endodontic treatment with 36,37,46,47 and periodontal surgery with 46,47. Patient was advised by endodontic department for proper restoration of endodontically treated teeth to avoid fracture of treated tooth. Discussion: Indirect composite restorations demonstrate enhanced physical properties and predictable clinical performance having less polymerization shrinkage than direct composites. There is more strength in highly filled indirect composite. One of the most important attributes of indirect composite is the ability to create ideal contours and contacts with adjacent and opposing teeth that might be difficult to achieve clinically with large, directly placed composite restorations. [Kaushik ANJIRM 2016; 7(5):98-100]

Keywords: Indirect Composite, Endodontically treated teeth, Direct Composites

Author For Correspondence: Sarfaraz Memon Mds Prosthodontist Senior Lecturer Manubhai Patel Dental College And Hospital Vadodara. **M:** +91 9974901033 **E-Mail:** dr.sarfu14@gmail.com

Introduction: The advancements in adhesive dentistry have brought significant changes in the treatment of caries. Direct composite restorations are preferred over indirect composite restorations when treating caries in posterior teeth because they require minimal intervention and cavity preparation. However, indirect composite restorations are usually recommended when teeth require large restorations. As indirect restorations rely on cements to remain in place, the final outcome depends on the successful selection of the cement. The recent improvement of the chemical-physical properties and biocompatibility of adhesive systems and aesthetic materials has considerably changed restorative techniques of the latero-posterior dentition¹.

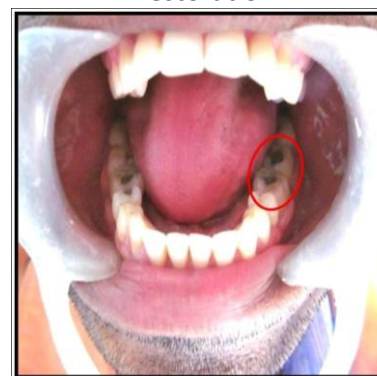
These developments allow carrying out an adhesive restoration that has aesthetic features and is capable of reinforcing the remaining dental structure, besides being as conservative as possible². The materials that mostly fulfill these aesthetic and functional requirements are composites and adhesive resins that can now guarantee stability and predictable outcomes^{3,4}. However, the posterior region is characterized by some limitations due to the chemical-physical properties of these materials and due to the cavity's shape and site¹.

The possibility to locate most margins in areas far away from the periodontal tissues consents better plaque control procedures consequently minimizing the risk of secondary decays and periodontal lesions.

Thus, case is presented where endodontically treated teeth is restored with indirect composite.

Case Report: Patient by name Mr T.k Rao a 30 yrs old male came with chief complaint of large metallic filling on lower left back region (FIG. 1). Patient had dental history of endodontic treatment with 36,37,46,47 and periodontal surgery with 46,47. Patient was advised by endodontic department for proper restoration of endodontically treated teeth to avoid fracture of treated tooth.

Fig. 1: Pre Operative Photograph Of Metallic Restoration



Indirect composite inlays were planned for 36, 37, 45 and 46. The restoration of 45 and 46 were postponed to allow soft tissue repositioning after periodontal surgery. The other line of treatment included Gold Inlays, Direct Composite restoration or full coverage crown. Gold inlays were not planned because patient wanted esthetic restoration. Direct composite were

not considered due to comparatively low strength and more polymerization shrinkage compared to indirect composite inlays. Full coverage crown requires more tooth reduction while indirect composite inlays have more conservative approach.

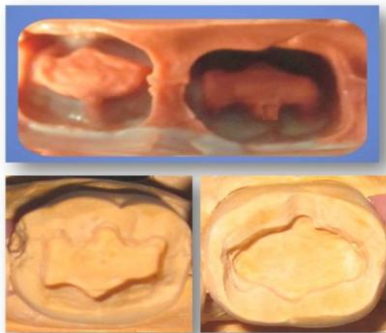
Tooth Preparation And Base: The old amalgam restoration was removed taking care not to remove any dentinal structure. After removal of old restoration a glass ionomer cement base was given. The glass ionomer base was made flat. The remaining tooth structure (axial walls) was prepared to receive inlay restoration. The cavity design consisted of a well-defined gold inlay-type preparation with rounded internal angles and beveled cavosurface margins. The walls were kept divergent for easy insertion of inlays (FIG. 2)

Making Impression And Pouring Cast: An accurate impression of the preparation was made with elastomeric impression material and poured with die stone and the cast was obtained (FIG. 3)

Fig. 2: Inlay Preparation



Fig. 3: Impression Of Inlay And Die Cast



Fabrication Of Inlays And Cementation: Separator was applied on the surface of cast for separation of inlay from the cast. A spacer was applied on the prepared surface to provide space for luting agent.

Indirect composite buildup was done in the preparation and normal anatomy was achieved by precise carving of the indirect composite. The buildup was done in increments for full depth curing of indirect composite. After each increment it was placed in curing unit for light curing. After curing was completed the inlays were retrieved from the cast (FIG. 4). The inlays were tried in the patient for the fit and the high points were marked using articulating paper. The high points were reduced and the inlays were finished and polished. External stains were applied on the grooves of the inlays to give a more natural appearance. It was then cemented using light cured flowable composite and instructions were given to the patient (FIG. 5).

Fig. 4: Inlay Fabricated By Indirect Composite



Fig. 5: Cemented Inlay Intra Orally



Discussion: There is an increasing volume of clinical data indicating that posterior composites are acceptable in terms of wear, mechanical properties and marginal sealing. The results, achieved with an easy and not expensive technique, turned out to be positive both under a functional and an aesthetic point of view. Analyzing in detail the clinical results it is evident that one important advantage is represented by a relevant preservation of dental structure that this technique permits.

In fact, an incomplete degree of conversion achieved during the polymerization reaction, negatively

influences the surface properties of the restorations that, in this region, are exposed to remarkable occlusal loading⁵. An unfavourable C-factor, composite's high viscosity and polymerization shrinkage are further negative factors that may cause poor marginal adaptation of composite restoration in posterior teeth^{6,7}. A cervical margin located in the radicular cement, a dental structure where adhesive's effectiveness is reduced, represents a further risk factor in carrying out direct posterior restorations⁸. Therefore, the indirect composite inlay/onlay can be seen as an improvement over the direct composite resin restoration in terms of material properties, marginal adaptation and ease of placement.

References:

1. Mangani FM, Sigalot C, Vanini L. Intarsi in resina composita nel restauro estetico dei settori latero-posteriori. *Dent. Mod.* 2001, 02:25-58.
2. Ferrari P, Patroni S. Attuali orientamenti nel trattamento conservativo dei settori posteriori. *Dent. Mod.* 2000, 4:85-100.
3. Veneziani M. Riabilitazione conservativa di due quadranti antagonisti. *Dent. Mod.* 2002; 11:37-41.
4. Skeeters TM. A resin composite for posterior restorations. 15 years results. *J. Dent. Res.* 1998; 77 (Special Issue B).
5. Ho CT, Vijayaraghavan TV, Lee SY, Tsai A, Huang HM, Pan LC. Flexural behaviour of post-cured composites at oral-simulating temperatures. *J. of Oral Rehab.* 2001; 28:658-67.
6. Manhart J, Neuerer P, Scheibenbogen-Fuchsbrunner A, Hickel R. Three-year clinical evaluation of direct and indirect composite restorations in posterior teeth. *J. Prosthet. Dent.* 2000; 84:289-96.
7. Brenna F, Porro S, Artioli G. Clinica e laboratorio nella realizzazione di restauri estetici indiretti nei settori posteriori - *Dent. Mod.* 2002, 05:23-49.
8. Fichera G, Dinapoli C, Re D. Restauri estetico-adesivi indiretti: modello per diagnosi di configurazione cavitaria. *Dent. Mod.* 2003; 2: 21-59.

Conflict of interest: None

Funding: None

Cite this Article as: Kaushik A, Sarfaraz M, Ninad B, Ronak P Conservative Management Of Endodontically Treated Mandibular Molar By Indirect Composite: A Novel Approach. <i>Natl J Integ Res Med</i> 2016; 7(4): Page no 98-100
--