

Indirect technical approach with composite Inlays/Onlays by the dentist in-office: Two clinical reports



Patrícia Manarte-Monteiro^{1*}, Sandra Gavinha¹, Aurea Ribeiro¹,
 Maria Conceição Manso², Sandra Faria¹, Tiago Martins¹

¹ Department of Dental Medical Sciences, Faculty of Health Sciences, University Fernando Pessoa, Porto, Portugal

² Faculty of Health Sciences, University Fernando Pessoa, Porto, Portugal & REQUIMTE-University of Porto, Portugal



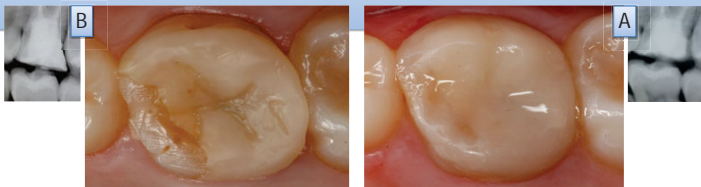
Introduction: Indirect composite restorations are alternative technical approaches of posterior teeth rehabilitation, in certain clinical conditions.

Objectives: The aim of this report is to describe two clinical cases in which composite inlay/onlay, made by the dentist in-office, were used to rehabilitate posterior tooth structures considering two strategies, such as large and multi-surface restorations. Clinical/radiographic findings and treatment are presented and discussed with the literature evidence.

Material and Methods: Two female patients presenting different restorative problems were selected. Coronal rehabilitation with composite inlay/onlay made indirectly by the dentist was proposed for both clinical conditions.

Patient Age: 20 years-old

Clinical Condition I: 2.6 tooth showed a large extension composite restoration with loss of marginal integrity and cusp involvement. Composite Onlay rehabilitation (Fig. I-1 to Fig. I-9).



Intra-Oral registration of clinical and radiographic conditions before (B) and after treatment (A); 2.6 Tooth Onlay.

Patient Age: 46 years-old

Clinical Condition II: The 2.6 and 2.5 teeth with secondary caries/amalgam restorations (ICDAS 44 code) and proximal contact defects. Composite Inlays rehabilitation (Fig. II-1 to Fig. II-9).



Intra-Oral registration of clinical and radiographic conditions before (B) and after treatment (A); 2.6 and 2.5 Teeth Inlays.

Cavity preparation and alginate impression were done. A silicone cast was performed to apply the nanostructured composite GrandioSO (Inlay System; Voco) that was incrementally applied and light-cured (1200mW/cm², 20 seconds). Inlays/onlay were bonded with self-etch adhesive strategy (Futurabond DC) with enamel pre-etching and Bifix SE resin cement. Inlays/onlay occlusal/proximal adjustments, finishing and polishing were performed.



Fig.I-1: Cavity preparation to onlay in 2.6 tooth.

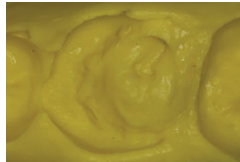


Fig.I-2: Alginate impression (Orthoprint®) of 2.6 tooth cavity.

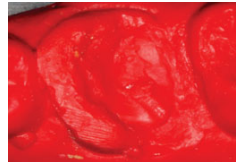


Fig.I-3: Silicone cast (Voco die silicone catalyst) of 2.6 tooth preparation.



Fig.I-4: Light-curing one-component restorative Clip (Voco), 2.6 cavity temporary restoration.



Fig.I-5: 2.6 Onlay with GrandioSO (Voco), a light curing nanostructured composite. Pretreatment before cementation with aluminum oxide 40µm, alcohol cleaned and dried.



Fig.I-6: 2.6 Composite onlay test in cavity preparation. Following this, cavity preparation was clean using a fluoride-free paste.



Fig.I-7: 2.6 Enamel pre-etching (phosphoric acid 38%) and self-etch adhesive (Futurabond DC®) was done in both tooth and onlay.



Fig.I-8: 2.6 Onlay cementation with Bifix SE (Voco) resin cement.



Fig.I-9: 2.6 Onlay intra-oral finishing and polishing (small point Dimant® polishers).



Fig.II-1: Cavity preparations to 2.6 and 2.5 teeth MOD inlays.

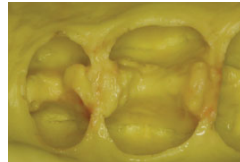


Fig.II-2: Alginate impression (Orthoprint®) of 2.6 and 2.5 teeth cavity preparations.



Fig.II-3: Silicone cast (Voco die silicone catalyst) of 2.6 and 2.5 teeth preparation.



Fig.II-4: Light-curing one-component restorative Clip (Voco), 2.6 and 2.5 cavity temporary restorations.

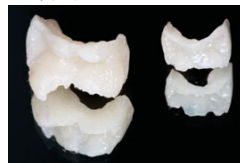


Fig.II-5: 2.6 and 2.5 MOD Inlays with GrandioSO (Voco), a light curing nanostructured composite. Pretreatment before cementation with aluminum oxide 40µm, alcohol cleaned and dried.

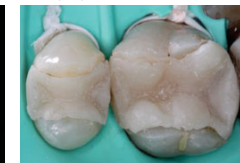


Fig.II-6: 2.6 and 2.5 Composite inlays test in cavity preparations. Following this, cavity preparation was clean using a fluoride-free paste.



Fig.II-7: 2.6 and 2.5 Enamel pre-etching (phosphoric acid 38%) and self-etch adhesive (Futurabond DC®) was done in both tooth and inlays.



Fig.II-8: 2.6 and 2.5 Inlays cementation with Bifix SE (Voco) resin cement.



Fig.II-9: 2.6 and 2.5 Inlays intra-oral finishing and polishing (silica brush, Easy Gloss®).

Results: This indirect technique approach with composite provided an easy, convenient and efficient method to restore neighbouring teeth, to create adequate proximal contacts without having to use the time-consuming and expensive matrix systems and to better perform occlusal/proximal anatomy by extra-oral modelling^(1,2). Indirect composite resin systems represent an alternative in overcoming some of the deficiencies of direct composite restorations techniques⁽³⁾.

Discussion and Conclusions: The indirect application of a composite is a predictable and economic approach to perform stress-free fabrication of tooth-coloured and durable restorations even in patients who are low- or non-compliant. This indirect rehabilitation is an aesthetic, functional and biological alternative face to direct techniques in coronal extensively weakened and multi-surface restorations of posterior teeth, providing a refreshing alternative that can be processed in dental office by the dentist.

Bibliography: (1) Poggio C, Beltrami R, Scribante A, Colombo M, Chiesa M. Surface discoloration of composite resins: Effects of staining and bleaching. Dent Res J (Isfahan) 2012, 9(5):567-73. (2) Leinfelder KF. Indirect posterior composite resins. Compend Contin Educ Dent. 2005, 26(7):495-503; quiz 504, 527. (3) Ozakar-İlday N, Zorba YO, Yıldız M, Erdem V, Seven N, Demirbuga S. Three-year clinical performance of two indirect composite inlays compared to direct composite restorations. Med Oral Patol Oral Cir Bucal 2013, 18(3):e521-8.

