



DAN LAZAR

EASY FILL UP IN POSTERIOR COMPOSITE RESTORATIONS

24681 Views - Oct 2016

The quality of dental restorations is influenced by different criteria, including the dentist's experience, the type of tooth, the restoration design, the type of restorative material, the size of the restoration and the patient's age. The main problem you run into when using composites is polymerization shrinkage and stresses, which depend on multiple factors such as the configuration factor, chemical properties of resin composites, various incremental placement techniques and different modes of curing. According to Karthick et al, to overcome this problem, various methods have been employed; the incremental curing technique being one of them. The various incremental techniques used are facio-lingual layering (vertical), gingivo-occlusal layering (horizontal), three site technique, wedge-shaped layering (oblique), successive cusp build-up technique, bulk technique, and centripetal build-up. This technique has many disadvantages, e.g. difficulty and long time to place the material. If the layers are not properly done, shrinkage can result from polymerization hence leading to marginal leakage. In this article a dual cure material is combined with a conventional composite material, in order to save time in restoring and reducing the usual mistakes related to the multilayer technique.



Img. 1 - In this case, the used material (Fill-up!, Coltene) is pretty easy and fast to manage; it was combined with an easily polishable composite material (Brilliant Ever glow, Coltene). For all big cavities the Fill up!

was used deep in one layer - a dual curing bulk composite and the last layer of material was Brilliant - a photo cured composite material.



Img. 2 - Occlusal check before isolation and cavity preparation.



Img. 3 - In all proximal cavities, prewedge were used to protect the proximal rubber dam and to facilitate the finishing procedure of the proximal walls.



Img. 4 - In all cavities, selective etching technique was used; phosphoric acid was applied for 30 seconds. As an adhesive, One Coat 7 Universal (Coltene) was used.



Img. 5



Img. 6 - The self etching adhesive was applied over the enamel and the dentin for 20 seconds. The adhesive excess was removed using aspiration from the unit and the blow of the air. When the adhesive is not moving anymore under the pressure of the air, then we know that the thickness is close to the optimal. Then we light cure for at least 10 seconds (minimum 800mW/cm²).



Img. 7 - The dual cured bulk composite was then used to fill the bottom part of the cavity, leaving space for the last layer of the material. After the placement of the material we should leave it to self cure and after

that to use the light curing lamp.



Img. 8 - The aspect of the dual cured bulk material after light curing. To be sure that there is not any dual cured material on the outline of the cavity, an adhesive tip can be used to remove the excess before the curing of the material.



Img. 9 - The final layer of the composite material were A2/B2 Brilliant Ever Glow by Coltene.



Img. 10 - On the first molar, because the cavity was superficial, only the photo cured material was used. The image shows the aspect after the modelling of the material.



Img. 11 - Sectorial matrix with teflon tape and V ring were used to restore the proximal wall on the second premolar.



Img. 12 - Diotech Polishers by Coltene were used as a polisher system after the outline finishing of the restoration with Arkansas bur.



Img. 13 - Final aspect of the restorations after some brown stains were used (Empress Direct - Ivoclar).



Img. 14



Img. 15



Img. 16 - Occlusal contacts after rubber dam removal.



Img. 17 - Final aspects of the restorations after 2 hours and 23 minutes.



Img. 18 - 10 Months after restoration; static occlusal contacts marked with 40 (blue) and 8 (red) microns.

Conclusions

Using this combined technique some advantages were found:

1. More time for occlusal morphology
2. Shorter chair time
3. More cavity restorations in one session
4. Less mistakes during the layering technique
5. An Up-Level-Restoration

References

- Bernardo M, Luis H, Martin MD, Leroux BG, Rue T, Leitão J, et al. Survival and reasons for failure of amalgam versus composite posterior restorations placed in a randomized clinical trial. *J Am Dent Assoc.* 2007;138:775-83.
- Radhika M, Sajjan GS, Kumaraswamy BN, Mittal N. Effect of different placement techniques on marginal microleakage of deep class-II cavities restored with two composite resin formulations. *J Conserv Dent.* 2010;13:9-15.
- Choudhary N, Kamat S, Mangala T, Thomas M. Effect of pre-heating composite resin on gap formation at three different temperatures. *J Conserv Dent.* 2011;14:191-5.
- Ahmad I. Deep resins, white fillings: A new technique for composite restorations. *J Cosmet Dent.* 2013;3:22-31.
- Shenoy A. Is it the end of the road for dental amalgam? A critical review. *J Conserv Dent.* 2008;11:99-107.
- Singh M, Palekar A. Polymerization shrinkage of composite resins - A review. *NJDSR.* 2014;1:58-61.
- Cakir D, Sergeant R, Burgess JO. Polymerization shrinkage - A clinical review. *Inside Dent.* 2007;3:3-10.
- Karthick K, Kailasam S, Priya PR, Shankar S. Polymerization shrinkage composites - A review. *JIADS.* 2011; 2:32-6.
- Giachetti L, Scaminaci Russo D, Bambi C, Grandini R. A review of polymerization shrinkage stress: Current techniques for posterior direct resin restorations. *J Contemp Dent Pract.* 2006;7:79-88.

Visit: <http://styleitaliano.org/easy-fill-up-in-posterior-composite-restorations>