

89 % nanofilled composite for aesthetic fillings in posterior region

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Abstract

- In this clinical case, we show why the composite filling material GrandioSO (VOCO GmbH, Cuxhaven) can be a perfect solution for the restoration of small cavities in the posterior region. Excellent mechanical strength is crucial here. GrandioSO is a universal nano-hybrid composite for direct restorations featured by an extremely high 89 % by weight of filler content and by excellent aesthetics thanks to 17 shades.

Case description

Case history

- *Reason for dental consultation*

The patient, male, was 30 years old at the time of treatment and presented complaints "on the left side of the face". More specifically, he reported cold sensitivity to the "big teeth" on the left.

- *Dental and Medical history*

The patient was in apparent good health without any systemic condition.

- *Patient's expectations*

Removal of the old filling so to be replaced with a strong aesthetic filling that "makes me symptoms free".

Records and diagnosis

- *Clinical, radiology and instrumental records*

At the intraoral examination the tooth 26 presented a defective amalgam filling with poor marginal sealing and, possibly, initial marginal microleakage.

- *Diagnosis*

Insufficient amalgam filling on tooth 26 (Figure 01)

Therapy

- *Timeline of treatment steps*

After amalgam filling removal and appropriate class I cavity preparation with diamond burs, the light-curing resin-modified glass-ionomer material for lining "Ionoseal" (VOCO GmbH, Cuxhaven) was applied as a cavity liner under the upcoming filling on the way to protect the pulp (Figure 02) and provide later an effective bacteria-tight restoration. The liner was selected due to its fluoride-releasing properties that reinforce the damaged hard tissues against secondary caries.

The conditioning of the cavity was carried out following the adhesive standards for direct composite fillings. Namely, the enamel margin was etched with 35 % phosphoric acid gel for 20 s (Vococid, VOCO GmbH, Cuxhaven), the acid was aspirated, the cavity rinsed off with water for 30 s and dried with a gentle air stream to obtain a chalky white-opaque appearance. The cavity was finally pre-treated with the dual curing universal adhesive Futurabond U (VOCO GmbH, Cuxhaven), which was

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Fig. 1: Initial case showing an old amalgam filling. The patient reports cold sensitivity.

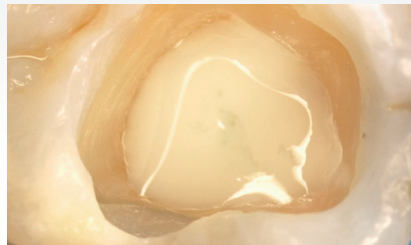


Fig. 2: Ionoseal (VOCO) used as a liner so to protect the pulp from thermal and chemical factors.



Fig. 3: Application of the bulk-fill composite x-tra base (VOCO) for the deep parts of the direct filling.



Fig. 4: Final polishing of the occlusal surface with diamond silicone polishers



Fig. 5: Final layer of GrandioSO composite (shade A2, VOCO) after incremental layering technique, finishing and polishing with diamond silicone polishers.

rubbed on dentine and enamel for 20 s. After careful drying of the adhesive using oil-free compressed air for at least 5 s so that the layer of adhesive becomes thin and immobile, 10 s light curing steps were performed. The result was a shiny cavity surface, evenly covered with adhesive.

Large part of the cavity volume was filled with a flowable bulk fill material (x-tra base, VOCO GmbH, Cuxhaven), a composite with 75 % filler content. x-tra base shows excellent properties in filling the cavity and adapts to the entire surface thanks to its self-levelling behaviour (Figure 03).

As a final filling step, GrandioSO (shade A2) was applied with incremental layering technique.

At the end (Figure 04), an excellent result after the adjustments and final polishing of the occlusal surface with diamond silicone polishers (Dimanto, VOCO GmbH, Cuxhaven) was revealed.

Discussion

• Arguments for the clinical decision-making process

Indirect esthetic restorations fabricated analogically or through computerized systems are a reality in today's dentistry. Inlays and onlays are a good example of indirect restorations (Rocha et al., 2020) also for relatively small cavities. However, most cavities can also be restored for a long time with direct fillings (Nocchi., 2007). For aesthetic restorations in posterior regions, the clinician must always use

quality materials and follow the adhesive protocols correctly, as well as adequate finishing and polishing (Manauta et al., 2012). Nevertheless, the patient's taste also plays an essential role on whether or not they wish an esthetic filling on posterior teeth (Mangani et al., 2009).

Conclusion

• Patient satisfaction

The patient reported satisfaction with the work performed and informed us that he did not have any type of postoperative sensitivity.

• Reasons for the results

We concluded that the type of restorative materials is the least important factor when we have quality products at our disposal and when we strictly follow the operative steps and instructions for use by the manufacturer.

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