Why flowable composites belong in every practice!

MED. DENT. JÖRG SCHWELA – SWITZERLAND, NOVEMBER 2017

Compared with the conventional universal composites, the flowable filling materials are often hardly given attention in the dental literature or the fundus of existing in-vivo studies. And this although the "flow composites" are very popular in dental practice and can hardly be disregarded any more due to their versatility.

Their major advantage lies in their flowable consistency which brings with it an extremely self-adapting behaviour. Their thixotropic properties are also highly appreciated. In an ideal case, they ensure that the material possesses sufficient strength during application despite its low viscosity and only demonstrates good and controlled flowability under pressure. The use of flows covers a very broad spectrum of indications and even represents the most suitable restoration material in the one or other treatment indication.

In particular, this relates to undercut cavity areas with difficult access as well as tooth substance conserving minimally invasive prepared micro-cavities which require proper filling. In such cases, the classical composites reach their limits due to their high viscosity and the resulting potential weakening of marginal integrity.

In the following patient cases, the submicron hybrid composite BRILLIANT EverGlow Flow made by COLTENE is used. The low-viscosity flow variant offers excellent flow properties which facilitate safe wetting of cavities. Despite its low viscosity it can be applied without difficulty and does not flow off due to its perfectly adjusted thixotropic behaviour.

Initial situation patient case I

In this case we can see tooth 47 with an old Class I amalgam filing and broken disto-buccal cusp (Fig. 1). After removing the amalgam filling and subsequent cavity preparation, the matrix strip was applied as well as conditioning of the tooth surface after relative drying, in other words, etching of enamel and dentine using the total etch technique. Here the enamel areas are etched for 30 seconds with 35% phosphoric acid and the dentine for 15 seconds, then rinsed thoroughly with water and dried (Fig. 2).

After applying and curing of a light-curing adhesive, some BRILLIANT EverGlow Flow is applied directly to the deepest part of the matrix in the area of the missing cusp (Fig. 3). Cavities and undercuts are often dictated by the preparation of the amalgam restoration and

Fig. 1: Case 1 - Initial situation

Fig. 2: Case 1 - Prepared and conditioned cavity

Fig. 3: Case 1 - Application of BRILLIANT EverGlow Flow to the matrix wall

Fig. 4: Case 1 - Filling of cavities and undercuts

Fig. 5: Fall 1 - Build-up with universal composite

Fig. 6: Case 1 - Finished restoration

after its excavation. These areas were also filled with BRILLIANT EverGlow Flow and light-cured for 10 seconds (Fig. 4).

The excellent flow behaviour of the material allows adaptation to the matrix wall and the tooth surface. This forms a safe base for the further build-up with universal composite (Fig. 5). Diamond finishers and silicone polishers were used for final surface finishing and polishing (Fig. 6).

Initial situation patient case II

Extended sealing of fissures on tooth 48 was planned for this patient (Fig. 7). After expanding the fissures on the tooth it was diagnosed that it was already too late for classical fissure sealing. The tooth already displayed caries underneath the entire fissure. Minimally invasive caries removal was performed, the prepared cavity was conditioned and thoroughly dried with cotton wool rolls, cheek pad and saliva ejector (Fig. 8). After applying and light-curing the adhesive, a thin layer of BRILLIANT EverGlow Flow is applied to the base of the cavity as liner (Fig. 9). The low viscosity flow wets the surface very well, fills undercuts reliably and is easy to position with an instrument as desired. The supplied application needle with a diameter of only 0.4 mm is particularly suited in this case to provide controlled and absolutely precise application (Fig. 10). The increment is then light-cured for 10 seconds.

Again, the filling was built up in layers with universal composite (Fig. 11) and finishing and surface polishing was performed with diamond finishers and silicone polishers suitable for composites (Fig. 12).

Conclusion

In summary it can be stated that flowable composites offer several advantages compared to conventional composites, or at least complement these perfectly. On the one hand, the broad spectrum of indications should be mentioned for which low viscosity self-flowing restoration materials are predestined.

The cases presented demonstrate that flows, among other things, perform extremely well for building up cavity walls and for blocking cavities and undercuts.

On the other hand, the functionality and convenient handling in daily clinical routine should be mentioned. The fact is that easy and efficient handling of dental products has a significant effect on the long-term success and cost-efficiency of work.

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Fig. 7: Case 2 - Initial situation


Fig. 8: Case 2 - Prepared and conditioned cavity

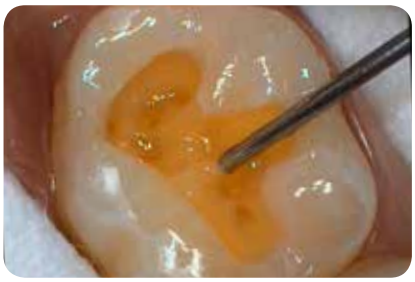
Fig. 9: Case 2 - Application of BRILLIANT EverGlow Flow as liner


Fig. 10: Case 2 - Absolutely precise application with Ø 0.4 mm application needle


Fig. 11: Fall 2 - Build-up with universal composite


Fig. 12: Case 2 - Final situation