Kerr™

Clinical case report

Maxcem Elite™ Chroma: a **smart** cement for prosthesis Cementation

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The increasing popularity of adhesive restorations means that dental practitioners and patients alike tend to view them as the first choice for both the reconstruction of old restorations and the treatment of caries in a conservative way. However, polymerisation shrinkage still represents one of the most serious limitations when considering direct restorations using a composite resin.

Knowing how to deal with (dimensional) polymerisation stress in composites is a fundamental requirement to prevent post-operative sensitivity, marginal infiltration and recurrent caries.

When it comes to evaluating direct composite restorations, all the physical-chemical characteristics typically found in insufficiently polymerised composite resins add to the technical-operational difficulties that arise in trying to achieve properly contoured proximal surfaces and suitable contact points. Such problems can be and are solved by using indirect restorations cemented with advanced adhesive techniques and materials.

Regardless of their material (ceramic or composite), many alternatives to direct restorations have been shown to present a reduced marginal gap in the initial years after placement. The marginal fissure reduction can be attributed to the amount of volumetric shrinkage seen in the resin (composite cement) and the polymerisation technique utilised. In fact, using a dual-cure cement reduces polymerisation shrinkage.

Consequently, positioning a pre-polymerised restoration and using a dual-cure cement (chemical and light activated) substantially reduces the stress forces involved in the polymerisation process.

This short article looks at two clinical cases where the new Maxcem Elite™ Chroma cement with a colour gel-indicator was used for the cementation of two composite coronal restorations.

Clinical case 1

Fig. 1.1: Pre-operative view of tooth 3.6 presenting a MOD carious lesion.

Fig. 1.2: After isolating the operating field, the carious lesion was removed and the cavity was restored with SonicFill™ 2 (Kerr Bulk fill – colour A2/A3). The prepared tooth is now ready for the definitive impression to be made with Take 1® Advanced™ (Tray Volume Regular Set and Light Body Wash Regular Set).

Fig. 1.3: Fabrication of the Type IV plaster model (Kerr Pastel Rock Super Hard Plaster®).

Fig. 1.4: The provisional restoration was removed, the preparation was cleaned with a micro-sandblaster.

Fig. 1.5: The onlay was tested before cementation.

Figs. 1.6 to 1.9: After the Maxcem Elite Chroma cement was placed in the preparation, the onlay was held lightly in position until the cement was completely polimerised. As soon as the cement changed to a white colour (after about 2 minutes), the excess material was ready to be removed with a manual instrument. The change in colour from pink to white indicated that the cement had reached its gel-point-state (optimal time to remove any excess cement).

Fig. 1.10: At the end of the initial curing, the restoration was polymerised using a Demi™ Ultra (Kerr) to increase the degree of conversion of the cement.


1.1


1.2


1.3


1.4

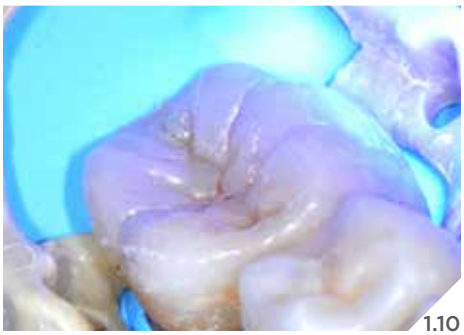

1.5


1.6


1.7


1.8


1.9


1.10

Clinical case 2

Fig. 2.1: Preoperative x-ray of tooth 2.4 which required endodontic treatment.

Fig. 2.2: After endodontic treatment, the tooth was reconstructed (SonicFill 2, colour A2) and prepared to receive a full-coverage composite restoration.

Figs. 2.3 and 2.4: The restoration was evaluated before cementation, and the marginal fit of the occlusal and vestibular margins were assessed.

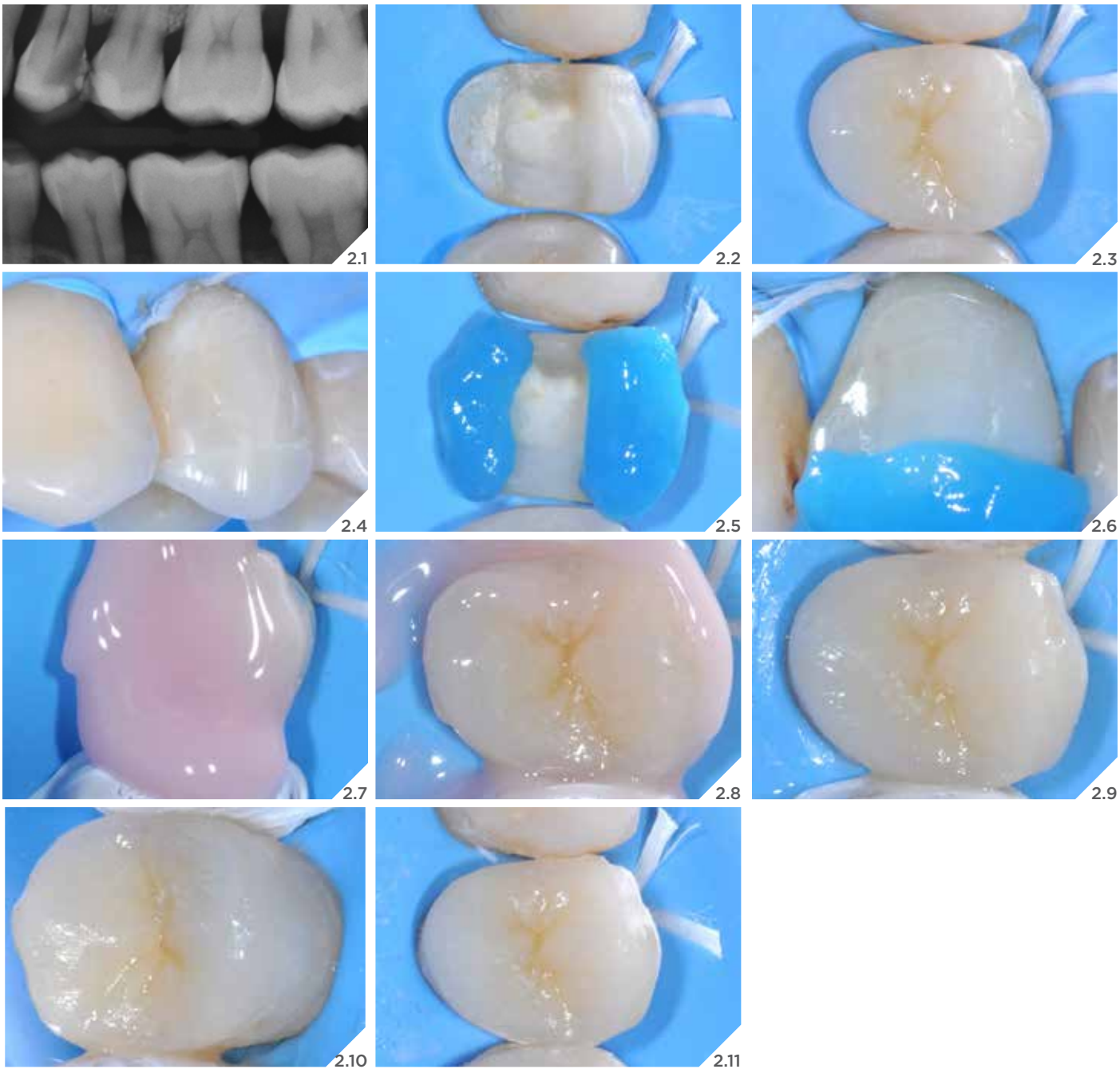
Figs. 2.5 and 2.6: As described in the literature, when using self-etching and self-adhesive cements, in some cases it is more advisable to only selective etch the preparation's residual enamel, in order to strengthen the force of adhesion.

Fig. 2.7: The preparation was filled with Maxcem Elite Chroma cement.

Fig. 2.8: The restoration was placed in position, and the Maxcem Elite Chroma cement was given time to change colour from pink to white.

Fig. 2.9: Once the cement reached its gel state, the excess composite cement was removed.

Fig. 2.10: The cemented, finished and polished restoration (OptiDisc®, OptiStrip™, OptiShine™).



Conclusions

In both cases we found that Maxcem Elite Chroma is truly a "smart" cement, as the colour change is very useful to recognise the right moment to remove the excess cement. Moreover, this removal can be carried out very easily and in a single action.