Following a simpler path from prep to crown

By Dr Carlos Eduardo Sabrosa, Brazil

Indirect restorative procedures can be time-consuming and complicated: many different processes from impression taking to cementation are carried out in the dental office, and in each of them, different strategies may lead to success. However, some of the available materials and techniques will involve a lot of effort, while others enable users to proceed quickly and simplify the complete procedure. A simplified workflow from prep to crown that really makes life easier for the dental practitioner is described below.

![Fig. 1: Initial situation. The failed composite restoration on the left side of the mandible's first molar's occlusal surface needs to be replaced.](image1)

![Fig. 2: To ensure the size of the restoration, the amount of remaining tooth structure might not be sufficient to ensure the required stability for a direct composite restoration.](image2)

![Fig. 3: Upon removal of the old filling, it becomes clear that a crown is needed to ensure the required stability. The tooth is built up with 3M™ Filtek™ Bulk Fill Posterior Restorative, which may be placed in conjunction with 3M™ Single Bond Universal Adhesive and in increments of up to 5 mm.](image3)

![Fig. 4: Following tooth preparation, a temporary crown is produced chairside with 3M™ TempSure™ 4 Temporization Material. This material exhibits a high strength and a natural glass without polishing.](image4)

![Fig. 5: One week after the preparation procedure, healthy soft tissue conditions are obtained. They lay the foundation for a high-quality precision impression.](image5)

![Fig. 6: In order to allow for a detailed capture of the preparation margins, the gingival tissues are retracted using the double-cord technique. Alternatively, a single cord may be applied in combination with 3M™ Adhesive Restorative Paste.](image6)

![Fig. 7: Monophase impression taken with 3M™ Impregum™ Posterior Soft Polyether Impression Material. A very detailed representation of the preparation margins is obtained with this simple technique.](image7)

![Fig. 8: Situation at intraoral try-in of the crown. If a crown is made of a 3M™ laval® Zirconia coping and an IPS e.max® Ceram (Ivoclar Vivadent) porcelain layer, ideal intraoral conditions (smooth margins, healthy tissue) are visible.](image8)

![Fig. 9: Sandblasting of the crown’s intaglio surface to create a microretentive surface structure that is beneficial for cementation. This procedure is recommended for oxide ceramic materials.](image9)

![Fig. 10: Application of self-adhesive resin cement* into the crown. This proven product offers a simplified procedure since it eliminates the need for separate etching, priming and bonding.](image10)

![Fig. 11: Situation after crown placement, removal of the excess cement and thorough cleansing. The crown blends in nicely with the surrounding tooth structure.](image11)

![Fig. 12: At the check-up several days after crown placement, a great overall picture is obtained. The patient is happy with the final restoration in terms of aesthetics and function.](image12)

Comments

The described case shows that it is possible to significantly reduce the number of working steps in an indirect restorative procedure. In this way, potential sources of error are eliminated and chair-time is decreased. Key to its success is the use of innovative, high-quality materials that offer ease of use and lead to increased efficiency in the dental office. These include the above-mentioned monophase impression material, the bulk fill composite, the temporization material that does not require polishing and the self-adhesive resin cement all offered by a single manufacturer.

*Relay™ U220 self-adhesive resin cement in the MEA Region

3M Oral Care at SDS

By 3M

3M Oral Care participated in the Saudia International Dental Congress held at the Riyadh International Convention and Exhibition Center in the Kingdom of Saudi Arabia from 9-13 Jan 2007. Dr Sabrosa was invited as one of the guest lecturers at the conference and was awarded the Clinical Research Award in 1995 and 1996 and the Tylman Research Grant Award in 1993 from the American College of Prosthodontists.

![Dr. Carlos Eduardo Sabrosa, Rio de Janeiro, Brazil](image13)

Dr. Sabrosa is an Associate Professor at the State University of Rio de Janeiro Dental School. He earned his DDS in 1992 from the State University of Rio de Janeiro Dental School and the Clinical Advanced Graduate Studies (CAGS) in Prosthodontics from Boston University Goldman School of Dental Medicine in 1996. He earned the Steven Gordon Research/ Clinical Award in 1995 and 1996 and the Tylman Research Grant Award in 1993 from the American College of Prosthodontists. Dr. Sabrosa also received his MD and DScD in Prosthodontics/Biomaterials from Boston University Goldman School of Dental Medicine in 1997 and 1999 consecutively. He has a private practice, focusing in Oral Rehabilitation and Implantology, in Leblon, Rio de Janeiro, Brazil.

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HeraCeram® Zirkonia 750
The "cool" solution for LiSi and zirconia

By Kulzer

Why use two ceramics when all you need is one? HeraCeram Zirkonia 750. One ceramic for every type of zirconia and lithium disilicate restoration. HC Zirkonia 750 stands out with its unique and revolutionary adhesive, ultrafine particle size, highly extended gingival range, and increased shade selection. And it's now antagonist-friendly due to increased density, ensuring long-lasting and unrivalled natural looking restorations.

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Abouabdeh Elwaa
Area Manager Middle East
P: +97 (1) 4 294 35 62 (Office)
F: +97 (1) 4 294 35 63
M: +97 (1) 56506 89 76
E: abouabdeh.elwaa@kulzer-dental.com
W: www.kulzer.com

Class II DO on Second Bicuspid. Case Study

By Dr. Enrico Cogo, Italy

3D rings are the real topic of Garrison’s systems. The “v” shape of a ring that fits in the interproximal area allows a good fit between the cavity margins and the matrix in the buccal and palatal walls. This results in easier positioning of the composite masses close to the cavity margins, and final remodeling (usually necessary at the time of removal of the matrix) will be very minimal. The rings also permit a divergence of the interproximal dental elements, which causes a great point of contact. Garrison systems make second class restorations more simple and more predictable and also reduce the operating time of the finishes when the matrix is taken off.

Pre-op situation. Patient needs to replace an old amalgam restoration on 1.5.

Picture of the cavity after removing the amalgam restoration and after performing the cleaning of cavity.

Situation after removing ring, matrix and wedge. Good position the matrix and the use of an adequate ring allows minimum interproximal finishing at the end of the stratification.

Dental elements are isolated with rubber dam to avoid contamination of the area and improve visibility.

After finishing of the cavity, a sectional matrix Compasio® Tight 4.6 mm, a wooden wedge and 3D XR ring are placed. The ring is placed on the wedge and causes a slight divergence which will result in an excellent point of contact at the end of the restoration.

Aboubakr Eliwa
Area Manager Middle East
P: +97 (1) 4 294 35 62 (Office)
F: +97 (1) 4 294 35 63
M: +97 (1) 56506 89 76
E: aboubakr.eliwa@kulzer-dental.com
W: www.kulzer.com

Dr Enrico Cogo DDS
Dr. Cogo graduated from the University of Ferrara, Italy with a degree in Dentistry in 2005. Since 2006, he has been a visiting professor at the Dental School of the University of Ferrara. Dr. Cogo is also a frequent speaker at courses and conferences on dental bleaching and esthetics, as well as direct and indirect adhesive restorations. He is the author of several scientific articles in national and international journals, and with his associates, Pietro Sibilla and Roberto Turrini, wrote the book “Sbiancamento dentale: metodi per il successo,” edited by Quintessenza Edizioni and translated into German. Dr. Cogo also has private practices in Legnago (Ferrara), Ferrara, Gobbi (Mantova) and San Giuseppe (Ferrara).

Post-op view after polishing and check occlusion. A good contact area is performed between elements 1.5 and 1.6.
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SDR® Plus – The only bulk-fill material with multiple years of clinical success

By Dentpolly Sirona

In 2009, SDR® was the first technology that allowed gram bulk placement in flowable consistency, providing an unmatched combination of consistency, excellent cavity adaptation, unique self-leveling and minimal shrinkage stress. Now, with the introduction of SDR® Plus, all the benefits of the SDR® technology remain plus expanded indications, more shades, improved wear resistance and increased radiopacity. While making Class I and Class II restorations faster and easier, the SDR® technology in SDR® Plus material still provides excellent long-term reliability in several 5 and 6-year clinical studies. In fact, the long-term survival rates of bulk fill restorations with SDR® technology proved to be equivalent to those of restorations done in the conventional layering technique, highlighting SDR® Plus as a quality and durable filling material.

Split mouth studies by J.W.V. van Dijken and U. Pallesen

During the 6-year follow-up, a total of 58 Class I and Class II restorations were evaluated at recall 49 using SDR® and Ceram·X® SphereTEC™ in the bulk-fill technique against the same number using just ceram.

![Image](https://example.com/image.jpg)

“During the six year follow up, the bulk fill technique was proven to be a clinically safe, highly acceptable, clinically durable.”

![Image](https://example.com/image.jpg)

“The use of a 4mm incremental technique with the flowable bulk-fill resin composite showed during the 5-year follow up slightly better, but not statistically significant, compared to the conventional 2mm layering technique in posterior resin composite restorations.”

36 month clinical trial results by J. Burgess and C. Munoz

The initial study entailed 170 restorations where SDR® was bulk filled in increments of gram and then capped using Dentpolly Sirona’s new discontinued composite material Esthet-X® HD. Since the beginning of the trial the restorations have been individually evaluated at 12, 24 and 36 months. At each evaluation, parameters for assessment were fracture and surface defect, proximal contact, recurrent caries, sensitivity and gingival index. We are pleased to announce that the key findings of the clinical evaluation were as follows:

- There were no failures attributable to SDR®
- Acceptable performance with respect to safety and efficacy after 3 years
- No post-operative sensitivities have been reported related to SDR®
- No recurrent caries associated with SDR®
- No reports of adverse events
- No adverse effects on the gingiva in contact with SDR®

“...were no observations of recurrent caries associated with the low stress resin and no reports of adverse events throughout the duration of the trial.”

Conclusion

With more than 50 million applications since its introduction in 2009 and superior performance in clinical studies, it comes as no surprise that SDR® Plus has become the bulk fill technology of choice for the creation of reliable direct restorations.

For more information or to request a demo, please contact your local Dentpolly Sirona representative.

References


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