



Dr. Federico Del Bianco is currently a 3rd year PhD student at DIBINEM, Alma Mater Studiorum - University of Bologna (Italy). In 2013, he obtained his Dental Master degree at the same university. Thereafter, he enrolled in the Master in Aesthetic and Restorative Dentistry directed by Professor Lorenzo Breschi, and two years later, he obtained his master degree presenting a case series regarding indirect composite restorations. After that, he worked as a tutor at the department of Restorative Dentistry - University of Bologna from 2015 to 2019. During his academic career, he became passionate about CAD/CAM technologies applied in dentistry. Hence, in 2019, he started his PhD on "Longevity of indirect CAD/CAM chairside restorations" under the supervision of Prof. Breschi. In particular, his research is focused on adhesive performance on CAD/CAM materials compared with traditional ones, exploiting Prof. Breschi's experience and knowhow in the field of adhesive dentistry.



Dr. Claudia Mazzitelli obtained her Dental Degree at the University of Siena (Italy) in 2003. From 2005 to 2010, she worked on her PhD in "Biotechnologies: section of Dental Materials" at the University of Siena. During that period, she also specialized in Dental Materials and worked as a tutor at the Master in Dental Occlusion and removable prosthetics. She held a research fellowship at the university of Granada (Spain- from 2006 to 2010, where she also obtained a PhD-degree in "Adhesion in Dentistry". From 2007 to 2020, she had various assignments at the Universities of Bologna and Sienna. Since 2020, she is a Contract Professor at the University of Bologna, Italy, where she also holds a Research fellowship. Dr Claudia Mazzitelli is a member of Accademia Italiana di Conservativa (AIC), Academy of Dental Materials, and the International Academy of Dental Materials (IADR). She devoted her scientific research to studying the adhesion of dental materials to different tooth substrates, publishing original papers on peer-reviewed journals with an H-Factor of 13.

The beauty of one simple solution for day-to-day procedures.

By Dr Federico Del Bianco and
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Dentistry continues to evolve on multiple levels, with a growing arsenal in restorative materials, each new product promising easier handling and even better results. And yet, as long as we are relatively satisfied with the products we are using, we are not prone to change the workflow we feel familiar with. After all, we want our procedures to be predictable and repeatable. However, a change may improve this as well, especially in the long term.

The following case report demonstrates the use of a universal dual-cure self-adhesive resin cement for luting CAD/CAM lithium disilicate restorations. It shows a way not only to simplify the workflow, but also to reduce the inventory, while obtaining qualitative and reliable results.

A 45-year-old woman visited the dental clinic from the University of Bologna (Italy) for a check-up. Except for bruxism, no findings were withheld from the medical history. Clinically, the patient had several old conservative restorations in all quadrants and a post and crown on tooth 46. She felt discomfort during chewing and sensitivity to cold in the first quadrant, more specifically, teeth 15, 16 and 17. The direct restorations on these teeth showed fractures and marginal infiltration. The radiograph showed recurrent caries at the proximal margins (Fig. 1). It was decided to restore these teeth with CAD/CAM lithium disilicate restorations (Initial LiSi Block, GC; Shade A3 HT, size 14).

Lithium disilicate has become one of the most versatile materials in dentistry, with numerous studies and many

years of clinical evaluation. It is widely applicable for many indications as it is strong as well as aesthetic.

After rubber dam placement, the old restorations were removed and the teeth were prepared for adhesive indirect restorations, with chamfer preparation and rounded internal edges (Fig. 2). After etching (Figs. 3-4) and adhesive application (G-Premio BOND, GC), the teeth were built up with G-ænial Universal Injectable (GC) (Fig. 5).

Next, the preparations were scanned by means of an intraoral scanner. The restorations were designed in the software and consequently milled.

After removal of the sprue, the restorations were tried in the oral cavity. When the fit had been confirmed, the

restorations were polished to high gloss with low speed and light pressure. Initial LiSi Block, which was used for this case, is a fully crystallized lithium disilicate block that is easy to be milled and polished in its final state. No crystallization firing is needed before polishing, saving time and maintaining the highest marginal precision.

To prepare the restorations for cementation, hydrofluoric acid gel (5-9%) was applied to the inner surfaces of the restoration for 20 seconds. Then, they were ultrasonically cleaned and dried. Finally, G-Multi PRIMER (GC) was applied and allowed to dry.

The prepared teeth were isolated with rubber dam again and cleaned and dried. G-CEM ONE (GC) was chosen for the cementation procedure. It is a



Fig. 1: Initial situation. Intraoral view and X-ray. The restorations in the first quadrant showed caries, fractures and marginal infiltration. The patient felt discomfort during chewing and sensitivity to cold in this region.



Fig. 2: After placement of rubberdam and removal of the old restorations



Fig. 3: Enamel etching (35% phosphoric acid)

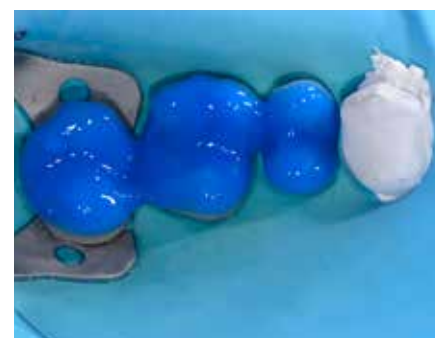


Fig. 4: Brief dentine etching

universal dual-cure self-adhesive resin cement with high adhesive bond strength. The beauty of this system is that it can be used for extended indications when its optional Adhesive Enhancing Primer (AEP) is used additionally, providing one solution for all cementation procedures, which enables us to reduce the inventory and to maintain consistency in the protocol. The AEP does not need to be light-cured but can simply be applied to the tooth and dried with maximum air pressure. With its Touch Cure technology, curing is enhanced independently of light. It does not only overcome issues with light transmission, but overcomes other challenges as well, such as low retention or saliva contamination. In this case, the AEP was applied and dried on all restorations to guarantee optimal bond strength. G-CEM ONE was applied on

the intaglio surface of the restoration and seated onto the preparation. The handling was easy, with a pleasant extrusion force and the size of the syringe perfectly fitting the hand. Excess cement was very easy to remove, once the cement had reached a rubbery consistency.

The most distal restoration was cemented first, followed by 16 and 15, respectively.

For final setting, all margins were light-cured. After removal of the rubber dam, the occlusion was checked.

The patient was satisfied with the treatment. The restorations were integrated well and the symptoms had completely disappeared as mentioned during the follow-up appointment.

Conclusion

A reduced inventory without limiting any possibilities is very convenient. It is easier to keep track of the stock and the same procedure can be used for every situation, taking out any possible confusion. Therefore, products with universal indications and a wide indication range are very appealing. The wide applicability and practical finishing options of Initial LiSi Block have already been mentioned. Self-adhesive resin cements simplify the cementation of retentive preparations, but light-cure resin cements with separate steps provide better long-term results when preparations have less-than-ideal retention. With G-CEM ONE, with its excellent handling, impressive features and truly universal application with the AEP, we have a long-desired product at hand. Together, they form a strong solution to cover most of our everyday indirect indications.

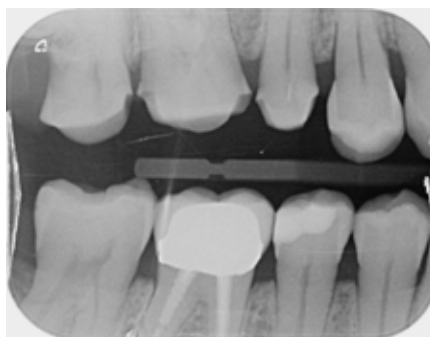


Fig. 5: After build-up and preparation. Intraoral view and X-ray



Fig. 6: Printed model and Initial LiSi Block (GC) restorations



Fig. 7: Final result. All symptoms had disappeared at the follow-up appointment.