Predictable steps to Biomimetic Class IV restorations

By Dr. Anand R. Narvekar, India

Introduction

Composite Artistry has become an important element of direct restorative treatment in dental practice today enabling clinicians to create life-like restorations with individualized characterizations to match the patient’s natural teeth.

Anterior restorations in the aesthetic zone tend to constantly challenge the clinician’s skill, therefore it is important to plan carefully by combining art and science. Adopting the Minimally invasive Cosmetic Dentistry (MiCD) concept introduced by Dr. Sushil Kotala in my treatment protocol with emphasis on preservation of natural tooth structure “Do No Harm Dentistry” has helped create predictable aesthetic restorations that exceed patient expectations. Fractured upper central incisors are one of the most common cases of dentoalveolar trauma in the permanent dentition. The following clinical case highlights a simple technique to achieve predictable aesthetics with natural optical characteristics in a Class IV restoration using a sculptable bio-mimetic direct restorative “Beautifil II LS”.

Materials


Mock Up

An impression is taken and model poured using die-stone material. Freehand build up of composite for both teeth to evaluate the final outcome. Both teeth were carefully analyzed and identified that each tooth required a different recipe for layering the composite material. (Fig. 3) – Silicon putty index made from the plaster model to create an enamel shell to guide the build up of the palatal enamel layer.

Tooth Preparation

• Rubber dam isolation from premolar to molar to premolar, Rubber dam in isolation with floss ties around ended tapered Diamond bur. Freehand build-up of composite for premolar to molar area.

Shade Selection

Vita Shade guide was used for shade selection while teeth was hydrated. Black and white photo is recommended for assessing value. Shade A2 was selected. (Fig. 2)

Step by Step Restorative Technique

Step 1: Tooth preparation – Infinite bevelling of margins to eliminate contamination with sulcular fluid. (Fig. 4)

Step 2: Tooth isolation – Rubber dam in isolation with floss ties.

Step 3: Deproteinization – Freehand build-up of composite for both teeth to evaluate the final outcome. Both teeth were carefully analyzed and identified that each tooth required a different recipe for layering the composite material. (Fig. 3) – Silicon putty index made from the plaster model to create an enamel shell to guide the build up of the palatal enamel layer.

Step 4: Adhesive system – Etchant and 2 step Adhesive system (FL-Bond II)


Step 6: Bite registration – Palatal wax rim after finishing the composite build-up for further retraction of gingiva to eliminate contamination with sulcular fluid (Fig. 4).

Step 7: Nitrous oxide Inhalation for patient comfort.

Step 8: Final waxing for occlusal pantomorph.

Step 9: After and after photos taken in the delivered state of the restoration.

Step 10: Thin layer of “Beautifil II LS shade A2” placed after placement of Cominum anterior matrix band with silicon wedge between both central incisors for better contact and contour of the tooth.

Step 11: Final enamel layer build-up with Beautifil II Enamel shade HVT of high value translucent material and finished with an art brush in horizontal motion strokes.

Step 12: After contouring, finishing done with dura white stone.
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SHARJAH, UAE: The University of Sharjah organized the first regional ConsAsia 2018 conference of the Asian and Oceanian Federation of Conservative Dentistry (AOFCD). The conference comes under the theme ‘Contemporary Conservative Dentistry’. Innovations for Tomorrow – Practice’ The University’s College of Dentistry organized the Conference in collaboration with the EFCD and the Dental Division of the Emirates Medical Association (EMA), and with the participation of over 300 attendees.

位 restorative procedures, endodontics and implant dentistry. They are aimed at achieving a high level of aesthetic and functional outcomes. The clinical cases presented during the conference highlighted the importance of patient education and involvement in the decision-making process.

Clinical Tip: avoid touching the line angles. It is often challenging to restore cases with small fractured facial edges as there is limited space available to manipulate and blend the composite shades.

Proper understanding of the composite material and optical properties of different shades is crucial for this patient and create restorations that harmonize with natural teeth. Attention to detail was key to achieving surface characterization to maximize the aesthetic outcome of the restoration.

The use of a proper protocol for finishing and polishing helped achieve a glazed-like composite surface similar to ceramic or natural teeth as seen in the extreme close up clinical photographs.

Conclusion

The before and after clinical photos of this patient case highlights that predictable life-like restorations can be created to mimic composite surface using a conservative approach with minimal tooth preparation, selection of the right type and shades of composites followed by a comprehensive finishing and polishing protocol.

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Fig. 15: Before and after image digitally overlapped to showcase extent of actual build-up of the composite restoration

Fig. 16: Ventral view of maxillary anterior teeth showcasing the mimetic aesthetics of composite resin with a close match to natural tooth transparency and effects in the incisal area

Fig. 17: Artistic side view of both dental arches in anterior guidance 1 week post-treatment showcasing complete rehabilitation of teeth and natural life-like aesthetics

Amongst the list of VIP attendees included Prof. Elsiddig Ahmed El-Mustafa EIS, Vice Chancellor for Academic Affairs, attended the ConsAsia along with Prof. Qasimya Hamid Al Healy, Vice Chancellor for Medical Colleges and Health Sciences and Dean of College of Dental Medicine, Dr. Majid Al Jarwan, Vice Chancellor for Public Relations, Prof. Byenghoon Hoon Cho, President of the AOFCD and ConsAsia 2019, Prof. Hien Chi Ngo, Dean of the College of Dental Medicine, Dr. Aisha Sultan, President of the Dental Division of the EMA, and a number of faculty and staff members at the University.

Dental Tribune had the pleasure to interview Prof. Byenghoon Hoon Cho, President of the AOFCD and Consasia 2019 to get his view on the conference in the Middle East and beyond.

Could you please share with us an introduction about yourself and your experience as president of the AOFCD.

I am Byenghoon Cho, Professor and Chair Professor of Department of Conservative Dentistry, Seoul National University School of Dentistry, Seoul. Korea. I am also the Founding President of the Asian-Oceanian Federation of Conservative Dentistry (AOFCD), the President of the Local Organizing Committee (LOC) for its inaugural scientific meeting, ConsAsia 2019, Seoul, Korea, the immediate past president of Korean Academy of Conservative Dentistry (KACD), and an Associate Editor-in-Chief of the Restorative Dentistry & Endodontics. I am establishing the AOFCD and organizing its biennial scientific meeting, ConsAsia.

When the ConsAsia initiative was proposed by the KACD, 16 scholars from 9 countries joined the first preparatory meeting and showed interest in founding an international organization in the field of Conservative Dentistry. Although the ConsAsia is a very dynamic discipline, there has been no international organization, except ConSAsia, which is hosted by European Federation of Conservative Dentistry (EFCDS). I felt they were eager for a platform where they could collaborate and communicate with each other in education, research, and practice in the field of Conservative Dentistry.

Considering the dynamic features of Conservative Dentistry, we all needed to have a platform where we could meet and communicate with each other and collaborate for the innovation and the future of Conservative Dentistry, so it was possible to establish AOFCD and hold ConsAsia. The International ConsAsia scientific conference will promote academic pride and clinical excellence for scholars, researchers, students, and clinicians in the field of Conservative Dentistry. Ultimately contributing to the quality of care and improving oral health in the region.

For our MEA audience, could you please provide more information about the AOFCD and ConsAsia? It is established to contribute to the promotion of oral health in the public interest and to facilitate communication and cooperation amongst the members in the Asian and Oceanian regions by encouraging excellence in the clinical practice, teaching, and research in Conservative Dentistry in the region.

In the early days of 2016, the ConsAsia initiative was proposed by the KACD to construct a network among the clinicians, researchers, and scholars of Asian and Oceanian countries in the field of Conservative Dentistry, and as a result, to contribute to improving the oral health of the populations in these areas. Hence, the KACD proposed to establish AOFCD and hold biennial ConsAsia scientific meetings.

At first, scholars from 4 countries (Australia, Hong Kong, India, Japan, Korea, Singapore, Malaysia, New Zealand, and Taiwan) agreed with the initiative and met first in Seoul, Korea, on October 21, 2016 (first preparatory meeting) and chose the name of the first preparatory meeting, the LOC for the first ConsAsia