

# Composite or Ceramics in the anterior region?

Ajay Juneja, Dubai.

## 3M<sup>SM</sup> Health Care Academy

When a patient presents in the dental office with the desire or need for restorative treatment in the anterior region, we usually have to choose between direct composite and indirect ceramic restorations. The general advantages and disadvantages of both materials and production procedures are very well known: direct restorative treatment with composite is less time consuming and costly, and usually more conservative. Ceramic restorations are considered to offer a higher stability and lead to the best possible results in terms of long-term aesthetics. In addition, they may have a more positive effect on periodontal health. Even with this knowledge in mind, many variables have to be taken into consideration for the selection of the best suitable treatment option in every individual situation. Treatment success is not only dependent on the clinical situation and the expectations of the patient, but also on the skills of the practitioner. StyleItaliano™ suggests to take three main factors into account for the decision: the aesthetic expectations, the financial investment the patient is willing to make, and the time available for the treatment.

### StyleItaliano™ recommendations

The recommendation is to create direct composite restorations if a patient would like to invest a minimum of time and money and aesthetics are not the most important factor. The same approach is usually selected for patients who are willing to invest moderate time and cost, and are more demanding in terms of aesthetics. While a single-shade technique is the technique of choice for the first group, a two-shade technique is preferred in most cases belonging to the second group. Depending on the complexity of the tooth structure, stains may be added between the dentin and enamel layers. Ceramic veneers are regarded as the best suitable option for patients who stress that time and money are not an issue and the aesthetic expectations are extremely high.

### Additional factors

In my opinion, these recommendations are a good starting point for decision-making. Additional factors I take into account are the number of teeth involved – ceramic veneers seem to be better suited when more than two anterior teeth are to be restored – and the age of the patient. In very young patients with a mixed dentition, direct composite is the way to go as the material allows for adjustments whenever needed.

Both procedures may lead to great results. Clinical tips and tricks that help achieve good outcomes are given below in two case examples.

## Case 1: Two-layer technique with composite



Fractured central incisor to be restored with composite using a two-layer technique.



Treatment result with a good optical integration and invisible margin.

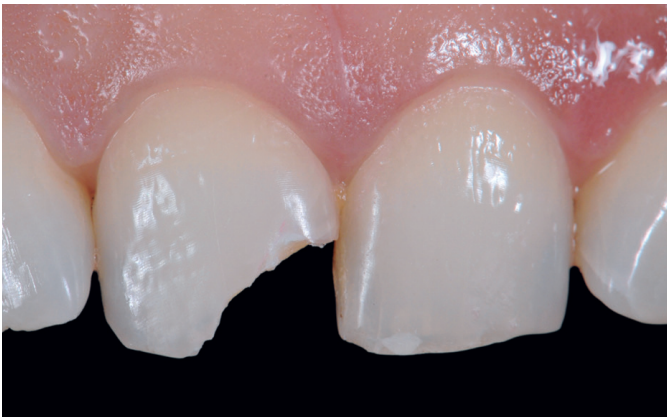


Figure 1: Fractured central incisor one day after the trauma. The margin is irregular with different levels of opacity due to enamel prisms broken at different depths and angles. Moderate time and money available and high aesthetic demands make this case ideally suited for a two-layer technique with composite.



Figure 3: Once the bevel is created in a wave-shaped instead of straight line, the margins are smoothed with a ceramic polishing rubber.



Figure 2: The greatest challenge in this case lies in the creation of an invisible margin, which is ensured by a long bevel with a smooth surface. The first step in this process is the creation of a bevel at least 2 mm beyond the fracture line using a 40 µm diamond bur.



Figure 4: The bevel is finished with 3M™ Sof-Lex™ Extra-Thin Contouring and Polishing Discs.





Figure 5: Result of the procedure at the try-in of the silicone index used to create the palatal wall. The tooth is now ready for selective enamel etching, bonding with 3M™ Scotchbond™ Universal Adhesive and the application of the two initially selected opacities of 3M™ Filtek™ Supreme XTE Universal Composite.



Figure 6: Situation after build-up of the palatal shell and proximal wall with composite in the shade A2E and application of the dentin core. Before creating the mamelon structure, it is essential to ensure that the space left for the final enamel layer is exactly 0.5 mm. The Misura Instrument (LM-Instruments) is very useful in this context.

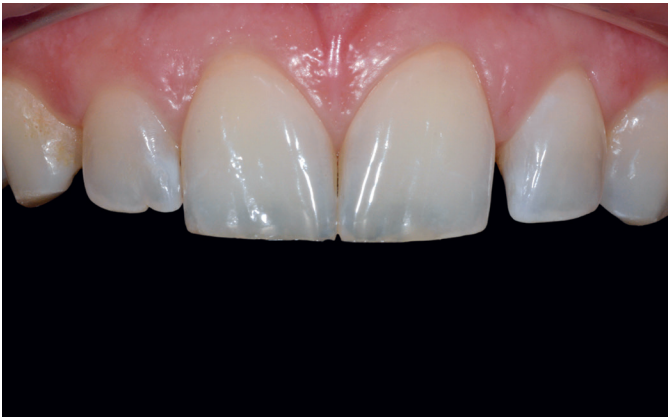


Figure 7: Tooth surface following the use of a fine flame bur (Perio Set). The pronounced macro and micro-structure is essential for a natural appearance with light reflection, refraction and scattering similar to that of the adjacent tooth.



Figure 8: Treatment result after polishing with a rubber polisher, discs and a jiffy goat hair brush used with polishing paste. Thanks to the wavy bevel and the surface texture, the restoration margin is virtually invisible.

## Case 2: Ceramic veneers



This patient is unhappy with her smile, the spaces between her maxillary anterior teeth and the tooth colour.



Aesthetic ceramic veneers in place as a result of a complex procedure involving composite mock-ups and bleaching.



Figure 1: This 36-year-old female patient presented for aesthetic reasons. She wanted the spaces closed without needing to go through orthodontic treatment, and desired a fuller smile as well as a brighter color of her teeth. Due to extraordinarily high aesthetic demands and no limitations in time and cost, we opted for ceramic veneers from first premolar to first premolar.



Figure 3: Preparation through a second direct mock-up created exactly according to the wax-up. This, in turn, was designed based on impressions of the first mock-up, a facebow transfer and clinical photographs used for smile design. During the production phase, tooth bleaching was carried out at home for ten days.



Figure 2: Composite mock-up (3M™ Filtek™ Supreme XTE Universal Restorative A2B) produced for aesthetic evaluation and checking of phonetics and function. It is suggested to use a body shade for this purpose. A light enamel shade often gives the mock-up a greyish appearance which will limit patient satisfaction.



Figure 2: Preparation through the mock-up using instruments with depth-orientation grooves enables the clinician to preserve healthy tooth structure, as only the required amount of hard tissue is removed. Moreover, it ensures bonding in enamel, which is most predictable and successful.



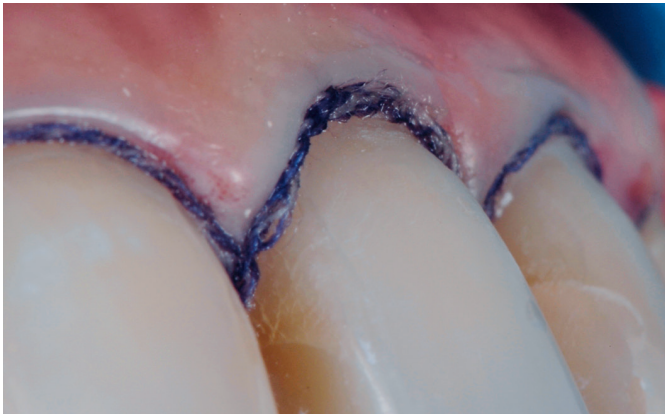


Figure 5: Retraction of the gingiva using the double-cord technique for final impression taking. The photograph also displays the smooth surface structure created with 3M™ Sof-Lex™ Contouring and Polishing Discs to achieve optimal bonding results.



Figure 7: Treatment result.



Figure 6: Feldspathic ceramic veneers in place. In order to obtain good aesthetic results and restoration longevity, it is decisive to ensure a dry working field. In addition, it is important to pre-treat the ceramic surface and teeth correctly and to use an aesthetic, translucent, high-performance resin cement (3M™ RelyX™ Veneer Cement in this case) according to the manufacturer's instructions.



Figure 8: Harmonious smile meeting the patient's expectations. The diastemas are closed, the embrasure forms optimised and teeth brighter as desired.

## Conclusion

Chosen correctly, direct and indirect restorative techniques can be used to produce highly aesthetic outcomes in the anterior region. In order to ensure consistent and predictable results, it is recommended to standardise the decision-making process and to establish standardised clinical protocols, which bring more routine into the procedures. The criteria and procedures described in this article are examples of how this mission may be accomplished.



## Dr Ajay Juneja, BDS, MDS, MSc

Dr Ajay Juneja completed his BDS in 1995, and obtained his MDS from the University of Mumbai, India, in 1998. After having worked in India for several years, he became a Specialist Prosthodontist in Dubai in 2002. He completed a one-year master's program in Esthetic Dentistry at the University of California, USA, in 2011. Currently, he works at the Dental Studio in Dubai as a Prosthodontist and Cosmetic Dentist.

### Contact:

👤 Dr Ajay Juneja, BDS, MDS, MSc  
Cosmetic Dentist at the Dental Studio, Dubai  
✉ [junejadrajay@yahoo.com](mailto:junejadrajay@yahoo.com)

## Contact 3M

### Australia

3M.com.au/dental

### New Zealand

3M.co.nz/dental

## Scientific Affairs

### Stephen Langdon

Email: [sdlangdon@3M.com](mailto:sdlangdon@3M.com)

3M Health Care Academy



### 3M Oral Care

**3M Australia Pty Limited**  
Building A, 1 Rivett Road  
North Ryde NSW 2113  
Ph: 1300 363 454  
3M.com.au

**3M New Zealand Limited**  
94 Apollo Drive  
Rosedale Auckland 0632  
Ph: 0800 80 81 82  
3M.co.nz



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