KETTENBACHDENTAL
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# Aesthetic reconstruction of a fractured dental element

The development of increasingly advanced materials and methods in modern dentistry makes it possible to rehabilitate even highly compromised dental elements with optimal aesthetic results in a minimally invasive manner.

The patient presented to my observation with a fracture of element 1.1 due to trauma following a fall.

After a detailed objective and radiographic analysis, we were able to assess both the extent of the fracture and the vitality of the tooth element, which was fully maintained.

The clinical conditions also associated with the patient's young age prompted us to implement a minimally invasive treatment plan characterized by direct composite resin reconstruction of the dental element in question.

The first step is a careful photographic analysis to define the shape and color, and the development of the plaster model on which a wax-up will be made that will be used to print a silicone guide mask.

After isolating the surgical field by means of a rubber dam – an essential requirement for maximum adhesion – and after performing adhesive procedures with an enamel etching and the application of primer and bonding, the reconstructive phase begins.

The first step is characterized by the creation of the palatal wall with a high-value enamel (Shofu HVT), which will provide support throughout the reconstructive phase.

Next, we create the frame of the tooth, defining the mesial and distal profile with a Body mass (Visalys® Fill A1) and the incisal plate with a white mass (Visalys® Fill BL).

This is followed by a very important step, i.e. the placement of the opaque dentin mass (Visalys® Fill OA2) that has to be layered in the transition zone between the tooth and the reconstruction.

This procedure is critical because improper layering would result in the formation of a gray halo at the end of the restoration and poor integration of the restoration.

After that we focus on the incisal third and all those anatomical components typical of this portion of the dental element, especially in a young patient: Creation of mamelons with dentin mass (Visalys® Fill OA2) and the use of composite mass (opal color from Kerr) that in this case maximizes the natural opalescence effect.

The last step is the layering of a enamel mass (Shofu HVT) to cover the entire reconstruction. The surface enamel layer must be very thin, otherwise there would be a risk of a decreased value at the end of the reconstruction.

After that, the restoration finishing phase begins. The discs allow us to create the correct profiles and transition lines where the light will impact. Using a very fine bur, we define the vertical and horizontal micro and macro texture. Finally, the use of non-aggressive rubber points allows us to polish the restoration properly.

The patient is seen again after one week, the time it takes to achieve proper rehydration of the material. At this point we are ready to perform a new photographic analysis that allows us to assess the integration of the work.

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## DR. RICCARDO PERPETUINI

He graduated in dentistry and dental prosthetics in March 2018 from the University of Foggia. After graduation, he continued his education by attending national and international courses and conferences with a particular focus on minimally invasive restorative dentistry. Founding member of the Italian Society of Dental Prosthetics and Oral Rehabilitation (SIPRO), active member of the Italian Academy of Dental Aesthetics (IAED), active member of the European Society of Cosmetic Dentistry (ESCD) and certified member of the Friends of Brugg.
Speaker on the "Prosthodontic Course Q&O" and Tutor for Dr. Luca Tacchini's Conservative Dentistry course. He practices dentistry at Perpetuini Dental Practice and Italian Dental Creation, with a special focus on Prosthodontics and Conservative Dentistry.


Fig. 1: Tooth fracture

Fig. 2: Isolation with rubber dam

Fig. 3: Silicon index

Fig. 4: Enamel etching

Fig. 5: Palatal wall

Fig. 6: Incisal margin

Fig. 7: Dentinal architecture

Fig. 8: Layering of an enamel mass

Fig. 9: Before finishing

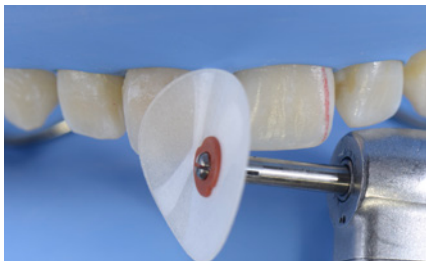

Fig. 10: Finishing procedure

Fig. 11: Surface anatomy

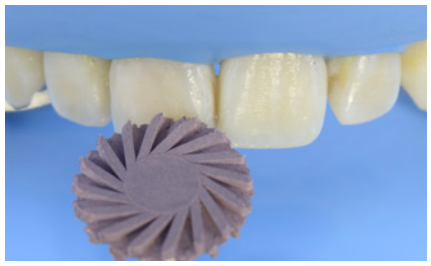

Fig. 12: Lucidatura

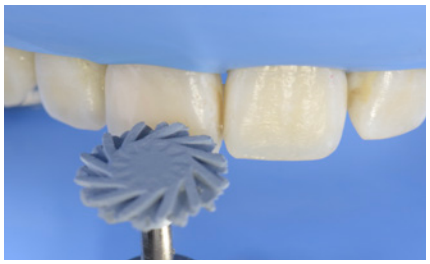

Fig. 13: Glossing

Fig. 14: Final result

Universal nano-hybrid filler composite

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