Substitution of two destructive caries with ceramic CAD/CAM crowns in one visit

By Dr. Pricolo Alfonso, Italy

Introduction
Recently, several new ceramic materials were launched in the market due to the growing demand of safety and aesthetically pleasing prosthetic solutions. CAD/CAM chairside technology has been developed with the aim of manufacturing prosthetic structures with characteristics of constant quality. CAD/CAM technology not only offers the possibility of directly designing a restoration on a computer and automatically obtaining the final product, but also offers many advantages compared to the conventional techniques in terms of speed, precision and ease of use. The following case shows how MyCrown CAD/CAM chairside can change traditional dentistry by opening new ways of solving for both aesthetic and health issues.

Patient first contact
A 52-year-old woman came to my practice due to acute pain in the region of the first quadrant. After a careful, intraoral and radiographic objective examination, we diagnosed destructive caries of teeth 14 and 15.

In the first instance, we performed root canal treatment of the teeth and consequently reconstructed both of them with FiberGlass Posts and covered them with ceramics manufactured by FONA MyCrown CAD/CAM systems.

Treatment
In order to perform the endodontic treatment, we used glasses Zeiss 4.3 X 400. The canals were treated with a protocol, which involves washings by using NaClO and EDTA, while for shaping the canals we used instruments Ni-Ti Protaper gold and, in order to seal them, gutta-percha, associated with the use of pulp canal sealer.

After the root canal treatment, a portion of gutta-percha, 8mm deep, was removed from the canal and the dentin was etched with 37% orthophosphoric acid for 30 seconds and washed with water for 30 seconds more. Afterwards, we inserted the fiberglass pins inside the canals and we cemented and reconstructed them with Relyx Unicem. Subsequently, the teeth were prepared with gingival chamfer hoxta.

After the shoulder preparation, we moved on the treatment with MyCrown. Thus, an OptiGate type dam was positioned in the mouth of the patient and some dry tips were used in order to control the saliva coming from the Steno Duct.

Later on, HD Spray was applied and the scan with MyCrown Scan camera started. First, we scanned the stumps, then the antagonists, and finally we proceeded with scanning the vestibular area, with the teeth in position for maximum contact.

After correlating the models with the software, we started tracing the margins. Moreover, after the definition of the insertion axes, MyCrown Software gave us its design proposal of the crowns. Obviously, software proposal of the crown design is based on the anatomy of the other teeth of the patient. This does not prevent us from modifying the tooth anatomy based on the neighbor and antagonist teeth.

Later on, after checking the contact points with the neighbor teeth and the occlusal contacts with the antagonists, we were able to proceed with the manufacturing phase. Once the milling process was over, we moved on to polishing and painting of the crowns. Obviously, after the finishing process, the crowns were cleaned, dried and cemented with Relyx Unicem. The crowns seem to be perfectly coinciding and integrating with the surrounding teeth, totally closing the margins previously concerned teeth.

Fig. 1: Teeth preparation
Fig. 2: MyCrown view of the can- nected teeth
Fig. 3: MyCrown view of the crown
Fig. 4: Contact points
Fig. 5: Margin tracking
Fig. 6: Software proposal of crowns
Fig. 7: Final result from side
Fig. 8: Final result from below
Fig. 9: Manufactured crowns

Conclusion
This clinical case demonstrates how fast, easy and precise it is to work with FONA MyCrown CAD/CAM chairside system. The woman needed surgical intervention because of a severe pain and after only one visit she went home relieved from this pain and with a perfect aesthetic result. All this has been done with absolute safety and efficiency, without loosing time.

By Dr. Pricolo Alfonso
He graduated from the University “Sec- onda Università degli Studi di Napoli” in Naples in 2005, achieving a degree in Odontology and Dental Prosthesis.