

aesthetics



BY

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Express restoration

for temporary aesthetics

At 11:00am on Friday, Mr X came to Dr Suon's surgery. He had suffered an accident and fractured the first cervical third of tooth 21. The problem was, he was getting married the following morning... hence a very pressing need to restore the appearance of the crown and root. As the practitioner had a Sirona Primescan camera, and the laboratory had the Sirona CAD/CAM equipment, we accepted and rose to the challenge!

“ This equipment, voted innovation of the year, can work miracles, especially in the field of cosmetic restoration ”

After discussing the case with the surgeon, we proposed a single-piece post & core made of

Numerys GF glass fibre from Itena Clinical, to be used in both the temporary and the permanent tooth. The surgeon, who had tried it before and been delighted, agreed. The material is radiopaque, thus allowing a comprehensive check before adhesion. Awarded the prize for innovation by the French Dental Association (ADF) in 2019, this equipment can work miracles in the field of cosmetic restoration. For the temporary crown, we started with the

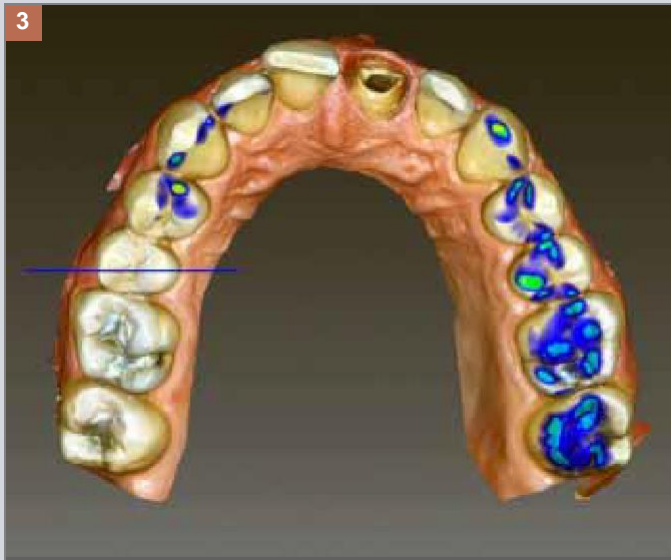
Numerys HC hybrid ceramic, also from Itena Clinical. We were immediately drawn to this material, with its 75% ceramic content, mechanical properties, good appearance and speed of application (see the description of these Itena Clinical materials in the inset that follows the article). Being aware that photopolymerizable surface coatings have a limited life span, which makes them less suitable for use in anterior areas, we planned to apply a definitive stratified ceramic later, when the patient could allow us more time.



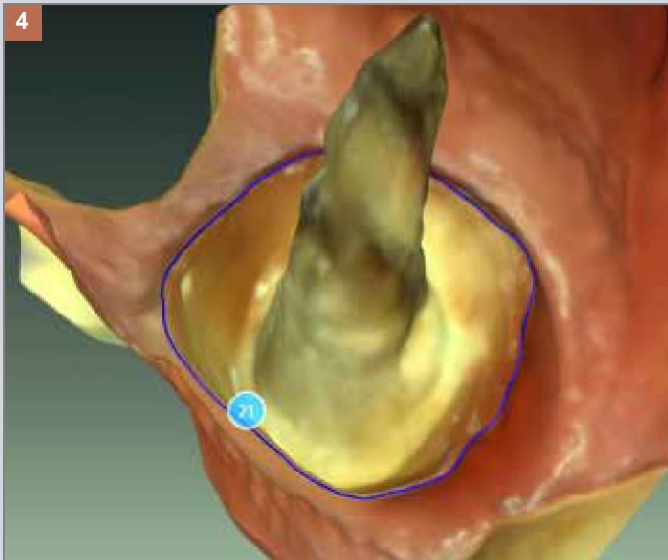
Preparation before digital impression



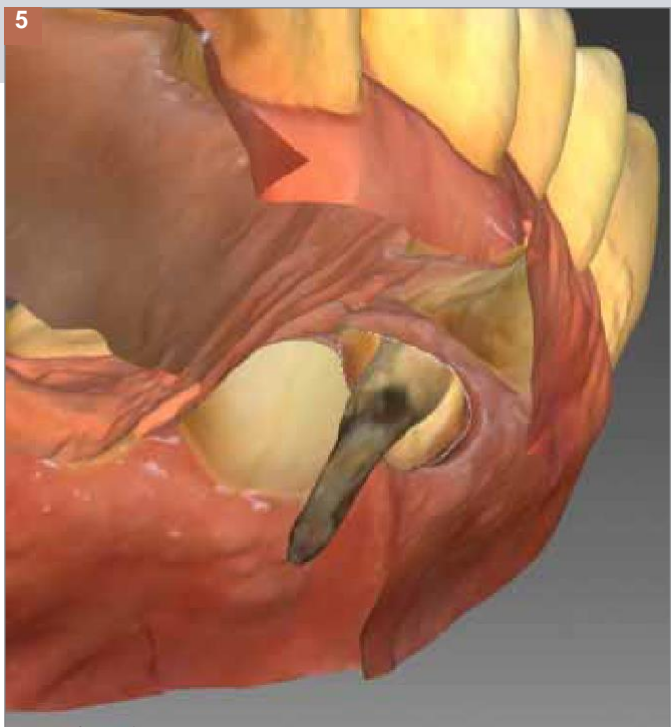
Digital impression made



Digital impression received in the laboratory



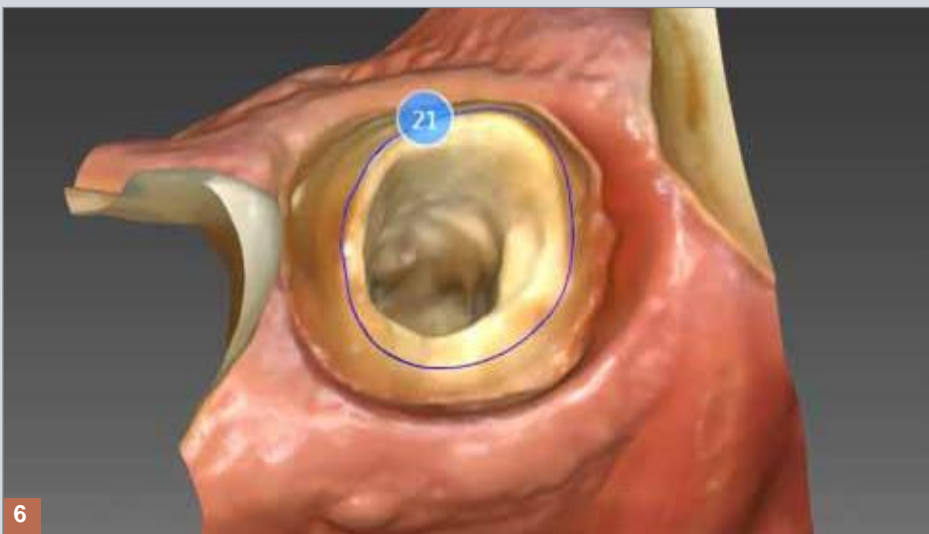
Canal digitized without ScanPost



View of canal in transparency

● **Taking the digital impression and sending it to the laboratory**

At 11:30am, after completing the preparation (photo 1), the optical impression was taken (photo 2) and sent directly via the Sirona Connect portal to the laboratory, which received it instantly (photo 3). The impression was of high quality; the edges of the preparation were clearly visible and it was possible to scan the root canal without ScanPost, thanks to the 20-mm depth of the Sirona Primescan camera's field. This would allow us to perform complete anatomical restoration (photos 4 and 5).



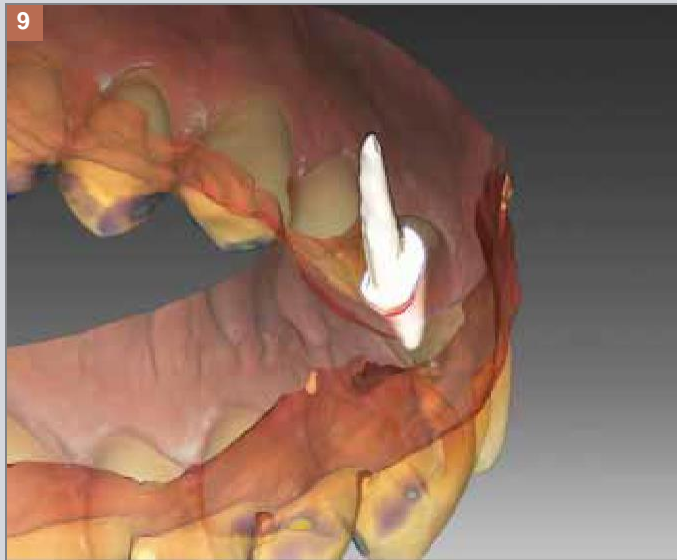
Determining the limit



Axis of insertion



Completed modelling of post & core



Verification with model in transparency

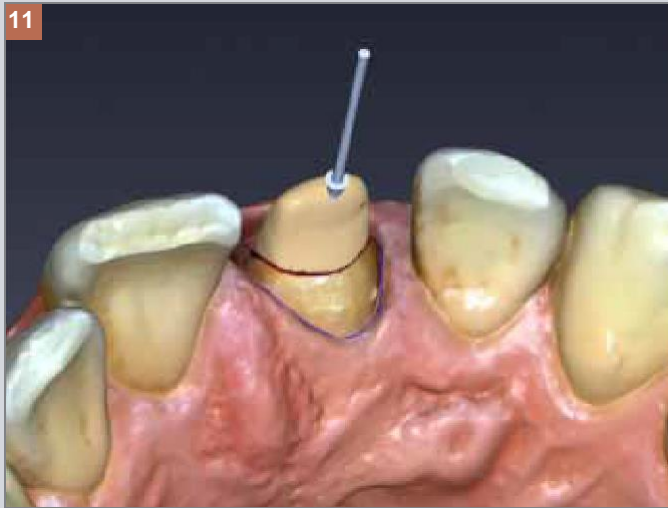
● **Modelling the post & core**

This was where our work as prosthetic specialists began. The peripheral limit of the post & core was defined (photo 6). The axis of insertion of the post & core was determined, and in this case the preparation had been properly carried out, as there were few areas of undercut and the software eliminated them automatically. The fact that the impression could be viewed under all angles gave us optimal control (photo 7). The element was

then modelled (photo 8). Shapes and volumes could be managed easily, and placing the working model in transparency ensured good modelling of the post & core within the canal. Here, it was evident that it matched the root preparation perfectly (photo 9). After modelling, the post & core were sent for milling, and in a few minutes we could remove them from the disc.



Choice of option, mirror copy of 11



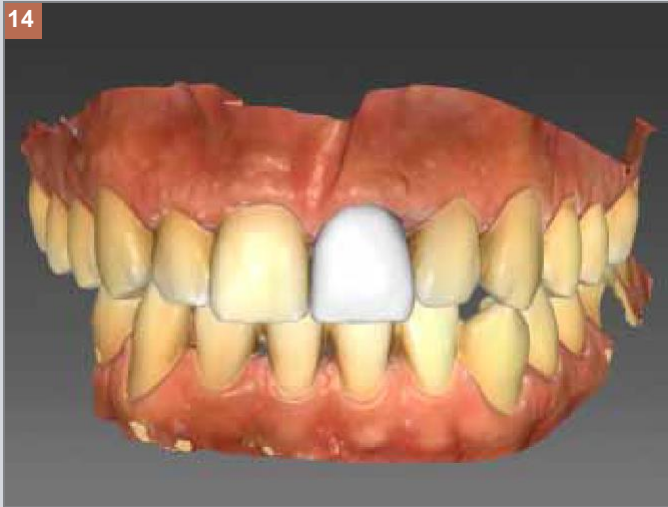
Determining the limit and the axis



Delimiting the mirror copy



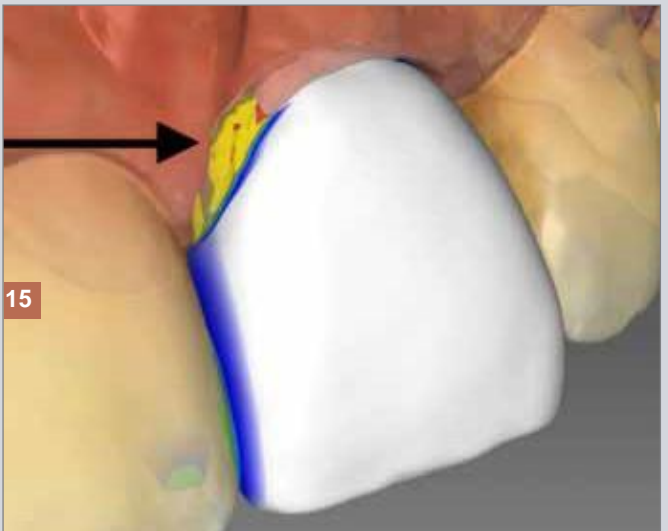
Photos 13 and 14: Modelling of the completed crown



● Modelling the crown

We set about modelling the crown. The virtual post & core was then added to the Scan so that the crown could be superimposed. As tooth 11 had a particularly good shape, we chose to make a mirror copy of it in order to produce the most natural 21 possible (photo 10).

After defining the cervical limit and determining the axis of insertion of the crown (photo 11), all that remained was to select the tooth for the mirror copy (photo 12). After a few adjustments, the modelling process was complete (photos 13 and 14).



Verification of compression (yellow) because of transparency option



Crown ready for machining



Machined post & core



Machined crown



Coatings for the crown

● 3:00pm: post-machining treatment

The other advantage of making the model transparent was that the level of compression of the gingival ring could be monitored (photo 15). The modelling was completed in the same way as for 11 using a mirror copy, and the crown could then be sent for machining (photo 16).

The post-machining treatment was very quick for the post & core, as all that was needed was to remove the rods (photo 17). As for the crown, we removed the stems (photo 18), added some minor surface features and then applied the coating. For the coating, we chose GC Optiglaze (photo 19).



Photos 20 and 21: Inlay applied



Checked for good adjustment Temporary crown inserted to provide a satisfactory result given the urgency; contact points correct

ITENA Clinical products

NUMERYS GF

‘Awarded the ADF prize for innovation in 2019’
The material is dedicated to the milling of post & core elements using the CAD/CAM workflow.. The composite consists of a very large number of unidirectional glass fibres (about 80%), that is, more than 20 million fibres within one disc. This high concentration of fibrous elements, and their orientation, give the material an elasticity modulus similar to that of dentine, thus minimising the risk of fracture. The material is also radiopaque, allowing the surgeon to visualise it and carry out a comprehensive check before adhesion.



Finally, its use via the CAD/CAM chain helps produce a single-piece fibrous element while respecting the anatomy of the tooth.

NUMERYS HC



This is a hybrid product, consisting of up to 75% mineral fillers, which presents mechanical resistance against both flexion and compression. This is very useful indeed. This highly aesthetic material is also ready for use very quickly as it does not require firing after being machined.

5:00pm: inserting the elements at the surgery

At 5:00pm, the completed elements were delivered to the surgery, the post & core was fitted easily and without trouble, and the adjustment was ideal (photos 20-22).
The crown was also inserted with total ease, and was cemented using Itena Clinical’s TotalC-Ram, a self-adhesive and self-etching cement adapted to suit these two products. The contact points were present, and were neither too strong nor too weak (photo 23).
The tint was not perfect but the patient was completely satisfied with the temporary result and that, of course, was what mattered most. His smile and his thanks were satisfaction enough for us.
A number of points remain open to discussion, but for the express-produced elements, with 100% digital workflow and without any models being produced, the result was more than satisfactory.

Kévin Cohan,
CSArt Laboratory
Many thanks to Dr Suon for his confidence in us.

ABOUT Kévin Cohan



After completing a Brevet de Technicien Supérieur (BTS) in Management, I did some training in dental prosthesis laboratories, where I very soon acquired a passion for this field of work. I therefore registered for a Brevet technique des métiers (BTM) in Rennes. I then started learning the basis of prosthesis, especially the work of an assistant, as an alternating student in the Co-Dents Laboratory. I then joined the CSArt Laboratory, specialising in joint work and full cosmetic restoration. Ronan Collas and Sabrina Lavazay passed their skills on to me in an environment focused on excellence. I am now in my 2nd year of the Brevet technique des métiers supérieur (BTMS) in the Rennes-Bruz Faculty of Trades, pursuing my twin goals of learning and improving. My love of challenges spurs me on daily and gives me the pleasure of seeing the beauty of prosthetics!