

A CEREC Zirconia single crown – Tooth 16, in 82 minutes

Case Description

A 58-year-old male patient came into our practice with a large carious lesion on the distal surface of tooth 16. The tooth was previously restored with a CEREC onlay in 2003 with Vita Mark II ceramic. It was doing well, but the caries was large enough that a new restoration was indicated for the entire tooth. The large buccal abfraction was also a concern for the patient, so he wanted that covered as well. While waiting for the anesthetic, much of the digital work could already be completed. With the CEREC Primescan and the CEREC Primemill it is now possible to complete two workflow steps simultaneously. After scanning and creating the model, the margin was marked and approved and the proposal was completed. The CEREC software analyzed adjacent teeth to find the best anatomical shape that fit the patient. The milling strategies were calculated, and the proposal was displayed as it would be milled. The design for the molar was sent to the CEREC Primemill where the CEREC Zirconia block and the milling burs were ready to make a crown come to life. The entire time for milling was 4:22 minutes. Zirconia can be milled in Super Fast mode, resulting in sub-5-minute milling which reduces the overall process by approximately 10-15 minutes. Because the CEREC Primemill and the CEREC SpeedFire are seamlessly connected, the sintering cycle is automated and made very efficient. Standard sintering times can be as short as 18 minutes depending on materials and proposal design. The manufactured restoration was easily cemented with a resin-modified glass ionomer. Total treatment time was 1:22 hours, including preparation of the tooth and fabricating the restoration.

Discussion

The CEREC chairside system has always been known for its speed in delivering a restoration. In this particular case of a single unit, it requires usually just seconds of time to image the preparation. After imaging, the biogenic proposal takes about 15 seconds. The clinician may do minor adjustments and changes of occlusion at his or her discretion. Finally, at the point of cementation, the clinical procedure is fast because CEREC supports you in producing predictable outcomes with regards to the anatomy, interproximal contact, and occlusion. The advancing technologies in zirconias are bringing out better esthetics with every generation. The design of the restoration enabled the restoration to fit interproximally and occlusally without any adjustment.



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Before:

Large carious lesion on the distal surface of tooth 16, with 16-year-old onlay.



After:

Highly esthetic full-surface zirconia crown.

Clinical Images



16-year-old onlay.

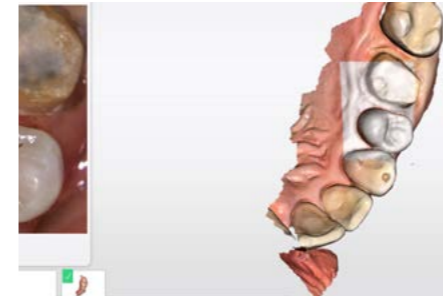


The manufactured restoration is ready for the patient and is cemented. The advancing technologies in zirconias are bringing out better esthetics with every generation. Being a blended translucent ceramic, the material is getting closer and closer to the optical characteristics of tooth structure.



This blended nature works extremely well on the buccal surfaces where the patient would likely be evaluating the esthetics.

Workflow Images



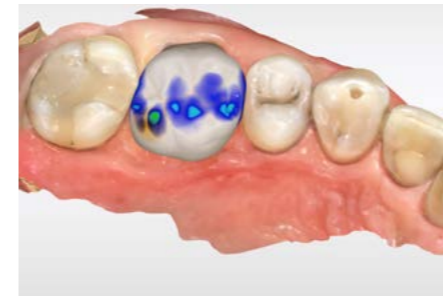
With the intuitive nature of the CEREC Primescan, the models are scanned efficiently. Much of the scanning was already completed prior to preparation.



After the margin has been marked and approved, the proposal is completed. The CEREC software analyzes adjacent teeth to find a very good anatomical shape that fits the patient. This is the biogeneric calculation, and it greatly reduces the amount of time of the design process.



Aligning cusp tips and the flow of the occlusal table is totally customizable by the user for which a true custom restoration is produced for the patient.



Mapping the occlusion pattern is completed with just a few clicks. The touch screen interface of the CEREC Primescan makes the workflow intuitive for new users.



The milling paths are calculated, and the proposal is displayed how it will be milled. This is customizable as well.



The design for the molar is sent to the CEREC Primemill where the block and the milling burrs are ready to make a crown come to life. The large burrs mill in parallel while the crown form becomes visible. It almost appears like the crown is being released free of the confinements of the zirconia block! To finish up all of the fine detail, the two small burrs take over. Being so small and sharp, these burrs can make very detailed tertiary anatomy. The entire time for milling was 4:22.