

Using the Lava chairside oral scanner (COS) to carry out technically and aesthetically superior crowns

Ilan Preiss presents two case studies using the oral scanner that enables both the technician and the dentist to work together to create a improved end result



Figure 1: Lava chairside oral scanner (COS)

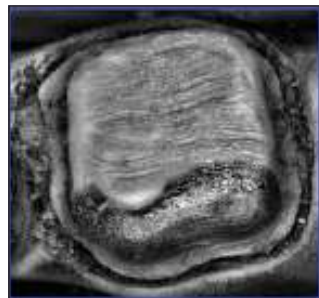


Figure 2: The screen



Figures 3 and 4: SLA models

Case 1



Figure 5: Tooth was out of alignment with the other teeth in the lower arch



Figure 6: Lava COS machine was set-up to capture the digital impression



Figures 7 and 8: Digital prescription



Figures 9 and 10: Final result

The Lava chairside oral scanner (COS) from 3M ESPE is at the very cutting edge of dental technology, enabling both the dentist and the technician to work at unparalleled levels of accuracy (see Figure 1).

Lava COS allows video data collected from the patients' mouths to be instantly converted into three-dimensional images, which can then be analysed from many angles. This ensures the correct dimensions are prepared by the dentist to optimise the best fitting restoration.

The 3D technique removes the need for conventional impression, moving the dental world on to digital impressions with wide-ranging advantages for dentists, technicians, and patients.

The ability to enlarge the work carried out, and analyse in greater depth, leads to improved work from the dentist and a more pleasant experience for the patient. Unlike traditional impression taking techniques, with Lava COS, the patient is free of any material encroaching on the back of their mouths and can see clearly on a screen what it is the dentist is trying to achieve (Figure 2)

The workflow of the Lava COS involves the dentist preparing the tooth, isolating the region, and then scanning the prepared area. This data is reviewed before a digital prescription is written and sent with any appropriate photographs to the technician.

As a point of note, it is imperative that isolation of the margins of the tooth is achieved with cord, laser or chemical products to retract the gingiva. The technician then uses special lab software to interpret the data. At the same time, they also send off for a Lava coping and SLA models to be constructed. These models are far more resilient than conventional plaster models (see Figures 3 and 4.)


The coping and mould return to the technician for the porcelain layering of the crown to take place. Following this stage, conventional techniques for cementation are carried out. Outlined below, are a series of clinical crown cases to highlight the use of the Lava COS machine and its associated technology. The Lava COS can also be used for the construction of onlays, inlays and veneers, as well as crowns.

Case study 1

This 35-year-old gentleman presented to the practice unhappy with a dark lower right lateral 42. He had a root canal treatment carried out many years before and wanted to improve the colour of the tooth. In addition, this tooth was out of alignment with the other teeth in the lower arch and he wanted this fixed (Figure 5).

All the appropriate special tests and ra-

Case 2








Figure 11: Pre op view

Figure 12: Prep of tooth

Figure 13: Lava crown

Figure 14: Lava crown on model

diographs were carried out. The patient was offered both orthodontics, as well as internal whitening, with all risks and advantages explained. Due to the amount of missing tooth, we opted for a full coverage Lava crown.

The tooth was prepared according to the necessary protocols of crown preparation. Then the Lava COS machine was set-up to capture the digital impression (Figure 6). This was reviewed before a digital prescription was sent to the lab. The technician then sent off for a working model, see Figures 7 and 8 and coping.

The final crown was then constructed, tried in, and any necessary adjustments carried out before final cementation. The final result shows a vast improvement in both colour and position of this tooth (See Figures 9 and 10.)

Case study 2

This gentleman presented to the practice after root canal treatment on tooth number 45 had been carried out. He was in need of a crown since the lingual part of the tooth was heavily

restored. The patient had high demands. Since the buccal aspect of the tooth was untouched, he wanted the end crown to blend in to the exact same degree as his own teeth (Figure 11).

Note, the additional staining needed in the cervical region of the tooth to help blend in with tissue and replicate appearance in original tooth. Note, the excellent fit round the margin, which ensures great accuracy.

Post-cementation of crown, one can see the great marginal integrity and wonderful way the crown blends with the tissue and neighbouring teeth.

One can see through some of the given examples of the digital-workflow that the future of dentistry will involve this type of technology. The levels of accuracy and efficiency that can be achieved benefit everyone involved, patient, dentist, and technician.

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