

Single visit crowns and in-house printed aligner treatment - interdisciplinary dental case



Solutions featured:

3Shape TRIOS intraoral scanner

3Shape TRIOS Design Studio

3Shape OrthoAnalyzer



Fig. 1. Photo taken from occlusal side before treatment



Fig. 2. - Image from Buccal view



Fig. 3. #21 and #22 are buccally positioned from normal arch

Case information

Female patient aged 42. Patient wants to replace old PFM crowns on #12, #22 as they have poor margins as well as close the gap between teeth #11 and #21.

Treatment plan

The patient first required periodontal treatment to make gingiva around abutment teeth healthy. After stabilizing periodontal tissue, orthodontic treatment using a clear aligner created with 3Shape OrthoAnalyzer* would be applied to close the space between teeth #11 and #21.

Once gap was closed, a single visit restoration would be used to replace the old PFM crowns. 3Shape TRIOS Design Studio was used to create the crowns with an Amann Girrbach Ceramill motion 2 mill. The material was Ivoclar E.max.

Intended final outcome

Stabilize periodontal tissue around the crowns. The recovery of the ideal arch form for upper anterior teeth and an improved crown margin with abutment teeth (#12, #22) with the replacement of the old PFM crowns to E.max crowns.

Treatment - Restoration/Orthodontic description This patient wanted to change PFM crowns on #12 and #22 as the gingiva around around them was recessed so that the crown margins for both were exposed. The patient also wanted to close the space between central incisors.

The patient agreed to do the ortho treatment for one or two weeks. Using 3Shape OrthoAnalyzer, it assessed that the gap could be closed in a one step aligner treatment. This was satisfactory for the patient.

Attachments were made with composite resin to enhance the horizontal force from aligners. As the teeth were planned to be moved horizontally, the attachment was shaped vertically.

Projected movement of teeth were following

- #11 Right 0.2mm
- #21 Left 0.2mm, Backward 0.4mm
- #22 Backward 0.4mm



Fig. 7. Preparation of #12, #22



Fig. 8. Intraoral scan with 3Shape TRIOS

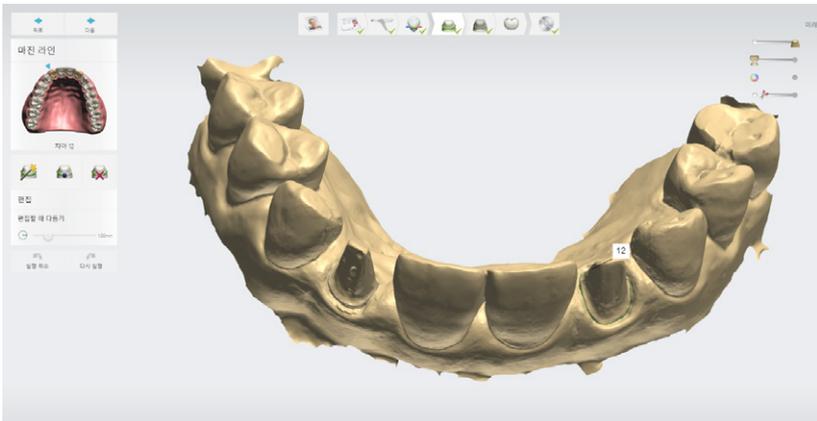


Fig. 9. Margins outlined with TRIOS Design Studio

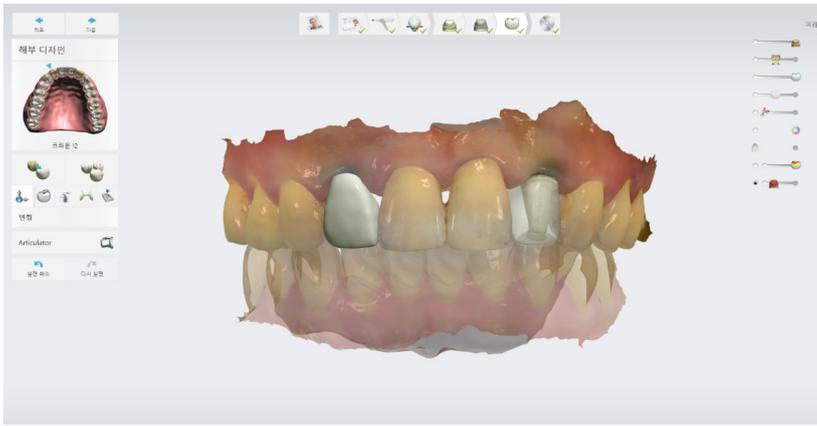


Fig. 10. Final design of #12 and #22 crowns

Right after the fixed retainers were bonded between central incisors, PFM crowns on 12 and #22 were removed. For restorative treatment, 3Shape TRIOS Design Studio was used to scan and design the crowns.

Ivoclar e.Max HT A2 block used and stained with e.Max staining kit.



Fig. 11. After seating crowns on #12 and #22



Photo 12. Teeth fit into right positions. After a week of clear aligner treatment

About Dr. Jaemin Lee

Dr. Jae-min Lee opened the Mirero Dental Clinic in 2010. Since beginning his journey with digital dentistry in 2015, he has focused on optimizing the digital workflow. He currently uses 3Shape TRIOS® for intraoral scanning as well as the 3Shape D2000 lab scanner for model scanning at his laboratory. Lee designs and produces restorations using 3Shape CAD/CAM software, Dental System, Implant Studio, and OrthoAnalyzer for his practice. At present, he also works with 3Shape to further develop integrated chairside workflows.

Dr. Lee's comments

To move a small number of teeth in a small range, conventional ortho treatment or an outsourced aligner treatment like Invisalign takes too much effort and cost. As can be seen in this case, aligner treatment with 3Shape OrthoAnalyzer is very easy and promising treatment option to solve minor orthodontic problems. Using 3Shape OrthoAnalyzer, TRIOS, and a desktop 3D printer, dentists can provide aligner treatments. In addition, 3Shape TRIOS Design Studio offers a simple and fast workflow to complete a restorative treatment within a few hours from start to end. Digital workflows using 3Shape OrthoAnalyzer and TRIOS Design Studio will provide many benefits for daily dental treatment in terms of affordable and quality treatment.

Benefits of the digital workflow according to Dr. Lee

For the dental practice

- Less teeth preparation for ortho treatment due to OrthoAnalyzer
- Less patient visits due to TRIOS Design Studio

For the patient

- Number of visits reduced by 3 X's because of TRIOS, OrthoAnalyzer, TRIOS Design Studio
- Less expensive orthodontic treatment because it is not outsourced

Prosthetic and orthodontic treatment can be easily integrated using digital workflow and software such as OrthoAnalyzer and TRIOS Design Studio.

Discussion/challenges

Dr. Lee: "As digital dental solutions and workflows develop, I believe interdisciplinary dentistry will become more prevalent in dentistry. Especially in terms of orthodontic treatment being provided exclusively by orthodontists. With software solutions like 3Shape OrthoAnalyzer, the general practitioner can also provide orthodontic treatment using clear aligners.

Additionally, 3Shape TRIOS Design Studio offers a fast and easy way to provide single visit restorative treatments. This is very attractive to both dentists and patients.

As digital workflows improve, it will become easier and more efficient to treat patients across departments and specialties.

As a dental professional, the benefits of digital workflows include shorter treatments, reduced number of visits, and less time spent working with your patient. In addition, collaboration with partner labs, other dentists and orthodontists is more efficient. Lastly, patients are more likely

About 3Shape

3Shape is changing dentistry together with dental professionals across the world by developing innovations that provide superior dental care for patients. Our portfolio of 3D scanners and CAD/CAM software solutions for the dental industry includes the multiple award-winning 3Shape TRIOS intraoral scanner, the 3Shape X1® CBCT scanner, as well as market-leading scanning and design software solutions for both dental practices and labs.

Two graduate students founded 3Shape in Denmark's capital in the year 2000. Today, 3Shape employees serve customers in over 100 countries from 3Shape offices around the world. 3Shape's products and innovations continue to challenge traditional methods, enabling dental professionals to treat more patients more effectively.

Let's change dentistry together

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