

## Smile design rehabilitation with ceramic veneers

### Case report

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### Introduction

As patients' aesthetic expectations continue to increase, dental teams are challenged to identify a systematic approach for achieving natural oral and facial aesthetics with ceramic veneers. Because ceramic veneers are primarily indicated for the improvement of aesthetics, the design of the smile should respect the symmetry and the harmonious arrangement of dento-facial elements. The patient is often the final judge of restorations in aesthetically driven treatment. If the clinician and patient do not have the same results in mind, there is the possibility that the patient will not approve the definitive restorations. For these reasons it is important to accurately visualize the restorations before finalization.

### Objectives

A 42 year old female patient presented for aesthetic treatment of a large diastema, irregular display of frontal teeth and an assimetric smile.(Fig.1). She was concerned about the vestibularisation and distalisation of 11, and the progressive enlargement of the diastema. She also desire a lighter colour and wanted all her frontal teeth to appear straight without orthodontic treatment. Following a detailed clinical examination, digital photography and image software were used to record and evaluate the objective parameters of the patient's smile.(Fig.2)



Fig.1 Patient smile design at the presentation



Fig.2. Retracted facial view of the patient's smile reveals aesthetic compromise

Treatment plan objectives include:

- reduce the diastema between 11 and 21
- align and reduce the inclination of 11
- add length and volume(facial) to the teeth : 12, 13, 22, 23.

All of these concerns could be addressed with porcelain veneers.

### Material and Methods

It is important for the clinician and the patient to visualize and agree upon the final result prior to commencing treatment. Mock-ups were made to find the fine balance between length, width and position of each frontal tooth.(Fig.3). The relationship between the lips and teeth in functional movement, rest position and phonetics was tested. Based on the composite mock-up, a diagnostic wax-up was made and discussed with the patient and the technician. (Fig.4). An index in putty silicone was taken and sent to the laboratory. Prior to begin the teeth preparation, the colour of ceramic veneers was chosen. The patient presented with an D3 shade and wanted a lighter shade. Shade D2 in the incisal two thirds, and B3 in the gingival one third were considered to be a good choice. The finished preparation is presented in Fig.5. The reduction was accentuated for the distal part of tooth 11. For teeth 12, 13, 22, 23 only slight reduction was used to allow for addition of porcelain without creating over-contoured restorations. Full arch impressions were taken with a polyvinyl siloxane impression material and an occlusal registration was made. Lab instructions included the underlying and final shades, the desired length, width and position of frontal teeth. The next step was to fabricate the provisional restorations. At the dental laboratory, refractory stone models of the prepared teeth were made and 6 veneers from feldspathic porcelain Noritake were fabricated. The six veneers were inspected in the dental office prior to the appointment of the seating. The porcelain veneers were tried in using a try-in glycerin medium (Variolink-Try-In Kit, Vivadent), and the most convenient shade was selected.(Fig.6).



Fig.3. A direct composite mock-up was performed to permit visualization of the intended result



Fig.4. Diagnostic wax-up serve as a guide for fabricating the ceramic veneers



Fig.5. Teeth preparation for the six ceramic veneers



Fig.6. Retracted facial view of the patient smile with the ceramic veneers in place



Fig.7. Close-up view of the smile-design 6 months after placement of the veneers

## Results

The patient smile that can be seen in the close-up view (Fig.7), was substantially improved, with an minim invasive technique and it brought satisfaction in the same time to the patient and the dental team.

## Conclusions

Bonded porcelain veneers have a number of significant advantages:

- conservation of tooth structure
- durability
- lack of potential pulpal involvement
- excellent periodontal response, because the restoration can blend in imperceptibly with the cervical tooth structure, allowing the cervical margins to be kept in a supragingival position.

The succes of treatment with ceramic veneers can be assured if the dentist follows a defined protocol with each patient, to ensure that all factors such as smile design, margin placement, material, shade selection and communication between the patient, dentist and technician are rigorously controlled. Only when all of these factors are thoroughly considered, utilizing current evidence, can dentist have predictable results and satisfied patients when utilizing ceramic veneers.

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## Smile Design Rehabilitation With Ceramic Veneers: Case Report

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### ABSTRACT

Changing the shade, shape and position of individual teeth in the dental arch can dramatically affect the appearance of our patients. With ceramic veneers, those changes are very conservative. This paper describe the esthetic rehabilitation of the smile design of one female patient with bonded ceramic veneers.

### INTRODUCTION

As patients' aesthetic expectations continue to increase, dental teams are challenged to identify a systematic approach for achieving natural oral and facial aesthetics with ceramic veneers. Because ceramic veneers are primarily indicated for the improvement of aesthetics, the design of the smile should respect the symmetry and the harmonious arrangement of dento-facial elements. The patient is often the final judge of restorations in aesthetically driven treatment. If the clinician and patient do not have the same results in mind, there is the possibility that the patient will not approve the definitive restorations. That's why it is important the visualization before finalization.

### CASE PRESENTATION

A 42 year old female patient presented for aesthetic treatment of a large diastema, and irregular display of frontal teeth, and an asymmetric smile. (Fig.1.) She was concerned about the vascularization and distalation of I1, and the progressive enlargement of the diastema. She also desire a lighter colour and wanted all her frontal teeth to appear straight without orthodontic treatment.

Following a detailed clinical examination, digital photography and imaging software were used to record and evaluate the objective parameters of the patient's smile. (Fig.2.)



Fig.1. Patient smile design at the presentation



Fig.2. Retracted facial view of the patient's smile reveals aesthetic complaints

#### Treatment plan objectives include:

- reduce the diastema between I1 and 21
  - align and reduce the inclination of I1
  - add length and volume (facial) to the teeth: 12, 13, 22, 23
- All of these concerns could be addressed with porcelain veneers.

### CLINICAL AND TECHNICAL STEPS

It is important for the clinician and the patient to visualize and agree upon the final result prior to commencing treatment.

Mock-ups were made to find the fine balance between length, width and position of each frontal tooth. (Fig.3) The relationship between the lips and teeth in functional movement, rest position and phonetics was tested.

Based on the composite mock-up, a diagnostic wax-up was made and discussed with the patient and the technician. (Fig.4) An index in putty silicone was taken and sent to the laboratory.



Fig.3. A direct composite mock-up was performed to permit visualization of the intended result



Fig.4. Diagnostic wax-up serve as a guide for fabricating the ceramic veneers

Prior to begin the teeth preparation, the colour of ceramic veneers was choosen. The patient presented with an D3 shade and wanted a lighter shade. Shade D2 in the incisal two thirds, and B3 in the gingival one third were considered to be a good choice.

The finished preparation is presented in Fig.5. The reduction was accentuated for the distal part of tooth I1. For teeth 12, 13, 22, 23 only slight reduction was used to allow for addition of porcelain without creating over-contoured restorations.

Full arch impressions were taken with a polyvinyl siloxane impression material and an occlusal registration was made. Lab instructions included the underlying and final shades, the desired length, width and position of frontal teeth.



Fig.5. Teeth preparation for the six ceramic veneers

The next step was to fabricate the provisional restorations.

At the dental laboratory, refractory stone models of the prepared teeth were made and 6 veneers from feldspathic porcelain Noritake were fabricated. The six veneers were inspected in the dental office prior to the appointment of the seating. The porcelain veneers were tried in using a try-in glycerin medium (Variolink-Try-in kit, Vivadent), and the most convenient shade was selected. (Fig.6)

The patient smile that can be seen in the close-up view (Fig.7), was substantially improved, with a minim invasive technique and it brought satisfaction in the same time to the patient and the dental team.



Fig.6. Retracted facial view of the patient smile with the ceramic veneers in place



Fig.7. Close-up view of the smile design 6 months after placement of the veneers

### DISCUSSIONS AND CONCLUSIONS

Bonded porcelain veneers have a number of significant advantages:

- conservation of tooth structure,
  - durability,
  - lack of potential pulpal involvement,
  - excellent periodontal response, because the restoration can blend in imperceptibly with the cervical tooth structure, allowing the cervical margins to be kept in a supragingival position.
- The success of treatment with ceramic veneers can be assured if the dentist follows a defined protocol with each patient, to ensure that all factors such as smile design, margin placement, material shade selection and communication between the patient, dentist and technician are rigorously controlled. Only when all of these factors are thoroughly considered, utilizing current evidence, can dentist have predictable results and satisfied patients when utilizing ceramic veneers.

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