

SCD

Case Study

April 2018

Patient treated by Dr Ambrish Roshan

Introduction:

30-year-old female presented to our practice requesting a new smile. Her main criteria for any proposed treatment option was for it take the shortest possible time frame. She has a class 2 division II incisor relationship on a class 1 skeletal base complicated by a retained upper right primary canine associated with a palatally impacted UR3. The UL3 is buccally displaced. The anterior dentition, including the URC, was moderately restored with composite resin restorations.

Smile Analysis:

- Upper lip coincident with gingival margins of maxillary anteriors.
- Increased show of lower incisors due to short upper incisor crowns.
- Dental midline was deviated slightly to the right.



Treatment Options Presented:

1. Comprehensive orthodontic treatment with surgical exposure of UR3.
2. Surgical removal of palatally impacted UR3 followed by short term orthodontic treatment and finally extraction of URC and a single tooth implant restoration.
3. Prosthetic build-up to camouflage the malocclusion as well as alter shape and size of teeth using either of the following:
 - a. Composite resin veneers;
 - b. Combination of lithium disilicate (IPS e.max®) crowns and veneers.

This patient was not keen on comprehensive orthodontic treatment due to prolonged treatment time. In addition, she also was keen to alter the shape and size of her teeth to improve her smile.

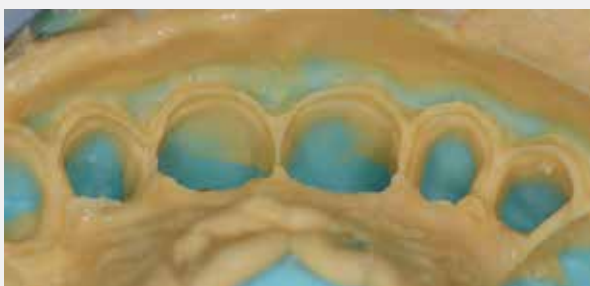
Mock-up:

A wax up was fabricated on preliminary study models. An intra-oral mock up was made in bis-acrylic resin from a silicone putty matrix to illustrate what could be achieved.



Clinical Stages:

1. Shade selection using VITA 3D-MASTER® shade tabs.
2. Depth cuts preparation guides were made on the bis-acrylic resin temporary material to avoid excessive preparation.
3. Complete preparation following manufactures requirements for IPS e.max restorations.
4. Stump shade selection with photographs.
5. Single retraction cord technique followed by Impression using putty and wash polyvinylsiloxane of the maxillary arch.
6. Whip-mix facebow record was made to relate the maxillary arch to the transverse hinge axis for mounting on a semi-adjustable articulator.
7. An opposing impression in alginate with an inter-occlusal silicone record to mount the lower arch to the maxillary arch.
8. Single unit temporary in bis-acrylic resin.



Techniques and Materials used:

All of the restorations were provided in IPS e.max®, some were crowns and some veneers. The fact that the same material was used throughout facilitated an enhanced aesthetic outcome.

IPS e.max® was the most appropriate material given its combination of flexural strength of 360-400MPa, aesthetics and excellent adhesion to enamel using a resin-based luting composite resin.

There was no discoloration of the underlying teeth and therefore a translucent IPS e.max® ingot was selected to give maximum aesthetics.



This case was performed using a combination of lithium disilicate crowns and veneers on the UR4 to the UL4 as follows:

1. IPS e.max® crowns on the URC, UR2, UL2 and UL3 – crowns chosen due to extent of existing composite restorations on these teeth which may compromise bond strength.
2. IPS e.max® veneers on the UR4, UR1, UL1 and UL4.

All ceramic restorations were selected over composite resin to obtain the most aesthetic result.





Bonding Protocol:

After try in with Nexus Clear try-in gel, all units were washed in an ultrasonic bath for 60 seconds.

Intaglio surfaces etched with 37% phosphoric acid for 30s, washed and air dried - Southern Cross Dental IPS e.max® crowns/veneers were already pre-etched with hydrofluoric acid.

Silane coupling agent applied to intaglio of all units and air thinned - set aside ready for bonding.

Cotton wool isolation.

Teeth etched with 37% phosphoric acid for 30 seconds, washes and air dried.

Bonding agent applied and thoroughly air thinned - light cured for 10 seconds per tooth.

Each unit was bonded one at a time (as per determined sequence of fitting during try-in) - process done under magnification and orange-filtered light.

Nexus light-cure resin cement applied to intaglio of prostheses and these were seated gently with a pumping motion, ensuring cement filling entire cement space and a final controlled pressure applied to ensure full seating - tact cured 5 seconds and remove flash from cervical and proximal (with knitted floss)

Fully light cure for 30 seconds each surface - check for excess cement and removed accordingly”

Dentist /patient feedback:

Dentist comments on Southern Cross Dental:

“Excellent communication with lab technicians with quality photographs of bisque bake phase to assess final aesthetic results and changes were followed quite accurately. Very patient and accommodating throughout the correspondences!

Good masking of darker stump shade on UL3 to deliver final uniform shade - overall natural surface anatomy and good ceramic result.

Fit of final restorations was good with minimal occlusal adjustment required. Southern Cross Dental exceeding expectations as always.”

Patient comments:

“I really cannot recommend Ambrish enough. His work is top class and he is a perfectionist to say the least who was very patient during my treatment. And not forgetting Edel who kept me sane throughout my visits.

I am delighted to have my smile fixed after all this time”



The IPS e.max® system is the ultimate in metal-free aesthetics and durability, offering high-strength materials for both press and CAD/CAM technique. It offers an innovative lithium disilicate glass-ceramic, which can create lifelike restorations and a strong, highly translucent and highly aesthetic material, offering accuracy of fit, shape and function.