Esthetics and minimal invasiveness are two of the key current topics of restorative dentistry. White tooth discoloration can result from a number of factors and is usually a concern of esthetics for patients. For dental fluorosis, some form of treatment has to be imparted. There is a range of treatment strategies available that are either non-invasive or invasive in nature. Recently, a microinvasive technique has been introduced as an alternative therapeutic approach that not only improves such opacities esthetically but also prevents further progression of early carious lesions (white spot lesions).

The smile harmony can also be negatively influenced by the presence of dental anomalies like alterations in shape, size, position, color or texture. This clinical report shows how highly esthetic direct composite resin restorations in the anterior dentition can be combined with strict, consistent adherence to a minimally invasive approach.

16-year-old female patient who had recently undergone fixed orthodontic therapy, reported with the complaint of unaesthetic appearance due to the presence of white stains and diastema in upper front
teeth.
Orthodontic treatment consisted in space closure and canine substitution for maxillary lateral incisor.

In the lateral view we can observe that the cusp tip of the canine was flattened to produce an incisal edge.
The maxillary canines had a slightly darker shade than the central incisors.

Canines and first premolars in-office bleaching - 4 applications of 35% hydrogen peroxide, each lasting 8 minutes.
After the completion of a bleaching a much whiter color was achieved. Teeth shade went from an A3.5 to an A2 shade.

Teeth were polished with a fluoride free medium coarse polishing paste.
For these white opacities, we planned to use the resin infiltration technique (ICON, DMG, Germany). Rubber dam was applied to provide a proper isolation, as the hydrochloric acid (HCl) used in the microinfiltration procedure may damage the adjacent soft tissue. Application of petroleum jelly over the gingival tissue prior to placement of rubber dam provides added protection from the acid. Also, the use of protective eyewear during the procedure by the patient as well as operator is mandatory.

First step included the application of 15% HCl gel (ICON Etchant) for 2 minutes. The etchant gel was applied using the applicator tip provided in the kit. Subsequently, the etching gel was washed away with water spray for 30 seconds.
Second step involved the application of 99% ethanol (ICON Dry). The ethanol desiccates the lesion body and removes the water retained in the microporosity of enamel lesion. First and second steps were repeated 3 times.

Last step involved the application of low viscosity resin infiltrant (ICON Infiltrant), which was left for 3 minutes to allow its penetration deep into the lesion.
Light cure polymerization for 40 seconds.

Infiltration step was repeated during 1 minute.
The excess resin on the tooth surface was wiped away with suction and dental floss. This was followed by light cure polymerization for 40 seconds.

The appearance of teeth after micro infiltration in the upper right quadrant
A high gloss flame point was used for polishing.

Clinically, changes were remarkably evident, and immediate improvement in esthetics was observed.
Digital project of the aesthetical and functional smile. Reshaping and composite resin build up in the maxillary canine to substitute it for the maxillary lateral incisor. Size and shape improvement of the maxillary central incisor.
Wax-up to obtain a palatal silicon index

Shade selection - The selection of the dentin shade starts in the cervical part of the teeth, where the enamel thickness is minimal and does minimally interfere with the evaluation process. The selection of enamel is to be made visually (without using the samples) where more enamel can be observed, namely in the incisal or proximal areas. Then, both samples can be joined to confirm the selected body and skin combination; it is however recommended to use glycerin in-between both composite samples for more accurate shade selection process.
It is important that the rubber dam is properly placed with proper invagination to insure that the tissues are retracted and that there will not be any leakage during the restorative procedure.
Rubber dam is invaginated around each tooth with floss ligatures.

A coarse Sof-Lex disc can be used to roughen the aprismatic outer enamel layer.
Following etching and application of bond, an initial lingual shelf was developed using Inspiro Direct enamel shade (SW). This layer exceeding no more than 0.3mm thickness and was the scaffold for the restoration. The build-up technique follows the references of natural anatomy (dentin and enamel position and thickness).

Inspiro Direct dentin shade (B12) was then expertly applied in small increments to form the opacious body dentine mass.
Finally, the enamel layer of Inspiro Direct enamel shade (SW) was applied in a single increment of sculpted, brushed and defined interproximally.

Final view of direct composite bonding to the canines and the central incisors. Composite material was added to the mesial sides of both canines. It was added to the distal and buccal sides of both central incisors to improve the labial contour and to improve tooth proportion, the surface texture and harmony from the centrals to the recontoured canines.
NON INVASIVE APPROACH TO THE ESTHETIC REHABILITATION OF ANTERIOR TEETH
The case before

The case after
Surface texture and harmony.

Final result with secondary anatomy.


Dietschi D, Ardu S, Krejci I. A new shading concept based on natural tooth color applied to direct composite


