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RESEARCH ARTICLE

COMBINED MULTIDISCIPLINARY APPROACH FOR OPTIMAL ESTHETIC OUTCOME USING MINIMAL INVASIVE DENTISTRY

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Abstract

Minimal invasive dentistry is preserving maximum dental hard tissues and causing minimal or no destruction of natural tissues. With interdisciplinary approach and availability of modern materials, we can treat various disorders by more conservative approach than before. This case report presents successful treatment of dental fluorosis stains with resin infiltration technique and in addition soft tissue procedures using minimal invasion are described.

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Introduction and Case Report:-

A 16 years old female reported with complaint of poor smile appearance, looking old due to teeth display and discolored teeth.

On clinical examination, she had a low lip line, hypo calcification and discoloration with upper central incisors, asymmetrical gingival zenith and uneven incisal edges. Although the best treatment could have been orthodontic, the patient requested a quick result.

Considering the second-best option, we scheduled a minimally invasive approach both for surgery and dental treatment.¹⁻⁴

ICON is the name of the resin infiltrate produced by DMG.⁵ With increasing esthetic requirements, patients need options for the most effective therapies. Today, fluorosis stains constitute a frequent reason for consultation in esthetic dentistry. These stains, which are white or brown in the most severe cases, may originate from a physical problem.⁶ I will share the treatment of definite white fluorosis stains, using a current conservative technique.

The aim of this article is to show that we can improve smiles even in complex cases, in a short period without consistently damaging healthy tissues.

Img. 1 - Initial situation. Note that low smile line, teeth color change and incisal edge asymmetries are visible while the patient is smiling.



Img. 2 – Even with using of check and lip retractor upper soft tissue amount appearing in photography look smaller than lower arch soft tissues, fair oral hygiene, teeth discoloration specially in the incisal third of upper central incisors, unilateral cross bite in left canine and first premolar, deviation of mid line and upper big frenulum.



Img. 3 - Initial situation. The patient complained mainly about the discoloration, white spots and the coronal fractures of teeth 1.1 and 2.1. We explained the advantages of direct composite resin with erosion infiltration because of her age (16 years).in addition, to keeping good oral hygiene.



Img. 4 -1st step in our treatment plan is good scaling and polishing to clarify the surface texture.



Img. 5 - Initial situation, polarized picture for internal stratification analysis. The discoloration and white spots are the main challenge, but we have to imagine stratification under white spots opalescence and incisor line.



Img. 6–Evaluation of incisal edge fracture.



Img. 7 –Evaluation of gingival zenith of tooth number 11 and 21.



Img. 8 – Retracted lips, big frenulum, evaluation of upper lip and frenulum.



Img. 9– Gingivectomy with electrosurgery.



Img. 10 –Isolation.



Img. 11:- Second face polishing with goat brush and polishing paste



Img. 12 –The first step is erosion infiltration to treat the white spots and/or discoloration. The following step consists of accessing the hypomineralized fluorosis lesions. This requires the elimination of the hypermineralized enamel on the surfaces of the lesions. Therefore, the erosion is performed using a gel of 15% hydrochloric acid (Icon-Etch DMG) for 120 seconds.



Img. 13 –In order to avoid uneven erosion, which could be caused, for example, by bubbles forming in the gel, the surface is mechanically rubbed using a microbrush. (3 steps of erosion to access to the lesion).



Img. 14 - Dehydration with ICON DRY. Once the enamel has been eroded, the water contained in the micropores of the fluorosis lesions must be eliminated before the resin infiltration is carried out. In fact, the infiltrating resin (Icon-Infiltrant) is a matrix based on hydrophobic methacrylate resin (TEGDMA): for this reason, the lesions must be desiccated beforehand. This dehydration is accomplished through the application of a solution of 99% ethanol (Icon-Dry), for 30 seconds, on the surface of the lesions using a flattened needle.



Img. 15 - With the third syringe we can apply the resin, gently moving the tip to facilitate the resin penetration.



Img. 16 - Then we carefully light cure the resin. The resin application can be immediately repeated followed by another light curing step.



Img. 17 - White spots are still visible; we have to start the procedure again.



Img. 18 - Aspect of the prepared cavity before beginning the restorative procedure. In the macro abrasion procedure we should use a round bur in slow speed, in order to be more conservative. Removing the white lesion and the enamel cavity.



Img. 19 - Etching followed by bonding application (Scotchbond Universal, 3M).



Img. 20 - For the composite resin shade we use the same shade as the natural tooth, medium dentine is applied, then followed by light enamel.



Img. 21 - Frenectomy (simple excision technique) and small gingivectomy on tooth no. 11. (Surgery by (DR.AUDAY ALTAAI).



Img. 22 - 40 Days later. Healing and follow up. Nice healed soft tissues, I add white stain to upper central make it look natural.



Conclusions:-

We can improve smiles by utilizing interdisciplinary dentistry, involving other specialists such as periodontist, orthodontist, and aesthetic dentistry, combination of resin-infiltration treatment with composite restorations represents, especially on young patients, a very conservative therapy and good aesthetic result, satisfying the patients' specific needs which are a very important component of the good outcome of our treatment.

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