ISSN No: 2455-7803

CASE REPORT

AESTHETIC APPROACH TO REHABILITATE PATIENTS SMILE WITH ENAMEL HYPOCALCIFICATION- A CASE REPORT

Achla Sethi, Ajay Kumar , Pragati Agarwal, Shipra Mahajan

Department of Conservative Dentistry and Endodontics, Swami Devi Dyal Hospital and Dental College, Barwala, Panchkula, Haryana, India

ABSTRACT:
Enamel Hypocalcification is a defect of tooth enamel in which normal amounts of enamel are produced but are hypomineralized. In this defect the enamel is softer than normal. Local trauma or abscess formation can adversely affect the ameloblasts overlying a developing crown, resulting in enamel hypocalcification. Any alterations during formation of tooth structure, mainly on anterior teeth, are known to severely compromise esthetics. This article presents a case report in which the restorative treatment sequence of anterior teeth affected by enamel hypoplasia demonstrating the use of a hybrid composite resin to mask the enamel defects and to rehabilitate a patients smile.
Keywords: Developmental defects of teeth, 7th generation bonding agent, enamel defects, enamel hypocalcification.

Corresponding author: Dr. Achla Sethi, Post graduate student, Department of Conservative Dentistry and Endodontics, Swami Devi Dyal Hospital and Dental College, Barwala, Panchkula, Haryana, India

This article may be cited as: Sethi A, Kumar A, Agarwal P, Mahajan S. Aesthetic approach to rehabilitate patients smile with enamel hypocalcification- A case report. Int J Res Health Allied Sci 2017;3(2):8-10.

INTRODUCTION

Enamel Hypocalcification is a defect of tooth enamel in which normal amounts of enamel are produced but are hypomineralized and is histomorphologically identified as an external defect involving the surface of the enamel and associated with reduced thickness of enamel.[1] The cervical borders or the incisal edges of the defect have a rounded appearance due to the prisims in the non-affected enamel being bent. The macro and the microscopical appearance suggest that only some specific ameloblasts have ceased, whereas others are partly or completely able to fulfil their task.[2] Unlike other abnormalities which affect a vast number of teeth. Enamel Hypoplasia usually affects only one teeth.

CASE REPORT

A 36-year-old female patient reported to conservative and endodontic department of our institution, with chief complaint of whitish brown discoloration in upper front tooth region since few months.The medical history of the patient was found to be insignificant. Dental history and clinical examination revealed that she had a soft form of enamel Hypoplasia [Figure 1].
Clinical examination also evidenced an enamel defect in the maxillary central, lateral incisorsand canines, with rough surfaces with irregular limits that principally involve the palatal incisal and middle third of the crown. (Figure 2)

Figure 1- Pre operative intra-oral view

Figure 2- maxillary teeth with rough surfaces involving the palatal incisal and middle third of the crown.

The color was recorded using the Vitapan Classical scale (Vita Zahnfabrik, Bad Säckingen, Germany), and the shade A2/A3 was considered as the initial color [Figure 3]. Briefly, the dental surface was acid etched (35% phosphoric acid) [Figure 4], rinsed for 30 s and dried with absorbent paper. An adhesive system (**0ne coat 7.0-coltene 7th generation bonding agent**) was applied on the dentin and the enamel and was light-cured for 10 s with an intensity of 1400 mW/cm^2 (Radii LED Curing Light, SDI, Australia).

Figure 3- Shade Selection Using Vitapan Classical Scale

Figure 4- The Dental Surface Was Acid Etched (35% Phosphoric Acid)

Figure 5- One Coat 7th Generation Bonding Agent Material.

Figure 6- A 7th generation adhesive system was applied on the dentin and on the enamel

A combination of the incremental and stratified layering technique was used to fill the tooth using a highly aesthetic nanohybrid composite resin, IPS-Empress (Ivoclar Vivadent AG). The composite was added in increments of 1.5–2 mm and was light-cured after every layer, according to the manufacturer's instructions. First, the dentin was simulated with a thin layer of a microhybrid composite (DA3) and a final layer with an enamel composite (EA2), which was placed with a fine #2 brush (Cosmedent, Chicago, USA) for fine detailing/texturizing to simulate the enamel, increasing the final brightness of the restoration [Figure 7].

Figure 8- Composite Restoration

The contouring was refined using 30-blade carbide trimming burs (9714FF, KG Sorensen), and the final polishing was performed with a high-luster polishing paste (Opal L, Renfert GmbH, Hilzingen, Germany) using goat-hair brushes and cotton buffs (Renfert GmbH). Four months after the restoration, a good final aspect was observed and the frontal smile view exhibited an imperceptible restoration.

BEFORE

AFTER

DISCUSSION

Enamel hypoplasia is an incomplete or defective formation in the organic matrix of the enamel and remaining certain areas susceptible to decay; it is responsible for a major proportion of lesions. The irregularities present in a hypoplasia provide favorable conditions for the retention of plaque and the early development of caries lesions, which progress and reach deep into the enamel and the dentin.

One of the signs of hypoplastic lesions is diminishing enamel luster and dental surfaces that have become eroded with cavitations and irregular wear because of the loss of the microanatomy affecting the color, morphology and texture of teeth. On some occasions, hypoplasia is mistaken for fluorosis; however, enamel hypoplasia is an incomplete or defective formation in the organic matrix of the enamel, triggered by diseases, systemic disorders, trauma and infections in the pulp of deciduous teeth.[6] It manifests with partial or complete absence of the enamel, which can be systemic (when it affects a group of teeth) or local (when it has asymmetric distribution and is relegated to a single tooth).[9]

Because it is neither fully transparent nor fully opaque, the enamel is a tissue whose optical characteristics are not easily reproduced. Some modern composites provide optical similarities consistent with natural teeth,[4] yielding satisfactory levels of opalescence, value and chroma.[6]

It is important to consider that the final restoration is dependent on both the thickness and the varying degrees of translucency and opacity of the several layers of the composite. Of all dental structures, enamel seems to be the optical entity that is most difficult to imitate.[4]

Various treatment protocols may be performed, depending on the level of involvement and the severity of the lesions. Usually, these approaches include enamel microabrasion, aesthetic conservative restorations and dental whitening.[6,8] Composite resin restorations are fully capable of reproducing the appearance of a natural tooth with highly aesthetic outcomes.[9] In this context, the main goal of the treatment of enamel hypoplasia is to re-establish the anatomical harmony between occlusion, function and aesthetics and to restore patient self-esteem, promoting social and psychological benefits.

CONCLUSION: In conclusion, this case report demonstrates that restorative rehabilitation, in addition to promoting health, may provide a more favorable aesthetic appearance for the smile, matching the tooth polychromatic and raising the self-esteem of the patient.

REFERENCES

1. Reston E, Corba D, Ruschel K, Tovo M, Barbosa A. Conservative approach for esthetic treatment of enamel hypoplasia. Oper Dent. 2011;36:340–3.
2. Villarroel M, Fahl N, De Sousa AM, De Oliveira OB., Jr Direct esthetic restorations based on translucency and opacity of composite resins. J Esthet Rest Dent. 2011;23:73–87.
3. Heller A. Clinical procedures to avoid the 'dark halo' in restorations with direct composite resins. Dent Update. 2011;38:304–311.
4. Baratieri LN, Araujo E, Monteiro S., Jr Color in natural teeth and direct resin composite restorations: Essential aspects. Eur J Esthet Dent. 2007;2:172–86.
5. Musale PK, Yadav T, Ahmed BM. Clinical Management of an Epigenetic Enamel Hypoplasia- A Case Report.Int J Clin Dent Sci. 2010;1:77–80.
6. Marson FC, Sensi LG, Bertholdo G, Silva CO. Diferenças clínicas e de tratamentos entre a fluorose e a hipoplasia do esmalte. R Dent Press Estét. 2009;6:52–61.
7. Pontons-Melo JC, Furuse AY, Mondelli J. A direct composite resin stratification technique for restoration of the smile. Quintessence Int. 2011;42:205–11.
8. Azevedo DT, Almeida CG, Faraoni-Romano JJ, Geraldo-Martins VR, Palma-Dibb RG. Restorative treatment on permanent teeth with enamel hypoplasia and crown dilacerations caused by trauma to their primary predecessors. Int J Dent. 2011;10:38–41.
9. 9. Björndal L, Thysltrup A. A structural analysis of approximal enamel caries lesions and subjacent dentin reactions. Eur J Oral Sci. 1995;103:25–31.

Source of support: Nil **Conflict of interest:** None declared