

Full Mouth Rehabilitation of a Patient with Dentinogenesis Imperfecta: A Case Report

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Abstract

Case Report

Dentinogenesis Imperfecta (DI) or hereditary opalescent dentin is inherited in a simple autosomal dominant mode with high penetrance and low mutation rates. It generally affects both the deciduous and the permanent dentitions. DI corresponds to a localized form of mesodermal dysplasia which is observed in the histo-differentiation. An early diagnosis and treatment are therefore fundamental, which aim at obtaining a favourable prognosis, since at late intervention makes the treatment more complex. It is important to identify the factors that contribute to the excessive wear and loss of vertical dimension. The correction of the defects has to be done without violating the biologic or mechanical principles. Full mouth rehabilitation in such patients improves esthetics, function and comfort. The following case report presents a systematic approach in rehabilitating a case of dentinogenesis imperfect using full mouth metal reinforced porcelain restorations in posteriors and metal free in the anterior region to have better aesthetics

Keywords: Dentinogenesis Imperfecta, Full Mouth Rehabilitation, Aesthetics.

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INTRODUCTION

Dentinogenesis imperfecta is a condition characterized by teeth that are translucent and discolored (most often blue-grey or yellow-brown in color) [1]. Individuals with this disorder tend to have teeth that are weaker than normal, which leads to wear, breakage, and loss of teeth. This damage can include teeth fractures or small holes (pitting) in the enamel. Dentinogenesis imperfecta can affect both primary (milk) teeth and permanent teeth. People with this condition may also have speech problems or teeth that are not placed correctly in the mouth [2]. Dentinogenesis imperfecta is caused by mutations in the chromosome 4q21, in the dentine sialophosphoprotein gene *DSPP* gene and is inherited in an autosomal dominant manner [3]. The following case report presents a systematic approach in rehabilitating a case of dentinogenesis imperfect using Full mouth metal

reinforced porcelain restoration in posteriors and metal free restoration in anteriors.

CASE REPORT

A 21-years old female patient reported to the department of prosthodontics, crown & bridge, Sree mookambika Institute of Dental sciences, Kulasekaram, Kanya kumari had the chief complaint of discoloured teeth (Figure 1a,b). Her family history revealed that mother also had unusual discoloured teeth. Due to a lack of diagnosis of the condition, no proper treatment was initiated. A family pedigree revealed that on his maternal side, his mother's mother, mother's brother, and her maternal grandfather were affected. The child's mother and her brother, due to their lack of awareness on this disease, thus had received no timely treatment and they were wearing prosthesis. They were born to a non-consanguineous couple. No history of any type of bone abnormality was associated.



Fig-1a: Preoperative (left lateral view)



Fig-1b: Preoperative (right lateral view)

On examination no abnormality was detected in temporomandibular joint movements

Intraoral examination revealed discoloured yellowish brown teeth which gives her unaesthetic appearance, Maloccluded posterior teeth, no loss of vertical dimension (under Turners class II classification). Based on the above features and with family history, the patient was diagnosed with dentinogenesis imperfecta. Our treatment plan for the

present case of dentinogenesis imperfecta using full mouth metal reinforced porcelain restorations in posterior teeth and metal free in the anterior teeth to have better aesthetics

Diagnostic casts were obtained. Following this a facebow transfer was completed (Figure 2a). The centric relation position was recorded using aluwax and the casts were mounted on a semi adjustable articulator. (Figure 2b).



Fig-2a: Facebow transfer



Fig-2b: Articulated in semiadjustable articulator

Diagnostic wax up was completed with a present vertical dimension (Figure 3a, b). The wax up helped in assessing the outcome of the final prosthesis

and it also helped in fabricating the temporary restorations.



Fig-3a: Mock waxup maxilla arch



Fig-3b: Mock waxup mandibular arch

The next step was the restoration of the mandibular posterior teeth for which the occlusal plane was established using a Broderick's occlusal plane analyzer. Diagnostic wax pattern was fabricated for mandibular posteriors and verified using the

Broderick's occlusal plane analyzer[4]. The mandibular posterior teeth were prepared and restored with provisional restorations. Mandibular posteriors were restored followed by mandibular anteriors.



Fig-4a: Metal ceramic restoration left posteriors



Fig-4b: Metal ceramic restoration right posteriors



Fig-5a: Mandibular posteriors cementation



Fig-5b: lower anterior tooth preparation



Fig-6a: Metal free lower anterior restoration



Fig-6b: Mandibular occlusal plane

The mandibular anteriors prepared (fig 5b) and restored by that mandibular occlusal plane was maintained (fig 6b). The maxillary posterior teeth were prepared and restored with provisional restorations.

Later Maxillary posteriors were restored which can help us to maintain the present vertical dimension. Finally maxillary anteriors were prepared and restored (fig 7a,b).



Fig-7a: Maxillary occlusal plane



Fig-7b: Maxillary anteriors



Fig-8a: left lateral view



Fig-8b: Right lateral view



Fig-9a: (Preoperative)



Fig-9b: (Postoperative)

DISCUSSION

Rehabilitation of a patient with Dentinogenesis imperfecta involves a complex interplay of various factors. The restoration of esthetics and function in patients can be accomplished by an accurate diagnosis and appropriate treatment planning involving multidisciplinary approach. The primary goal of treatment should be to tackle each problem along with a comprehensive plan, which would take care of any

future treatment needs. Psychological demands of these patients should also be handled with a lot of sensitivity [5]. All-inclusive and judicious approach toward rehabilitation is reassuring to the patient and will help to relieve their anxiety. The patient did not have any alteration of the vertical dimension of occlusion which was verified by the presence of posterior support. Phonetic evaluation revealed normal mandibular position during the pronunciation of /S/sound.

Interocclusal distance was within the normal range. Facial proportions were adequate, commissural line normal along with adequate lip thickness. The present case report describes a full mouth rehabilitation of a young patient with dentinogenesis imperfecta treated by the teeth were prepared for allceramic final restorations for anteriors and metal-ceramic final restorations for posteriors.

CONCLUSION

One of the greatest challenges for the prosthodontist is to provide adequate treatment to achieve functional and esthetic restoration in cases of diseases like dentinogenesis imperfecta. Early diagnosis and treatment are essential for obtaining a favorable prognosis. Prosthodontic rehabilitation for those patients not only brings back function and aesthetic but also brings back their confidence to live in this civilized soceity.

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