

ESTHETICS AND FUNCTIONAL IMPROVEMENT IN PATIENT HAVING AMELOGENESIS IMPERFECTA- A CLINICAL CASE REPORT

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ARTICLE INFO

Article History:

Received 16th November, 2017

Received in revised form 13th

December, 2017

Accepted 3rd January, 2018

Published online 28th February, 2018

ABSTRACT

This clinical report describes the prosthodontic treatment for a 20-year-old boy diagnosed with amelogenesis imperfect hypomaturation type. The aim of treatment was to restore esthetics and masticatory function. Porcelain laminate veneers were placed to improve the esthetics and function on the maxillary anterior teeth. Clinical examination 6 months after treatment revealed no evidence of disorders associated with the restored teeth or their supporting structures.

Key words:

Amelogenesis Imperfecta, Ceramic Laminate Veneers, Esthetics

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INTRODUCTION

Amelogenesis Imperfecta have revealed two types of enamel dysplasia's: hereditary enamel hypoplasia and hereditary enamel hypo calcification¹. Amelogenesis imperfecta is considered a hereditary structural anomaly with an incidence of occurrence of 1 person in every 1,400 people⁶. In hereditary enamel hypoplasia there is a thin layer of mature enamel with a hard, smooth, glossy surface. The yellow color of the dentine is visible through the thin enamel and the crowns are cone shaped. Eruption is frequently delayed. The cause is unknown. In hereditary enamel hypocalcification the crowns are of normal contour, but the enamel is soft and rough. The teeth are dark brown due to the penetration of extrinsic stains, and the enamel is removed by mechanical stresses soon after eruption. Inherited conditions of the enamel and dentin are determined by genes that regulate functions unique to the highly differentiated and specialized odontogenic cells. Some gene mutations that affect the structure or composition of enamel usually result in alterations that are detectable only in enamel, and the resultant inherited basic defects present at birth are described as amelogenesis imperfect⁵ (AI). Treatment of amelogenesis imperfecta, particularly in elderly patients with partial or complete aplasia, has been dominated by the extraction of the teeth and construction of dentures. In the past, treatment has primarily involved extraction of teeth and the construction of dentures, often when the patient is a young

adult³. However, the mouths of some young adults have been restored by placing full crowns on all remaining teeth². With the conservative techniques, the desired appearance can now be produced, the teeth and supporting structures preserved, and a harmonious relationship created between the teeth and the temporomandibular articulation. Treatment of anterior teeth places the emphasis on appearance; treatment of posterior teeth is directed toward function⁴.

Case report

A 20-year-old boy was referred to the Department of and Implantology Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital, Nagpur. All 28 of his permanent teeth were discolored and pitted, and the incisal and occlusal surfaces showed excessive wear (Figs. 1 and 2).



Fig 1 Showing frontal view of teeth showing

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Fig 2 Side view of discoloured teeth. brownish and

A diagnosis of amelogenesis imperfecta-hypomaturation type was made.

Preliminary impressions of the teeth were obtained at the first appointment for making diagnostic casts and determining a treatment plan. After all options were considered, it was determined that porcelain laminate veneers would be placed on the maxillary and mandibular six anterior teeth. Full-coverage restorations were considered as one of the treatment options, but because of the patient's age it was decided that a more conservative treatment was appropriate at this time. His posterior teeth would be restored at a later time. Shade matching was not critical because all of the teeth were affected. In collaboration with the patient, Ivoclarvivadent shade guide was used. Porcelain shade A 2 was selected for the maxillary and mandibular incisors and A3 for the maxillary and mandibular canines.



Fig 5 poly vinyl siloxane Impression. **Fig 6** Fabricated lithium disilicate ceramic laminate veneers.

Gingival retraction done (Fig 4). The polyvinyl siloxane impression was made (Fig 5). The impression was disinfected and poured with type type four die stone and refractory dies were made. Lithium disilicate ceramic laminate veneers (IPS Express IvoclarVivadent) were fabricated. (Fig. 6)

At third appointment the fit of the ceramic laminate veneers were done on the prepared tooth surfaces. The prepared tooth surfaces were etched and conditioned with the Multilink N (Ivoclarvivadent), the etching of the ceramic veneers done with 9.5% Hydrofluoric acid according to recommended by the manufacturer. Then silane was applied on the cavity surface of the ceramic veneer laminate. Dual cure resin (Multilink, IvoclarVivadent) was used for the cementation of the laminates. The excess luting cement was removed with help of dental floss. Light curing done to ensure the complete polymerization of the ceramic laminate veneers. The occlusion was adjusted and surfaces were polished with rubber points and polishing paste. The patient was satisfied with the final result (Figs.7). The six months follow up shows the restorations were remained intact with healthy gingival margins, and no discoloration, crazing, or carious lesions have occurred.



Fig 3 Prepared maxillary and **Fig 4** Gingival retraction of Mandibular Anterior teeth prepared teeth.



Fig 7 Showing final results after ceramic laminate veneers cementation.

DISCUSSION

Amelogenesis imperfecta (AI) is a group of inherited defects of dental enamel formation that shows both clinical and genetic heterogeneity¹³. Amelogenesis imperfect can causes excessive occlusal attrition can result in pulpal pathology, occlusal disharmony, impaired function, and esthetic disfigurement⁷. Patients with excessive wear often require extensive restorative treatment. To restore the esthetics and functions in such patient the proper diagnosis, treatment planning, and modes of restorative treatment is needed. Age of the patient also should be considered while treatment of the amelogenesis imperfect. Numerous treatments have been described for rehabilitation of amelogenesis imperfecta in adults and children and old age patient.

It should be pointed out limitations exist, and the application of techniques are not universal and Management of amelogenesis imperfecta in the young adult using fixed prosthodontics is not a novel approach, but is possibly an underutilized one¹⁵. A multidiscipline procedure has been described that provided prosthodontic restoration of esthetics and function for a patient with amelogenesis imperfecta⁸ and an awareness of the clinical features of amelogenesis imperfecta helps with identifying the condition and leading to successful treatment⁹.

The use of modern dental materials and a justifiable reliance on the predictable artistic abilities of the dental technologist allows both aesthetic and durable restorations¹¹. The popularity of porcelain laminate veneers has increased since being introduced, because tooth preparation is conservative and the restorations are aesthetic¹⁴. In the present case all ceramic crowns were fabricated for the anterior teeth. Both the marginal fit and the color acceptability of the restorations were very satisfactory¹⁶. The anterior porcelain laminate veneers gives much satisfactory results in patient with amelogenesis imperfect with discoloured anterior teeth¹² and boosted the patient's self-confidence.

CONCLUSION

The complexity of the management of patients with AI supports the suggestion the dental profession should have appropriate methods for the rehabilitation of rare dental disorders. The treatment of patients with AI should start with early diagnosis and intervention to prevent later restorative problems. This case report describes the functional and esthetic rehabilitation of AI with ceramic laminate veneers in the anterior teeth.

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How to cite this article:

Ganesh B Bajaj et al (2018) 'Esthetics and Functional Improvement in Patient Having Amelogenesis Imperfecta- A Clinical Case Report', *International Journal of Current Advanced Research*, 07(2), pp. 9948-9950.
DOI: <http://dx.doi.org/10.24327/ijcar.2018.9950.1662>
