CASE REPORT

Restoration of anterior teeth with direct composite veneers in Amelogenesis Imperfecta
Mainak Kanti Saha, Suparna Ganguly Saha

Abstract
Amelogenesis imperfecta is a term for a clinically and genetically heterogeneous group of conditions that affect the dental enamel. This paper reports a case of Amelogenesis Imperfecta managed by composite veneers.

Key Words: Amelogenesis imperfecta; composite; veneers

Introduction
Amelogenesis Imperfecta (AI) is a collective term for a number of conditions resulting from abnormal enamel formation. Many cases are inherited, either as autosomal dominant, autosomal recessive or as an X-linked trait. (1, 2) There have been a number of classifications, based primarily on the phenotype. (2) This enamel anomaly affects both primary and permanent dentition. (3) The incidence of AI has been reported as varying between 1:700 and 1:16000, depending on the diagnostic criteria and the population studied. (1, 2)

Dental problems, which depend on the severity of the condition, include sensitive teeth and poor appearance due to tooth loss and staining. If tooth tissue loss is severe there is vertical loss resulting in reduced masticatory function and poor appearance. This article describes treatment of a girl who presented with a severe form of Amelogenesis Imperfecta.

Case Report
A female patient of 18 years old reported to our dental wing with the chief complaint of unaesthetic teeth. On clinical examination she had a moderate form of AI, with absence of the enamel. History reveals that her primary teeth had also been affected but she was not sure to what extent. Those teeth present were heavily stained, had no deep carious lesions and the exposed dentine was relatively softer than the normal dentine (Figure 1a). The teeth were vital, firm, and not tender to percussion. Only some teeth were sensitive to cold. The teeth were vital. The periodontal tissues were healthy.

Treatment objectives for this patient were to set to be a) prevention of caries and gingivitis, b) improvement of esthetics, c) prevention of further deterioration of the remaining dentition and d) patient education and motivation. The patient demanded to have less chair time treatments and minimal cost for the restoration. A treatment plan was developed to improve the patient’s appearance with direct composite laminate veneers. The patient refused to use rubber dam during the treatment period to feel relaxed in the dental chair. First, the maxillary teeth were dried and prevented from contact with saliva using cotton rolls. The total etch bonding system was preferred to prepare the surfaces of the teeth because it was deemed necessary to etch the remaining enamel and provide higher bonding strength for the composite resin. Before applying the bonding agent, all of the surfaces to be restored were etched with 35% phosphoric acid gel for 15 seconds. Care was taken to rinse the etchant gel completely for 20 seconds, and the teeth were then blot-dried. After this etching procedure, bonding agents were applied to the etched surfaces, dried, and then cured with an light curing unit for 20 seconds. The buildups were formed with hybrid resin composite. Composite was placed using an incremental technique, and specific attention was given to the contouring of the marginal finish line of the restorations. The contacts and proximal side of the restorations were formed with celluloid bands. The mandibular anterior teeth were restored using the same technique. Gingival finish lines were examined, and the occlusion was controlled. The final resin composite restorations were polymerized for 40 seconds in the buccal and palatal or lingual direction.

The restorations were polished with polishing discs according to the manufacturer’s instructions (Figure 1b). The patient was instructed about how to care for his teeth and protect them from trauma. The patient was examined at three-month intervals for one year. There was no gingival inflammation, erythema, or bleeding, and oral hygiene remained good. No fracture or notable discoloration of the restoration was observed during the follow-up. Discussion
Amelogenesis Imperfecta is an inherited disorder, ranging from a defect in enamel formation to coexistence of other medical disorders. (4) As both the primary and permanent dentition is affected, preventive measures should be started, even before the teeth erupt.
In this case, the patient presented with unaesthetic teeth due to inherited abnormal enamel development. The poor appearance was due not only to the innate color of the teeth, but also to increased staining. There was no pulpal involvement as treatment was initiated before further damage was done. Composite laminates, porcelain laminates, metal ceramic crowns and all-ceramic crowns are typical prosthetic treatment alternatives for such patients.(5) In this case, the patient refused to have more chair time treatments or to pay a high cost for the restoration. So a treatment plan was developed to improve the patient’s appearance with a direct composite laminate veneer.

The advantages of the direct laminate technique are its low cost, that the restoration may be evaluated as a reversible treatment procedure, and that the restoration may be repaired intrarorally.(6) Although composite resins are esthetic and easy to manipulate, they have some undesired properties such as staining, micro leakage, low abrasion resistance, and plaque accumulation, so they are more appropriate to use for anomalies limited with enamel and as provisional restorations. Drinking hot coffee, carbonated beverages or alcohol may increase discoloration.(7) Increasing the particle size of the resin by decreasing the proportion of organic filler matrix can decrease the change in color. Hybrid composite resins were used in this case because they have good mechanical resistance and can be polished. Light-cured hybrid composite resins are both aesthetic and easy to manipulate. In the twelve-month follow-up, there was no remarkable color change, fracture, or damage of the composite restorations. Periodontal tissues remained healthy, and there was no plaque accumulation on the gingival side of the restorations. Porcelain laminate veneers, metal ceramic crowns, and all-ceramic crowns are expensive and need tooth preparation. These kinds of restorations also take a long time and are irreversible.(8) Based on this knowledge, a direct composite laminate technique may be an important choice for treatment compared with other fixed dental prostheses.

Conclusion

The cosmetic rehabilitation of a patient with amelogenesis imperfecta has been described. The use of modern dental materials and a justifiable reliance on the predictable artistic abilities of the dental technologist allows the fabrication of both aesthetic and durable restorations.

Authors affiliations: 1. Dr. Mainak Kanti Saha, Professor, Department of Prosthodontics, 2. Dr. Suparna Ganguly Saha, Professor and Head, Department of Conservative Dentistry, College of Dental Sciences, Rau, Indore, India.

References


Address for Correspondence
Dr. Mainak Kanti Saha, MDS, Professor, Department of Prosthodontics, College of Dental Science and Hospital, Rau, Indore, India.
Email: mainaksaha@indiatimes.com

Source of Support: Nil, Conflict of Interest: None Declared