Amelogenesis Imperfecta – Teeth for Life?

Conservative Management of Amelogenesis Imperfecta

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Amelogenesis Imperfecta

Amelogenesis imperfecta (AI) affects the structure and appearance of enamel and its clinical presentation can vary considerably:
- Severe form (Case 1) - Clinical signs of tooth discoloration, missing teeth, and associated periodontal disease.
- Moderate form (Case 2) - Often show discolouration, roughness, and pitting of the enamel surface only.

Patients with AI may complain of poor aesthetics, and in more severe forms of AI, patients also complain of loss of function and sensitivity.

Restorative Challenges
- The biggest challenge in rehabilitating these patients is trying to restore aesthetics and function while keeping the treatment conservative.
- The rationale for treatment should be to improve the life of the patient’s own teeth and delay the need for extractions and subsequent replacement with conventional fixed, removable, or implant retained prostheses.
- In severe cases, this can require treatment planning that is often more conservative than initially expected treatment.

Evidence Based Treatment Options
- The literature is abundant with case reports which predominantly describe the use of removable prostheses and full coverage crowns and bridges.
- Composite veneers are a predictable and durable aesthetic option but can have high failure rates.
- In severe cases, the treatment plan may not be feasible due to the lack of available treatment options.

Conservative Treatment Option
- In mild forms of AI, porcelain veneers have been advocated to restore aesthetics. In these cases, caries prevention is usually minimal, and it does not require preparation of a structurally compromised tooth at an early age. Placement of veneers during adolescence when gingival recession is not complete can result in marginal exposure of the veneer in the future as the gingival tissues mature leaving an unsightly appearance. This is a problem that occurs in the need for early trauma and subsequent restoration of the upper teeth which can further damage the soft tissue.

This paper presents two cases of AI, which have been restored conservatively using composite resin.

Case 1 – Severe form of Amelogenesis Imperfecta

Treatment involved:
- Composite build-up (Vivadent Kerr Ultradent and Ceralpop Plus, Kerr, California) of 3mm to 5mm of increasing composite vertical dimension.
- Refinish with Diamond Bur (#120 grit) using range of finishing bur (#200 grit).
- For 3mm to 4mm composite build-up (Vivadent Kerr Ultradent and Ceralpop Plus, Kerr, California) of CR = 1.5 a further increase in vertical dimension.
- The dento-composite build-ups were continued using a combination of the matrix and free hand techniques described by Stabholz et al. 2009.
- The anterior teeth were held in position with temporary composite posts while the composite was polymerised.
- The L1R7 and L1R6 were restored with indirect composite veneers (DentaLux, GC, Belgium) with a minimal preparation. These were cemented using BisQuick (Chemtura Dental Products, USA).
- The L1R5 had a buccal composite facing with some additional coverage to protect the remaining tooth structure.
- Adequate moisture control was maintained using tongue guard, saliva ejector, cotton roll, and isolating gel.

Case 2 – Mild form of Amelogenesis Imperfecta

Treatment involved:
- Full hand direct composite veneers (Ivoclar and Prima and Bond Dentistry, Germany) of L1R5, L1R6, L1R7, L1R8 and L1R9.

Conclusion
- Both of these cases show that AI affected teeth can be restored conservatively using composites.
- While initial results are promising further research is required to determine the longevity of composite restorations in AI affected teeth. Human (2005) showed that 1 year post restoration with composite, only one tooth showed partial failure of the composite.
- It is anticipated that as the age increases the anterior direct composites have been in situ for at least three months with no signs of failure and good acceptance.
- Despite the lack of evidence that this form of treatment is acceptable, it is recommended that such treatments be considered prior to more invasive treatment options, especially for young patients with AI.

References