

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 enamel¹ and its clinical presentation can vary considerably:

- Severe cases (Case 1) - Show significant loss of enamel, extensive toothwear, interdental spacing, alveolar compensation and loss of occlusal vertical dimension
- Milder forms (Case 2) - Often show discolouration, roughness and pitting of the enamel surface only

Patients with AI mainly complain of poor aesthetics. 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 whilst keeping the treatment conservative
- The mainstay of treatment should be to prolong 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 order to achieve this goal a stepwise approach to treatment planning is required starting with the most conservative but aesthetically acceptable treatment

Evidence Based Treatment Options

- The literature is abundant with case reports which predominately describe the use of removable prosthesis and full coverage crown and bridgework
- Complete crowns represent a predictable and durable aesthetic option but are highly destructive
- In severe cases overdentures / overlay dentures have been advocated but are rarely accepted by patients
- In milder forms porcelain veneers have been advocated to restore aesthetics. Whilst veneer preparation is usually minimal it still requires preparation of a structurally compromised tooth at a young age. Placement of veneers during adolescence when gingival maturation is not complete can result in marginal exposure of the veneer in the future as the gingival tissues mature leaving an unaesthetic appearance. This subsequently results in the need for early replacement of the veneer which can further damage the tooth structure

Conservative Treatment Option

- There is very little evidence regarding the use of composite resin in the management of AI.^{2,3} With advances in composite bonding techniques this is one option that should be considered earlier in the management of these cases. This still leaves the opportunity to consider more invasive treatment options at a later date

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

Case 1 – Severe form of Amelogenesis Imperfecta

Treatment involved:

- Composite build up (Herculite XRV Ultra and Optibond Solo Plus, Kerr, California) of the LR5 – LL5 at an increased occlusal vertical dimension
- Crown lengthening surgery of the upper anterior teeth
- After 3 months of healing composite build up (Herculite XRV Ultra and Optibond Solo Plus, Kerr, California) of UR5 – UL5 at a further increase in occlusal vertical dimension
- The direct composite build ups were carried out using a combination of the matrix and free hand techniques described by Robinson et al. 2008⁴
- The posterior teeth were held in position with temporary composite stops while the anterior teeth were restored
- The UR67 and LR67 were restored with indirect composite onlays (Gradiac, GC, Belgium) with a minimal preparation. They were cemented using Mirage cementation kit (Chameleon Dental Products, USA)
- The UL6 had a buccal composite facing with some occlusal coverage to protect the remaining tooth structure
- Adequate moisture control was maintained using tongue guard salivary ejector, cotton wool rolls and gauze squares



Case 2 – Milder form of Amelogenesis Imperfecta

Treatment involved:

- Free hand direct composite veneers (Esthetix and Prime and Bond NT, Dentsply, Germany) of the UR5 – UL5 and LR5 – LL5 with no tooth preparation



Conclusions

- Both these cases show that AI affected teeth can be restored conservatively using composite resin
- Whilst initial results are promising further research is required into the longevity of composite restorations in AI affected teeth. Turkun (2005)² showed that 1 year post restoration with composite, only one tooth showed partial fracture of the composite
- In both of the above cases the anterior direct composites have been in situ for at least three months with no signs of failure and good patient acceptance
- Despite the lack of evidence this form of reversible and non-invasive treatment should be considered prior to more destructive treatment options, especially for young patients with AI

References

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4. Robinson S, Nixon PJ, Gallem M, Chan MF. Techniques for restoring worn anterior teeth with direct composite resin. *Dent Update* 2008;35(6):551-2, 55-4.