

Semi-Direct Composite Restoration as an Alternative Treatment for Amelogenesis Imperfecta



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Introduction

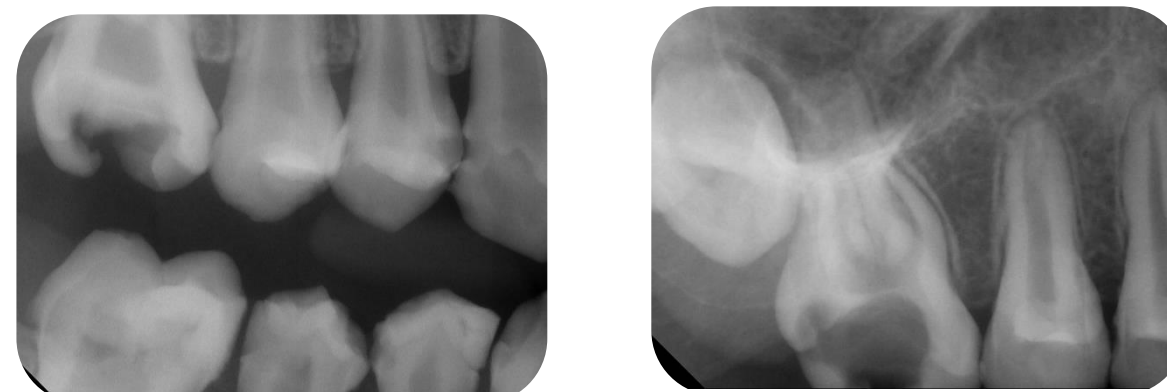
Amelogenesis Imperfecta (AI) is a rare genetic disorder affecting children and adults. No definitive treatment guideline has been suggested in the literature. Resin composite restorations can be performed by the dentist through direct or semi-direct restoration, without depending on laboratory steps. The semi-direct technique allows to work in a single session with a working model made from the impression of the cavity.

Case Report

- 14-year-old male patient, Frankl 4 scale.
- Amelogenesis imperfecta.
- Multiple dental treatments since he was 5-years-old.
- Lost of first permanent molars due to caries.
- Incomplete permanent dentition.
- Generalized gingivitis induced by dental biofilm.
- Multiple posteruptive enamel breakdown and ICDAS 3, 4 and 6 cavities.
- Tooth 1.7 ICDAS 6 cavity

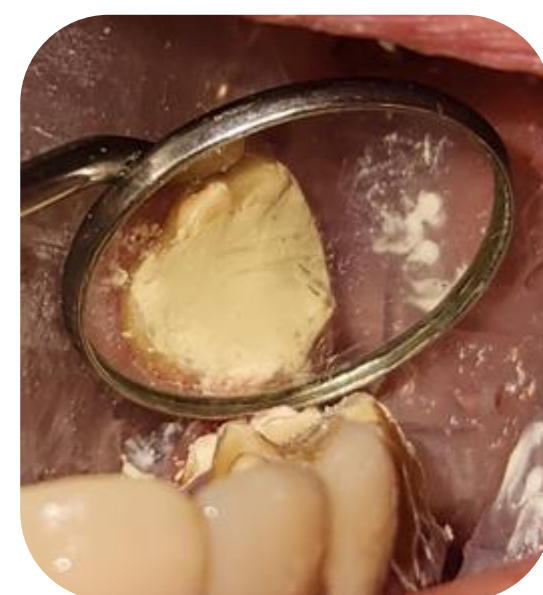
Treatment Phases

1. Diagnosis and planification



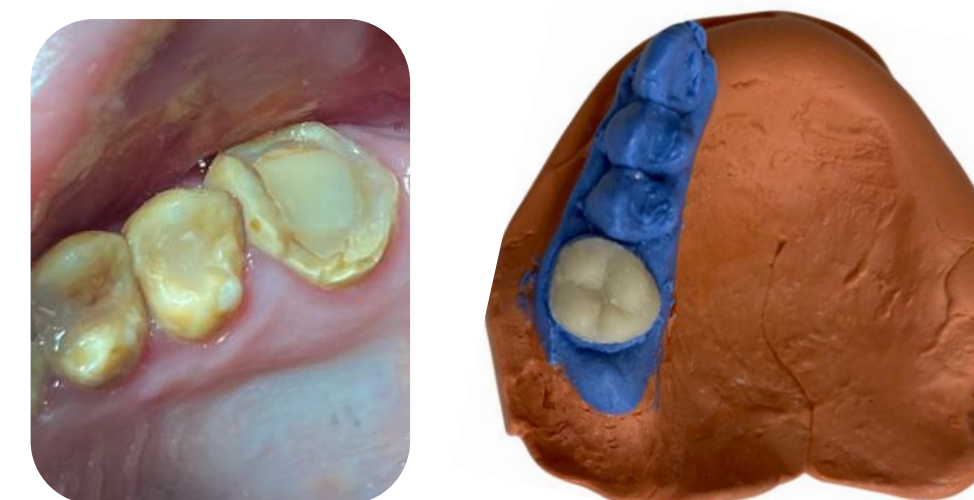
Clinical exam and x-rays were performed to evaluate tooth 1.7, diagnosed with ICDAS 6 cavity and a reversible pulpitis. An endodontic and a rehabilitation team were consulted to evaluate alternative treatments. Due to the lost of tooth 1.6, it was determine to maintain tooth 1.7.

2. Cavity Excavation



During caries excavation a partial pulpotomy using the bioactive material Biodentine was achieved to maintain tooth vitality.

3. Tooth Preparation and model



An onlay preparation and an alginate dental impresión were performed. A semi-direct resin composite restoration was produced in a silicone model.

4. Adhesive Protocol



The semi-direct restoration was tried in tooth 1.7. After minimal adjustments, the restoration was sandblasted and adhesive protocol with sylane and 3M Universal Bonding was applied in the restoration and an adhesive protocol with selective enamel etching was applied in the tooth.

5. Cementation



The semi-direct resin composite restoration was cemented to tooth 1,7 with Relyx Ultimate 3. Excess of product was removed manually and occlusion was tested with articulation paper.

Conclusion

People with AI have high dental needs, which are important to fulfill with an interdisciplinary team. Dental integrity has to be maintain until they complete their growth and development, and permanent rehabilitation can be achieve. The semi-direct technique allows to work in a single session with a working model made from the impression of the cavity. This technique reduces the chances of contamination, improves the contour and interproximal contacts, and have fewer effects on polymerization shrinkage, with good aesthetic results.

References

1. Bin Saleh S. S. (2023). Etiology, Classification, and Restorative Management of Amelogenesis Imperfecta Among Children and Young Adults: A Scoping Review. *Cureus*, 15(12), e49968. <https://doi.org/10.7759/cureus.49968>
2. Ribeiro, A. E. L., Dias, J. D. N., Melo, A. M. D. S., Borges, B. C. D., & de Assunção, I. V. (2022). Direct and semi-direct resin composite restoration in large cavity preparations: analysis of dentin bond strength stability and bottom/top microhardness ratio in a cavity model. *Odontology*, 110(3), 482–488. <https://doi.org/10.1007/s10266-021-00680-7>