Amelogenesis Imperfecta –
Full mouth rehabilitation with 28 all-ceramic restorations

Case Description

A 15-year-old boy presented with a skeletal class II malocclusion and general amelogenesis imperfecta on all teeth. Following a 2,5-year orthodontic and orthognathic treatment, the boy was referred back for prosthetic rehabilitation of the dentition at age 18. The overall positioning of the teeth and arch was good, with some anterior teeth showing signs of recession. Many teeth were previously restored with direct composite to treat sensitivity. New records were taken, and the treatment plan was discussed using a mock-up based on a design of natural shapes to simulate the treatment outcome. The treatment objective was to prepare the remaining tooth structure using minimally invasive procedures, removing undercuts and allowing space for all-ceramic crowns to cover all the dentin and emulate the lost enamel. Preparations were done equi- or supragingival to allow the possibility for future connective tissue grafts to treat recession. Treatment was executed in 5 sessions. A transfer of the 3D printed design to the mouth was done using a provisional material and a silicone index. This first step was to establish the new occlusion and evaluate the design of the new restorations. The second step consisted of the preparation of 14 upper teeth through the mock-up, followed by intra-oral scanning and a new set of provisionals. Step 3 was the adhesively bond 14 CEREC Tessera MT A2 monolithic all-ceramic crowns made with CAD/CAM technology and a stain and glaze technique. The case continued with steps 4 and 5, being the preparation and bonding of 14 all-ceramic crowns in the lower jaw using the same technique. Once finished, the patient came back for 2 retention appliances and a set of clinical pictures to evaluate the treatment outcome. The final outcome was the result of an intense collaboration between Dr. Laurent Thierens (orthodontist), Ben Vernaillen and his team of LAB@MOND (DTB), and Dr. Alexander Declerck (prosthodontist).

Discussion

Despite the patient's young age, the choice for all ceramic crowns was made to protect the exposed dentin and restore the absence of enamel. To allow for minimal preparation thickness, but good overall esthetic appearance, the choice for the new CEREC Tessera Advanced Lithium Disilicate blocks was justified. A minimal thickness of 1 mm together with an adhesive bonding strategy and monolithic restorations assured the required strength for long-term clinical results.

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Before:
Initial situation prior to orthodontic treatment

After:
Final result, 1 week post-operative

Clinical Images

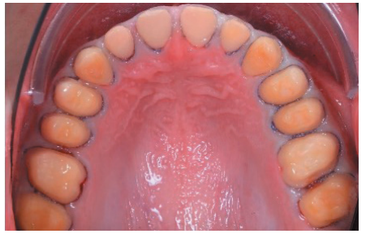
Initial situation post orthodontic treatment. Diastema were created for prosthetic space and a minimal invasive approach

Finished preparations prior to intra-oral scanning

Final result 2 weeks post-operative. 28 monolithic all-ceramic restorations, stain and glaze only. CEREC Tessera MT A2

Workflow Images

1. Mock-up followed by esthetic evaluation



2. Occlusal view upper jaw. Finished preparations prior to iOS

3. Details of preparation. Rounded edges for better milling properties and reduction of internal stress

4. 14 milled CEREC Tessera crowns. MT A2, stain and glaze on 3D printed model

5. Try in

6. Final result upper jaw occlusal view

7. Final result lower jaw occlusal view

8. Final result lateral view left

9. Final result lateral view right