



THE UNIVERSITY
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at CHAPEL HILL

Digital case planning and treatment execution for an adolescent patient with Dentinogenesis imperfecta.

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INTRODUCTION

Dentinogenesis imperfecta (DI) is a rare genetic condition in which there is an impairment of the formation of dentin. Radiographically, teeth with DI appear to have bulbous crowns, cervical constriction, and obliterated pulp chambers. Clinically, teeth are discolored and susceptible to wear and fracture. In this case, a 15-year-old female patient with DI type II was treatment planned for full mouth rehabilitation. Her treatment was done in a combination of analog and digital workflows.

CASE REPORT



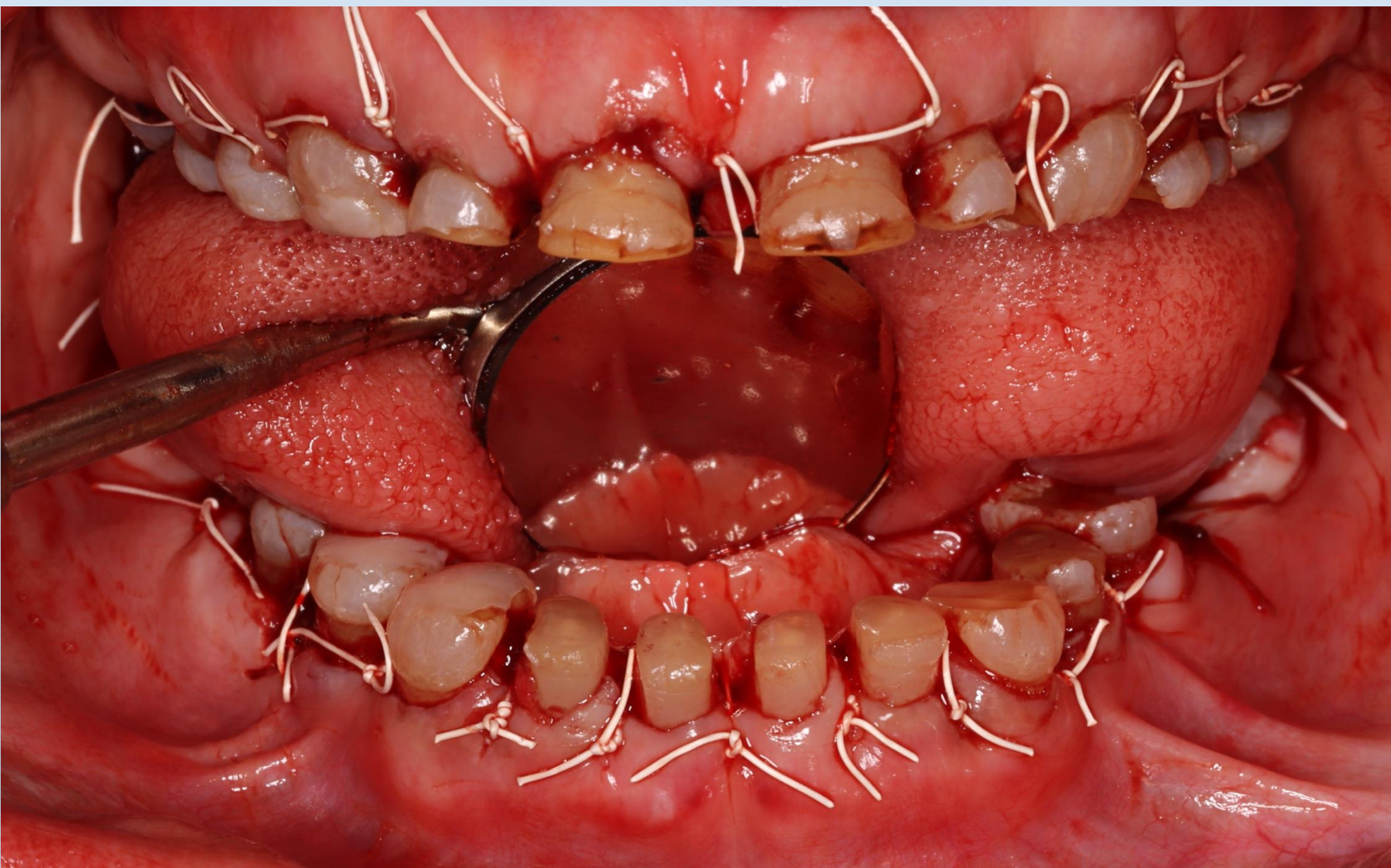
Radiographs reveal minimal remaining enamel, obliterated pulp chambers, bulbous crowns, cervical constriction of the teeth, and impacted third molars.



Clinically, the patient presented with severe loss of tooth structure, minimal crown display, excess gingiva display, posterior resin restorations, and primary caries.



Crown lengthening was planned using Exocad™ and CoDiagnosis™, and guides were designed digitally using Exocad™ and 3D printed.



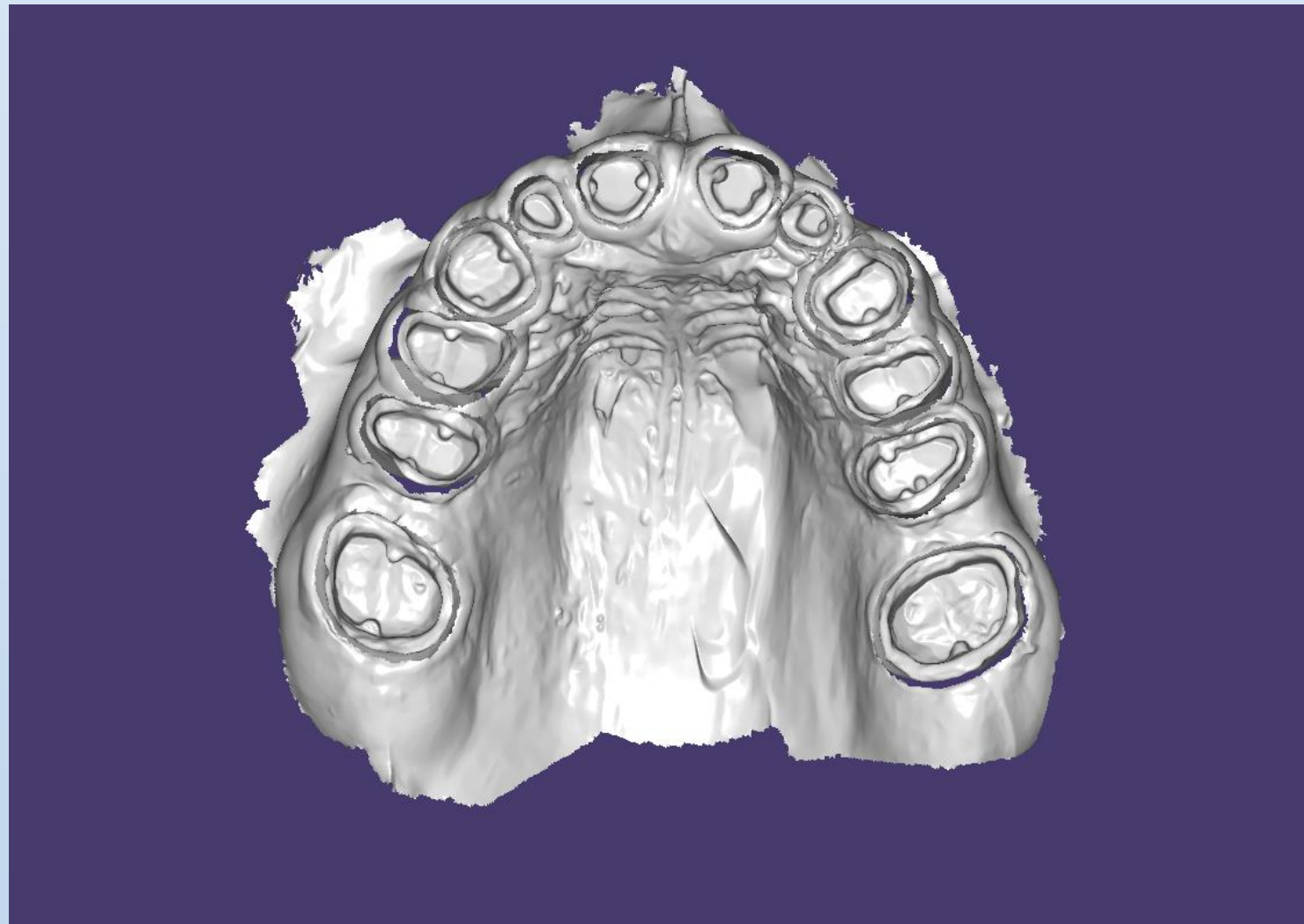
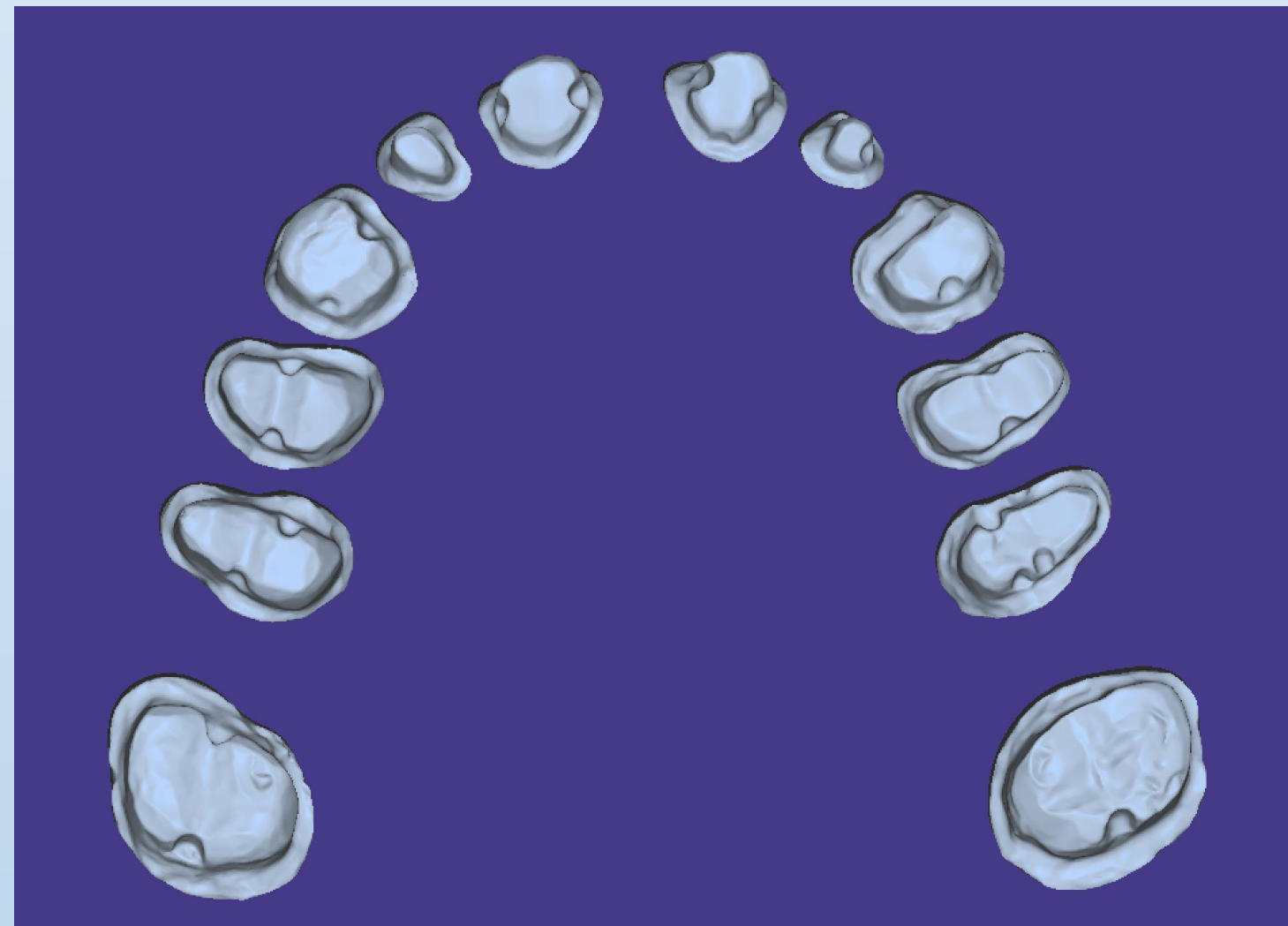
Full mouth crown lengthening was completed by UNC Graduate Periodontology clinic.



Patient presented two weeks later to begin preparation and provisionalization. Initial provisionals made from digital wax-up planning.



Provisionals were re-designed and modified to patient satisfaction and function.



Teeth were impressed segmentally, separate dies were ditched, scanned, and merged on Exocad™ to create a full arch die model.



Full mouth PFM restorations were fabricated and ready for try-in and delivery.

DISCUSSION

Treatment options for this patient were discussed and included:

- No treatment – Patient wanted to try to save her teeth and use them for fixed restorations to restore form, function, and esthetics.
- Removable snap-on appliance – Patient did not desire a removable option, and there was concern for additional wear of the teeth with insertion and removal of the prosthesis.
- Full mouth rehabilitation with fixed restorations – This treatment plan was pursued.

Planning and executing this case using an analog and digital approach made it possible to achieve the appropriate result for this patient without further compromising the periodontal support of the teeth, and at the same time, provided improved esthetics, phonetics, and function. Additional time was needed to impress her teeth in sextants due to her age and poor compliance, so a digital solid cast was created to use for fabrication of the definitive restorations in the lab. Due to the inability to clinically visualize the subgingival contours of the teeth and the bone level, this workflow allowed the ability to achieve the desired outcome for the case.

CONCLUSIONS

Treating patients with compromised dental conditions come with their own challenges, but the use of digital software creates more room to predictably plan and complete treatment.