

Three-Visit Digital Workflow for Management of Adolescence Amelogenesis Imperfecta: A Case Report

Jinyoung Jung MS, DDS, Mijin Choi DDS, MS, MBA, FACP

Jonathan and Maxine Ferencz Advanced Education Program in Prosthodontics New York University College of Dentistry

INTRODUCTION

Amelogenesis imperfecta (AI) is a disorder defined by disrupted enamel formation, primarily stemming from genetic factors.^{1,2} Treating individuals with AI is notably challenging because many cases of AI are associated with dental and skeletal anomalies, causing increased dental sensitivity.^{3, 4, 5}

OBJECTIVES

This clinical case report focuses on the two-visit rehabilitation process using digital workflow for a 14-year-old female patient diagnosed with hypoplastic AI, genetic mutation not hereditary.^{6,7,8,9} The patient presented with severe dental sensitivity, discolored teeth, anterior open bite, skeletal class III malocclusion, and absence of mutually protected occlusion.

Effective treatment of AI demands attention to both functional and aesthetic needs.^{10,11,12,,13} Additionally, early intervention and sequential treatment phase is essential for promoting balanced maxillofacial growth, and proper interdisciplinary care while reducing discomfort.^{14,15,16,17}

This presentation show diagnostic treatment phase and utilization of digital workflow and carefully sequenced clinical care that can significantly improve the quality of life for AI patients during their formative years.

METHODS



Figure 1. Prep op

STEP 1
Visit 1 Establish VDO, incisal edge, anteroposterior occlusal plane using conventional maxillary overlay occlusal wax rim

STEP 2
Lab Digital laboratory scan of diagnostic models at the established VDO without wax rim

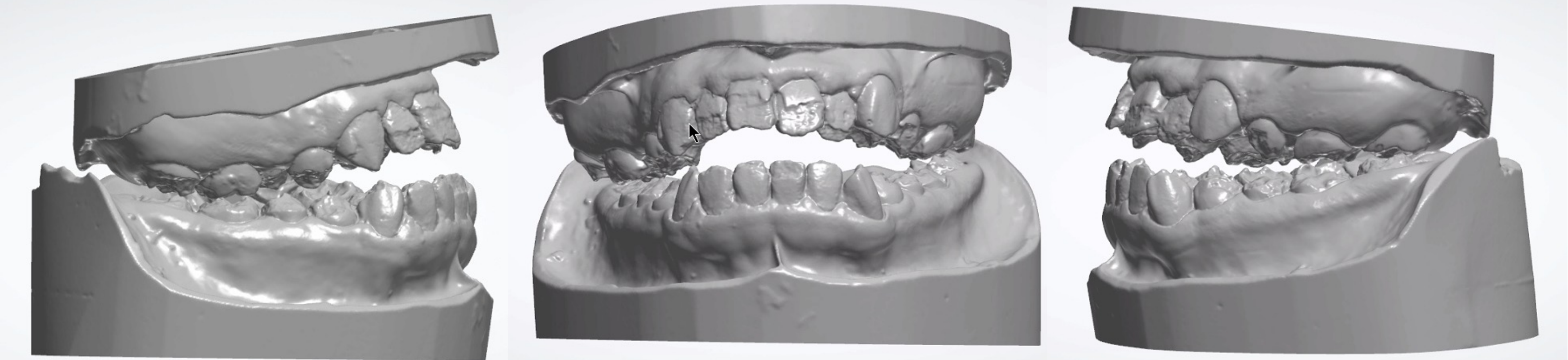


Figure 2. Digital scan with wax rim

STEP 3
Lab Digital wax-up at the established incisal edge and occlusal plane

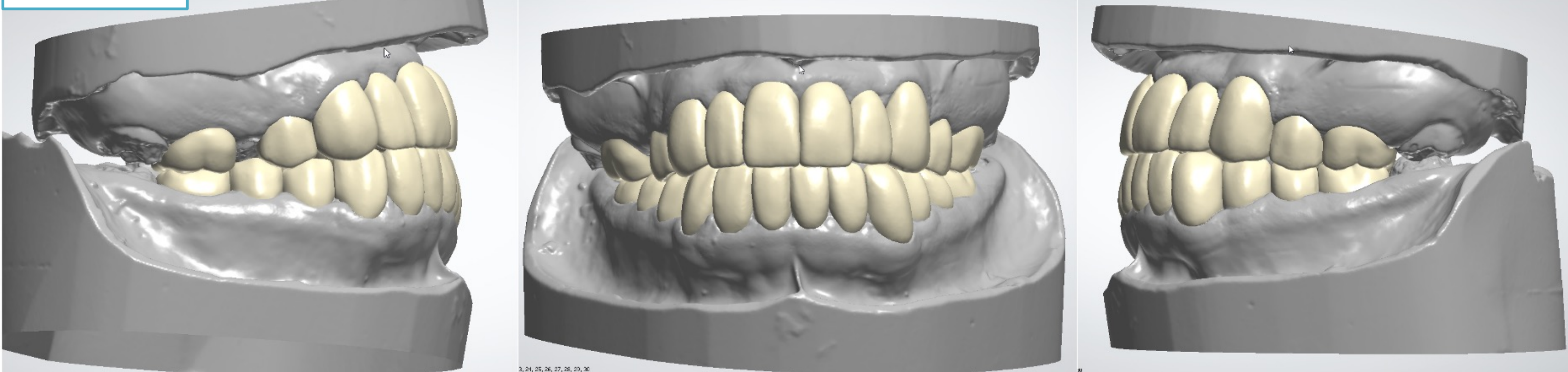


Figure 3. Digital design

STEP 4
Lab Finalization of tx plan for phase 1 restorative treatments and fabrication of single unit provisional restorations to allow for subsequent orthodontic tx

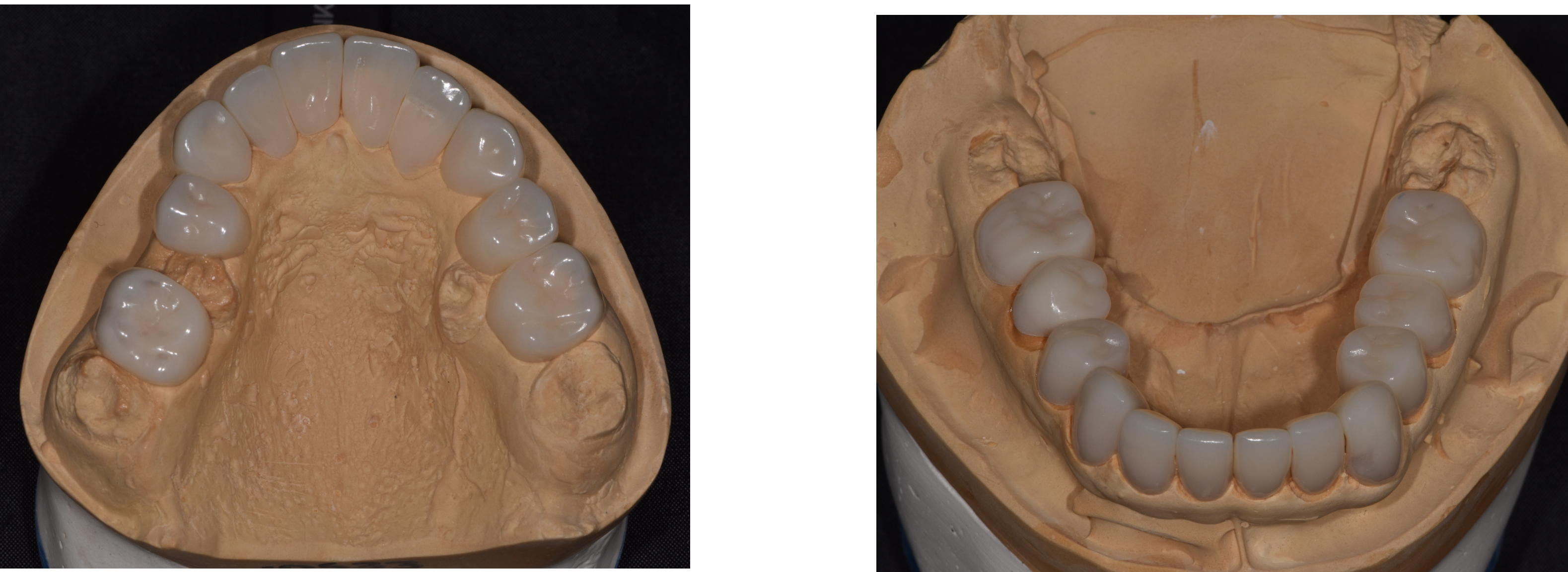


Figure 4. 22 single-unit milled acrylic-resin-indirect restorations on the cast

STEP 5
Visit 2 Minimal tooth preparations were completed to provide path of insertion for restorations and relined with PMMA, then cemented with temp bond.



Figure 5. Post op

STEP 6
Visit 3 IOS was performed with and without restorations for the future modifications and fabrication of indirect resin bonded restorations for subsequent orthodontic treatments.

RESULTS

Semi-permanent single-unit dental restorations were provided to enhance both aesthetics and functionality in anticipation of upcoming orthodontic treatment. These restorations might necessitate periodic adjustments during the orthodontic journey. After completing her orthodontic treatment, which is projected to begin at age 17, the patient will need a final restoration.

CONCLUSION

Managing a young patient with a genetic disorder poses numerous challenges. Yet, by implementing carefully sequenced treatment phases and ensuring interdisciplinary care throughout their growth, we can achieve positive clinical outcomes and significantly enhance an individual's life.

REFERENCES

