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Complete Digital Workflow in Prosthodontic Rehabilitation of a 12-Year-Old Patient with Dentinogenesis Imperfecta Type II: A Case Report

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INTRODUCTION

Dentinogenesis Imperfecta (DI) is an autosomal dominant genetic disorder affecting dentin formation, leading to discolored, structurally weak teeth prone to rapid wear and breakage.[1–4] DI type II, unassociated with Osteogenesis Imperfecta (OI)[5], presents functional, esthetic, and psychological challenges in pediatric patients, impacting their confidence and social interactions.[6]

OBJECTIVES

To restore function, esthetics, and long-term dental health in a pediatric patient with DI Type II using advanced digital prosthodontic techniques.

CLINICAL REPORT

A 12-year-old female presented with generalized tooth wear, discoloration, and defective restorations due to DI Type II. The treatment plan involved full-coverage crowns on anterior maxillary and mandibular teeth. A complete digital workflow was utilized. Intraoral scans and 2D pictures were used in CAD/CAM to design the digital smile, followed by the fabrication of the mock-up and milling of provisional crowns. A feather-edge margin was used to ensure a conservative approach.[7]

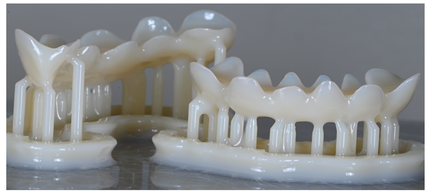
DISCUSSION

The digital workflow enabled precise treatment planning and customization of the crowns using CAD/CAM technology, significantly improving both esthetics and function. For DI-II, full-coverage crowns are suggested for the anterior teeth to provide enhanced durability and esthetics.[8] Additionally, indirect restorations have a lower replacement rate and longer longevity compared to direct restorations, with significantly higher 5-year survival rates.[9] Bonding to dentin in DI-II is challenging due to the irregular structure of dentinal tubules.[3,10]

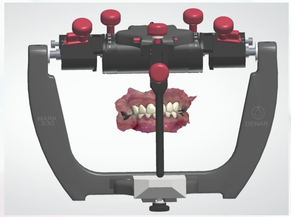
This case highlights the advantages of using digital workflows in managing complex prosthodontic cases, enhancing both predictability and patient satisfaction.

PRE-TREATMENT

TREATMENT



TREATMENT



POST-TREATMENT

REFERENCES