

Case Report: Restorative treatment options for patients with Amelogenesis Imperfecta

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Introduction

Amelogenesis Imperfecta (AI) is a disorder of tooth development that affects the structure and appearance of enamel. Teeth affected with AI can have various clinical presentations such as small, discolored, pitted or grooved, and prone to rapid wear and dental caries¹. This dental condition can affect primary and permanent teeth. The incidence of AI varies. The purpose of this case presentation is to alert the clinician of the clinical manifestations of AI and different treatment modalities that may be presented to patients to help restore function and esthetics.

Case Presentation

An 11-year-old male was an active patient at UCSF Pediatric Dental Clinic. He was a normal healthy child with a medical history of being overweight and a dental history of Amelogenesis Imperfecta (AI) type III (hypomineralized). He first presented to UCSF pediatric dental clinic at 8 years old, and had a dental history of restorations on his primary dentition that was completed under general anesthesia (GA) at age 3. Patient underwent GA treatment again at age 8 where resin crowns for permanent incisors and SSCs for permanent first molars were completed. At age 10, the patient was referred to GA again due to the presence of recurrent dental caries and need for dental extractions. Patient had to be referred to GA multiple times due to his history of being uncooperative for dental treatment in a dental office setting.

CLINICAL AND RADIOGRAPHIC FINDINGS

Extraoral: Negative for swelling, asymmetry, lymphadenopathy, and TMD
Intraoral Soft Tissue: Hard/soft palate, floor of mouth, tongue, and oral mucosa: WNL.

Intraoral Hard Tissue - Permanent dentition. Caries and enamel hypoplasia was noted on teeth #4,7,8,9,10,13,15, 20, 24,25,26, 29. Patient has severe crowding on both maxillary and mandibular arches, with impacted 6 and 11.



Fig. 1 and 2: Pre-op Intraoral Photos

Generalized enamel breakdown on the existing permanent dentition. Recurrent caries developed due to the significant enamel breakdown



Fig. 3 Pre-op Radiographs

Posterior bitewings and anterior periapical imaging shows the significant enamel breakdown patient exhibits from AI.

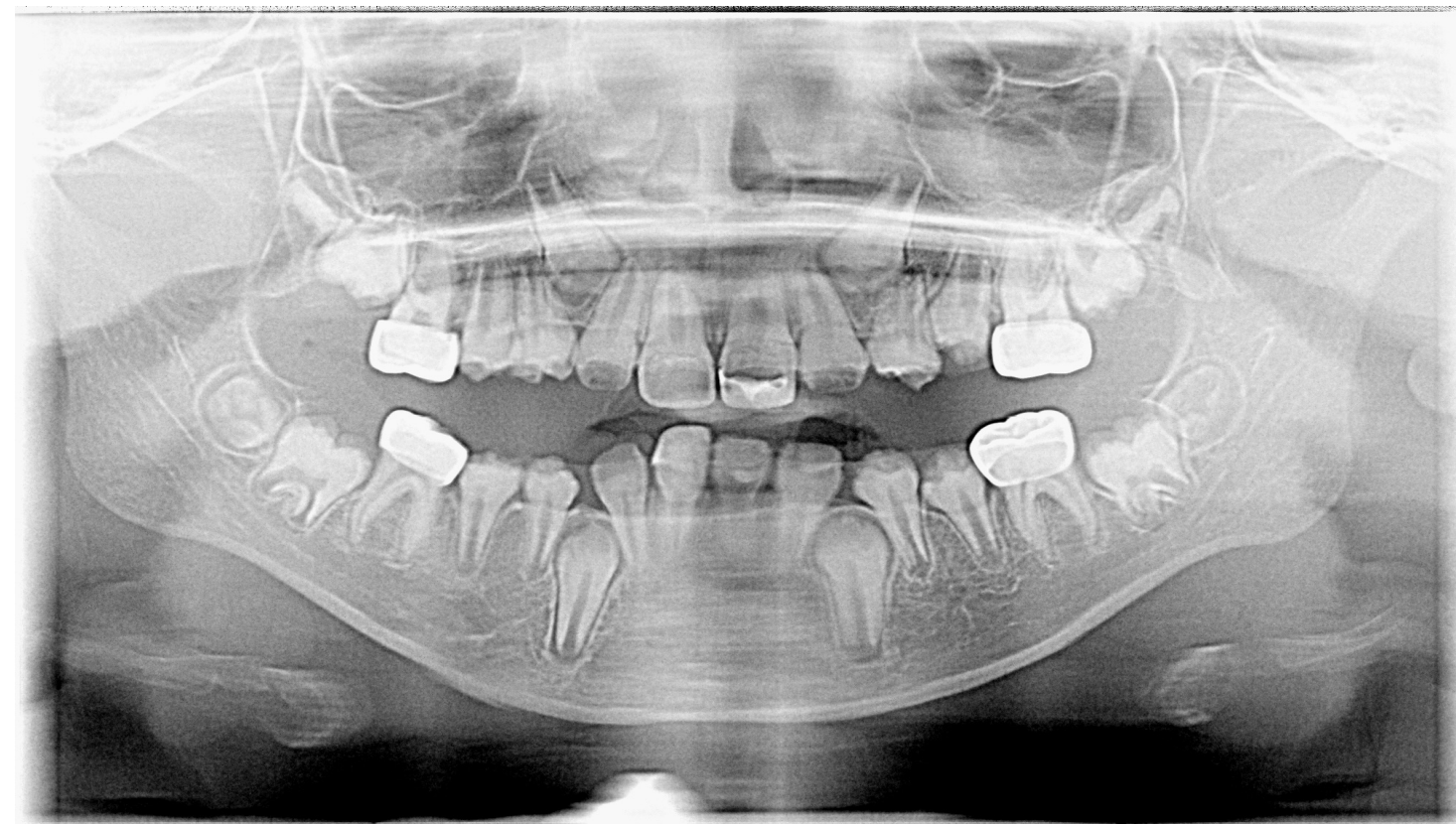


Fig. 4 Panoramic Radiograph

Panorex was taken in 2021 when patient was 10 years old. The impaction of #6 and #11 can be observed.

ADDITIONAL FINDINGS

Oral Hygiene - Poor. TB 0-2x/day, floss 2-3x/week, generalized mild plaque noted
Caries Risk - High due to active caries, frequent snacking, and consumption of juice/sugary beverages
Behavior: Frankl 2

Treatment Plan

- Restorative work completed under GA:
 - Resin crowns were placed on teeth 7, 8, 9, 10, 23, 24, 25, and 26.
 - Stainless steel crowns were placed on teeth 4, 13, 15, 20, and 29.
 - Extraction of #5, 12, 21, and 28, per orthodontic consultation
 - Gingivectomy with electrosurgery on 7, 8, 9, 10, 23, 24, 25, and 26 in order to place dental restorations
- Glass ionomer sealant and SDF application was completed on partially erupted #31

ORTHODONTIC TREATMENT

After orthodontic consultation, extraction of all 1st premolars was recommended to allow eruption of both maxillary and mandibular impacted canines

PREVENTIVE REGIMEN

Oral hygiene instruction, fluoridated toothpaste, diet counseling, desensitizing patient to dental office, 3 month recall

Conclusion

AI is a rare inherited enamel disease. The absence of evidence-based clinical recommendation makes AI treatment challenging². Prevention and restoring the functionality and esthetics of a patient's dentition is the ultimate goal when treating patients with AI. This can be challenging due to the need for multiple full coverage restorations on a young child's permanent dentition, especially when teeth are more sensitive. Many times, these procedures must be performed under GA due to the extent of treatment and the patient's anxiety and behavior. Maximizing the efficiency of each GA treatment is key and the timing of the GA treatment is important, as sometimes treatment can be compromised because teeth are not fully erupted.

REFERENCES

- MedlinePlus [Internet] Bethesda (MD): National Library of Medicine (US): Amelogenesis imperfecta. Updated 2015 May 01. Accessed May 05, 2023. <https://medlineplus.gov/genetics/condition/amelogenesis-imperfecta/>
- Toupenay S, Fournier BP, Manière MC, Ifi-Naulin C, Berdal A, de La Dure-Molla M. Amelogenesis imperfecta: therapeutic strategy from primary to permanent dentition across case reports. *BMC Oral Health*. Jun 15 2018;18(1):108. doi:10.1186/s12903-018-0554-y