

Case Report: Irregular Presentation of Enamel Hypoplasia

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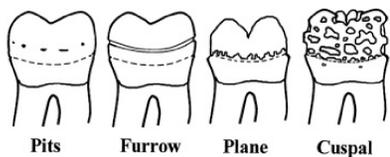


INTRODUCTION

Enamel hypoplasia is a defect or deficiency in enamel resulting from a disruption in enamel matrix secretion. The quality and quantity of enamel are both affected. Some presentations of enamel hypoplasia include a tooth that is irregular, rough, and/or pitted with an appearance of discoloration. There are various possible causes of enamel hypoplasia. This case report aims to present a unique presentation of enamel hypoplasia in a 25-year-old male. We delve into the literature on what is known regarding enamel hypoplasia and the management of this case.

ENAMEL HYPOPLASIA

- Remodeling of enamel does not occur after it is secreted; therefore, defects in enamel serve as a permanent record of developmental disturbances.
- These defects are "dependent on the intensity and duration of the insult as well as on the stage of development during which the insult occurs"¹.
- The current types of enamel hypoplasia identified are pit type, plane type, and linear hypoplasia.



From Ogden, A., Pinhasi, R., White, W., 2007. Gross enamel hypoplasia in molars from subadults in a 16-18th century

- Pitting hypoplasia appears as small circular to larger irregular depressions
- Plane hypoplasia appears as areas of a crown with little or no enamel formation.
- Linear or furrow hypoplasia appears as "bands" on a tooth, representing areas of reduced enamel.
- Cuspal hypoplasia, a lesser known form, appears as general hypomineralization of the enamel involving a cusp or multiple cusps on a tooth

CASE REPORT

In the following report, we present an uncommon case of enamel hypoplasia. It is unique both in appearance and its location. Patient DG has teeth showing both pit type and linear type enamel hypoplasia. We stress the importance of patient management and how best to manage this case.

Patient D.G. is a 25 y/o male who initially presented with two aides to Interfaith Dental Center for a comprehensive exam. His aides state that to their knowledge, D.G. has not undergone previous dental care. The patient's medical history includes: fetal alcohol syndrome, severe intellectual disability, ADHD. The patient is non-verbal. His medications include: Benzotropine, Chlorpromazine, Clonidine, Docusate, Famotidine, Gabapentin, Lorazepam, Polyethylene glycol, Senna, and Valproic acid. Patient has been in the foster care system from birth and currently lives in a group home for those with intellectual disabilities or severe mental issues. Patient D.G. is under constant care by the facility and require 2 aides with him at all times.

It was determined at this initial visit that the patient must undergo all dental treatment under I.V. sedation as the patient was unable to cooperate in the dental chair while awake. After medical clearance was received, the patient underwent comprehensive dental care under I.V. sedation without complications. A full mouth s

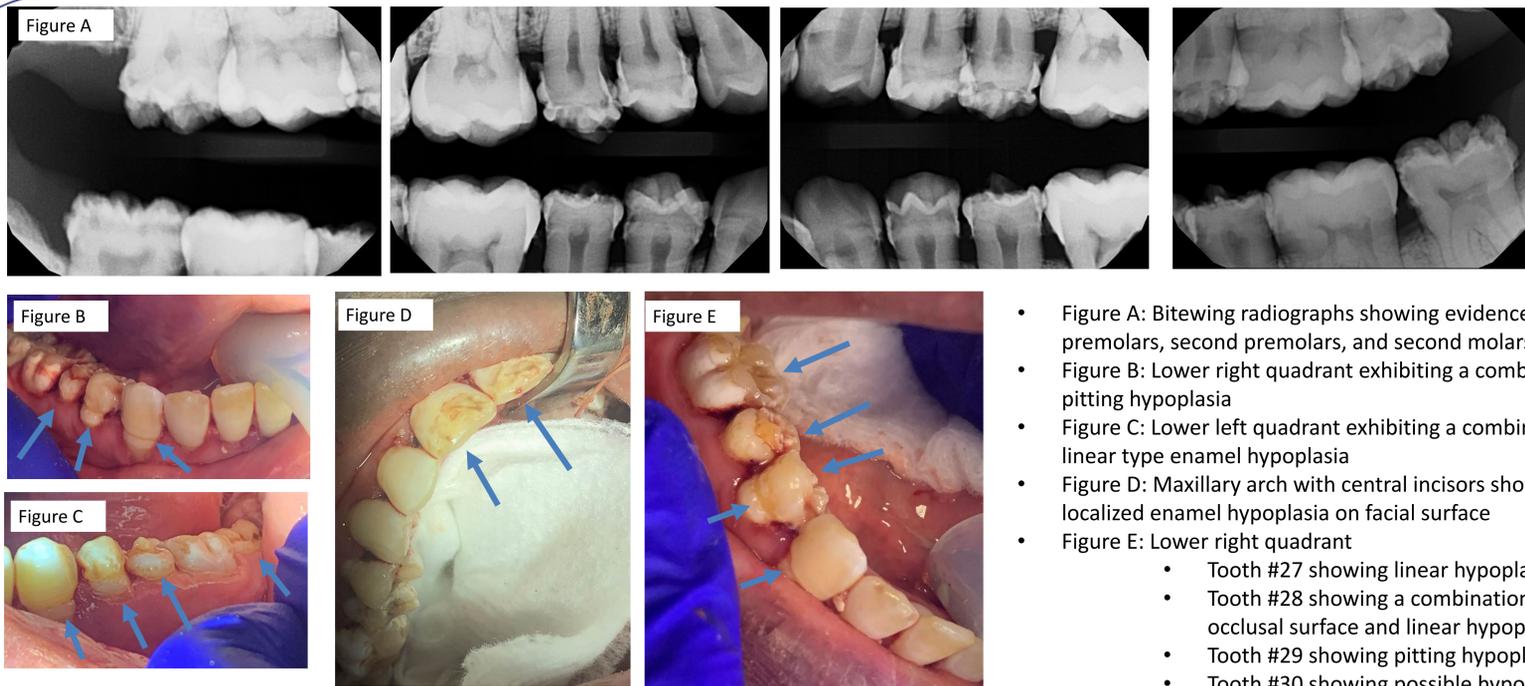
Findings include:

- Enamel hypoplasia of:
 - Maxillary and mandibular premolars (teeth #4, 5, 12, 13, 20, 21, 28, 29)
 - Maxillary and mandibular 2nd molars (teeth #2, 15, 18, 31)
 - Maxillary central incisors (teeth #8, 9)
 - Mandibular canines (teeth #22, 27)
- Generalized moderate chronic periodontitis
- NO signs of active carious lesions

TREATMENT PLAN:

- Affected teeth will be monitored for active signs of caries
- Since patient is non-verbal, aides were instructed to watch out for signs of discomfort due to caries through changes in patient's behavior such as clutching his face indicating pain, increase in aggressive behavior, or changes in eating habits which might indicate patient being in pain.
- Patient must continue with oral rehabilitation under IV Sedation so patient may be continuously monitored.

PHOTOS



NOTE: All affected teeth were hard and non-carious.

- Figure A: Bitewing radiographs showing evidence of hypoplasia of all first premolars, second premolars, and second molars
- Figure B: Lower right quadrant exhibiting a combination of linear and pitting hypoplasia
- Figure C: Lower left quadrant exhibiting a combination of pitting and linear type enamel hypoplasia
- Figure D: Maxillary arch with central incisors showing evidence of localized enamel hypoplasia on facial surface
- Figure E: Lower right quadrant
 - Tooth #27 showing linear hypoplasia
 - Tooth #28 showing a combination of pitting hypoplasia on occlusal surface and linear hypoplasia
 - Tooth #29 showing pitting hypoplasia of occlusal surface
 - Tooth #30 showing possible hypomineralization

DISCUSSION

- Enamel defects occur as a result of a disturbance in ameloblasts during the secretory stage which is when enamel forms and thickens.
- It is tempting to associate Pt DG's intellectual disabilities (likely a result of the fetal alcohol syndrome he suffered pre-natally) with the presence of his enamel hypoplasia. In a systematic review published by Dr. Aarthy and Dr. Kumar, defects of enamel were more common in children with intellectual disabilities than normal children.³
- It is not well understood how possible prenatal disturbances effect the permanent dentition specifically in regard to defects in enamel as enamel of the permanent dentition forms post-natally.
- The type of enamel hypoplasia presented by patient DG does not fit the typical presentations of linear, planar, or pitted types of enamel hypoplasia.
- It is clear there is some linear type of hypoplasia present but it becomes more difficult to categorize the defect present on the occlusal third of the effected teeth.
- After consultation with an oral pathologist and an extensive search of the literature, no similar presentation is known or has been found. it is very rare to find a combination of both linear and pitted hypoplasia on the same tooth.
- The presentation of enamel hypoplasia on all first premolars, second premolars, first molars, and second molars is highly unusual and similar examples were also not found in the literature.

CONCLUSION

Enamel hypoplasia is an uncommon anomaly which presents in many forms. The case we report here is a highly unusual presentation of this anomaly which has not previously been reported in the literature. It is important for the general dentist to be aware of the various presentations of enamel hypoplasia and continually monitor these patients as they are at a higher risk for caries development.

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