

ENAMEL HYPOPLASIA WITH ONLY PREMOLARS AND SECOND MOLARS: A RARE CASE REPORT

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ABSTRACT:

Developmental defects of teeth occur during the morphogenesis stage of tooth formation. Enamel hypoplasia is a deviation of normal enamel in its various degrees of absence. Here we present a 13 year old girl with hypoplastic enamel in 8 premolars and 4 second molars. Esthetic correction and sensitivity reduction are the main concern. Treatment in this case is a stainless steel crown on second molars and composite restoration on premolars.

KEYWORD: Enamel Hypoplasia, Premolar, Second Molar, Stainless Steel Crown & Composite

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INTRODUCTION

Zsigmondy first defined enamel hypoplasia in 1984¹. Defective or incomplete formation of enamel organic matrix is named as enamel hypoplasia and it is associated with hypocalcification, hypomaturation. Enamel formation was occurred by ameloblast cells and these cells are very to environmental changes like infection (chest infections, acute gastrointestinal infections, tonsillitis, ear infections), trauma, fevers, convulsions, nutritional deficiencies, especially vitamins like A, C, D, hypocalcaemia, exanthematous diseases, chicken pox, measles, ingestion of chemicals, idiopathic causes².

CASE REPORT

A 13 years old girl with hypoplastic enamel reported to pedodontic department. Chief complaint of the patient was sensitivity and esthetics. Hypoplastic enamel was present in relation to all premolars and second molars (Figure 2). History of hospitalization due to fever was present at age of 4 years. The patient was subjected parenteral and systemic antibiotics during this time. Positive family history was not present. First molars, canines, central and lateral incisors are normal. No significant finding was seen in orthopantomogram (Figure 1). After proper clinical and radiological examination first scaling was done. The instructions were given to maintain oral hygiene. After maintaining oral hygiene patient was prepared for taking restorative treatment. According to the patient's age, condition of her teeth, functions and esthetics treatment plan was done. Stainless steel crown was placed on the second molars after minimal preparation of the teeth (Figure 2). First etching with 37% phosphoric acid and bonding the tooth surface direct composite restoration was placed on premolars (Figure 2).

DISCUSSIONS

The term hypoplastic means less quantity. Hypoplastic tooth has less amount of enamel on the tooth surface and the tooth become rough. Enamel hypoplasia develops if any disturbances occur during enamel

formation. Enamel formation is known as amelogenesis and it occurs at an advanced bell stage after dentin formation. Amelogenesis has three stages- inductive, secretory, maturation³. In the inductive stage shape of the crown is determined by bell stage. Preamleoblast elongated and become polarized, postmitotic and secretory ameloblast. Here no tome's process develops. In secretory stage polarized ameloblast release enamel protein into the surrounding area and help with the formation of enamel matrix. Enamel matrix is partially mineralized by alkaline phosphatase. The tome's process is the end part of the cell and it lays down the enamel matrix. The orientation of enamel crystal depends upon angulations of the tome's process. In maturation stage ameloblast become striate. This finding suggests that the function of ameloblast changes from production to transportation. The calcification beginnings at 18-24, 24-30, 30-36 months in first premolar, second premolar and second molar respectively. Enamel formation complete in first premolar, second premolar and second molar at 5-6,6-7 and 7-8 years respectively. In our case history of fever at 4 years old of the patient probably effect ameloblast of premolars and second molars and hypoplasia of those particular teeth is occurred. Daily rate of enamel apposition in maxillary premolar is 2.7-4.6 microns/day⁴ and in deciduous teeth are 2.5-4.5 microns/day⁵. In general crown formation is faster earlier and slower later. One study suggested that developing teeth were sensitive to neurological disorder⁶. Herman and McDonald identified that the prevalence of enamel hypoplasia was higher in cerebral palsy children than normal children⁷. For prevention of caries in hypoplastic teeth fluoride application, proper diet, good brushing habit is instructed to patients and parents. If molar is severely attrited and vertical height is reduced due to hypoplasia then before restoring the teeth vertical height increasing is mandatory. If restoration is not possible, then extraction is the only treatment of choice.

CONCLUSIONS

It was very important to prevent psychological problems due to hypoplastic enamel. When the patient came to the department, she was very unhappy due to aesthetics and sensitivity problems. After the treatment she became happy and friendly. It was essential to diagnose developmental defects early because it was related to esthetic and functional concern. As a pediatric dentist we have the opportunity to diagnose the condition and relief the patient earlier. Identifying the condition facilitate to provide a proper treatment with a multidisciplinary approach in young children which help to restore aesthetic and mastication.

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FIGURES



Figure 1: Showing Orthopantomogram



Figure 2(a, b): Showing Maxillary and Mandibular Hypoplastic Premolars and Second Molars



Figure 3(a, b): Showing Composite Restoration on Maxillary and Mandibular Premolars and Stainless Steel Crown on Second Molars

