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Green teeth resulting from neonatal hyperbilirubinemia: Report of a case

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ABSTRACT

In general, cosmetic changes or painful disorders often lead parents to seek dental care for their children. Several systemic disorders in pediatric patients can produce dental alterations. One of the manifestations of these disorders is the elevated serum level of bilirubin (hyperbilirubinemia), a product of hemoglobin degradation, which is deposited in mineralized and soft tissues. The aim of this article is to report a case of green teeth affecting all deciduous teeth in a 3-year-old girl. The patient was taken to see the dentist by their parents due to the presence of green pigmentation in the teeth. During birth, the patient suffered a traumatic injury that resulted in hyperbilirubinemia. This kind of enamel pigmentation is permanent and occurred during the period of dental development.

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Introduction

Changes in the normal color of deciduous and permanent teeth may occur due to factors intrinsic or extrinsic. The intrinsic stains are changes in the color of the tooth related to systemic factors such as: genetic factors, birth defects, metabolic defects, prenatal care, infectious diseases, neurological disorders, endocrine, kidney, liver, nutritional deficiencies and poisoning that usually occurred during odontogenesis [1]. Moreover, the formation of the extrinsic stains on teeth occurs primarily from the remains of food, medicinal

substances and bacteria, which represent deposits, adhered to the enamel [2].

The intrinsic dental pigmentation is associated with a chemical active change in the tooth structure and it cannot be removed without changing the structure of the tooth. It can be caused by erythropoietic porphyria, fetal erythroblastosis, amelogenesis imperfecta, dental fluorosis, hyperbilirubinemia, decomposition of red blood cells and medications (tetracycline) [3].

Bilirubin, a breakdown product of heme, is normally excreted in the bile or further catabolized before excretion in the urine. Approximately 80% of bilirubin is derived from free hemoglobin resulting from hemocaterese. In this

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physiological process, senescent red cells with approximately 120 days are destroyed by macrophages in the spleen, liver and bone marrow. Hyperbilirubinemia is a clinic condition characterized by an abnormal increase of bilirubin in the blood, which may result in jaundice. The jaundice is the clinical sign caused by the elevation of serum bilirubin levels and its deposition in the skin, sclera, mucous membranes and some organs (liver and kidneys). The deposition of this pigment in these tissues and organs produces a color ranging from yellow to black, passing through various shades of green [4].

All healthy neonates develop unconjugated hyperbilirubinemia during the first week of life, but 50% of these patients have jaundice, benign and transient in character [5]. Jaundice occurs when the liver fails to eliminate bilirubin produced by the body [6]. Severe neonatal hyperbilirubinemia carries a potential for permanent neurological impairment [7]. Furthermore, hyperbilirubinemia is associated with the development of changes in color of the teeth, known as green teeth [8]. These teeth do not show changes in their morphology. However, the green coloration considerably affects the esthetics of the affected tooth. The appearance of the dentition is of concern to a large number of people seeking dental treatment and the color of the teeth is of particular cosmetic importance [9]. The purpose of this report is to present a case of green teeth of the primary dentition in a 3-year-old Brazilian girl.

Report of a case

A patient of 2 years was brought for consultation by the mother due to the presence of green teeth in the mouth. The intraoral examination showed the presence of anterior primary teeth with a green aspect. All deciduous teeth were affected. No other changes involving the oral soft tissues were observed. According to the story told by the mother, the teeth were erupting in the mouth with a discoloration. The pigment involved about 5/6 of the crown of the incisor teeth (Fig. 1). At 3 years of age, the child presented with the first primary molars with half of the crown pigmented (Fig. 2).



Fig. 1 – Upper incisors showing discoloration and areas of enamel hypoplasia



Fig. 2 – Lateral incisor, canine, and first primary molar with enamel hypoplasia and green pigmentation

Furthermore, the tip of the cusp canine was also pigmented. The clinical crown of all teeth showed hypoplasia areas between the middle and incisal thirds (Fig. 2). The teeth of the lower arch also showed a green coloration on the crown (Fig. 3). At this time, the child has not had the eruption of the primary second molars. The upper and lower canines had green pigmentation in the incisal half of the crown. The pigmentation of the first primary molars reached $\frac{3}{4}$ of the crown. According to the presence of this green pigmentation in the crown of teeth, a diagnosis of green teeth associated with a systemic disorder has been established.

The past medical history revealed that the child's mother was 28 years old and that she had consulted 4 times during the prenatal period. During pregnancy, the mother had a urinary tract infection that was treated with cephalexin. The mother was admitted in premature labor and premature rupture occurred an hour earlier. The child was born by cesarean section with difficult extraction. The indication for this type of delivery was due to dystocia progression.

At birth, the child had been in gestation for 31 weeks and was weighing 1660 g. The cause of preterm birth was



Fig. 3 – Clinical appearance of green teeth in the lower arch

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