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Case Report Article

Deciduous molar hypomineralization (DMH) – a rare entity and its clinical management approach

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Abstract

Introduction and Objective: An idiopathic qualitative defect of enamel, affecting one or more of the permanent molars with/without permanent incisors is known as Molar Incisor Hypomineralization (MIH). Similar defect on primary second molars is termed as deciduous molar hypomineralization (DMH). **Case report and Conclusion:** The prevalence rate of MIH and DMH worldwide is between 2.4%-40.2% and 4.9%-9.0% respectively. Clinically, these defects appear as white, yellow or brown spots, and surface is smooth with normal thickness of the enamel. Lack of quality in the enamel causes porosity that fractures easily under mastication, exposing the dentin, and further allows progression of caries. Hence, this condition should be diagnosed as early as possible for providing a preventive management against caries and avoid post eruptive breakdown. In addition, intervention with full coverage restoration is needful in the management of the affected teeth. Preformed metal crowns (PMCs) are recommended as the best full coverage restoration for managing primary molar teeth. The Hall Technique embraces changing concepts of managing, without local anesthesia, caries removal or tooth preparation. Management of teeth with DMH is challenging as it is quite difficult to achieve anesthesia and due to hypersensitivity, the co-operation of the child is questionable.

Introduction

Alterations in the amelogenins cause enamel defects and an imbalance during maturation phase causes hypomineralization [4]. This leads to a white or yellowish brown translucent appearance of teeth. Hypomineralization affecting one or more permanent molars along with/without incisors has been termed as Molar Incisor Hypomineralization (MIH). Most of researches found this condition as systemic in origin [1, 5, 10, 11]. Molar Incisor Hypomineralization has also been termed as “idiopathic enamel hypomineralization”, “non-fluoride hypomineralization”, and “cheese molars” [11]. Management of MIH for clinicians is very difficult due to sensitivity, rapid development of dental caries, difficulty to achieve anesthetic effect, repeated marginal breakdown of restorations and most importantly limited cooperation [6, 9]. The defects resembling MIH, seen on second primary molars, are described as Deciduous Molar Hypomineralization (DMH) [2]. Though, development of primary second molars and permanent first molars and incisors start almost at the same age, maturation of the permanent teeth is slower than the primary teeth. A risk factor during this overlapping period might cause hypomineralization in the primary and permanent dentition [2-4, 10]. A tooth affected by either MIH or DMH has demarcated enamel opacities of different color when compared to normal teeth. In MIH, enamel is soft and porous and may undergo post-eruptive breakdown resulting in formation of cavities or coronal distortion. The mineral density of these molars is 20-22% lower when compared to the unaffected molars [3]. The possible management options for DMH include from glass ionomer cement (GIC) restoration to preformed crowns, in some cases extraction of affected tooth

is also indicated [5]. Hence, it is necessary to go for early intervention for DMH that provides full coverage restorations. Therefore, this study aimed to report a case of a child diagnosed with DMH and its clinical management with a high longevity restoration of preformed stainless-steel crowns.

Case report

A 7-year-old girl reported to the Department of Pedodontics and Preventive Dentistry, with a chief complaint of decayed maxillary and mandibular teeth in the posterior region of the jaws. Her medical history did not reveal any significance and it was her first dental visit since birth. She was born as a full-term baby to a non-consanguineous couple and similar history was not evident in family. She presented with mixed dentition and her oral hygiene was adequate. Extraoral examination revealed that her lips were competent. Intraoral examination revealed yellowish brown discoloration of enamel surface in teeth #55, #65, #75, and #85 (figure 1). Radiographic examination confirmed the clinical findings (figure 2). The defective enamel was normal in thickness but soft and porous in nature. There was an exposure of underlying dentin in areas where fragile enamel chipped off, due to which the child had sensitivity. In the first visit, hand scaling was done and oral health instructions were given to keep oral hygiene and elastic separators were placed. In the second visit, we preformed stainless steel crowns (3M ESPE) were placed using Hall technique and patients' occlusion was then checked for any interference. In follow-up appointments, post-operative radiographic revealed no evidence of any pathologies (figure 3).

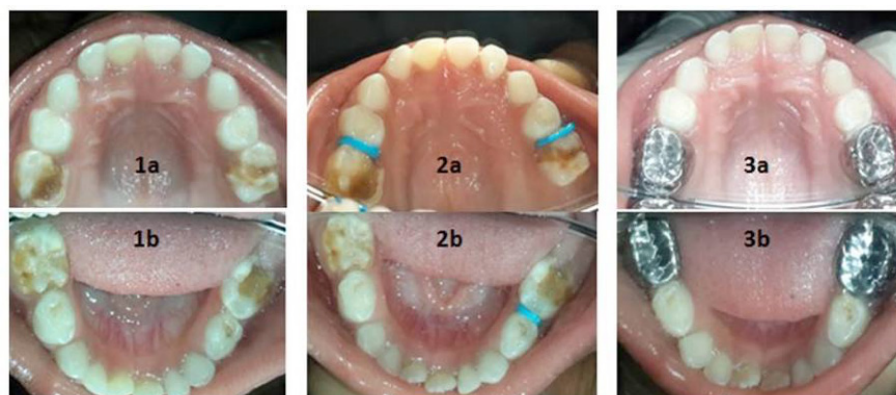


Figure 1 – Occlusal views of maxillary arch (1a) and mandibular arch (1b) showing hypomineralized primary second molars, separator placed (2a&b) prior to placement of stainless steel crowns to facilitate space and post-operative occlusal views of maxillary arch (3a) and mandibular arches (3b)



Figure 2 – Orthopantomogram showing hypomineralized all primary second molars



Figure 3 – Postoperative orthopantomogram showing hypomineralized primary second molars with stainless crowns

Discussion

Primary second molars are formed in the fourth month of intrauterine life and early signs of mineralization occur during birth and any systemic disturbance experienced by the mother or child during this period (prenatal, perinatal, or postnatal) has an irreversible effect on ameloblasts [2-4, 10]. Literature has shown a relationship between MIH and DMH with medical problems during pregnancy, premature birth, caesarian delivery, children born as twins and problems during child birth [3, 4]. Though, the child's hygiene was fair hand scaling of all the surfaces of the teeth was performed as a prophylactic measure. Considering the extent of the defective enamel and sensitivity experienced by the child, restoration of the teeth with stainless steel crown was decided using Hall technique as it does not need any tooth reduction [7]. Preformed metal crowns have been recommended for teeth with defective enamel and MIH which benefits from

further loss of the tooth, reduces sensitivity, and establishes interproximal and occlusal contacts [12]. The Hall technique used this technique for 15 years with a high success rate in a retrospective study [8]. With this technique, the process of fitting the crown is quick, non-invasive as the crown is seated over the tooth without caries removal or tooth preparation and there is no need of local anesthesia administration [7]. This technique offers better compliance from the child than using the conventional technique of placing stainless steel crown in a child with DMH as more co-operation is needed due hypersensitivity.

Conclusion

MIH has been drawing special attention in the recent years, an early diagnosis of which can be predicted by DMH. As there is sensitivity to heat and cold by the affected teeth, it might cause mild to severe pain which causes lack of cooperation of the child to the restorative procedures. Management with preformed stainless crowns using Hall technique can be used for the affected teeth; as it does not need administration of local anesthesia, less time taking, and it is comfortable to the patient, cooperation of the child is enhanced.

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