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Hypomineralized Second Primary Molar

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ABSTRACT: Molar incisor hypomineralization (MIH) is defined as the "systemic origin hypomineralization of one to four permanent molars frequently associated with incisors affected .HSPM act as a predatory predisposer of MIH. A little is known about the HSPM .So this review article revolves around the clinical signs , diagnostic and treatment approach of HSPM.

KEYWORDS:MIH ; Molar –incisor Hypomineralization, HSPM;Hypomineralized Second Primary Molar , PEB ; Post Eruptive enamel Breakdown, FPM ; First Permanent Molar , SPM ;Second Primary Molar.

I. INTRODUCTION:

Molar incisor hypomineralization (MIH) is defined as the "systemic origin hypomineralization of one to four permanent molars frequently associated with incisors affected. "The developmental enamel hypomineralization of unknown origin of permanent first molars (PFM) with frequent involvement of permanent incisors can otherwise be defined as MIH.[1]

Even though it is possible to affect all primary teeth, this MIH-like hypomineralization could be seen quite often in the second primary molar.

In the literature, different names can be found for these molars, such as cheese five, MIH-d and deciduous molar hypomineralization (DMH). These molars are now known as hypomineralized second primary molar molars, to make it easier to compare research results (HSPM).

A recent study, which included five additional studies, found that, overall, children with HSPM were roughly five significantly more likely to occur MIH, and the higher the chance, the more molars affected by HSPM.[2]

Every primary tooth with defined opacity increased the prevalence of MIH by 33 percent, indicating that in future permanent dentition, demarcated opacity in primary teeth could be a good predictor of MIH.'

II. MINERAL DENSITY

The mineral density was also examined in HSPM molars. A lower mineral content of 20 percent-22 percent was found in the yellow to brown opacities when contrasted to sound primary molars.[3]

III. AETIOLOGY

Ninety-six percent of HSPM children have been confirmed to have at least one physical issue: the greater the risk of HSPM is 24.5 percent prenatal, 45.3 percentperinatal, and 9.4 percent postnatal with the greater the number of medical problems.[4]

In addition, the child's race, maternal alcohol intake during pregnancy, low birth weight, and fever episodes were reported as risk factors for HSPM in the child's first year of life. In

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comparison, the use of pregnancy drugs (specific cally antibiotics and antiasthmatic and antiallergic medications) does not seem to affect the incidence of HSPM

IV. DIAGNOSIS

Elfrink et al.(2015) indicated that at five years of age, when the second primary molars have been present in the mouth for nearly two years and the child is more likely to be cooperative, the optimal timing for diagnosing HSPM .

The first phase in HSPM risk assessment is to evaluate the medical history, including the prenatal, perinatal and postnatal periods, in detail.

For any of the following symptoms, the second primary molars should be cleaned and inspected: demarcated enamel opacities; atypical caries post-eruptive enamel breakdown (PEB); and atypical restorations or extractions that do not fit the child's caries pattern.

MIH status was less frequently seen in primary second molars than in the first permanent molars, according to Ghanimet al.[5]

V. CLINICAL APPEARANCE

The clinical features are identical to MIH. Early and late clinical symptoms can be divided by the signs. These disparities are based primarily on the period of exposure to the oral environment of these two index teeth (FPMs and SPMs).[6]

VI. EARLY CLINICAL SIGN

- Demarcated Opacity: HSPM's opacity can be white, creamy, yellow or brown.
- The opaque surface is smooth. A clear border with the sound enamel is demonstrated by the demarcated opacities in HSPM.
- The thickness of the enamel is normal, whereas the surface can look shiny or dull.
- It is possible to split their scores into white/cream and yellow/brown.

VII. LATE CLINICAL SIGNS

- Posteruptive Enamel Breakdown Initially, at the location of a demarcated opacity, formed enamel is lost, mostly due to chewing forces.
- This enamel loss can often occur shortly after the eruption and is referred to as the posteruptive breakdown of enamel (PEB).
- PEB is quite often shown on smooth surfaces and cusps (occlusal and palatal in the upper jaw, occlusal and buccal in the lower jaw).
- The crown development, growth in length and closure of the root apex of both primary second molars and canine primary teeth were shown to take place simultaneously, and the crown formation process of the permanent first molar also aligns with this period.

VIII. ATYPICAL EXTRACTION

The caries or posteruptive breakdown can often very extensive, the tooth is infected and the child is in pain, and it is important to remove the hypomineralized molar. In an otherwise sound dentition and where other second primary molars are diagnosed with HSPM, atypical extraction of a second primary molar can be considered.[7]

IX. RELATION BETWEEN CARIES AND HSPM

The second primary molar has cavities more often than the first primary molar. It is possible to find the greatest difference on the occlusal surface.[8]

Tooth anatomy does not seem to be of great significance to this distinction. There has to be another explanation, therefore, and HSPM has been proposed as a reason for this discrepancy.

The hypomineralized regions will be present on the most caries-prone areas of the teeth if HSPM were the key explanation for the variations in caries.

In the occlusal third of the molar, most opacities are seen, which is in line with opacities becoming more prone to caries and rapid growth of caries.[9]

TREATMENT

- The aim of the short-term plan is to keep the child free from pain. The first approach should also be preventive: brushing fluoridated toothpaste at home twice a day following oral hygiene guidelines, applying CPP-ACP (casein phosphopeptide-amorphous calcium phosphate) (e.g. tooth mousse®) in the evening before bedtime (at home) and applying high concentration CPP-ACP (casein phosphopeptide-amorphous calcium phosphate) (e.g. tooth mousse®) in the evening before bedtime (at home) and three monthly local administration of high concentration flouridevarnish .
- With atraumatic restorative strategies such as a well-placed RMGIC, critical primary molars can be stabilized if enamel breakdown has developed. This form of interi-therapeutic restoration is very helpful in the prevention of caries in children, especially in young children.
- SDF has been shown to be an efficient and affordable form of arresting caries in primary teeth; but, the carious dentine effects are permanently darkly discolored.

- Well before FPMs erupt, SSCs can be placed on second primary molars using the Hall process. This is a reliable and pretty easy treatment option, assuming that both clinically and radiographically, any indications of permanent pulpitis or pulp necrosis have been excluded.[10]
- As the best full coverage restoration for managing primary molar teeth, preformed metal crowns (PMCs) are recommended.
- If possible, extraction of the molar HSPM should be averted. While it is undesirable to lose any primary tooth early, loss of the second primary molar is particularly unfavorable for the occlusion to develop.
- The consequent mesial tipping and FPM migration leads to a loss of space for the second premolar that develops. The sooner the second primary molar is lost, the greater the chance of FPM drifting unfavorably and future orthodontic disruption.[11]

X. CONCLUSION

Undoubtedly, the formulation of a treatment plan should take a holistic approach into account. Children with MIH have been shown to be receiving far more dental treatment unlike unaffected children. Bacterial infiltration into the dentine may be promoted by the porous exposed subsurface enamel and dentine, leads to chronic inflammation of the pulp and difficulty in getting adequate local analgesia. The child may thus be more anxious about treatment, requiring significant behavioral management. Therefore, ideal options for treatment may not be possible and alternative treatment plans may be necessary.

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