



## MIH: Do dentists should know its implications?

Within the health priorities of the countries in the world, the oral health of the children population is very important. In Chile, results of the latest national epidemiological study (2007) had a prevalence of dental caries in the population in 6 years of 70.3%, in children of 12 years of 62.5%.<sup>[1]</sup> The caries is considered the main cause of tooth loss, which has a direct effect on the quality of life of these populations.

But, until today there is a lack of knowledge about other conditions affecting the teeth, as incisor-molar hypomineralization (MIH) a dental disease little known by general practice dentist and which can be detected early when incisors and first permanent molars (FPM) erupt (about 6 years) and could be preventively treated appropriately, it can avoid the need for future more complex treatments or what is worse, premature loss of these teeth with all this determines the future, and quality of life these patients. The prevalence reported is between 2% and 44% of the population.<sup>[2-5]</sup>

Clinical appearance, symptoms, and signs associated with MIH: Large demarcated opacities, whitish-cream or yellow-brown

- in color
- May or may not be associated with post-eruption enamel
- Breakdown
- Hypersensitivity
- Difficult to anesthetize
- Rapid caries progression.

Clinically, the lesions of MIH are fairly large demarcated opacities of altered enamel translucency. The defective enamel is white-cream or yellow-brown. Opacities are usually limited to the incisal or cuspal one-third of the crown, rarely involving the cervical one-third. The intact enamel surface is typically hard, smooth, and often hypermineralized following post-eruptive maturation; the subsurface enamel is soft and porous.<sup>[6]</sup>

In general, children with MIH are not detected and treated properly, due to ignorance of the disease by those dentists and other health professionals in the area that could recognize and refer therefore timely.

MIH affected teeth have also accelerated development of decay processes and increased sensitivity, which coupled with the limited cooperation in the care of a young child, is a challenge for the treating professional. If these teeth are not detected or treated as a normal tooth, procedures that are likely to generate pain and cause a rejection of these children to dental care is performed, hampering their attention in the future by a professional of public service and need to be derived to specialists for it or repetitive failure of attention and

these restorations increasing costs involved for the care they produce.

It is for these reasons that are important to establish the prevalence in the world in this condition (MIH), with the intent to obtain statistical data supporting the existence of this disease in our population. Obtaining information on its prevalence is vital to raise awareness of their existence in our community and make this the ignorance of this disease in the dental community. In turn, establish the degree of severity presented and its clinical consequences would identify specific therapeutic needs for her and help in the planning of public health measures.

Since the damage in the affected teeth is significant and increases with the passage of time is very important to early detection, it should be a condition known by practitioners of public health care and its diagnosis and clinical management where they can and should implement the first specific therapeutic measures to limit the damage. As it is also necessary to make a differential diagnosis with other anomalies and pathologies of the tooth enamel as the regimen varies, and it depends on the success or failure of treatment.

It is also important to extend this knowledge, for it to speak at public health facilities and develop a guide to teach, to health professionals in contact with children, to recognize it at first instance and referral (doctors, nurses make control healthy child, general practitioner).

A better understanding of these factors could allow preventing the onset of the syndrome and early diagnosis would favor the possibility of more conservative treatment approaches.

In the world, just a decade that HIM is recognized as a specific pathology and until today his etiology is unclear. The results of the few published studies show a high prevalence of this clinical problem in children, so it ought to be studied seriously and with a representative sample of the population to have extrapolated data and thereby allow us to make it visible and diagnosable by health professionals accurately and early, thus treating it properly avoiding the increased incidence of tooth decay affected, lack of adhesion to dental treatment due to increased sensitivity and poor pain management in these children and finally the premature loss of the FPMs determining early tooth loss in people with decreased quality of life. Moreover, knowing how to diagnose this condition and allows the general practitioner care follow clinical guidelines and apply them with ease using their skills and equipment and simple instrumental and available in all services of

primary health care, and in most cases inter-consultation complex to other specialists, such as orthodontists, to also resolve simply, with scheduled early withdrawals, future problems for the losses of those affected teeth in the most severe way.

According to Garg *et al.*,<sup>[6]</sup> the treatment proposed to MIH patients:

Preventive:

- Topical fluoride application
- Desensitizing toothpaste
- Apply a CPP-ACP topical crème daily using a cotton bud
- Glass ionomer cement (GIC) sealants can provide caries protection and reduce surface permeability.

Direct restoration:

- Cavity margin placement
  - All defective enamel is removed
  - Only the very porous enamel is removed, until good resistance of the bur to enamel is felt.
- GIC restorations:
  - Conventional GIC, resin modified GICs (RMGIC)
  - Adhesive capability to both enamel and dentine
  - Long-term fluoride release
  - Poorer mechanical properties
  - Not recommended to be used in stress bearing areas
  - Be used as an intermediate restoration.
- Composite resin restorations:
  - Longer-term stability compared with other restorative materials
  - The polyacid modified resin composites
  - Have good handling characteristics
  - Release and take up fluoride; and
  - Have tensile and flexural strength properties superior to GIC and RMGIC, but inferior to that of resin composite
  - Use of polyacid modified resin composites in permanent teeth is restricted to non-stress-bearing areas.

Full coverage restoration:

- When permanent first molars (PFMs) have moderate to severe post-eruptive breakdown, preformed stainless steel crowns (SSCs) are the treatment of choice
  - Prevent further tooth deterioration
  - Control tooth sensitivity
  - Establish correct interproximal contacts and proper occlusal relationships
  - Are not as technique sensitive or costly as cast restorations
  - Require little time to prepare and insert
  - If not adapted properly may produce an open bite, gingivitis or both
  - Properly placed, SSCs can preserve PFMs with MIH until cast restorations are feasible.
- Partial and full coverage indirect adhesive or cast crown and onlays
  - Compared to SSCs, cast restorations
  - Require minimal tooth reduction
  - Minimize pulpal trauma
  - Protect tooth structure

- Provide high strength for cuspal overlays
- Control sensitivity
- Maintain periodontal health due to their supragingival margins.

Extraction and orthodontic consideration:

- Timely extraction is a feasible treatment option in cases of:
  - Severe hypomineralization
  - Severe sensitivity or pain
  - Large multi-surface lesions
  - Difficulty of restoration
  - Inability to achieve local anesthesia
  - Behavior management problems preventing restorative treatment
  - Apical pathosis
  - Orthodontic space requirements, where FPM are heavily restored in the presence of healthy premolars
  - Crowding distally in the arch and third permanent molars reasonably positioned
  - Financial considerations precluding other forms of treatment.
- If the orthodontic condition were favorable, the ideal dental age for extracting the defective FPM would be 8.5-9 years of age

In conclusion, the MIH is a prevalent disease that has no sufficient studies to determine a clear prevalence, but the few reports found boast a high frequency of this disease in the population. Dentists should be prepared for the correct diagnosis and appropriate treatment of children, resulting in the reduction of tooth loss in these patients.

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