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Pediatric dentist alert: Child maltreatment

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Abstract
Introduction: Child maltreatment is an important public health problem; the timely detection of signs and symptoms of abuse in the orofacial region places the pediatric dentist in a strategic situation, with the capacity to recognize, register and report suspicious cases.
Objective: To review the literature on oral lesions related to child abuse and the role of the pediatric dentist in the dental office.
Methodology: A search was carried out in the MEDLINE/PubMed databases from 2016 to 2020, using the keywords: "Abuse children dentist, child physical abuse, neglect dentistry".
Results: Pediatric dentists should have comprehensive knowledge about the detection of child abuse and their ethical and legal responsibility. All types of maltreatment can be presented in the dental office; in relation to physical maltreatment they report lacerations, tears of the labial frenulum, fractured teeth, avulsed teeth and hematomas; in relation to sexual abuse, the mouth is a frequent site of abuse and sexually transmitted infections such as gonorrhea are pathognomonic; late attention to oral diseases such as caries can cause severe compromises in the child related to dental neglect.
Conclusion: The pediatric dentist represents a valuable human resource in the detection and reporting of child abuse taking into account the type of orofacial lesions in relation to all types of abuse.

Keywords: Child maltreatment, abuse children dentist, child physical abuse, neglect dentistry

1. Introduction
Child abuse: An important health problem since the timely detection of signs and symptoms of abuse in the orofacial region places the pediatric dentist in a strategic position, with the capacity to recognize, register and report suspected cases [1].
The WHO defines child maltreatment as the abuse and neglect to which children under 18 years of age are subjected, and includes all types of physical or psychological abuse, sexual abuse, neglect, negligence and commercial or other types of exploitation that cause or may cause harm to the health, development, dignity and endanger the survival of the child, in the context of a relationship of responsibility, trust or power [2].
Influencing factors are multifactorial: poverty, domestic violence, drug abuse, unwanted pregnancy and other factors [3,4]. Children with physical or mental disabilities or other behavioral disorders are at greater risk of abuse [5].
Pediatric dentists are in a favorable position to recognize child abuse, with opportunities to observe and evaluate not only the physical and psychological condition, but also the family environment [6]. They should be alert from the first dental consultation considering that approximately 60-75% of child abuse victims present head, face and mouth injuries [7].
There is little evidence and review of child abuse in the field of dentistry, thus the aim of this study is to review the literature on child maltreatment, in particular orofacial injuries, suspected of physical maltreatment, sexual abuse, and dental neglect.

2. Materials and methods
Articles on the subject published through the PubMed, SCOPUS and Google Scholar databases were analyzed, with emphasis on the last 5 years. The quality of the articles was

evaluated using PRISMA guidelines, i.e., identification, review, choice and inclusion. The quality of the reviews was assessed using the measurement tool for evaluating systematic reviews (AMSTAR-2).

The search was performed using Boolean logical operators AND, OR and NOT.

It was constructed with the words "child maltreatment", "sexual abuse", "suspected of physical maltreatment", "dental neglect". The keywords were used individually, as well as each of them related to each other. Initially, the titles of all the articles were selected, the abstract of each one was evaluated, and the articles were chosen for a complete reading review.

3. Results and Discussion

3.1 Orofacial Lesions Suspicious of Physical Abuse.

To The most common site of inflicted oral injuries is the lips (54%), followed by the oral mucosa, teeth, gingiva and tongue [8]. Oral or facial trauma occurs in approximately 50% of physically abused children [9]. The main indicators are lacerations located on the face and lips, contusions, fracture of bones, jaw or condyles that cause facial asymmetries or limitation in movements, as well as labial and lingual frenulum tears as a result of using eating utensils or bottle use during forced feeding or as a result of an upward punch on the upper lip [8]. Other injuries that include physical abuse are bite marks and wounds that heal over time and may show lesions near the mouth [10].

There are fractures or dislocations of upper incisors with lesions in the labial mucosa, given that the contact is direct with the abuser's fist and even avulsions when the punch is very strong [11]. Hematomas, edema and scars are generated, especially peribuccal and in the commissures, by attempts to muzzle the child, or accompanied by lacerations of the upper lip with tearing of the frenulum, by beating or violent acts when trying to silence the child with the hand [12]. The practice of estimating the age of a bruise from its color has no scientific basis and should be avoided in child protection procedures [13]. Bites present on the face and neck mainly clinically as areas that may include ecchymoses and/or abrasions and lacerations of elliptical or ovoid shapes [14]. Tears and scratches are common in children who present physical abuse, prevailing in the ears and nose, causing nasal clots, deviations of the nasal septum, deformities or tearing of the pinna or nasal ala. Slaps have as a consequence lingual traumatism produced by the violent closing of the jaw on the upper maxilla [12]. Burns occur in approximately 6 - 20% of all cases of child abuse, more common in children under 3 years of age, and cause a high morbidity and mortality rate [15]. Anatomically, the most frequent sites are the nasal orifices and oral cavity [16]. On the other hand, burn injuries in hands and fingers can be seen in the consultation room [12]. Hospitalization for burns in children could involve undiagnosed maltreatment [17].

Children under 2 years of age are at higher risk of physical abuse, but the number of injuries reported in the oral cavity was extremely low. Dental health professionals should be consulted for diagnosis, advice, and treatment [14].

The pediatric dentist should perform an inspection and note if there is any limitation of movement, observe the craniofacial area and record all the history, findings and diagnostic support in the medical record without exposing the child [18]. The pediatric dentist, having regular contact with children and their caregivers, has the opportunity to evaluate behavior and family environment [6]. Parents who are victimizers avoid medical consultation and prefer to visit the dentist repeatedly, which would indicate an opportunity for the detection of maltreatment [19]. Among the main warning signs are: incoherent explanations of lesions, that the answer is overthought, and that the information is constantly changed, in addition to the fact that the data provided by the patient and the guardian do not coincide [18]. The identification and reporting of maltreatment is a moral and legal responsibility [20]. When pediatric dentists are aware of this information, they can join with physicians to protect children from injury [21].

Physical child abuse can be exemplified and its main indicators are: biting, slapping, tearing and scratching; hitting or violent acts by trying to silence the child with the hand; burns and force-feeding. These types of physical abuse can be easily evidenced, since they cause notable injuries such as: lacerations of the oral cavity, fractured, displaced, or avulsed teeth, fractured bones, jaw or condyles, hematomas, edema, scars, torn frenulum, ecchymosis and/or abrasions; nasal clots, nasal septum deviations, damage to the pinna or nasal ala.

3.2 Injuries Suspected of Sexual Abuse.

The mouth is a frequent site of sexual abuse, however, visible oral lesions or infections are rare and are a variable finding [1]. Some indicators of sexual abuse are: oral gonorrhea [1], condyloma acuminatum [8], oral warts [22], oral erythema and petechiae [9] and any manifestation of sexually transmitted disease [23].

Oral gonorrhea: frank manifestation of sexual abuse [1]; it is located on the lips, tongue, palate, face and pharynx. Symptomatology: ulcers, vesicular pustules and pseudomembranous lesions [8]. In children beyond the neonatal period, the presence of condyloma acuminatum or palatal ecchymosis (unless justified by other causes) should be considered sexual abuse [24]. Condyloma acuminatum manifests in the oral cavity, anal and genital region, with a cauliflower-shaped lesion [8]. Any manifestation of sexually transmitted disease in the oral cavity in a minor should be considered sexual abuse [23]; however, in syphilis the symptoms are: papule and ulcer (classic syphilitic chancre), presented in the lip and dermis; in chlamydiasis, ulcers in the mouth, located in the oral cavity and tongue [8]. The human papillomavirus (HPV) can cause oral or perioral warts; the route of transmission remains uncertain, since they can be transmitted by oral-genital-sexual contact, horizontally through non-sexual contact from the hand of a child or caregiver to the genitals or mouth; also vertically from mother to baby during childbirth [22]. Other features of sexual abuse: erythema, ulceration, vesicle with purulent or pseudomembranous drainage, and condylomatous lesions of the lips, tongue, palate, and nose-pharynx [25]. In addition, if erythema and petechiae of unknown etiology are present at the junction of the hard and soft palate or on the floor of the mouth, they may be evidence of forced oral sex [9]. Survivors of child sexual abuse suffer anxiety due to psychological trauma [10].

Some pediatric dentists receive less education in child abuse and may not detect dental injuries and diseases related to abuse and negligence [22].

The pediatric dentist should perform an inspection; from the moment the patient enters, he/she will perform a thorough examination to observe the cranial, facial and oral area, observing the extremities. During the interview the antecedents, findings, diagnostic supports (radiographs, photographs and anatomical drawings) should be recorded in the clinical history [8]; when there are discrepancies between

clinical findings and antecedents provided it is an indicator of mistreatment [6]. Movement limitation, clothing (clothing that does not correspond to the season) and signs of malnutrition should be observed [8]. Further testing should be performed when children exhibit violent behavior, withdraw from physical contact, are unaware of their surroundings, are suspicious of adults, behave in a watchful manner, have unusual sexual knowledge or behaviors [20].

The mouth is a frequent site of sexual abuse. Oral gonorrhea in prepubertal children; syphilis, HPV (not properly of sexual abuse); petechiae and erythema of unknown etiology at the junction of soft and hard palate; palatal ecchymosis and condyloma acuminatum beyond the neonatal period, are some symptoms of sexual abuse. Sexual transmission diseases are always suggestive of sexual abuse and victims most of the time suffer psychological trauma.

3.3 Injuries Suspected of Dental Malpractice

Child abuse and neglect is one of the most important problems in the world [26]. Dental neglect can be an indicator of general child abuse [27]; a result of the inability of parents to attend to their children's oral health needs in a timely manner [28]. Upon finding early childhood caries, infections with abscesses, fistulas and root debris, among others, pediatric dentists should begin to suspect dental neglect [12]. Pain experienced by children due to oral diseases can interfere with daily activities [29], difficulty eating, loss of oral function, sleep disorders, poor appearance, low weight, poor school performance, low self-esteem and poor quality of life [30]. Diseases with higher prevalence in abused children: caries and gingivitis compared to the general pediatric population [31]. The main characteristics of dental neglect: failure or delay in seeking dental treatment, partial or no treatment; lack of oral care [30] resulting in deterioration of oral and general health [32].

Pediatric dentists should increase prevention, detection and treatment of these conditions in children [33]. The realization of a protocol to optimize the care of children with suspected dental negligence [34] and to have more support from social assistance programs, where parents are oriented about dental negligence [35,36]. Finally, being informed about the laws may encourage pediatric dentists to establish protocols for reporting child dental neglect [31], keeping in mind that the child is much more than dental treatment [37].

Lesions such as early childhood caries, infections with abscesses and fistulas, root debris and abundant bacterial plaque are suggestive of dental neglect. Dental neglect usually causes pain in children and this pain interferes with the infant's daily activities. The most prevalent diseases in abused children are gingivitis and dental caries, compared to the general pediatric population.

4. Conclusion

Sexually transmitted infections in infants always suggest sexual abuse, however, not the actual abuse itself, as is the case with the human papillomavirus, which has multiple routes of transmission and is not always easily diagnosed. One of the most common and diagnosable types of child abuse is physical abuse; as it usually causes noticeable injuries that a pediatric dentist should be able to easily identify with firm knowledge and commitment. Dental neglect has variables ranging from mild, such as early onset caries, to severe, such as root debris with abscesses. From the dental office all types of child abuse can be detected by showing the presence of orofacial lesions in each one of them. Therefore, it is an ethical and legal commitment the continuity in education and training related to this subject that allows us to look "beyond the mouth".

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