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review

ORAL AND DENTAL SIGNS OF CHILD ABUSE AND NEGLECT

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SUMMARY

Aim. The aim of this report is to identify the main oral and dental aspects of physical and sexual abuse and dental neglect in childhood, contributing to the precocious identification and diagnosis in a dental practice.

Methods. The oral and dental manifestations were divided and classified according to the type of child abuse: physical abuse, sexual abuse, neglect.

Physical abuse. Several studies in the literature have shown that oral or facial trauma occurs in about 50% of physically abused children; the oral cavity may be a central focus for physical abuse. Oro-facial manifestations of physical abuse include bruising, abrasions or lacerations of tongue, lips, oral mucosa, hard and soft palate, gingiva, alveolar mucosa, frenum; dental fractures, dental dislocations, dental avulsions; maxilla and mandible fractures.

Sexual abuse. Although the oral cavity is a frequent site of sexual abuse in children, visible oral injuries or infections are rare. Some oral signs may represent significant indications of sexual abuse, as erythema, ulcer, vescicle with purulent drainage or pseudomembranus and condylomatous lesions of lips, tongue, palate and nose-pharynx.

Furthermore, if present erythema and petechiae, of unknown etiology, found on soft and hard palates junction or on the floor of the mouth, can be certainly evident proofs of forced oral sex.

Dental neglect. Oral signs of neglect are easily identifiable and are: poor oral hygiene, halitosis, Early Childhood Caries (ECC), odontogenous infections (recurrent and previous abscesses), periodontal disease, aptha lesions as a consequence of a nutritional deficiency status.

Moreover, it is analyzed the assessment of bite marks because often associated with child abuse, the identification and collection of clinical evidence of this type of injury.

Conclusion. A precocious diagnosis of child abuse, in a dental practice, could considerably contribute in the identification of violence cases and in an early intervention.

Key words: child abuse, oral signs, dental neglect, bite marks.

Introduction

The recognition of children maltreatment as a social pathology is on account of Caffey, American Radiologist and Pediatrician, later to Silverman in 1953 and to Kempe who, in 1962, with the definition of *"Battered Child Syndrome"* described an accurate nosological entity of physical maltreatment (1, 2). Such definition indicated only physical violence aspects towards children and was later modified with one definition even more complete *"Child Abuse and Neglect"*, that includes physical abuse, sexual abuse, psychological abuse and neglect (3).

"Battered Child Syndrome" nowadays, forms a nosological entity multiform and complex due to the variability of etiopathological factors and clinical manifestations (1).

It has been defined *"child abuse"* as any act of commission or omission that endangers or impairs a child's physical, sexual or emotional health and development (4).

The aim of this report is to identify the main oral and dental aspects of physical and sexual abuse and dental neglect in childhood, contributing to the precocious identification and diagnosis in a dental practice.

Epidemiology

World Health Organization has estimated that nearly 57.000 children under 15 years old are dead because of child abuse and the fringe mainly on risk is between 0 and 4 years old, with a number of deceases more than twice the amount of children between 5 and 14 years. It is a question of data that understate this problem, due to the lack of medical assessments and post-mortem routine evaluations (5).

About a data of other non-fatal forms of violence, they come from other sources (legal and judicial records, population's data, service's reports, retrospective research) not always comparable, but anyway a description adequately reliable above all where at least a national record exists, capable of give an interpretation methodologically uniform (6).

Several studies in the literature have shown that oral or facial trauma occurs in about 50% of physically abused children (7-10).

Thus Cameron et al., studying fatal cases, found that approximately half had facial injuries (8). Similarly, Becker et al. reported oro-facial trauma in 49% of 260 documented cases of child abuse; 61% of these injuries were to the face, 33% head injuries and 6% were in the oral cavity (9).

In a survey of 1155 primarily pediatric dentists, it was found that the principal oral injuries in cases of suspected child abuse, in describing order of frequency, were tooth fracture (32%), oral bruises (24%), oral lacerations (14%), fractures of the mandible or maxilla (11%) and oral burns (5%) (9).

Becker et al. reported that the cases with intraoral injuries, 43% were contusions and ecchymosis, 28,5% were abrasions and lacerations and 28,5% were dental trauma (9).

Oral and dental signs in physical abuse

Physical abuse (Battered Child Syndrome) is done usually through blunt force trauma of different morphology, voluntarily inflicted according to different procedures (11).

Integumentary injuries are predominantly ecchymosis and excoriations, among them frequently associated lacerated and contused injuries and abrasions.

Ecchymosis can be produced by a natural contused way (slaps, fits, bites), rigid or semi-rigid instruments with impacting surface more or less regular (rods, household utensils, flatware, ladles) and ligature instruments (shoelaces, band-aid, muzzles, belts) (11).

Oro-facial manifestations of physical abuse include bruising, abrasions or lacerations of tongue, lips, oral mucosa, hard and soft palate, gingiva, alveolar mucosa, frenum; dental fractures, dental dislocations, dental avulsions; maxilla and mandible fractures (12-15).

The oral cavity may be a central focus for physical abuse (13). Hereafter, are described the characteristic lesions of physical abuse, according to anatomical parts of our interest (12, 16, 17).

- Lips may present haematoma, lacerations, scars of previous trauma, burns caused by hot food or cigarettes, ecchymosis, excoriations. Gags applied to the mouth may result in bruises, lichenification, or scarring at the corners of the mouth (15).
- Oral cavity may present obvious lacerations in the labial or lingual frenum, caused by aggressions or forced feeding. Those lesions represent the hallmarks of severe form of physical abuse against minors. Abrasions and/or lacerations of gingiva, tongue, palate, floor of the mouth caused by food or burning flatware can be considerate as other associated manifestations (13, 17).
- Dental elements may suffer fractures, dislocations, avulsions or not physiological mobility. Discolored teeth, indicating pulpal necrosis, may result from previous trauma. You can find multiple residual roots so the explanation given by parents or caretakers cannot be correlated with the developments of the traumatic incident (11, 16).
- Mandible and maxilla can often show early or previous fracture signs, localized to the condyles, mandibular ascending ramus, man-

dibular symphysis. There may be also evident dental malocclusions as a result of a previous trauma (11-18).

Multiple injuries, injuries in different stages of healing should arouse a suspicion of abuse (10). Oral lesions may be inflicted with: instruments such as eating utensils, flatware or a baby bottle during forced feedings, hands, fingers, scalding liquids or caustic substances (19).

It's important to pay attention to the injuries that can involve other body parts, especially injuries found near the oral cavity (retinal and subconjunctival hemorrhage, riptured globe, dislocated lens, detached retina, optic atrophy, ptosis, periorbital hematoma, contusions and nasal fracture, damages found in the tympanic membrane and auricular hematomas) (16, 19, 20).

Oral signs in sexual abuse

Sexual abuse is the involvements of a child in sexual activities with an adult, aimed at satisfy the last one, taking advantage of physical and physic inferiority conditions of the under-age subject, not allowed indeed to understand the meaning of the action (11).

Although the oral cavity is a frequent site of sexual abuse in children, visible oral injuries or infections are rare (21).

Some signs may represent significant indications of sexual abuse (16, 22, 23), as erythema, ulcer, vescicle with purulent drainage or pseudomembranus and condylomatous lesions of lips, tongue, palate and nose-pharynx (16, 21).

When an oro-genital contact is suspected, referral to specialized clinical settings equipped to conduct comprehensive examinations and laboratory culture for sexually transmitted diseases (Gonorrhea, Human Papilloma Virus, Chlamydia, Syphilis, HIV) is recommended, as indicated in "Guidelines for the evaluation of sexual abuse of children" (American Academy of Pediatrics), although it must be considerate as well a vertical transmission, from mother to child (24).

Gonorrhea is one of the most common sexual transmission diseases found in child abuse victims (23, 25). Clinically Gonorrhea can show with erythema, ulcer and papular-vescicobollous lesions and pseudomembranous in some areas as lips, tongue, palate and nose-pharynx. Generally, oral and perioral Gonorrhea in prepubertal children, diagnosed with appropriate culture techniques and confirmatory testing, is pathognomonic of sexual abuse (21, 24).

Condyloma acuminate, caused by infective agents of Human Papilloma Virus, can be frequently found like an unique or several lesions, pedunculate, looking like a cabbage. Its presence can suggest a prove of child abuse (22-26).

Syphilis may show papule on the lip area (21-26). As well in this case, because of is extremely rare to be detectable in childhood, a positive test of Treponema Pallidum highly suggests a sexual abuse case (24, 26).

Furthermore, if present erythema and petechiae, of unknown etiology, found on soft and hard palates junction or on the floor of the mouth, can be certainly evident proofs of forced oral sex (27).

In these cases, it must be done a differential diagnosis with traumatic lesions, hemorrhagic lesions, violent cough or vomit, bleeding diatheses, antithrombotic or anticoagulant pharmacological therapy (28).

In children abuse there are some behavioral markets, which are of particular significance, for example, improper sexually explicit conduct, excessive defensive behavior, because the child can feel threatened by excessive physical contact or even just for a conversation or a told story (11).

Dental neglect

Dental neglect is defined by the American Academy of Pediatrics Dentistry as "willful failure of parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection" (29).

Dental caries, periodontal disease, and other oral conditions, if untreated, may cause pain, infection, and loss of physiological functions. These undesiderable outcomes can adversely affect learning, communication, nutrition and other activities necessary for normal growth and development (30).

It is appropriate to make a distinction between deliberate parental behavior that has the consequence of an unavoidable and voluntary neglect towards their children (as example alcoholics and addicted to drugs) and those conditions of involuntary carelessness but determined by socio-economic and cultural aggravated factors (11). Actually, failure to seek or obtain proper dental care may result from factors such as family isolation, lack of finances, parental ignorance, or lack of perceived value of oral health (11, 31, 32).

There are several considerations which can help the dentist to carry out an early diagnosis of dental neglect, as an absent or uncertain anamnestic answer from parent, to concrete questions regarding child's physical and psychological growth stages (childbirth modality, breastfeeding and its duration, tooth eruption, language acquisition) (11, 31, 33).

Physical signs that may be proof of significant neglect are a totally lack of general hygiene, poor nutrition (growth deficit and severe dystrophies), frequent respiratory system diseases (11).

Oral signs of neglect are easily identifiable and are: poor oral hygiene, halitosis, Early Childhood Caries (ECC), or else untreated dental caries with rapid progression, extended on more than a half of teeth found in the oral cavity, odontogenous infections (recurrent and previous abscesses), periodontal disease, aptha lesions as a consequence of a nutritional deficiency status (31).

Unfortunately, diagnosing dental neglect can be changeling, influencing a reluctance to report cases (33).

Bite marks

Bite marks of an adult on a child are generally associated to some types of sexual and physical abuse. Often, bite marks are associated to hematoma, for that result is difficult to make a proper differential diagnosis, especially if it is considered that last ones are easily verifiable in children (16). In this case, it is necessary to put attention to the explanation given by parents or caretakers, or from the victim about the dynamics of the traumatic event, especially when this doesn't seem to be consistent with the real gravity, extension and physiognomy of the real lesion (34).

For bite marks evaluation, a standard examination is used, through which is possible to identify the form of the dental arch, the number of the teeth, the form/dimension of the teeth, the position of the teeth and these information can be compared with the anatomical characteristics of the suspected aggressor (34).

A typical sign of human bite has an oval or circular pattern, ecchymotic (35, 36). In these lesions, often, among the signs of the dental elements, can also be identified some hemorrhagic areas, which represent some zones where a suction has been done (negative pressure), or where an excessive tongue pressure has been exercised (positive pressure) (16, 23).

The evaluation of the arch described by the teeth can be useful to determinate if the aggressor is an adult or a child. If intercanine linear distance measuring more than 3,0 centimeters is suspicious of an adult human bite (11, 36).

The aspect of a bite mark suffers some evident changes, generally after two or three days from the aggression, because edema decreases, affected plotted begin a physiological process of recovery and the imprints of teeth in the damaged skin area result less evident (16).

Another important question not to underestimate is the difference among human bite marks and animal bite marks. Human bite marks leave some superficial signs, and they are associated to hematomas and abrasions, instead of animal

bite marks that are deep, with lacerations and even making remove dermatological tissues (19, 34).

Bite marks, further to be observed and analyzed, must always be photographed and should be included also in the picture a millimetrate rule, whereby it will be possible to provide a real extension of the lesion, for being able to check the inter-laboratory comparison of the bite mark with real anatomical characteristics of the suspected person, as expected for the medical and legal identifying test (16, 34-36).

Therefore, for the identification and the collection of the clinical evidence of this type of lesion, it would be always useful to have recourse to a forensic dentist counseling (16, 19).

Discussion and conclusion

It is widely recognized that a crucial factor against child abuse is the precocious diagnosis of maltreatment cases and early intervention for the protection of all children involved in this cases.

An early diagnosis of child abuse, in a dental practice, could considerably contribute in the identification of violence cases.

High frequency of oro-facial lesions associated to child abuse put dentist into the front line to individualize and to intercept an abused child (37).

Additionally, abused children's parents frequently change doctors in order to avoid any detection, but they prefer to take their children to be examined by the same dentist (38).

For this reason, in this present study has been carried out a qualifying close examination of oral and dental manifestations that can be found more frequently in child abuse and neglect and must lead the dentist to a suspected diagnosis.

Finally, it is opportune to underline, that the dentist has a legal obligation to know and to apply the normative in force in cases of child abuse and neglect (37).

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