Chapter

Signs of Child Abuse and Neglect: A Practical Guide for Dental Professionals

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Abstract

Children are the future of society. Society should, in turn protect their dignity and wellbeing by ensuring that they are treated with respect and care. Dental practitioners are often the first health professionals to come into contact with victims of child abuse and neglect, not only to render treatment to abuse victims but also to serve as their first line of defense. As part of a larger human community, dental practitioners are responsible for identifying evidence of intentional harm befalling children and reporting it to law enforcers. Physically abused children predominantly present with injuries to the maxillofacial and oral regions. It is therefore important for dental practitioners to be aware of the intra-oral and extra-oral signs that may be indicative of child abuse and neglect in order to champion the fight against child abuse.

Keywords: physical abuse, sexual abuse, emotional abuse, dental trauma, dental neglect

1. Introduction

Evidence from the United States of America (US) indicates that there was an estimated number of 656,000 (rounded) victims of child abuse and neglect in recent years [1]. These statistics indicate that the victim rate for child abuse and neglect is 8.9 victims per 1000 children in the US population [1]. Information from the World Health Organization (WHO) (2020) shows that globally, nearly 3 in 4 children - or 300 million children - aged 2–4 years regularly suffer physical punishment and/or psychological violence at the hands of parents and caregivers [2, 3]. It is therefore important to be aware that victims of child abuse and dental neglect could present in the dental office. 65% of physical abuse to children involves injuries to the head, face, neck, or mouth and dental professionals could be the first health professionals to render treatment to abuse victims as well as being their first line of defense [4]. Hence, there should be an awareness of pediatric patients who are withdrawn or present with a hostile demeanor accompanied by tell-tale bruises, bite-marks, scars, swollen lips and severely decayed teeth [4–6]. These could be red flags that could alert the dental professional that the pediatric patient has experienced child neglect and gross physical, verbal or sexual abuse [5].

Dental professionals – including general dentists, dental specialists, dental hygienists, dental therapists and dental assistants – are all afforded a unique lens

into the lives of children who pass through their dental offices [4, 5]. It is thus both an obligation and mandatory for dental professionals to ensure that they are knowledgeable on both outward extra-oral and oral clinical clues, which may preclude dental injuries and trauma as a result of child abuse and neglect [7, 8].

This guide thus offers a practical outlook on signs of neglect and trauma that intends to signal cases of abuse and neglect to assist dental professionals identify and recognize those signs.

It is advised that all dental patient examinations should follow a holistic assessment and analysis [9–11]. The dental professional's jurisdiction for such signs may go beyond dental and oral signs, particularly when seeking to identify victims of abuse. This would imply the need for increased vigilance related to visible physical injuries with suspicious appearance, location and origin, inconsistent verbal testimonies as well as the outward behavior and demeanor of the potentially neglected or abused child [9–11]. It is also important to consider the details that would be required to form a comprehensive report in order to support or warrant alerting the relevant authorities for further investigations [9–11].

2. Understanding abuse

It is crucial for dental professionals to have a clear understanding of abuse and the important terminology linked to neglect. The WHO (2020) defines child abuse as "maltreatment and neglect that occurs to children under 18 years of age". The definition includes "all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power" [2].

To provide a broad perspective of the key terms that define child abuse and neglect (**Table 1** is included).

Abuse and neglect can be defined and categorized as follows:

- **Physical abuse** takes place when there are incidents that cause physical harm to a child [9]. This is not limited to, but also includes incidents where the symptoms of disease are concocted, or children's illnesses are deliberately induced [12–16]. It further refers to non-accidental injuries which are deliberately inflicted and result in physical injury or death [17]. Physical abuse or use of excessive force can manifest as bruises, scars, fractures, burns or bite marks [12].

- **Emotional abuse or ill-treatment** is at times referred to as psychological maltreatments and occurs when a child is harmed emotionally by their parent or guardian [10–12]. It is observed when there is persistent emotional harm to a child and includes failure to meet a child's need for affection, attention or stimulation [12]. Constant verbal abuse, rejection, threats of violence or attempts to frighten the child also constitute emotional abuse [13, 14], as do social isolation and humiliation [15].

- **Sexual abuse** involves "sexually molesting or assaulting a child; allowing a child to be sexually abused or assaulted; encouraging, inducing or forcing a child to be used for the sexual gratification of another person; participating or assisting in the commercial sexual exploitation of a child" [6].

- **Neglect** is the failure to meet a child's physical and or psychological needs [15]. This is the most common form of maltreatment and involves continuous failure

Category of abuse	Definition	Manifestation or symptom of abuse
Physical abuse	Physical harm to a child including fabricating the symptoms of or deliberately inducing illnesses.	Bruises, scars, fractures, burns or bite marks.
Emotional abuse or ill-treatment	Psychological abuse due to failure of a parent or caregiver to provide a developmentally appropriate and supportive environment for a child.	Poor hygiene. Sudden change in self-confidence. Headaches or stomach-aches with no medical cause.
Sexual abuse	Involving a child in sexual activity that s/he does not fully comprehend, is unable to give informed consent to, or for which the child is not developmentally prepared.	Lacerations of the tongue, buccal mucosa or palate. Lingual and labial frenal tears. Teeth that are fractured, displaces, avulsed or non-vital Radiographic evidence of fractures in different degrees of healing.
Neglect	Failure by a parent, guardian or family member to provide for the development and well-being of a child.	Malnourishment Failure to gain weight Desperately affectionate behavior
Dental neglect	Failure by a parent or guardian to seek provision of oral health treatment for a child.	Rampant caries; untreated dental and gingival disease;

Table 1.
Categories of abuse, definitions and manifestations or symptoms of abuse.

Type of abuse or neglect	Behavioral indicators
Physical abuse	Aggression and withdrawal Fear of caregiver/guardian/parent Cautious of adult contact Uneasy when others cry Reports abuse by parent / caregiver/guardian Frightened to return home
Emotional abuse or ill-treatment	Habits including sucking or rocking Antisocial and destructive Sleep disorders Phobias, obsessions, compulsions Behavior extremes Developmental lags and suicide attempts
Sexual abuse	Will not change in front of peers Fantasy or immature behavior Mature sexual awareness Reports sexual abuse
Physical neglect	Begging or stealing food/drinks Arrives early to school and stays late Constantly tired Alcohol/drug abuse States there is no caregiver

Adapted from Ref. [5].

Table 2.
Types of abuse and behavioral indicators.

to protect a child from exposure to any danger, cold, starvation or substance abuse [13]. It can also include failure to carry out important aspects of childcare which could impact on a child's emotional, psychological or physical development [13–15]. Poor supervision of a child could also bean indication of neglect [16].

- **Dental neglect** is defined as the "wilful 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" [15].

As noted, abuse and neglect take on many different forms and this may be obvious or not obvious at all to anyone. However, by becoming more knowledgeable about all these warning signs indicated in **Table 2** above, dental professionals may inadvertently save the childhood or even the life of an abused child who has nobody to turn to for help and lacks the capacity to understand where to seek help in the very first place.

3. Guidelines to signs and symptoms of child abuse and neglect

From the time that a child enters a dental office, there are warning signs that could signal potential malice against their well-being. These warning signs may include the following factors which will likely overlap across the different types of abuse:

3.1 Physical appearance, behavior and demeanor of a child

The dental clinical environment provides a unique platform with the benefit of close engagement with patients [2, 5, 12]. One of the key aspects to successful dental treatment is the formation of trust between the dental professional and the patient [12, 13]. Dental professionals should be experienced in this regard and need to be well-equipped to identify clues and make deductions from obvious and non-obvious signs of potential abuse [12, 13].

From this vantage point, dental professionals should approach pediatric patients by observing both subtle and gross signs during their consultation and clinical examination, whereby the practitioner should be observing and analyzing the pediatric patient's outward appearance and demeanor, their behaviors and mannerisms and their response to the environment [13, 15].

It should be noted that there are several considerations that make suspicion of abuse challenging. The first is that children often have within their nature the tendency to be shy with strangers, have difficulties with expression, a difference in response to new environments - particularly to a dental environment, which society has portrayed as a place for fear [12, 13]. These are thus usually intrinsic to the behavior of children. Also, children tend to often engage in boisterous play, and are thus prone to more injuries than adults [13, 15]. Another key factor is that there are different forms of abuse, such as neglect, physical and sexual abuse [12–16]. These may have different manifestations and highlight the difficulty with separating suspicion of abuse from the mundane [13, 15].

Below is a description of the observations of outward and non-clinical signs of child maltreatment that dental professionals need to be aware of.

3.1.1 Poor hygiene and attire

Whilst many children are notorious for challenging parents regarding their choice of clothes and bath routines, and with consideration for the socio-economic restrictions, there is a level of hygiene and tidiness that most parents can achieve with their children [11]. If this level is not attained, it can raise concerns about neglect [11, 16].

Dental professionals should commence any consultation by first evaluating a child's overall hygiene, their physical appearance and their dressing and attire [5, 15]. They should assess whether the child appears unkempt and if the child's clothing

is appropriate for the current weather conditions [12]. Clothing that appears to be inappropriate could be used to cover bites, scars and wounds [12]. It is important to also note however, that this factor could be related to poor socio-economic and cultural status and thus as discussed, all individual factors should never be considered in isolation but as part of a far bigger conglomerate of issues [12, 15].

3.1.2 Signs of malnourishment

Children could be left to starve if neglected or being punished [16]. This has long term consequences if it is a common occurrence. It has been reported that at times individuals who were malnourished as infants tend to display higher levels of physical neglect during their late childhood [13, 16]. This has been observed in relationships that remained statistically significant even after accounting for childhood standard of living [13, 16]. It may not be as evident to non-health professionals but dental professionals should consider common signs of malnutrition to be discerned through and discussed with the parent or caregiver and the child [5, 13, 16]. The signs include: lack of interest in food, poor appetite, getting ill often with a slow recovery rate, poor concentration, feeling cold all the time, moodiness, not growing or putting on weight at the expected rate for their age and they tire very easily [5, 13, 16].

3.1.3 Developmental delays

According to the Committee on Child Maltreatment Research, Policy, and Practice for the Next Decade: Phase II (2014), "children who have experienced abuse and neglect are at an increased risk for a number of problematic developmental, health, and mental health outcomes, including learning problems" [17]. The examples of the problems that the children experience include "inadequate attention and deficits in executive functions, problems relating to peers (example, peer rejection), internalising symptoms (example, depression, anxiety), externalising symptoms (example, oppositional defiant disorder, conduct disorder, aggression), and post-traumatic stress disorder (PTSD)" [17]. As adults, these children continue to show increased risk for psychiatric disorders, substance use, serious medical illnesses, and lower economic productivity [17]. Dental professionals should therefore, be able to observe the delays in overall development that are not accounted for by parents or caregivers [17]. This includes both these social and behavioral signs that are noted here and that may be noticeable over a period of subsequent visits [17].

3.1.4 Injuries at different stages of healing

Dental professionals need to observe if a pediatric patient presents with any bruises, burns or wounds on the face or body that are at different stages of healing.

The most common presentation on physical abuse that can be observed in children are bruises [11]. Children who have been abused physically tend to experience bruises or injuries on the buttocks, extremities and ears [18, 19], and injuries of soft tissue which do not cover bone [18]. Observations on the face show that the cheeks are indicated to be the most frequently traumatized part in physical abuse [18]. The physically abused child will present with bruises in the shape of a fingertip especially in the neck region which are usually indicative of a "gripping" action [13]. If a child is physically abused with objects such as belts there will be distinctive marks on the skin [12] which can raise suspicions of deliberate injury. A handprint may present as parallel linear spaced marks [11]. Multiple bruises of different colors are indicative of various stages of healing and could be as a result of protracted abuse [12, 20].

Figure 1 has an illustration of a slap to the cheek. In the drawing one can observe the imprint of one slap to the cheek. The slap forces the blood from the impact site of the fingers and deforms tissues between the fingers [2]. A histamine reaction occurs along the margins [2]. This bruise can last from a few minutes to a few hours or even a day depending on the force of the blow and the resiliency of the child's system [2, 6].

Dental professionals who suspect physical abuse should examine the pediatric patient's head and neck for asymmetry, swelling and bruising; inspect the scalp for signs of hair pulling; check the ears for tears, abnormalities and scars during the extra oral assessment [2, 12]. The dental professional should examine the face for bruises and abrasions that have different colors, which could be an indication of the different stages of healing. The extra oral examination should include observations of any distinctive pattern marks on skin left by objects such as belts, cords, hangers or cigarettes [2, 12]. The dental professional should also observe if there are any bite marks, which could present on the pediatric patient as a result of uncontrollable anger by the adult or another child [12]. Bite marks in areas that cannot be the result of self-inflicted wounds are not usually accidental. The extra oral examination should include assessment of the middle third of the face for bilateral bruising around the eyes, petechiae (small red or purple spots containing blood) in the sclera of the eye, ptosis of the eyelids, or a deviated gaze, a bruised nose, deviated septum or blood clot in the nose [12].

Figure 2 shows bruises on the skin due to bite marks. In the picture one can observe the distinctive shape of the teeth on the skin with areas of perforation caused by the intensity of the bite being clearly visible.

Physical abuse could also lead to burns as a result of electrical, thermal or chemical substances being used as forms of punishment [11, 20]. In some instances, children could experience accidental burns and it is thus important to determine the age and overall development of the child when analyzing the basis of the injury [11]. Cigarette burns are very unique in appearance [20] and can present as an oval or round lesion 5 mm to 10 mm in diameter [21]. Conversely, other abnormalities such as those triggered by impetigo or varicella could have a comparable form and hence those possibilities should be omitted [11]. A cigarette that has been stubbed out on the body can leave an injury or scar with an uneven outline [21] as demonstrated in the **Figure 3**.

These will most often be explained away as being frequent accidental injuries or accidents. However, it is important to note that certain parts of the body are more

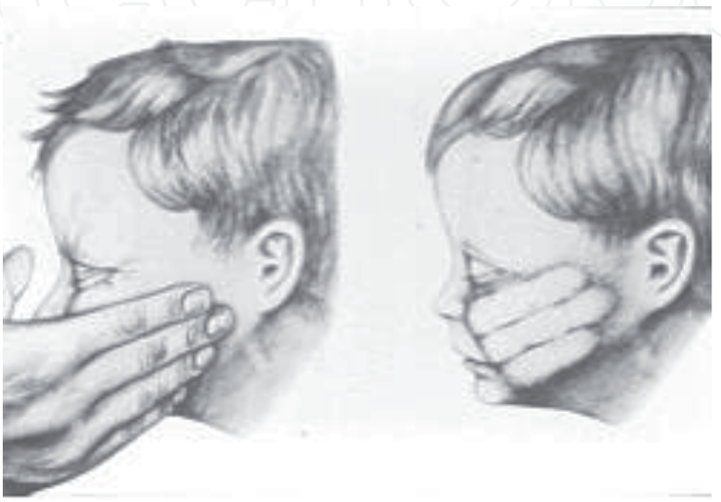

Figure 1.
Slap to the cheek.

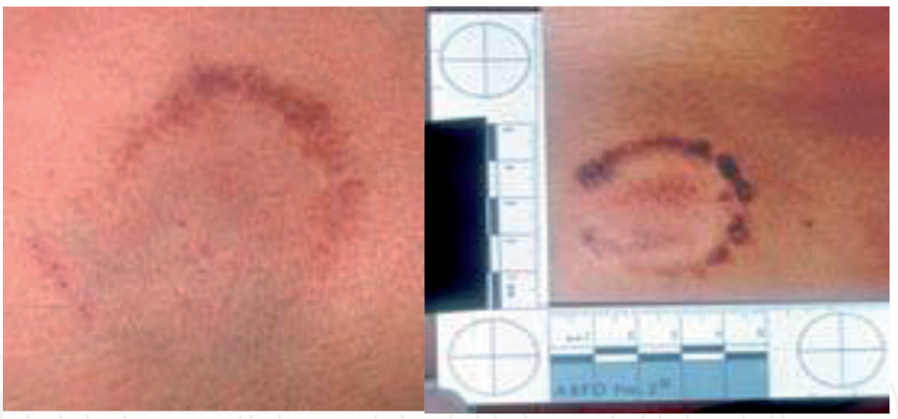

Figure 2.
Bite marks.

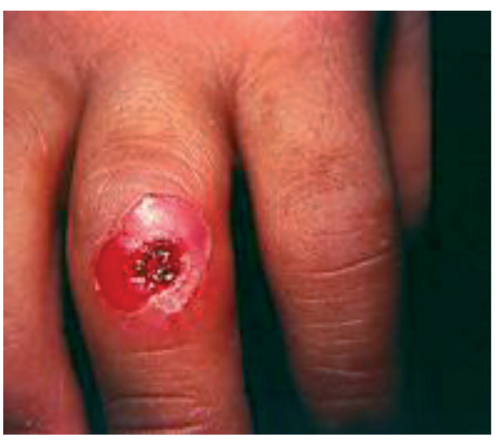

Figure 3.
Cigarette burn.

prone to sustain accidental injuries [21, 22]. These include the knees, elbows, shins, and forehead [22]. It should be noted that protected parts of the body such as the back, thighs, genital area, buttocks, backs of legs, and face, are more common as the sites of non-accidental injury which may constitute physical abuse [22].

3.2 At every dental visit, observe child patient for changes in behavior

It is very important to note that abused children are often scared to reach out for help and do not trust most people [12]. Their extended families and people who are in regular contact with them play a crucial role in identifying if there is abuse as they are the first point of reference to observe any behavioral changes [13, 23].

Individuals with whom the child comes into contact with regularly play an essential role in identifying probable abuse cases as they may be the first to become conscious of any noticeable fluctuations in behavior [23]. Any cautioning signs of potential abuse which are noted should be immediately and meticulously documented [13, 23].

There should be an awareness of how the pediatric patient respond to others. Abused children may act aggressively by showing inappropriate anger and loss of control, or they may be sullen, stoic or withdrawn [2, 5]. Psychological indicators include avoidance, fear, anxiety, low self-esteem, and depression as indicated in **Table 2**. These psychological indicators are usually clearly visible and the victim is highly withdrawn [23]. Behavioral indicators of abuse may also include: child not making eye contact, is wary of parents, demonstrates fear of touch or an intense

fear of being examined, dramatic mood changes, withdrawal or aggressiveness, has a history of suicide attempts and running away [5, 13].

3.3 Testimonies

Testimonies to be observed include inconsistent explanations of how the trauma occurred. Careful attention needs to be paid to any strange behavior being displayed by caregivers and in these cases, this comes through with unconvincing accounts about how the child had been injured and sometimes no reasons being offered when asked about the visible injuries [24]. There can even be various justifications offered and upon closer inspection of the records, it may often be found that there is confirmation or a trail of proof of previous similar injuries. In addition, there would also often be substantial periods of delay or a long interval between the injury episode and the date at which the injured child is booked and brought in for assistance and treatment.

Descriptions of behavior that a suspected abuser may display includes the following [24]:

- Is dispassionate to the point of indifference about the state of the child, and will often be dismissive about the events leading up to the injury [11].
- Has a dominating spouse or partner, often male, who never wants the mother to be left unaccompanied with the examining clinician; and who directly responds to any queries directed at the mother of the injured child [11].
- Provides an overstated, self-justifying response to questioning [13], and often comes across as having an antagonistic or forceful attitude [13].
- Is an authoritative, uncompromising and dominating parent [24].
- Provides an ambiguous indistinct explanation whilst offering up sparse information relating to the specifics of the cause of the child's injury or injuries [24].
- Offers varying accounts of how the child got injured [24].
- Waits for a long interval after the injury episode before seeking dental or medical treatment for the child [25].
- Provides an account of events that fluctuates with time [25].
- For a mother bringing in a child with suspicious injuries, there may be the existence of a boyfriend who has moved in with the mother and child [26].

3.3.1 Assessment of associated risk factors

Clinicians should always ensure that a thorough history is taken for all children who are consulted. This must include all social, medical and psychological factors of the attending child patient. Clinicians must always take cognizance of the following points in order to assess a child holistically as these dynamics noted below are often the key risk factors which predispose a child to potential abuse or neglect:

- Households with a history of domestic abuse – this will not always be self-reported, however there will be anecdotal evidence that could be used parallel to the new information coming to light.

- Known or suspected parental substance misuse – the mouth will provide crucial markers to indicate substance abuse – which include staining and even localized soft tissue keratinization.

- Poor parental mental health – this may be self-reported but can also be gauged from testimonies given by these parents related to current circumstances.

- Parents with learning difficulties – this is also difficult to determine but the clinician should exhaust all sources and resources related to the case at hand in order to draw up as holistic a profile as possible.

- Children with disabilities – this will be visible or discernible by clinicians since they are usually monitoring the children during the routine dental visits.

- Families with history of child abuse – again this will not always be self-reported, however there will be anecdotal evidence that could be used parallel to the new information coming to light.

- Other risk factors include large burdens of stress that parents carry, lack of employment, low socio-economic status, living spaces that are congested with too many people and limited support structures.

3.4 Oro-facial trauma that may be indicative of abuse or neglect

Various reports indicate that injuries related to child abuse predominantly occur in the head and neck region, particularly the face [18, 27–29] as it is easily accessible and a psychologically important target area for abuse [18]. As school-age children commonly sustain accidental dental injuries [29], dental practitioners must have a heightened index of suspicion and practice vigilance in the examination of maxillofacial injuries in children to distinguish between abuse and non-abuse related injuries.

Physical abuse is more prevalent in younger males while sexual abuse is more common in younger females [18]. It is however important to also consider the possibility of outliers of these groups to ensure that no abused child is overlooked.

Dependent on the nature and the site of abuse, there may be a multitude of clinical manifestations of abuse that are encountered as described below. It is important to note that although these signs may alert the dental practitioner to the possibility of abuse, they should not be considered in isolation, but rather contextually [29].

3.4.1 Early childhood caries and neglect

Dental neglect is a subtype of physical neglect that is least likely to be considered during a dental consultation [30]. Dental neglect should be suspected in the presence of the following:

- Untreated early childhood caries that may be easily detected by a lay person [28];

- Untreated pain, infection, bleeding, or trauma affecting the orofacial region [28];

- A history of lack of continuity of care in the presence of identified dental morbidity [28].

Early childhood caries, although one of the main signs to neglect may be present as a of sequelae of environmental and social confounders such as drinking water, breast feeding habits, poor economic situations or unemployment of parents and lack of education [28, 31]. Furthermore, depending on the geographic region and socio-economic environment, early childhood caries may be commonly encountered in some parts of the world within the dental environment [31]. Untreated symptoms and a lack of continuity of care although considered to be negligent, may sometimes occur in the setting of caregivers who are unaware or unknowledgeable. This provides a challenge for the clinician who, whilst conducting a consultation and examination, must also deduce whether the failure of treatment is due to lack of knowledge, socio-economic difficulties such as access to health care and poverty, or is in fact due to a conscious failure to provide a child with adequate health care [14].

The presence of early childhood caries should therefore elicit a higher index of suspicion from the dental practitioner [28] followed up with a thorough investigation for external signs related to behavior, dressing and appearance; but also other intra-oral signs such as early childhood caries in the setting of untreated or chronic oro-facial pain, a high bleeding index and poor or no plaque control may alert neglect and where appropriate dental care has not been sought despite previous advice received [29]. Under these circumstances, the caries must be contextualized and suspicion for abuse interrogated.

3.4.2 Injury to the soft tissues of the mouth

The most common abusive injury to the mouth is to the lips resulting in laceration, bruising or swelling of the lips [32, 33]. Intraorally, bruising is the most common form of injury, with lacerations being the third most common [18].

3.4.2.1 Lacerations, bruises and contusions to the soft tissues of the mouth

Lacerations presenting in the oral cavity and related to physical and sexual abuse may present as tears, penetrating mucosal wounds, cuts through the mucosa and bite marks.

The location of the injury is often the clue and may assist a dental practitioner to distinguish suspicious cases of abuse from the mundane.

Lacerations of the mucosa in the vicinity of the commissure of the mouth could result from gagging with a rope or cloth [34], suggestive of injuries that are often related to forms of physical and sexual abuse. Lacerations to the tongue are also commonly reported [18]. Penetrating injuries to the vestibule, floor of the mouth and more common and less commonly the palate can occur with forcible insertion of objects such as feeding utensils or pacifiers in the mouths of young infants [35].

Laceration may also occur in the form of bite marks with recorded cases of adult bite marks on a child's tongue [36]. A bite mark pattern, generally appearing as a central area of hemorrhage found between markings of the upper and lower dental arches is suggestive of physical or sexual abuse. In the context of the head and neck region, these are rarely reported intraorally but commonly reported on the cheeks of abused children [37].

Lacerations to the upper labial frenum with a tear of the frenum from the inner aspect of the upper lip is an injury that is often quoted as an intraoral injury pathognomonic of abuse based on historical cases reported [13]. Whilst a torn frenum may result from forced feeding, gagging, violent rubbing or a direct blow, recent literature does not support a diagnosis of abuse from the presence of a torn labial frenum

in isolation [29]. Contextualizing the situation to discern a suspected case of abuse from that of a non-abuse, such as in the case of a regular bump to the mouth or fall during the years that a child is learning to walk, is important. For instance, a frenal tear in a non-ambulatory neonate (< 1 year), or an older, more stable child (> 2 years) should raise one's suspicion as to the possibility of the injury being non-accidental [13] and to proceed with a full oral examination to screen for any further potential signs of abuse [32].

Intraoral contusions, ecchymoses and petechiae are commonly found in abuse cases. The location of the bruising, ecchymoses or petechiae may also allude to the presence and nature of abuse. An unexplained erythema, petechiae or ecchymoses at the junction of the hard and soft palate or elsewhere on the palatal mucosa potentially may be as a result of forced oral sex [14]. This bruising is usually non-ulcerated and may be a single lesion or be bilateral extending across the midline [38]. There have also been reports of ecchymoses on the alveolar mucosa in conjunction with avulsed teeth [33].

3.4.2.2 Burns

Burn injuries may be due to electrical, thermal and chemical sources and may represent any of the forms of abuse; being physical and sexual abuse as well as neglect [39]. Damage to the skin usually occurs in temperatures in excess of approximately 49°C and over a sufficient contact time, thereby resulting in mechanisms of cellular damage. It can be extrapolated, that due to the structure of oral mucosa, these burns may be easier to inflict on mucosal surfaces.

In general, injury sustained by burns can be scalds which are thermal contact burns from hot objects or fluids and flame burns. Burns may be inflicted by hot utensils or cigarettes as a sign of abuse and by hot food as a sign of neglect.

Electric burns from cables are also common injuries of infants but a dental practitioner should consider neglect if an electric burn is found in conjunction with any of the other signs mentioned in this chapter.

3.4.3 Injuries to the dentition

Injuries to the dentition related to physical abuse frequently present as fractured or avulsed teeth. This may be in setting of other soft tissue (lacerations, bruising) or hard tissue injuries (dento-alveolar fractures, skeletal fractures) or in isolation. Damage to the primary or permanent teeth can be due to blunt trauma [14, 33, 35]. Due to fractured or avulsed teeth commonly occurring with accidental injury in children, it is important to verify the explanation of the injury between the caregiver and the child, but also to look out for other signs such as other discolored teeth, inappropriately missing teeth and in the setting of any other sign of abuse [28].

3.4.4 Injuries to the facial bones

The dental practitioner is one who would be the first health professional to detect fractures, dislocations, avulsions or mobility related to teeth or within the jaws that are pathologic [28]. Furthermore, the mandible and maxilla can often show early, or previous fracture signs localized to the condyles, mandibular ascending ramus and mandibular symphysis which should alert to abuse [40]. It is important to screen for any previous fractures of teeth or the jaw bones and evidence of dental malocclusions as a result of a previous trauma.

3.4.5 Pathological lesions

The dental practitioner may be focused on diagnosing and managing the condition but may overlook the circumstance in which the condition occurs, and in turn overlook a lesion suggesting abuse.

Sexually transmitted infections in children are rare and their oral manifestation may suggest oro-genital contact and alert the practitioner to the suspicion of sexual abuse. Oral and peri-oral gonorrhea in children is pathognomonic of abuse [14] and may present as erythema, pharyngitis or itching but is often asymptomatic [40]. Gonococcal infection is more likely to be suspected and investigated in the setting of the more common manifestations of gonococcal infection such as those that are found in the urogenital or rectal region [40].

Whilst an HPV-induced infection of the oral cavity is transmitted through sexual contact, amongst children at pre-primary school, HPV spread may be due to close contact or sharing of utensils [41]. There are several oral lesions seen namely: Oral squamous cell papilloma, multifocal epithelial hyperplasia, verruca vulgaris and condyloma acuminatum are some of the oral lesions associated with HPV infection [41]. Condyloma acuminatum is spread via sexual contact and when it occurs in children, it alerts to possible sexual abuse [41]. Oral condylomas develop at the site of oro-genital sexual contact and are found commonly on the tongue, gingiva, soft palate and lips. Classically, the lesions present as broad based (sessile) exophytic masses with blunt projections [5, 41]. The other HPV-induced lesions listed above may not be as suggestive, however abuse should always be a consideration in their presence.

Manifestations of syphilis are less prevalent in abuse cases than other sexually transmitted infections such as gonorrhea and HPV-induced lesions, however, transmission of syphilis outside the neonatal period is almost always due to sexual abuse [41]. Syphilis in children manifests the same as it does in adults with presentations in three different phases [41]. The dental practitioner should thus be sensitive to lesions such as syphilitic chancres, mucous patches and condylomata lata that may indicate abuse [42].

3.5 Documentation and record keeping

Dental professionals should ensure that they document and make notes in patients' files on any deviations from the norm. Detailed information should be recorded in the dental file along with images and x-rays of the injuries [27, 43]. Information gathered in the dental record should include the time and date of the dental data i.e. radiographs and photographs [43]. In order to gauge size for records, a measurement scale ruler should be placed alongside an injury or bite mark when taking photographs [43]. In order to prevent distortion and give a more precise representation of the actual size of the injury, the camera lens should be held directly over the bite and perpendicular to the plane of the bite mark [20, 27]. The site, appearance, phase of healing and severity of the injury should be accurately and comprehensively recorded [13, 19, 20]. Each entry should be dated and signed. Diagrams for recording purposes are also useful [19]. It is important that handwriting on written documents is legible and that no abbreviations are used [19]. Wherever possible, information collated should be in the child, guardian or parent's own words [19].

Finally, it is imperative that consent should be acquired prior to collecting dental records and taking photographs. The pediatric patient has the right to exercise their voluntary participation and refuse photographs be taken and this refusal should be respected [19, 43]. The important factor to be noted is that such a refusal should be documented in the pediatric patient's file [19, 43].

In terms of appropriate referrals – this should be immediately done for the management of any injuries or lesions that are outside the scope of the consulting dental practitioner [21]. If child abuse is suspected, referrals should be made before discussing the issue of abuse with the parents. Making referrals after a discussion with parents or caregivers may negatively impact the treatment that the child receives as parents or caregivers may feel threatened [21]. Physicians and dental practitioners are obligated to detect cases of maltreatment or neglect, to meticulously and comprehensively document, to refer for appropriate treatment and to notify the relevant authorities as soon as possible [44].

4. Conclusion

Assessing a child for maltreatment should constitute an integral part of any clinical examination executed. Although many wounds are not caused by mistreatment, oral health professionals should always be alert during cases of traumatic injuries [5, 10, 44]. Due to the regularity of care offered, dental professionals are in an exclusive position to be able to monitor the caregiver-child relationship as well as fluctuations in the child's behavior [2]. Early warning signs include parents or caregivers bringing a child to the dental professional to have mobile or cracked teeth treated, but not seeking treatment from a medical doctor for other types of injuries [44].

It is also crucial to bear in mind that injuries can occur at any time to anybody for perfectly blameless reasons, and this is particularly the case for children of all ages who enjoy playing outdoors and engaging in sport activities. Certain sites on the body are also more prone to accidental injury. These include the knees, shins, elbows and forehead. However, sheltered body regions such as the thighs, genitals, buttocks, back, backs of legs, and face, are more common as the sites of non-accidental injuries [43].

It is for these very reasons that it is always best to ask a child or caregiver how the injuries were acquired, or how they are feeling, if there is a suspicion that abuse could be occurring. Dental professionals should therefore use their own initiatives and all the other information available to reach a conclusion about whether or not there is cause for concern.

Similarly, the presence of a single sign does not prove that child maltreatment or abuse is occurring in a household, but a closer look at all details may be necessary when these signs appear repeatedly or in combination with other signs described above. If a dental professional does indeed suspect that a child is being harmed, reporting these suspicions swiftly may safeguard the child and acquire assistance for the household. In these cases, dental professionals are urged to contact their local child welfare society and law enforcers for help in this regard and the process forward.

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