Review Paper

Child abuse and its detection in the Dental Office

*Rani Somani, **Vinita Kushwaha, ***Dilip Kumar, ****Jaskirat Khaira

Abstract

Child abuse is a major public health problem all over the world. There are four major types of abuse: physical abuse, sexual abuse, emotional abuse and neglect. Although the injuries of child abuse are many and varied, several types of injuries are common to abuse. Many of these injuries are within the scope of dentistry or easily observed by the dental professional in the course of routine dental treatment. It is important to realize that all members of the dental team have a unique opportunity and a legal obligation to assist in the struggle against child abuse. This requires clinical significance because a high proportion of abused children suffer injuries to the face and head, including the oral and perioral regions. These injuries may be observed during the course of dental treatment and in some cases even before the child is seated in the dental chair.

Key Words: Child Abuse, Causes, Public Health, Professional, Dental, Legal

Introduction:

In recent years, the community has become increasingly aware of the problem of child abuse in society. Child abuse is prevalent in every segment of society and is witnessed in all social, ethnic, religious and professional strata. [1] Child abuse is the physical, sexual, emotional mistreatment, or neglect of children.In the United States, the Centers for Disease Control and Prevention (CDC) define child maltreatment as any act or series of acts of commission or omission by a parent or other caregiver that results in harm, potential for harm, or threat of harm to a child. [2]

Most child abuse occurs in a child's home, with a smaller amount occurring in the organizations, schools or communities the child interacts with. Different jurisdictions have developed their own definitions of child abuse for the purposes of removing a child from his/her family and/or prosecuting a criminal charge. According to *Journal of Child Abuse and Neglect*, child abuse is "any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation, an act or failure to act which presents an imminent risk of serious harm". [3]

Corresponding Author:

*Professor and Head, Department of Paedodontics and Preventive Dentistry,
D.J. College of Dental Sciences and Research, Modinagar -201204, U.P., India
**Associate Prof., Deptt. of Forensic Medicine & Toxicology, MNM College, Muzaffernagar, U.P.
***Senior Consultant, Max Super-Speciality Hospital, New Delhi
****PG Student

The indicators that may be noticeable to the dental professional include trauma to the teeth and injuries to the mouth, lips, tongue or cheeks that are not consistent with an accident. [4] Other common signs of child abuse include fractures of the maxilla and mandible and oral burns. Injuries to the upper lip and maxillary labial frenum may be a characteristic in severely abused young children. [5]

When an individual is attacked for whatever reason, the head, neck and facial areas are often involved. Dental professionals are in a unique position to identify possible cases of child abuse and neglect. Dental care providers are more likely to see evidence of physical abuse than are the other health care workers, as it has been reported that orofacial trauma is present in approximately 50-75% of all reported cases of physical child abuse.

Prevalence:

According to the American National Committee to Prevent Child Abuse, in 1997 neglect represented 54% of confirmed cases of child abuse out of which physical abuse 22%, sexual abuse 8%, emotional maltreatment 4%, and other forms of maltreatment 12%. [6]

A UNICEF report on child wellbeing [7] stated that the United States and the United Kingdom ranked lowest among industrial nations with respect to the wellbeing of children. It also found that child neglect and child abuse were far more common in single-parent families than in families where both parents are present.

In the USA, neglect is defined as the failure to meet the basic needs of children including housing, clothing, food and access to medical care. Researchers found over 91,000 cases of neglect in one year (from October 2005 to 30 September 2006) using information from a

database of cases verified by protective services agencies. [8]

Neglect could also take the form of financial abuse by not buying the child adequate materials for survival. [9] The U.S. Department of Health and Human Services reports that for each year between 2000 and 2005, "female parents acting alone" were most likely to be perpetrators of child abuse. [10]

Risk Factors:

Child abuse seldom results from one cause; rather, many risk factors usually interact. [11, 12] Factors such as child's disability or a parent with depression predispose children to maltreatment. [12, 13] Within a family, intimate partner violence increases children's risk of abuse. In communities, factors such as dangerous neighborhoods or poor recreational facilities increase risk. [14] Societal factors, such as poverty and associated burdens contribute substantially to risk of maltreatment. However, children in all social classes can be maltreated, and physicians need to guard against biases toward low-income families. [15]

Known risk factors for physical abuse are teenage pregnancy, unwanted pregnancy, prematurity, developmental disorders and/or chronic illness, twin pregnancy, substance abuse, poverty, lack of knowledge of parenting, child health and development. [16] Child characteristics are also important in child abuse including age, a previous history of abuse and comorbid conditions belonging to the child. About 71% of children are abused between the ages of 1 and 12. Children under the age of 4 are at the greatest risk of severe injury, and account for 79% of child maltreatment fatalities, with infants under 1 year accounting for 44% of deaths. Children with learning disabilities, conduct disorders, chronic illnesses, mental retardation, prematurity, or other handicaps are at increased risk of incurring abuse. [17]

Forms of Child Maltreatment:

Child maltreatment may occur either within or outside the family. The proportion of interfamilial to extra familial cases varies with the type of abuse as well as the gender and age of child. Each of the following conditions may exist as separate or concurrent diagnoses.

Physical Abuse:

Physical abuse of children is most often inflicted by a caregiver or family member but occasionally by a stranger. The most common manifestations include bruises, burns, fractures, head trauma, and abdominal injuries. A small but significant number of unexpected pediatric deaths, particularly in infants and very young children (eg, sudden infant death syndrome), are related to physical abuse. [18]

Sexual Abuse:

Sexual abuse is defined as the engaging of dependent, developmentally immature children in sexual activities that they do not fully comprehend and to which they cannot give consent or activities that violate the laws and taboos of a society. It includes all forms of incest, sexual assault or rape, and pedophilia. This includes fondling, oral–genital–anal contact, all forms of intercourse or penetration, exhibitionism, voyeurism, exploitation or prostitution, and the involvement of children in the production of pornography. [18, 21]

Emotional Abuse:

Emotional or psychological abuse has been defined as the rejection, ignoring, criticizing, isolation, or terrorizing of children, all of which have the effect of eroding their self-esteem. The most common form is verbal abuse or denigration. Children who witness domestic violence should be considered emotionally abused. [19]

Physical Neglect:

Physical neglect is the failure to provide the necessary food, clothing, and shelter and a safe environment in which children can grow and develop. Although often associated with poverty or ignorance, physical neglect involves a more serious problem than just lack of resources. There is often a component of emotional neglect and either a failure or an inability, intentionally or otherwise, to recognize and respond to the needs of the child. [21]

Emotional Neglect:

The most common feature of emotional neglect is the absence of normal parent–child attachment and a subsequent inability to recognize and respond to an infant’s or child’s needs. A common manifestation of emotional neglect in infancy is nutritional (nonorganic) failure to thrive.

Medical Care Neglect

Medical care neglect is failure to provide the needed treatment to infants or children with life-threatening illness or other serious or chronic medical conditions. [19]

Munchausen Syndrome by Proxy:

Munchausen syndrome by proxy is a relatively unusual disorder in which a caregiver, usually the mother, either simulates or creates the symptoms or signs of illness in a child. The child can present with a long list of medical problems or often bizarre recurrent complaints. Fatal cases have been reported. [20]

Detecting Child abuse in the Dental Office:

When a child presents for examination, particularly if there is an injury involved, the history may alert the dental team to the possibility of child abuse. Indeed, the history may be the single most important source of information. [22] Because legal proceedings could follow, the history should be recorded in detail. While one should always realize that there are other possible explanations, the possibility of child abuse or neglect should be considered.

General Physical Findings:

Before examining the mouth, alert members of the dental team may note general physical findings that are consistent with child abuse or neglect:

1. The child's nutritional state is poor and growth is subnormal.
2. Extraoral injuries are noted. They may be in various stages of healing, indicating the possibility of repeated trauma
3. There may be bruises or abrasions that reflect the shape of the offending object, e.g., belt buckle, strap, hand.
4. Cigarette burns or friction burns may be noted, e.g., from ligatures on wrists, gag on mouth.
5. There may be bite marks, bald patches (where hair has been pulled out), injuries on extremities or on the face, eyes, ears, or around the mouth.

As always, the examiner must remember that there may be explanations other than child abuse for some of these findings.

Findings on Dental Examination:

Examination of dental injuries includes thorough visual observation, radiographic studies, manipulation of the jaws, pulp vitality tests, and percussion. Transillumination may also be helpful.

Typical Oral Lesions:

Both oral and facial injuries of child abuse may occur alone or in conjunction with injuries to other parts of the body. The oral lesions associated with child abuse are usually bruises, lacerations, abrasions, or fractures. Suspicion of child abuse should be particularly strong when new injuries are present along with older injuries.

Thus scars, particularly on the lips, are evidence of previous trauma and should alert the investigator to the possibility of child abuse. As noted earlier, further investigation is required when the explanation for the injuries does not justify the clinical findings.

Tearing of the labial or lingual frenum:

Tears of the frenula, particularly the labial frenum, are frequently seen in child abuse cases. These injuries may result from blunt force trauma. For example, the labial frenum may be torn when a hand or other blunt object is forcibly applied to the upper lip to silence the child . Injuries of this type may also occur in forced feeding, as a result of the bottle being forced into the mouth. [23]

Oral mucosa torn from gingival:

Blunt force trauma to the lower face may also cause the mucosal lining of the inner surface of the lip to be torn away from the gingiva. A forceful slap, for example, may have this effect. The location and extent of the injury will depend on the magnitude of force and the location and direction of the blow.

Loosened, fractured, or avulsed teeth:

Severe trauma to the lower face may loosen teeth, completely displace them from their alveolar sockets, and/or cause dental fractures. It is not uncommon for root fractures to occur, but this finding may be missed unless the radiographs are examined carefully. These injuries, as well as most other traumatic injuries, may be accidental rather than abusive.

Therefore, one must always determine whether the injury is compatible with the explanation given. If the dental injuries resulted from a fall, for example, one would expect to also find bruised or abraded knees, hands, or elbows. When these additional injuries are not present, further inquiry is required. [24]

Previously missing teeth:

In examining a child who has experienced recent trauma, it may be noted that one or more teeth has been lost prior to the present incident. The etiology of this earlier tooth loss should be investigated. If it was due to "an accident", a pattern of repeated trauma has been established. This pattern needs to be evaluated, and child abuse is one of the possibilities to be considered.

Trauma to the lip:

It is not uncommon to find contusions, lacerations, burns, or scars on the lips of abused children. Bruises to the lip may result from forced feeding. Burns on the lip, as well as burns on the face or tongue, may be signs of physical punishment. [23] Bruises at the angles of the mouth may result from efforts to gag or silence a child.

Trauma to the tongue:

The tongue of an abused child may exhibit abnormal anatomy or function due to scarring. [27] This may result from a burn or other trauma.

Other soft tissue injuries:

Trauma to the mouth may also cause ulceration of the palate or uvula. Additionally, lacerations are sometimes found in the floor of

the mouth, which may be caused by forced bottle feeding.

Fractures of jaws and associated structures:

Fractures of the maxilla, mandible, and other cranial bones may be found in cases of child abuse. If the radiologic study shows signs of old as well as new fractures, a pattern of repeated trauma has been found, and needs to be investigated with reference to possible child abuse. The examination for maxillofacial fractures is performed within the concept of overall patient care, including airway maintenance, control of hemorrhage, and neurologic examination.

In a significant number of jaw fractures there is also damage to associated structures, including the cribriform plate, nasal, and zygomatic bones. Intracranial lesions and skull fractures may also be present. [28] The clinical examination includes both extraoral and intraoral palpation. Bilateral palpation is helpful to detect asymmetry. Swelling or ecchymosis in the lower face is suggestive of fractures of the mandible.

Fractures should also be suspected if there is an abrupt change in the occlusal level of the teeth. This may be associated with open bite, difficulty in opening the mouth, and facial asymmetry. Other signs and symptoms include abnormal mobility of bony structures, or the ability to move the mandible beyond its normal excursion in any direction.

Dingman and Natvig suggested supporting the angle of the mandible and pressing the anterior mandibular region up and down to detect fractures of the body of the mandible. [28] Crepitation and deviation of the midline on closing may be diagnostic signs, as well. Pain in the area of the temporomandibular joints may suggest fractures in this region.

General neglect of the mouth:

A child with rampant, untreated dental decay and poor oral hygiene is suffering from significant neglect. The consequences may be pain, infection, and a threat to the child's general health and well-being. The medical or dental practitioner who observes this condition, particularly if it continues after having been brought to the attention of the parents, should realize that the situation is no different than having parents neglect any other important medical condition. Moreover, this may be a sign of a more generalized problem in caring for the child. Blain reports that a preliminary study supports the high correlation between dental neglect and CAN (child abuse and neglect). [29]

As reported by Blain, the following conditions should be considered reasons for reporting if the caretaker consciously fails to follow treatment recommendations in potentially life-threatening situations:

1. Failure to provide prescribed antibiotics.
2. Failure to seek treatment for cellulitis and its associated infections.
3. Failure to seek treatment for any acute or chronic infection, including dental caries, when underlying life-threatening system conditions are present such as subacute bacterial endocarditis, glomerulonephritis, or juvenile-onset diabetes.

Consideration should be given to reporting the following conditions. If the dental situation is deteriorating to the point where irreversible harm will be done, leading to pain, discomfort, or a decrease in health or welfare:

1. Diagnosed caries or periodontal diseases which have been referred for treatment and caretakers have failed to keep appointments.
2. Presence of untreated traumatic injuries as indicated by nonvital teeth, avulsed permanent teeth, and injuries to soft tissues, including signs of scarring.
3. Failure to seek recommended treatment for diagnosed severe malrelationships of the maxilla and mandible, including craniofacial anomalies, which may result in deficient speech, esthetic deformities, and psychological disturbances.

Associated Facial Lesions:

Becker et al. found that in their series of facial injuries in abused children, 66% of the injuries were contusions and ecchymoses, 28% were abrasions and lacerations, 3% were burns, 2% were fractures, and 1% were bites. [30] Knowledge of the color changes associated with bruising may be important in determining when the injury occurred, and in determining whether other injuries occurred during the same event or at different times.

Kessler and Hyden point out that after the injury occurs, the area is usually tender and swollen, but the bruise may not be visible as a contusion or ecchymosis for 24 to 72 hours. A reddish-blue or purple color may be visible immediately or within the first 5 days. This initial color may change to green in 5 to 7 days, then to yellow in 7 to 10 days, then to brown in 10 to 14+ days, before clearing in 2 to 4 weeks. [22]

Injuries to the face may include trauma to the eyes, ears, and nose, as well as to the oral cavity. Blunt force trauma to the eye may cause periorbital bruises (black eyes), acute hyphema (blood in the anterior chamber of the eye), retinal and subconjunctival hemorrhage, ruptured globe, dislocated lens, optic atrophy, traumatic cataract, and detached retina. [22]

Direct trauma to the nose may cause deviated septum due to cartilage injury or hematoma formation. Such trauma may also cause nasal fractures, with accompanying bilateral periorbital ecchymosis. Injuries to the ear may be associated with twisting and bruising, while repeated blows may eventually result in a “cauliflower ear”.

Blows to the ear can also rupture the tympanic membrane or cause hemorrhage and hematoma formation. [23] Bruises from hand slapping are not uncommon. In such cases the bruise may reproduce the outline of the hand in startling detail. Other cutaneous injuries may also take the shape of the object used to inflict the injury, such as a belt buckle or looped electric cord. [23] It has been suggested that whenever bruises occur on both sides of the mouth or face at once, or if there is scarring of the lips, abuse should be suspected. Also, the presence of injuries on multiple body surfaces suggests abuse. McNeese and Hebeler point out that such multiplanar injuries would occur accidentally only as a result of tumbling falls (e.g., falling down stairs) or trauma incurred during automobile accidents. [23]

Lips and corners of the mouth may show contusions, lacerations, burns, or scars due to the frequency of attack to the mouth in abused children. Bite marks on the face of children are most commonly found on or around the cheeks. However, they may occur on the ear, nose, chin, or elsewhere.

Conclusion:

As most of the abuse injuries occur in the head and neck, dentists can easily diagnose them and as a oral care professional it is our duty to detect such abuses at an early stage to prevent further harm to the child and counseling of abusive caretaker Reported cases of child abuse and corporal punishment, both new and under management and treatment, require continual monitoring. It is becoming increasingly important for dentists to recognize some of the more obvious manifestations of physical abuse.

The involvement of dentists in child protection teams would be beneficial in two ways: dentists would become aware of their role and would assist in the training of physicians and other professionals. In turn, non-dental practitioners would benefit from consultations with dentists in the evaluation of physical and sexual abuse or neglect, especially those dentists who have experience or expertise with children.

References:

1. **Naidoo S. A** profile of the oro-facial injuries in child physical abuse at a children's hospital. Child Abuse Negl 2000;24:521-34
2. **Leeb, R.T.; Paulozzi, L.J.; Melanson, C.; Simon, T.R.; Arias, I.** (1 January 2008). "Child Maltreatment Surveillance: Uniform Definitions for Public Health and Recommended Data Elements". Centers for Disease Control and Prevention. Retrieved 20 October 2008.
3. **Herrenkohl, R.C**. (2005). "The definition of child maltreatment: from case study to construct". *Child Abuse and Neglect* **29** (5): 413.
4. **Carpenter RF.** The prevalence and distribution of bruising in babies. Arch Dis Child 1999; 80: 363-6.
5. **Cavalcanti AL**. Child abuse: Oral manifestations and their recognition by dentists. Rev Odontol UNICID 2003; 1: 123-8.
6. "Child Abuse and Neglect Statistics". National Committee to Prevent Child Abuse. 1998. Archived from the original on 1998-05-15.
7. Child Poverty in Respective: An Overview of Child Wellbeing in Rich Countries. UNICEF: Innocenti Research Center, Report Card 7.
8. "Sometimes They Can't Afford to Leave their Abusers", *Santa Ynez Valley Journal*, California, 22 October 2009.
9. Stats for 2000; Stats for 2001; Stats for 2002; Stats for 2003; Stats for 2004; Stats for 2005.
10. **Svedin CG, Wadsby M, Sydsjφ G.** Mental health, behaviour problems and incidence of child abuse at the age of 16 years. A prospective longitudinal study of children born at psychosocial risk. Eur Child Adolesc Psychiatry 2005; 14: 386-96.
11. **Wu SS, Ma CX, Carter RL, Ariet M, Feaver EA, Resnick MB, *et al.*** Risk factors for infant maltreatment: a population-based study. Child Abuse Negl 2004; 28: 1253-64.
12. **Kendall-Tackett K, Lyon T, Taliaferro G, Little L.** Why child maltreatment researchers should include children's disability status in their maltreatment studies. Child Abuse Negl 2005; 29: 147-51.
13. **Wilson SL, Kuebli JE, Hughes HM.** Patterns of maternal behavior among neglectful families: implications for research and intervention. Child Abuse Negl 2005; 29: 985-1001.
14. **Korbin JE.** Neighborhood and community connectedness in child maltreatment research. Child Abuse Negl 2003; 27: 137-40.
15. **Lane WG, Rubin DM, Monteith R, Christian CW.** Racial differences in the evaluation of pediatric fractures for physical abuse. JAMA 2002; 288: 1603-9.
16. **Rivara FP, DiGuiseppi C, Thompson RS, Calonge N.** Risk of injury to children less than 5 years of age in day care versus home care settings. Pediatrics 1989; 84: 1011-6.
17. **Swerdlin A, Berkowitz C, Craft N.** Cutaneous signs of child abuse. J Am Acad Dermatol 2007; 57: 371-92.
18. American Academy of Pediatrics: Distinguishing sudden infant death syndrome from child abuse fatalities. Pediatrics 2001; 107(2): 437.
19. American Academy of Pediatrics: *Visual Diagnosis of Child Abuse.* [CD ROM], 2nd ed, 2002.
20. American Academy of Pediatrics: *Visual Diagnosis of Child Sexual Abuse.* [Slide Set Atlas] American Academy Pediatrics, 2002.
21. American Academy of Pediatrics: Diagnostic imaging of childrenabuse. Pediatrics 2000; 105(6): 1345.
22. **Kessler, D. B. and Hyden, P.** Physical, sexual, and emotional abuse of children, *Clin. Symp.* 43(1), 4, 1991.
23. McNeese, M. C. and Hebeler, J. R., The abused child: a clinical approach to identification and management *Clin. Symp.,* 29(5), 1, 1977.
24. **Andreasen, J. O.** *Traumatic Injuries of the Teeth,* W. B. Saunders, Philadelphia, 1981, chap. 1.
25. **Finn, S. B**., *Clinical Pedodontics,* W. B. Saunders, Philadelphia, 1973, chap. 11.
26. **Hamilton, J.** Child abuse: the dentist’s responsibility, *Chicago Dent. Soc. Rev.,* 83 (9), 19, 1990.
27. **Blain, S. M.** Child abuse, *Pediatric Dentistry; Scientific Foundations and ClinicalPractice,* Stewart, R. E. et al., C. V. Mosby, St. Louis, 1981, chap. 64.
28. **Dingman, R.O.** and Natvig, P., *Surgery of Facial Fractures,* W. B. Saunders,
Philadelphia, 1964, chap 3.
29. **Blain, S. M.,** Abuse and neglect as a component of pediatric treatment planning *J. Calif. Dent. Assoc.,* 19(9), 1991.
30. **Becker, D. B. et al.,** Child abuse and dentistry: orofacial trauma and its recognition by dentists, *J. Am. Dent. Assoc.,* 97(7) 24, 1978.