

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Oral and Dental Aspects of Child Abuse and Neglect

Nancy Kellogg and the Committee on Child Abuse and Neglect

Pediatrics 2005;116;1565-1568

DOI: 10.1542/peds.2005-2315

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/116/6/1565>

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2005 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



AMERICAN ACADEMY OF PEDIATRICS
AMERICAN ACADEMY OF PEDIATRIC DENTISTRY

CLINICAL REPORT

Guidance for the Clinician in Rendering Pediatric Care

Nancy Kellogg, MD; and the Committee on Child Abuse and Neglect

Oral and Dental Aspects of Child Abuse and Neglect

ABSTRACT. In all 50 states, physicians and dentists are required to report suspected cases of abuse and neglect to social service or law enforcement agencies. The purpose of this report is to review the oral and dental aspects of physical and sexual abuse and dental neglect and the role of physicians and dentists in evaluating such conditions. This report addresses the evaluation of bite marks as well as perioral and intraoral injuries, infections, and diseases that may cause suspicion for child abuse or neglect. Physicians receive minimal training in oral health and dental injury and disease and, thus, may not detect dental aspects of abuse or neglect as readily as they do child abuse and neglect involving other areas of the body. Therefore, physicians and dentists are encouraged to collaborate to increase the prevention, detection, and treatment of these conditions. *Pediatrics* 2005;116:1565–1568; bite marks, sexual abuse, physical abuse, dental neglect.

ABBREVIATION. ABFO, American Board of Forensic Odontology.

PHYSICAL ABUSE

Craniofacial, head, face, and neck injuries occur in more than half of the cases of child abuse.^{1–10} A careful and thorough intraoral and perioral examination is necessary in all cases of suspected abuse and neglect. In addition, all suspected victims of abuse or neglect, including children in state custody or foster care, should be examined carefully not only for signs of oral trauma but also for caries, gingivitis, and other oral health problems. Some authorities believe that the oral cavity may be a central focus for physical abuse because of its significance in communication and nutrition.¹¹ Oral injuries may be inflicted with instruments such as eating utensils or a bottle during forced feedings; hands; fingers; or scalding liquids or caustic substances. The abuse may result in contusions, burns, or lacerations of the tongue, lips, buccal mucosa, palate (soft and hard), gingiva alveolar mucosa, or frenum; fractured, displaced, or avulsed teeth; or facial bone and jaw fractures. In 1 study,¹² the lips were the most common site for inflicted oral injuries (54%), followed by the oral mucosa, teeth, gingiva,

and tongue. Discolored teeth, indicating pulpal necrosis, may result from previous trauma.^{13,14} Gags applied to the mouth may result in bruises, lichenification, or scarring at the corners of the mouth.¹⁵ Some serious injuries of the oral cavity, including posterior pharyngeal injuries and retropharyngeal abscesses, may be inflicted by caregivers with factitious disorder by proxy¹⁶ to simulate hemoptysis or other symptoms requiring medical care; regardless of caregiver motive, all inflicted injuries should be reported for investigation. Unintentional or accidental injuries to the mouth are common and must be distinguished from abuse by judging whether the history, including the timing and mechanism of injury, is consistent with the characteristics of the injury and the child's developmental capabilities. Multiple injuries, injuries in different stages of healing, or a discrepant history should arouse a suspicion of abuse. Consultation with or referral to a knowledgeable dentist may be helpful.

SEXUAL ABUSE

Although the oral cavity is a frequent site of sexual abuse in children,¹⁷ visible oral injuries or infections are rare. When oral-genital contact is suspected, referral to specialized clinical settings equipped to conduct comprehensive examinations is recommended. The American Academy of Pediatrics statement "Guidelines in the Evaluation of Sexual Abuse of Children"¹⁸ provides information regarding these examinations.

Oral and perioral gonorrhea in prepubertal children, diagnosed with appropriate culture techniques and confirmatory testing, is pathognomonic of sexual abuse¹⁹ but rare among prepubertal girls who are evaluated for sexual abuse.²⁰ Pharyngeal gonorrhea is frequently asymptomatic.²¹ When oral-genital contact is confirmed by history or examination findings, universal testing for sexually transmitted diseases within the oral cavity is controversial; the clinician should consider risk factors (eg, chronic abuse, perpetrator with a known sexually transmitted disease) and the child's clinical presentation in deciding whether to conduct such testing. Although human papillomavirus infection may result in oral or perioral warts, the mode of transmission remains uncertain and debatable. Human papillomavirus infections may be transmitted sexually through oral-genital contact, vertically from mother to infant during birth, or horizontally through nonsexual con-

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

doi:10.1542/peds.2005-2315

PEDIATRICS (ISSN 0031 4005). Copyright © 2005 by the American Academy of Pediatrics.

tact from a child or caregiver's hand to the genitals or mouth.²² Unexplained injury or petechiae of the palate, particularly at the junction of the hard and soft palate, may be evidence of forced oral sex.²³ As with all suspected child abuse or neglect, when sexual abuse is suspected or diagnosed in a child, the case must be reported to child protective services and/or law enforcement agencies for investigation.²⁴⁻²⁷ A multidisciplinary child abuse evaluation for the child and family should be initiated.

Children who present acutely with a recent history of sexual abuse may require specialized forensic testing for semen and other foreign materials resulting from assault. If a victim provides a history for oral-penile contact, the buccal mucosa and tongue can be swabbed with a sterile cotton-tipped applicator, then the swab can be air dried and packaged appropriately for laboratory analysis. However, specialized hospitals and clinics equipped with protocols and experienced personnel are best suited for collecting such material and maintaining a chain of evidence necessary for investigations.

BITE MARKS

Acute or healed bite marks may indicate abuse. Dentists trained as forensic odontologists can assist physicians in the detection and evaluation of bite marks related to physical and sexual abuse.²⁸ Bite marks should be suspected when ecchymoses, abrasions, or lacerations are found in an elliptical or ovoid pattern. Bite marks may have a central area of ecchymoses (contusions) caused by 2 possible phenomena: (1) positive pressure from the closing of the teeth with disruption of small vessels or (2) negative pressure caused by suction and tongue thrusting. Bites produced by dogs and other carnivorous animals tend to tear flesh, whereas human bites compress flesh and can cause abrasions, contusions, and lacerations but rarely avulsions of tissue. An intercanine distance (ie, the linear distance between the central point of the cuspid tips) measuring more than 3.0 cm is suspicious for an adult human bite.²⁹

The pattern, size, contour, and color of the bite mark should be evaluated by a forensic odontologist or a forensic pathologist if an odontologist is not available. If neither specialist is available, a physician or dentist experienced in the patterns of child abuse injuries should observe and document the bite-mark characteristics photographically with an identification tag and scale marker (eg, ruler) in the photograph. The photograph should be taken such that the angle of the camera lens is directly over the bite and perpendicular to the plane of the bite to avoid distortion. A special photographic scale was developed by the American Board of Forensic Odontology (ABFO) for this purpose as well as for documenting other patterned injuries and can be obtained from the vendor (ABFO No. 2 reference scale, available from Lightning Powder Co, Inc, 1230 Hoyt St SE, Salem, OR 97302-2121). Names and contact information for ABFO-certified odontologists can be obtained from the ABFO Web site (www.abfo.org). In addition to photographic evidence, every bite mark that shows indentations should have a polyvinyl siloxane im-

pression made immediately after swabbing the bite mark for secretions containing DNA. This impression will help provide a three-dimensional model of the bite mark. Written observations and photographs should be repeated daily for at least 3 days to document the evolution of the bite. Because each person has a characteristic bite pattern, a forensic odontologist may be able to match dental models (casts) of a suspected abuser's teeth with impressions or photographs of the bite.

Blood-group substances can be secreted in saliva. DNA is present in epithelial cells from the mouth and may be deposited in bites. Even if saliva and cells have dried, they should be collected by using the double-swab technique. First, a sterile cotton swab moistened with distilled water is used to wipe the area in question, dried, and placed in a specimen tube. A second sterile, dry cotton swab cleans the same area and then is dried and placed in a specimen tube. A third control sample should be obtained from an uninvolved area of the child's skin. All samples should be sent to a certified forensic laboratory for prompt analysis.³⁰ The chain of custody must be maintained on all samples submitted for forensic analysis. Questions regarding evidentiary procedure should be directed to a law enforcement agency.

DENTAL NEGLECT

Dental neglect, as defined by the American Academy of Pediatric Dentistry, is the "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."³¹ Dental caries, periodontal diseases, and other oral conditions, if left untreated, can lead to pain, infection, and loss of function. These undesirable outcomes can adversely affect learning, communication, nutrition, and other activities necessary for normal growth and development.³² Some children who first present for dental care have severe early childhood caries (formerly termed "infant bottle" or "nursing" caries); caregivers with adequate knowledge and willful failure to seek care must be differentiated from caregivers without knowledge or awareness of their child's need for dental care in determining the need to report such cases to child protective services.

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.³³ The point at which to consider a parent negligent and to begin intervention occurs after the parent has been properly alerted by a health care professional about the nature and extent of the child's condition, the specific treatment needed, and the mechanism of accessing that treatment.³³ Because many families face challenges in their attempts to access dental care or insurance for their children, the clinician should determine if dental services are readily available and accessible to the child when considering whether negligence has occurred.

The physician or dentist should be certain that the caregivers understand the explanation of the disease and its implications and, when barriers to the needed

care exist, attempt to assist the families in finding financial aid, transportation, or public facilities for needed services. Parents should be reassured that appropriate analgesic and anesthetic procedures will be used to ensure the child's comfort during dental procedures. If, despite these efforts, the parents fail to obtain therapy, the case should be reported to the appropriate child protective services agency.^{31,33}

CONCLUSIONS

Pediatricians should be aware that physical or sexual abuse may result in oral or dental injuries or conditions that sometimes can be confirmed by laboratory findings. Furthermore, injuries inflicted by one's mouth or teeth may leave clues regarding the timing and nature of the injury as well as the identity of the perpetrator. Pediatricians are encouraged to be knowledgeable about such findings and their significance and to meticulously observe and document them. When questions arise or when consultation is needed, a pediatric dentist or a dentist with formal training in forensic odontology can ensure appropriate testing, diagnosis, and treatment.

Pediatric dentists and oral and maxillofacial surgeons, whose advanced education programs include a mandated child abuse curriculum, can provide valuable information and assistance to physicians about oral and dental aspects of child abuse and neglect. The Prevent Abuse and Neglect Through Dental Awareness (also known as PANDA; telephone: 501-661-2595; e-mail: lmouden@healthyarkansas.com) coalition, which has trained thousands of physicians, nurses, teachers, child care providers, dentists, and dental auxiliaries, is another resource for physicians seeking information on this issue. Physician members of multidisciplinary child abuse and neglect teams are encouraged to identify such dentists in their communities to serve as consultants for these teams. In addition, physicians with experience or expertise in child abuse and neglect can make themselves available to dentists and dental organizations as consultants and educators. Such efforts will strengthen our ability to prevent and detect child abuse and neglect and enhance our ability to care for and protect children.

COMMITTEE ON CHILD ABUSE AND NEGLECT, 2004–2005

Robert W. Block, MD, Chairperson
 Roberta A. Hibbard, MD
 Carole Jenny, MD
 Nancy Kellogg, MD
 Betty S. Spivack, MD
 John Stirling, Jr, MD, Section Representative

LIAISON REPRESENTATIVES

Joanne Klevens, MD, MPH
 Centers for Disease Control and Prevention
 David Corwin, MD
 American Academy of Child and Adolescent Psychiatry

STAFF

Tammy Piazza Hurley, Manager
 Division of Safety and Health Promotion

AMERICAN ACADEMY OF PEDIATRIC DENTISTRY
 Council on Clinical Affairs
 Council on Scientific Affairs
 Ad Hoc Work Group on Child Abuse and Neglect

REFERENCES

- Baetz K, Sledziewski W, Margetts D, Koren L, Levy M, Pepper R. Recognition and management of the battered child syndrome. *J Dent Assoc S Afr.* 1977;32:13–18
- Becker DB, Needleman HL, Kotelchuck M. Child abuse and dentistry: orofacial trauma and its recognition by dentists. *J Am Dent Assoc.* 1978;97:24–28
- Cameron JM, Johnson HR, Camps FE. The battered child syndrome. *Med Sci Law.* 1966;6:2–21
- Jessee SA. Physical manifestations of child abuse to the head, face and mouth: a hospital survey. *ASDC J Dent Child.* 1995;62:245–249
- Jessee SA, Rieger M. A study of age-related variables among physically abused children. *ASDC J Dent Child.* 1996;63:275–280
- Malecz RE. Child abuse, its relationship to pedodontics: a survey. *ASDC J Dent Child.* 1979;46:193–194
- Needleman HL. Orofacial trauma in child abuse: types, prevalence, management, and the dental profession's involvement. *Pediatr Dent.* 1986;8:71–80
- O'Neill JA Jr, Meacham WF, Griffin JP, Sawyers JL. Patterns of injury in the battered child syndrome. *J Trauma.* 1973;13:332–339
- Skinner AE, Castle RL. *78 Battered Children: A Retrospective Study.* London, England: National Society for the Prevention of Cruelty to Children; 1969
- Tate RJ. Facial injuries associated with the battered child syndrome. *Br J Oral Surg.* 1971;9:41–45
- Vadiakas G, Roberts MW, Dilley DC. Child abuse and neglect: ethical issues for dentistry. *J Mass Dent Soc.* 1991;40:13–15
- Naidoo S. A profile of the oro-facial injuries in child physical abuse at a children's hospital. *Child Abuse Negl.* 2000;24:521–534
- Kittle PE, Richardson DS, Parker JW. Two child abuse/child neglect examinations for the dentist. *ASDC J Dent Child.* 1981;48:175–180
- Blain SM, Winegarden T, Barber TK, Sognnaes FR. Child abuse and neglect: II. Role of dentistry [abstract]. *J Dent Res.* 1979;58(spec issue A):367
- McNeese MC, Hebel JR. The abused child: a clinical approach to identification and management. *Clin Symp.* 1977;29(5):1–36
- Levin AV. Otorhinolaryngologic manifestations. In: Levin AV, Sheridan MS, eds. *Munchausen Syndrome by Proxy: Issues in Diagnosis and Treatment.* New York, NY: Lexington Books; 1995:219–230
- Folland DS, Burke RE, Hinman AR, Schaffner W. Gonorrhea in preadolescent children: an inquiry into source of infection and mode of transmission. *Pediatrics.* 1977;60:153–156
- Kellogg N, American Academy of Pediatrics, Committee on Child Abuse and Neglect. The evaluation of sexual abuse in children. *Pediatrics.* 2005;116:506–512
- DeJong AR. Sexually transmitted diseases in sexually abused children. *Sex Transm Dis.* 1986;13:123–126
- Everett VD, Ingram DL, Flick LAR, Russell TA, Tropez-Sims ST, McFadden AY. A comparison of sexually transmitted diseases (STDs) found in a total of 696 boys and 2973 girls evaluated for sexual abuse [abstract]. *Pediatr Res.* 1998;43(4 pt 2):91A
- Nelson JD, Mohs E, Dajani AS, Plotkin SA. Gonorrhea in preschool- and school-aged children: report of the Prepubertal Gonorrhea Cooperative Study Group. *JAMA.* 1976;236:1359–1364
- Stevens-Simon C, Nelligan D, Breese P, Jenny C, Douglas JM Jr. The prevalence of genital human papillomavirus infections in abused and nonabused preadolescent girls. *Pediatrics.* 2000;106:645–649
- Schlesinger SL, Borbotsina J, O'Neill L. Petechial hemorrhages of the soft palate secondary to fellatio. *Oral Surg Oral Med Oral Pathol.* 1975; 40:376–378
- Mouden LD, Bross DC. Legal issues affecting dentistry's role in preventing child abuse and neglect. *J Am Dent Assoc.* 1995;126:1173–1180
- Schwartz S, Woolridge E, Stege D. The role of the dentist in child abuse. *Quintessence Int.* 1976;7:79–81
- Sognnaes RF, Blain SM. Child abuse and neglect: I. Diagnostic criteria of special interest to dentists [abstract]. *J Dent Res.* 1979;58(spec issue A):367
- Donly KJ, Nowak AJ. Maxillofacial, neck, and dental lesions of child abuse. In: Reece RM, ed. *Child Abuse: Medical Diagnosis and Management.* Philadelphia, PA: Lea & Febiger; 1994:150–166

28. Sperber ND. Bite marks, oral and facial injuries: harbingers of severe child abuse? *Pediatrician*. 1989;16:207-211
29. Wagner GN. Bitemark identification in child abuse cases. *Pediatr Dent*. 1986;8:96-100
30. National Research Council, Committee on DNA Technology in Forensic Science, Board of Biology, Commission on Life Sciences. *DNA Technology in Forensic Science*. Washington, DC: National Academy Press; 1992
31. American Academy of Pediatric Dentistry. Definition of dental neglect. *Pediatr Dent*. 2003;25(suppl):7
32. Sanger RG, Bross DC, eds. *Clinical Management of Child Abuse and Neglect: A Guide for the Dental Professional*. Chicago, IL: Quintessence Publishing Co, Inc; 1984
33. California Society of Pediatric Dentists. Dental neglect: when to report. *Calif Pediatrician*. 1989;(fall):31-32

All clinical reports from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

Oral and Dental Aspects of Child Abuse and Neglect
Nancy Kellogg and the Committee on Child Abuse and Neglect
Pediatrics 2005;116;1565-1568
DOI: 10.1542/peds.2005-2315

Updated Information & Services	including high-resolution figures, can be found at: http://www.pediatrics.org/cgi/content/full/116/6/1565
References	This article cites 24 articles, 6 of which you can access for free at: http://www.pediatrics.org/cgi/content/full/116/6/1565#BIBL
Citations	This article has been cited by 1 HighWire-hosted articles: http://www.pediatrics.org/cgi/content/full/116/6/1565#otherarticles
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Dentistry & Otolaryngology http://www.pediatrics.org/cgi/collection/dentistry_and_otolaryngology
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.pediatrics.org/misc/Permissions.shtml
Reprints	Information about ordering reprints can be found online: http://www.pediatrics.org/misc/reprints.shtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

