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CLINICAL REPORT

Guidance for the Clinician in Rendering Pediatric Care

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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.

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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.

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