Abstract:
Recognizing the clinical presentation of a child with abusive injuries is crucial. This review article gives an updated summary on inflicted intraoral, esophageal, and abdominal visceral injuries, including current recommendations on recognition, evaluation, screening value, and management of at risk children. Physical abuse should be suspected in precruising infants with intraoral injuries. When sexual abuse is suspected, referral to specialized centers equipped to conduct comprehensive examination and forensic testing by an experienced provider adhering to chain of evidence protocol is recommended. Abdominal trauma is the second most common cause of death in children who have been abused. The diagnosis and management of these injuries require careful consideration. Routine screening hepatic transaminases should be guided by the age of child and clinical scenario. A definitive confirmatory computed tomography scan of the abdomen and pelvis should be performed for those with transaminase levels more than 80 IU/L, or in all concerning cases with history and examination consistent with abusive abdominal trauma.

Keywords:
Child abuse; Child maltreatment; Physical abuse; Trauma; Abusive injury; Intraoral injury; Esophageal injury; Intra-abdominal injury

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Child Abuse—A Review of Inflicted Intraoral, Esophageal, and Abdominal Visceral Injuries

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National data generated from child protective service (CPS) agencies report more than 1500 children died in the United States from abuse and neglect in recent years. Further, 681 000 children were confirmed by CPS in the United States as victims of maltreatment in 2011, a number still widely regarded to be underreported because many victims are not identified or reported to CPS agencies.[1] Based on current available data, this review article serves to give an updated summary on inflicted intraoral and esophageal injuries and abusive abdominal visceral injuries, including current recommendations on recognition, evaluation, screening value, and management of at risk children for pediatricians, family medicine, and emergency medicine physicians.

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ABUSIVE INTRAORAL AND ESOPHAGEAL INJURIES

Epidemiology

More than half of all cases of child abuse involve trauma to the head, face, and neck.[2,3] Despite the high number of serious craniofacial injuries, reported intraoral injuries were much lower at 12%.[4] Naidoo et al[2] speculate that intraoral injury figures may be in fact much higher than reported, because these injuries are often overlooked due to the examining physician's unfamiliarity with the oral cavity. The oral cavity may even be a central focus for physical abuse given its significance in nutrition and communication.[5,6] Cases often do not present to the hospital, and instead are evaluated by private dentists and general practitioners.[2] The relatively quick healing time may also contribute to such injuries not being detected in their earliest presentation.

Though uncommon, intraoral injuries can also present in the form of sexual abuse. The oral cavity is a frequent site of sexual abuse in children; however, in sexually abused victims, visible oral injuries or infections are rare.[7] In a review of 95 patients reporting oral rape, only 19% of the victims were found to have sustained an oral injury.[8] Abusive injuries also occur to the pharynx, hypopharynx, and esophagus. One review reports up to 2% of abusive injuries involving these structures.[9]

Presentation

Dental Neglect

Extensive dental disease in a child should arouse suspicion of dental neglect, and may be a component of general neglect of the child. The American Academy of Pediatric Dentistry defines dental neglect as "willful failure of parent or guardian to seek and follow through with treatment necessary to ensure a level of oral health essential for adequate function and freedom from pain and infection."[5] Oral and dental conditions such as caries and periodontal disease, if left untreated, can lead to pain, infection, and loss of function.[5] Physicians often have to make the important distinction between caregivers with inadequate understanding of value to oral health and caregivers who intentionally fail to seek appropriate care. In addition, physicians have to be mindful of the many challenges a family may face when seeking dental care, including financial status, insurance status, lack of perceived value of oral health, family isolation, and access to care.[10]

Oral Manifestations of Physical Abuse

The most common abusive injuries to the mouth are lacerations and bruising to the lips. Abusive oral injuries can also present as injuries to the oral mucosa, palate and gingiva, tongue lacerations, jaw and tooth fractures, and other dental injuries. Lee et al[10,11] describe a case report of a 10-month-old child with a tongue laceration caused by an adult bite, where the arc of the bite pointed towards the lips, confirming that it could not have been self-inflicted. Discoloration of the teeth from pulp necrosis can be a sign of previous trauma.[12] Injuries may also be sustained by caustic substance or scalding liquids, or by insertion of sharp foreign objects.[5,13] Lacerations to the hypopharynx can result in air within the retropharyngeal space.[14] Posterior pharyngeal injuries may also be inflicted by caregivers to simulate hemoptysis, or other symptoms requiring medical care.[2,5] Both accidental and abusive injuries to the oral area are common. Clinicians need to determine whether the story and mechanism of injury are consistent with the characteristics of the injury and the child's developmental milestones. In the critically ill child, it is possible to have iatrogenic intraoral injuries from resuscitative efforts, but such findings are extremely rare even among patients with difficult intubations or multiple intubation attempts.[15] In the initial evaluation of a sick child, unwitnessed injury to the oral, jaw, or neck region should still increase the suspicion for abusive trauma.

Prior sentinel injuries are common in children who present later with severe physical abuse.[16] Identified child abuse victims are often victims of repeated and escalating violence rather than a single violent event. Although the first episode of physical abuse may not necessarily cause severe long-term harm, subsequent episodes may prove to be fatal. Intraoral injuries are the second most common cause of sentinel injury after bruising.[17] Case reports of lingual and labial frenula tears (Figure 1), along with the more recently described sublingual hematomas, are seen as a result