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CHILD MALTREATMENT

A COMPREHENSIVE PHOTOGRAPHIC REFERENCE IDENTIFYING POTENTIAL CHILD ABUSE

THIRD EDITION

G.W. Medical Publishing, Inc.
St. Louis

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A COMPREHENSIVE PHOTOGRAPHIC REFERENCE IDENTIFYING POTENTIAL CHILD ABUSE

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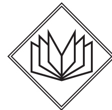

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FOREWORD

Child maltreatment is a universal problem. Throughout the world there are parents, neighbors, friends, relatives, school or church workers, and others who fail to value children. Cases of maltreatment involve all socioeconomic classes; no one is exempt.

With a scope this all-encompassing, how does one intervene effectively? These children and their families are best served when there is a collective effort by all who are called upon to respond to cases of child maltreatment. Those involved need to understand their respective roles and work together constructively. This means mutual respect and knowledge of how all parts of the system intertwine to provide the best protection for the child and family.

The knowledge base in child maltreatment is expanding each day. Whereas in the 1970s there was a paucity of literature devoted to this field, last year there were hundreds of peer-reviewed journal articles written to inform professionals of new findings. These include articles about abuse or neglect as well as conditions that can be mistaken for maltreatment, issues arising in the context of child maltreatment cases, the economic consequences of adverse childhood experiences, the long-term psychological and medical consequences of maltreatment, and the legal aspects of this epidemic. The need for reliable information has never been greater.

In this 2-volume set, child maltreatment is thoroughly described. Information necessary to understand the medical aspects of child maltreatment and the specific role of each team member is presented clearly. Included are chapters specific to healthcare providers, law enforcement personnel, child protection workers, attorneys, and others. The text attempts to reflect the most current and comprehensive knowledge base in each area.

The third edition of *Child Maltreatment: A Clinical Guide and Reference* and *A Comprehensive Photographic Reference Identifying Potential Child Abuse* represents the collaboration of many dedicated professionals. Their overarching purposes are to educate every professional involved with children about the problem of maltreatment, to elucidate the approaches that have been successful, and to provide the best outcome possible for the involved children and their families. The practical applications presented are designed to provide all that is necessary to manage complex issues surrounding child maltreatment.

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FOREWORD

Recognition of child maltreatment is essential to safeguard the well-being of children. In 1961 Henry Kempe first brought this problem to world attention, yet it still remains largely unaccepted as an epidemic. The recognition of certain findings that lead to the identification of child maltreatment is vital in its detection, treatment, and prosecution.

The Convention on the Rights of the Child guarantees children the right to a name, family, state, education, and safety, among others. However, parts of the world remain where children are not granted these basic rights. In many contexts, children are no more than commercial commodities, under the control of the adults around them. As such, they can be bought and sold and may be subjected to cruelties to enhance their commercial value, such as having their limbs cut off or their eyes blinded so they are more appealing as beggars. Harsh treatments of children may include inadequate food or shelter and punishments that threaten their life, physical integrity, or psychological well-being. Child trafficking for the purpose of enforced labor, soldiering, or prostitution is widely practiced. It affects not only nations with limited resources, but also those whose resources are almost limitless, since globalization facilitates children being traded on the world market. The facts and signs of maltreatment are plain to see in these cases, yet what is lacking is the will to name the problem and act against it. Cultural practices, lack of awareness, and systems that are geared solely to the economic gain of a few perpetuate the problem. Challenging these practices is a daunting undertaking that requires considerable resources, political will, and systemic change.

In countries where child maltreatment is manifestly illegal and where sanctions exist against the abuser, the challenge of recognition is one of detection and identification. Instances of maltreatment can be hidden, or caregivers may claim that injuries are caused by accidental events or organic illnesses. The veracity of children who disclose abuse and the expertise of professionals who testify to the features of maltreatment may be called into question. The lack of rigorous experimental studies may be cited as evidence of the unreliability of child witnesses or the ingenuousness of forensic professionals. When lies, misunderstandings, or lack of sufficient knowledge or evidence prevent a clear distinction between abuse and a more benign explanation, it is the task of the responsible professional to make this distinction clear. However, when signs of maltreatment exist or they indicate that maltreatment is at least a strong possibility, professionals must make that case and advocate for measures to ensure the child's safety. To increase the likelihood of reaching accurate conclusions, the professional must have a clear understanding of the harm attributable to maltreatment, of the mechanisms that cause injury, and of the signs that identify the lesions they produce.

Reference to this atlas will contribute to the accurate identification of abuse and, in so doing, will contribute to the wider recognition of maltreatment as a violation of children's rights, safety, and well-being. One of the benefits of globalization is that this knowledge and attitude may be disseminated so that the world can become a safer place for children everywhere.

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PREFACE

Child maltreatment evokes visual images, real or imagined, in the minds of professionals and the public. Some of these images are easily anticipated: the child with bruises, radiographs of broken bones, pictures of damaged hymens, and even the autopsy findings of the deceased child. Often they are horrific even though most child maltreatment cases are not the worst extremes. But many images are less obvious: the equipment used in child maltreatment cases, drawings by abused children, the many faces of neglect, or child maltreatment prevention images. Several of the photographic chapters in this book are relatively unique to child maltreatment texts. The goal of this photographic atlas is to give life to the content and process of child maltreatment in an attempt to expand upon the traditional ways in which child maltreatment is portrayed.

One of the advantages of visual media is that they add exactness to some situations that cannot otherwise be easily described. Seeing a photograph of an abused child informs the viewer of more than notations on a line drawing of a figure. Too often, professionals attempt to communicate by words alone, believing that they are communicating the same point, but ultimately fail to completely grasp what the other is saying. This "parallel play" can have important consequences for abused children and those at risk. One example that may be familiar to many professionals is the shaking seen with shaken baby syndrome. Many in the public, and many beginning professionals, believe they know what the shaking looks like. This is belied by some of their questions ("Couldn't it be accidental?" "Could it happen by jogging with a child in a backpack?") that show that they are thinking of "jiggle baby syndrome" instead. This belief can persist for years as the professional imagines what experts are saying. Seeing an actual doll demonstration or computer animation depicting the extreme violence that actually occurs is much better for these professionals and perhaps the public. When juries see this, they know exactly what the expert is referring to and can make their own decisions without being ignorant of what is being proposed.

Different modes of visualization can inform us in ways we are just beginning to explore. One visual aspect that should emerge more strongly in the future is the videotaping of a child who has been maltreated. While pictures of a child who is dirty, disheveled, and listless are very informative, it is even more revealing to watch a videotape of a child who is apathetic, has a sad affect, or may have various developmental delays. Still photographs of hymens have increased in quality both with an increase in photographic equipment detail and with greater experience of examiners, yet a static photograph of a genital exam evokes the question of whether a "finding" or "lack of finding" is an artifact of that instance in time. Even more importantly for the beginner, it can be hard to judge foreground and background—the problem most of us have when looking at aerial reconnaissance photographs. Put into motion, the examination looks like what we see with the real child. A product of the greater depth perception seen with motion parallax, visual perception is enhanced by retinal and visual cortex motion "detectors." Another visual modality that will become increasingly informative will be the results of "nanny cams"—the home videotapes that are beginning to capture physical abuses committed by a person when it is thought no one is looking. In a future edition, we hope to begin to incorporate some of these video possibilities into the library of what is known.

It is our hope that this atlas will be seen as providing an overview of the possibilities within the world of child maltreatment today. Read straight through, or used as a reference, the information contained within should help broaden horizons and help professionals in the field more clearly understand the many aspects of child maltreatment.

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Reviews of the Third Edition

Whether in an intensive care unit caring for a child abuse victim, providing training, or testifying as an expert witness, there is one resource that I know I can cite as a reliable reference, and that is Child Maltreatment. *This is the most outstanding text of its kind, and provides a complete review with relevant references on all aspects of the medical diagnosis and treatment of child abuse and neglect. I recommend* Child Maltreatment *to all members of an investigative multidisciplinary team and consider it a mandatory resource in any medical, social science, or criminal justice library.*

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This publication presents a comprehensive look at the issues involved in cases of child maltreatment, emphasizing the contemporary importance of this subject together with reviewing the multidisciplinary techniques for forensically detecting as well as addressing the needs of victims of such maltreatment. The text provides professionals in the fields of law, social science and the healthcare industry with invaluable source materials when confronted with suspected child maltreatment.

Faye Battiste-Otto, RN, SANE
President, American Forensic Nurses
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Angelo Giardino and his interdisciplinary team of colleagues have continued to improve on an already exceptional collection of essays focused on the nature, extent and seriousness of child maltreatment in the United States and other economically advanced countries. In addition to providing the reader with a deep understanding of the complex forces that contribute to child maltreatment, the volume's chapters offer clinicians and policy makers alike state-of-the-art guidance in preventing and caring for children who become victims of abuse and neglect. Dr. Giardino and his colleagues are to be congratulated for their pioneering contributions in helping to halt the current epidemic of child maltreatment cases.

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Chair, Concentration in Social and Economic Development
Director, International Programs
University of Pennsylvania School of Social Work
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This edition of Child Maltreatment *builds on the terrific start provided by James Monteleone with an expansion that is up-to-date, complete, and provides the best available information from an extraordinary group of contributors. It is a "must," not only for specialists in the field of child abuse and neglect, but for all health professionals who provide care to children.*

Richard Krugman, MD
Dean of Medicine
University of Colorado School of Medicine
Denver, Colorado

This 3rd edition of Child Maltreatment *includes the very latest in research and clinical issues related to the injury and exploitation of children. The editors have gathered the best and the brightest authors in the field to write the chapters and the volumes contain essential knowledge for students and clinicians. It is designed to be a reference and resource for all agencies that assist and manage child maltreatment issues.*

Ann Wolbert Burgess, RN, DNSc, CS
Boston College Connell School of Nursing

The third edition of this vital reference designed for child maltreatment professionals contains new, cutting-edge, and evidence-based information. Comprised of 2 volumes with a total of 62 chapters, Child Maltreatment: A Clinical Guide and Reference *and* A Comprehensive Photographic Reference Identifying Potential Child Abuse *covers virtually every aspect of child physical, sexual, and psychological abuse, child neglect, and service delivery systems that either encounter or address child maltreatment. This reference work should be in the library of every professional concerned with the problem of child maltreatment.*

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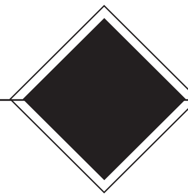

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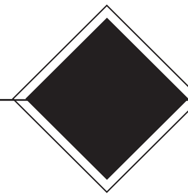

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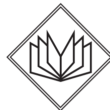
CHILD MALTREATMENT

A COMPREHENSIVE PHOTOGRAPHIC REFERENCE IDENTIFYING POTENTIAL CHILD ABUSE

THIRD EDITION



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Chapter 1

Bruises and Other Skin Injuries

Charles Felzen Johnson, MD

Manifestations of Physical Maltreatment on the Skin: Impacts and Other Contacts

Parents' or caretakers' reactions to unwanted behaviors from a child may be manifested by an unplanned and immediate physical or verbal attack on the child. If the attack does not result in any persistent tissue injuries, such as a bruise, there will be no record of the injury. Consequently, the injury may be considered insignificant or not serious enough to constitute a report of suspected abuse. For example, a slap to the face should be considered inappropriate because of the vulnerability of the delicate structures of the face and the impact's potential to harm the brain. Erythema from a slap to the face will fade in minutes to hours depending on the force used.

The objects used in a physical attack generally are readily available. The hand requires no preparation for an attack on a child. It can be used in an open manner as a slap or in a fist as a punch. The hand can grab, pinch, and twist the skin. Nails can gouge and scratch. Common objects around the house varying in size and shape can be wielded by hand. Depending on where and how they impact the skin, the marks they leave may be in silhouette or outline form. For example, a flat object impacting the buttocks, lower back, or chest will leave varying marks on each surface, such as a round mark on the buttocks, a row of round marks on the lower back from the spinous processes that are under the skin of the back, or a series of lines mirroring the underlying ribs.

Other parts of the body may be used to injure a child. Mouths may be used to bite or suck on a child's skin. Occasionally, a knee may kick or strike a child or arms may be used to crush a child against a caretaker's chest. Impacts to areas of the body where bones are not immediately under the skin, such as the abdomen, may not show topical marks. Parents may apply folk remedies to the skin that result in tissue injury. Physicians who care for children must be familiar with the marks left by various objects that indicate abuse and those skin conditions that may mimic intentional injury.

Bruises

Case Study 1-1

This boy of 2 years and 7 months was removed from his home because of neglect. The mother is HIV positive. The caseworker saw bruises on the child's face and referred him for evaluation. During the examination the child had a grand mal seizure.

Figures 1-1-a *and* ***b****. 2 cm oval brown bruises on both sides of the face, lacerations on both ear lobes, and red abrasions are seen on the lower lip and under the left chin.*

Figure 1-1-c*. The pattern of the bruises is best seen by applying circles over the bruises in a computer graphics program. The pattern is compatible with blunt impact from fingertips. The other injuries are indicated with applied arrows.*

Figure 1-1-d. *Further examination revealed bruises on the hips, penis, and scrotum. It may be difficult to determine if bruises to the genitalia result from a physical or sexual assault. The marks on the penis and scrotum are likely to be from pinching. The cause of the hip bruises is unknown. Bruises from impacts are more likely to manifest on the hips because they, like the shins, brow, chin, and forehead, are areas where the skin is close to underlying bone.*

Figure 1-1-e*. The examination for findings of physical abuse should include thorough examination of the genitalia and anus. In this child, new fissures surround the anus. The perianal area is erythematous. A red and blue bruise is seen on the right buttock. This boy has been anally penetrated.*

Review of the chart revealed a seizure disorder on medication. Blood studies were ordered to determine if the child was being given prescribed medication. A failure to give prescribed medication should be reported as medical neglect. A head CT scan was normal. Bruises on different surfaces cannot be compared with each other for dating. The brown bruises on the cheeks may have been older than the red purple bruises seen on other body parts. It is possible that the injuries to the cheeks and hips occurred in the process of attempted rectal penetration. The fingertip marks on the face are likely to have been caused as a way to hold the child still. They are not slap marks. (See **Figure 1-17** for an example of slap marks.) To determine if the marks on the scrotum and penis were from sexual abuse, one would need to know the intent of the perpetrator. Suspect physical abuse and sexual abuse were reported. The child was too young to interview. There were no other children in the home.

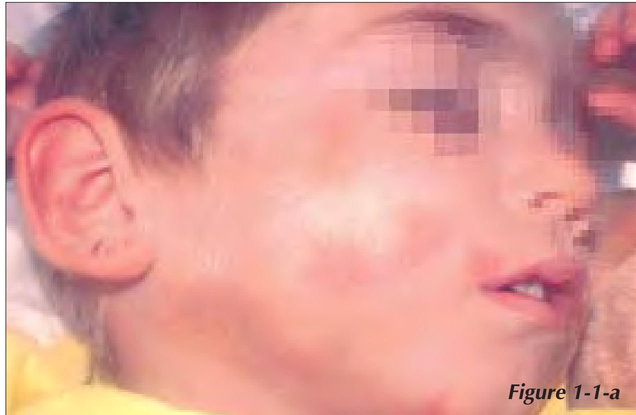
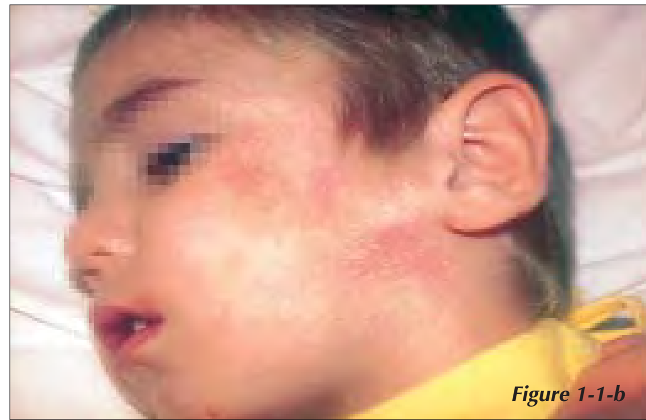


Figure 1-1-a



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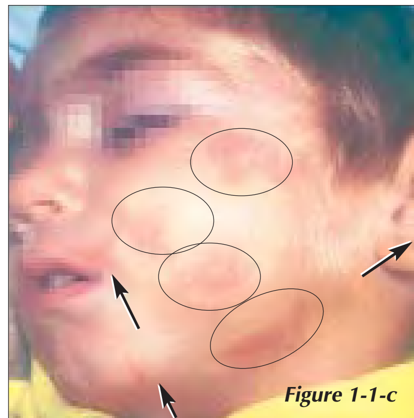
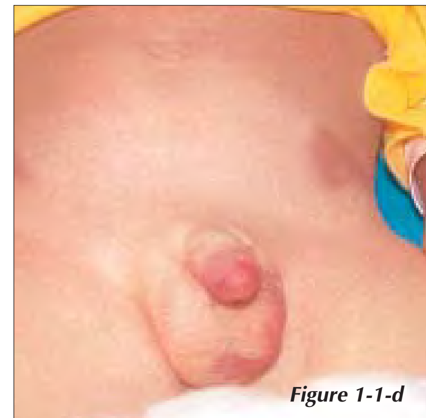


Figure 1-1-c



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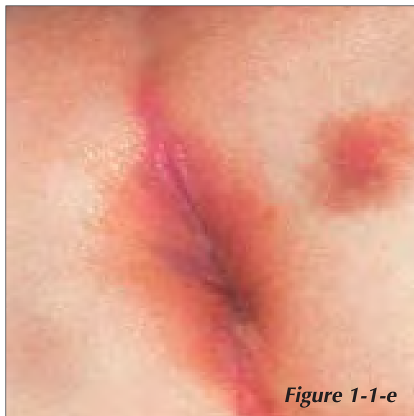

Figure 1-1-e

Chapter 2

Burns Part 1

Matt Young, MD

Children who are burned abusively are marked or branded with the outward manifestation of parental violence, emotional imbalance, impulsivity, educational and cultural deprivation, and poverty. Intentionally burning a child is controlled and premeditated. Abusive burns cause both physical and emotional trauma at the time of the incident, and often produce long-term physical and psychological scarring.

Abusers who burn typically are educationally deprived, abuse women (if male), and may be isolated, suspicious, rigid, dependent, or immature. They often display more concern for themselves than the child, frequently show little remorse, and are evasive and contradictory. They generally do not volunteer information, seldom visit the child in the hospital, and rarely ask questions about the child's condition. By contrast, parents whose child is accidentally burned usually blame themselves for a lack of supervision and may display a profound sense of guilt.

The 6 categories of burn injuries are: flame, scald, contact, electrical, chemical, and radiation (eg, sunburn from ultraviolet radiation). Abusive burns generally cluster in the scald and contact categories, although there are reports of other types of burns. Children's skin is much thinner than adult skin, so serious burning occurs more rapidly and at lower temperatures. Electrical burns can be deceptive since trauma may not always be outwardly apparent. Electricity follows the path of least resistance, and skin is a natural resistor to electrical flow. Nerves, muscles, and blood vessels, however, are good conductors and more susceptible to electrical trauma. Electrical flash burns are caused when the current is shorted, producing a very brief, high-intensity fireball that causes thermal injury. Flash burns char the superficial layers of skin, but usually do not cause destruction of deep tissues.

Medical treatment of the injury must be the first priority with burn patients. Once these needs are met, efforts can be directed toward obtaining an accurate history from witnesses and family members. Investigators must carefully outline the time, nature, extent, and location where the burn occurred. It also vital that medical personnel note the exact shape, depth, and margins of all wounds, including all body parts involved. Immediate attention to these details can prove to be invaluable when drawing a later distinction between an abusive and accidental injury.

Children need to feel like they are in a safe environment and they are not going to be hurt again. It is best to begin by asking them general questions, such as: How did you get hurt? Specific questions should be asked only after they have had the opportunity to tell their story. Another important question to ask is: Is there anything that you are not supposed to tell me?

Another important factor to consider in the examination of a child is the length of time it takes for a second- or third-degree burn to occur relative to the temperature of a given liquid (**Figure 2-1**). Consideration of time and surface temperature in determining the causation of burns can indicate whether or not the burns are abusive

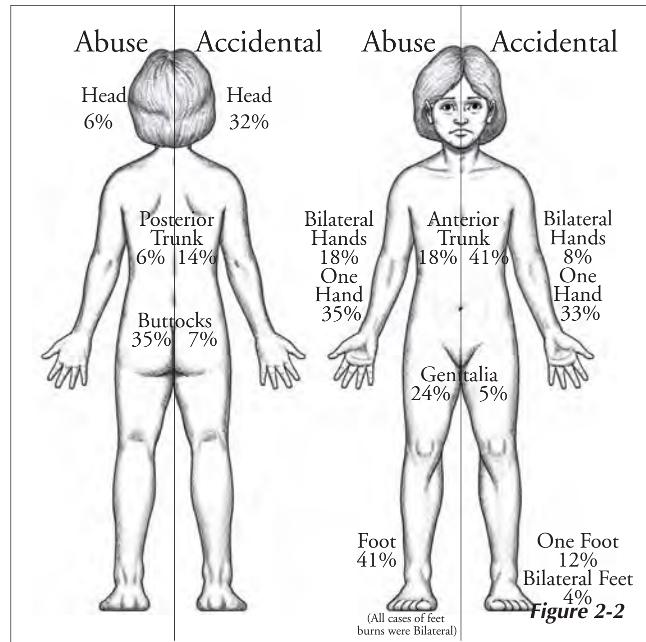

__Figure 2-1.__ Length of time required for second- and third-degree burns to occur when exposed to liquids of varying temperatures, reinforcing the relative importance of time and surface temperature in the causation of cutaneous burns.

__Figure 2-2.__ Diagram of anterior and posterior body surfaces with the results of the Grossman Burn Center Study that was presented at the American Burn Association Annual Meeting in 1999. It represents the frequency of involvement of different body parts with a comparison between accidental and abusive burns.

or accidental. The location of the burn on the surface of the child's body is also key information when determining if injuries are the result of abuse (**Figure 2-2**). It is significant to note that the head and thoracoabdominal region are more likely to be involved in accidental burns, whereas the buttocks, genitalia, bilateral hand, and bilateral feet burns are much more likely to be related to abuse.

Accidental scald burns of the trunk usually involve the anterior surface of the body. In most cases, hot liquid is spilled onto children when they pull a tablecloth edge, causing a hot liquid to spill over and burn them from the table. Gravity causes a linear burn pattern and clothing affects the burn pattern and severity as it insulates the skin. Hot liquid may pool in the diaper area resulting in an unusual burn pattern.

In a physical exam, the most common indicators of abuse are burns to the genitalia and buttocks, mirror image burns of the extremities, in addition to bruises, welts, or fractures. The most important determination to make in distinguishing between accidental and inflicted burns is whether the pattern of the burn is consistent with the history given by caregivers. When a child presents with a burn and one or more of the following factors are found, the evaluator should consider abuse:

1. Multiple hematomas or scars in various stages of healing
2. Concurrent injuries or evidence of neglect such as malnutrition and failure to thrive (Especially suspicious are bone injuries such as old rib fractures and distal tibial, metaphyseal, or spiral fractures.)
3. History of multiple prior hospitalizations for "accidental" traumas
4. An inexplicable delay between time of injury and first attempt to obtain medical attention (In some cases, if the parent has medical training, such as an RN or MD, the delay may be because the parents initially tried to care for the burn on their own.)
5. Burns appearing older than the alleged day of the accident, similarly indicating ambivalence about seeking care due to the possible risk of exposure of the abuse
6. An account of the incident not consistent with the age or ability of the child

Chapter 3

HEAD INJURIES

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Wilbur Smith, MD
Swati Shah-Mody, MD

Abusive head injury has several synonyms, including shaken baby syndrome, shake impact syndrome, and non-accidental brain trauma. Regardless of the label, abusive head injury frequently results in serious and permanent brain damage. The forces to which the infant's brains are subjected are severe. The prevalence of abusive head injury is highest in children younger than two years of age, probably because the size of an older infant makes it difficult to create the extreme forces necessary to inflict such severe injury to the brain and its coverings.

When evaluating abusive head injury, it is best to consider each injury individually since it involves the internal layers of tissue as well as those surrounding the brain. While this is a logical approach to describing the injuries, it is important to recognize that multiple anatomical areas of injury are the rule, not the exception.

External to the brain, the scalp is often the site of a subgaleal hemorrhage after impact. Hemorrhage into the scalp creates the proverbial "egg" on the scalp. The subgaleal space is a large potential space; therefore, the blood often flows into a dependent region. This explains why the palpable or visible bump is not always in the region of the trauma. Unless the child has a bleeding disorder or some other abnormality, the presence of a subgaleal hematoma always suggests that there was an impact injury. There is another, less common variant of scalp injury: the cephal-hematoma, which is a hemorrhage in the subperiosteal space, external to the bone but localized anatomically to the bone since it is confined by the periosteial layer of each bone of the skull. Cephalhematomas are rarely seen in child abuse and always remain local to the area of hemorrhage or impact.

The skull serves to protect the brain and is often fractured if the injury involves impact. Skull fractures typically associated with abusive head injury are similar to those due to high velocity impact. These fractures are long (longer than 5 cm), stellate (many limbs from one point of impact) or diastatic (the edges of the fracture are widely spread). It is possible to have skull fracture from a short fall. In rare cases, some overlap of features between high impact and short fall injuries may occur; however, the presence of long, stellate, or diastatic fractures should lead to enhanced suspicion if they are ascribed to a short fall.

The epidural hematoma is an unusual injury in child abuse. This type of hematoma occurs because of bleeding, usually arterial, into the epidural space between the inner table of the skull and the dura mater. This lesion is classically associated with a lucid interval and skull fracture. The theory of the lucid interval is that the initial impact causes the fracture and concussion, rendering the victim unconscious. The subsequent bleeding from ruptured branches of the middle meningeal artery then causes a hematoma, which subsequently causes further deterioration of mental status after the patient stabilizes from the concussion.

The subdural hematoma (SDH) is a hallmark of abusive head inury and is the most frequently diagnosed intracranial injury in child abuse. Bleeding in the subdural

Head Trauma

Case Study 3-1

This 5-month-old girl was beaten to death with a broom by her father in a domestic argument with her mother. These photographs were taken at autopsy.

Figures 3-1-a, b, c, *and* ***d.*** *Bruises are seen on the face. Pattern injuries, especially on the right eye, are indicative of a broom. Frequently, subgaleal hemorrhage (blood beneath the scalp) is seen with external injuries such as these. If the subgaleal bleeding is extensive enough, it may be seen on CT scans or at autopsy upon reflecting the scalp backwards.*

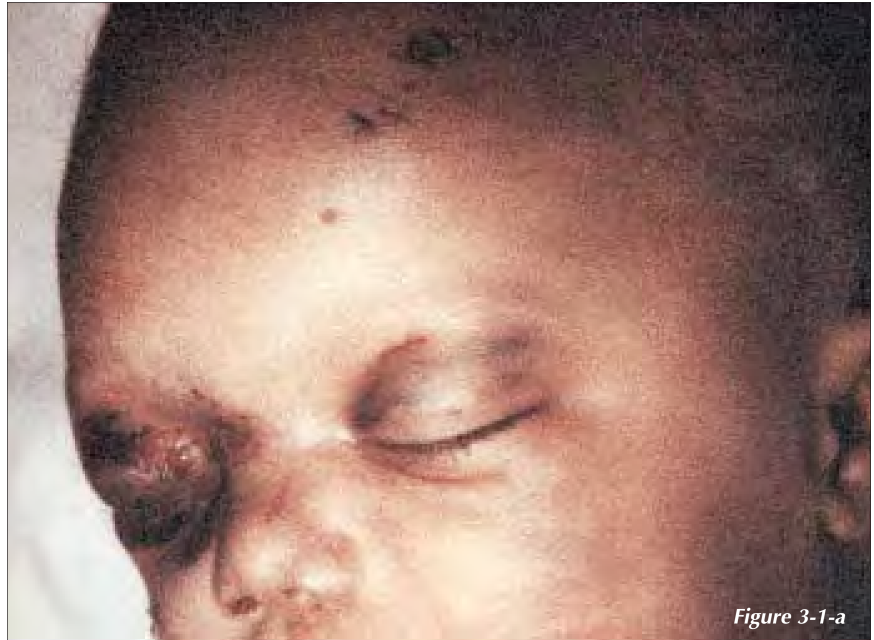
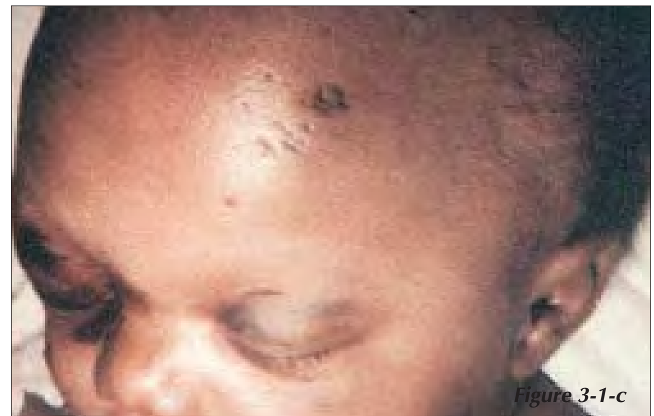


Figure 3-1-a

Figure 3-1-b



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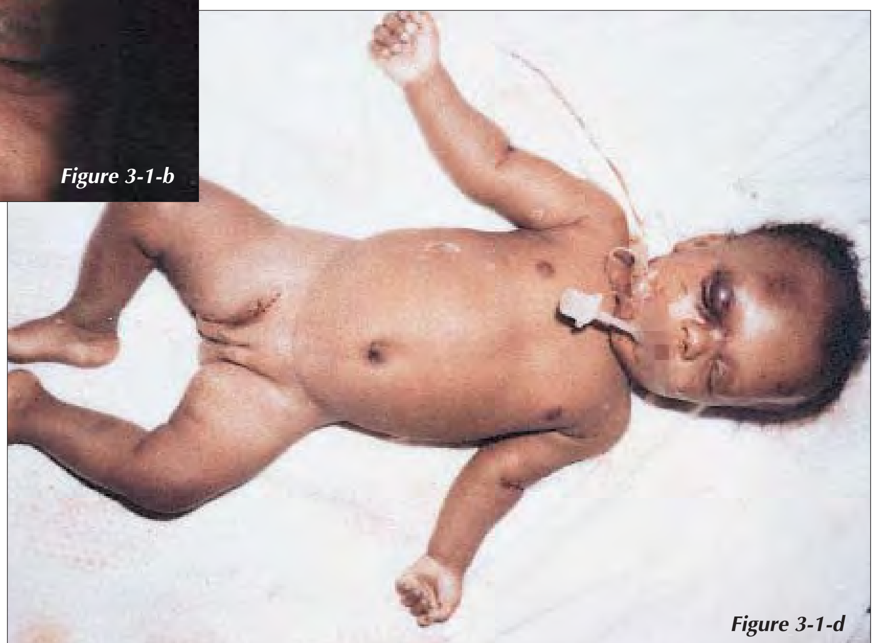

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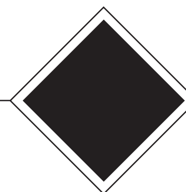

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