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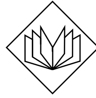
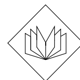


Child Abuse

Pocket Atlas Series

Volume One

Skin Injuries



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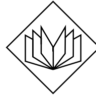

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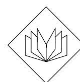

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Preface

In the US, there is an attitude of tolerance of parental violence toward children. It is not uncommon to hear caregivers say "Spare the rod, spoil the child" when justifying corporal punishment. This phrase is often misquoted and misinterpreted from Proverbs 13:24: "He who spareth the rod hateth his son: but he that loveth him correcteth him be times." Most theologians would explain that this passage's true meaning is about discipline, a word whose root is "disciple," which means teacher. Parents need to teach their children right from wrong, so that they develop a strong moral character. What does it say about society when an adult who walks into a bar and slaps another patron across the face may be charged with assault, but a parent in a supermarket who slaps their child is exercising their parental right?

Many states still allow a parent to physically discipline a child by striking him/her with an object; other states specify that the object can only strike a child's thighs or buttocks as long and cannot leave a bruise; and some states allow for bruising, as long as it is not excessive. What does that mean and who makes that decision?

Corporal punishment is not effective. It teaches children that those who are bigger than you are entitled to hurt you. It encourages children to lie in order to avoid physical pain. And most caregivers are not in control when they are physically disciplining a child. They are angry and frustrated. As a result, children are injured, sometimes fatally. In contrast, the American Academy of Pediatrics has a guideline about when inflicted skin injuries constitute abuse: almost any bruise, however small.

Nineteen states allow corporal punishment in public schools some do not even require parental permission. This practice is both demeaning and dangerous, and it has not been shown to be effective. It is worth noting that 5 out of the top 7 states with the highest rates of maltreatment deaths allow corporal punishment in schools.

Although most childhood burns result from inadequate supervision, inflicted burns are a particularly heinous form of physical abuse. Whether immersing an infant or child in scalding water or applying a hot object to their skin, one has to assume that the intent of the caregiver was purely to inflict pain. Burns are not only painful, they can leave permanent scarring, a reminder of abuse.

It has been said, "It takes a village to raise a child." In order to effect change, it must take a nation to protect a child. We have come a long way since the New York Society for the Prevention of Cruelty to Children was established in the late nineteenth century. There

are now serious child abuse laws, improved mandated child abuse curricula for daycare professionals and health care providers, increased training on recognizing child maltreatment for law enforcement and child protective services investigators, and since 2009, there is a new American Board of Pediatrics subspecialty, Child Abuse Pediatrics. We need to recognize that child abuse and neglect is the most important health problem affecting the future of our nation and take action to prevent it.

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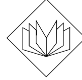

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Chapter 1

Burn Injuries

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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. Individuals who burn children 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 unintentionally burned usually blame themselves for a lack of supervision and may display a profound sense of guilt.

Burn injuries can be divided into 6 categories: 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, therefore, are 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.

The first priority for the burned victim is to medically treat the injury. Once accomplished, efforts can then be directed toward obtaining an

accurate history from witnesses and family members, specifically, the timing, nature, extent, and location of the burn. Medical personnel must document the exact shape, depth, and margins of all wounds and include all affected body parts. Immediate attention to these details may prove invaluable when ascertaining whether the burn resulted from an abusive or unintentional injury.

Medical providers may choose to interview the child victim. It is important that the child's safety is assured and that they will not be longer be harmed. General open-ended questions are preferred, eg, "How did you get hurt?" More detailed, specific questions may be asked after the child victim has had the opportunity to tell their story. It is also important to ascertain whether the child has been coached or threatened, if they tell.

Other important factors to consider when examining a burn victim, 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 1-1**), the

Figure 1-1. *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.*

surface temperature, and the location of the burn on the child's body (**Figure 1-2**). The head and thoracoabdominal region are more likely to be involved in unintentional burns, whereas buttocks, genitalia, bilateral hand, and bilateral feet burns are much more likely to be related to abuse. Unintentional scald burns of the trunk usually involve the anterior surface of the body. In most cases, a child pulls a tablecloth edge, causing a hot liquid to spill over and burn them from the table. Gravity causes an inverted triangle burn pattern. Clothing may affect the burn pattern and severity as it insulates the skin. Hot liquid may pool in the diaper area resulting in an unusual burn pattern. The most common indicators of abuse are burns to the genitalia and buttocks, and mirror image burns to the extremities. Bruises, welts, or fractures may also be present. The most important factor in distinguishing abusive from unintentional burns is determining whether the burn pattern is consistent with the history given by caregivers.

A medical provider should consider abuse when the following are present:

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 old rib fractures and distal femoral or tibial metaphyseal, or transverse fractures.)

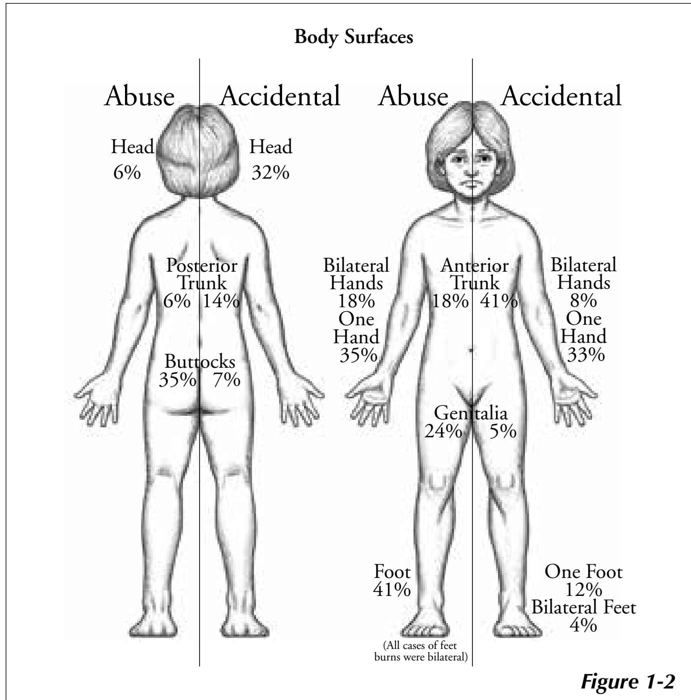

Figure 1-2. *Diagram of anterior and posterior body surfaces with the results of the Grossman Burn Center Study that was presented at the American Burn Association Annual Meeting in 1999. It represents the frequency of involvement of different body parts with a comparison between unintentional and abusive burns.*

3. History of multiple prior hospitalizations for "unintentional" traumas
4. An inexplicable delay between time of injury and first attempt to obtain medical attention (In some cases, a caregiver with medical training may delay as they initially tried to treat the injury themselves.)
5. Burns which appear older than the alleged day of the incident, similarly indicating ambivalence about seeking care due to the possibility of the true etiology of the burn being revealed
6. An account of the incident which is not consistent with the age or developmental ability of the child
7. Allegations by the responsible caregivers that there were no witnesses to the incident and the child was merely discovered to be burned
8. History of relatives other than the parents bringing the injured child to the hospital or a nonrelated caregiver bringing the child (excepting a proper explanation, such as a babysitter caring for a child while the parents are out of town)
9. Burns attributed to the action of a sibling or other child (Although this is often an explanation from parents or other caregivers for abusive burns, it should also be noted that siblings can be abusive.)
10. An injured child who is excessively withdrawn, submissive, overly polite, or does not cry during painful procedures
11. Scalds of the hands or feet, often symmetrical, that appear to be full thickness in depth, suggesting that the extremities were forcibly immersed and held in hot liquid
12. Isolated burns of the buttocks or perineum and genitalia, or the characteristic doughnut-shaped burn of the buttocks
13. Conflicting or changing explanations offered by the responsible caregivers

The burns presented in this chapter illustrate patterns found in abusive burns as well as unintentional burns. The inability to match the caregivers' description to the patterns observed usually reveals the abusive nature of these intentional burns. The young ages of these victims are typically seen with abusive burns.

Immersion Burns

Stocking-Glove Pattern

Case Study 1-3

This 11-month-old male presented with bilateral submersion burns of the hands. The initial history given by the mother was that the child had been burned when he spilled hot coffee on himself. The injury was not consistent with a spill and indicated an inflicted submersion burn. The child's hands were immersed in a pot of scalding water.

Figure 1-3-a. *Note the distinct line of demarcation between the burned and unburned areas.*

Figure 1-3-b. *Note that all digits of both hands are burned.*

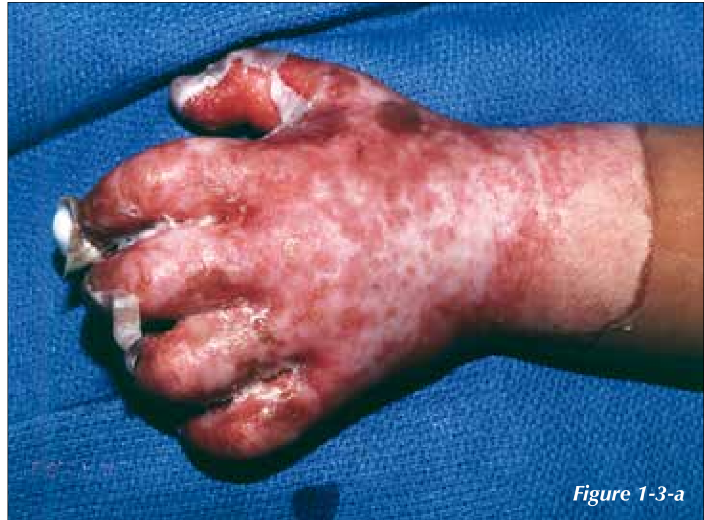

Figure 1-3-a

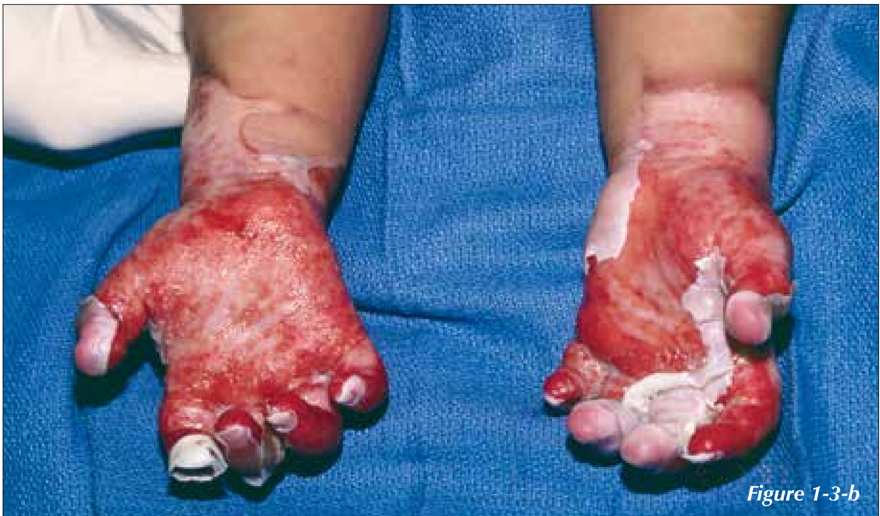

Figure 1-3-b

Immersion Burns

Stocking-Glove Pattern

Case Study 1-4

This 20-month-old girl was in the care of her mother's boyfriend. He stated that she was sitting in about 4 inches of bathwater when he left the room momentarily. He returned to the bathroom when he heard the child cry and noted that the hot water had been turned on. His explanation was inconsistent with her injuries, which were clearly caused by submersion. The abusive nature of the injuries was evidenced by the stocking-glove pattern and the spared portion of skin in the popliteal area of the left leg, which was protected by either the girl flexing her leg or the boyfriend's hand as he dipped her into the water.

***Figures 1-4-a, b,** and **c.** Stocking-glove pattern burns on both legs of the infant.*

Figure 1-4-a

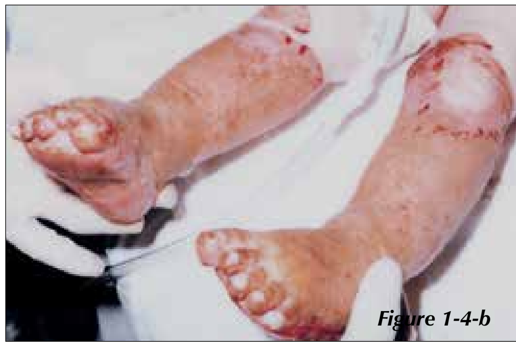

Figure 1-4-b

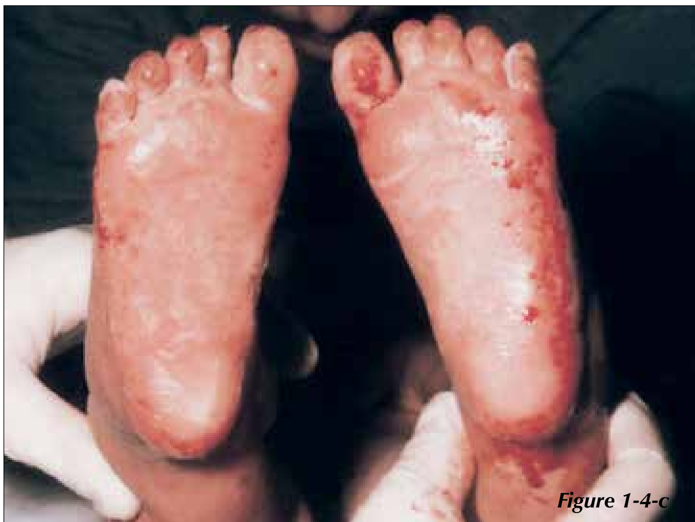

Figure 1-4-c

Case Study 1-5

The caregivers of this 18-month-old boy stated that the child sustained these burns when he turned on the hot water in the bathroom sink. The bilateral stocking-glove pattern, however, was indicative of immersion burns. The caregivers later admitted to intentionally immersing the boy's hands in hot water as a form of punishment.

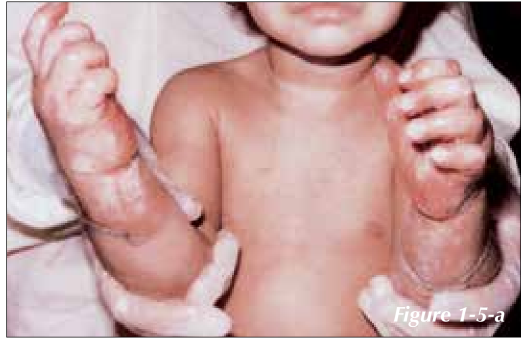
Figure 1-5-a

Figure 1-5-a. *Bilateral stocking-glove pattern burns on the boy's hands and forearms.*

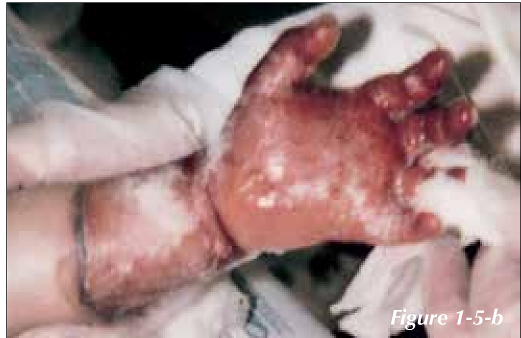
Figure 1-5-b

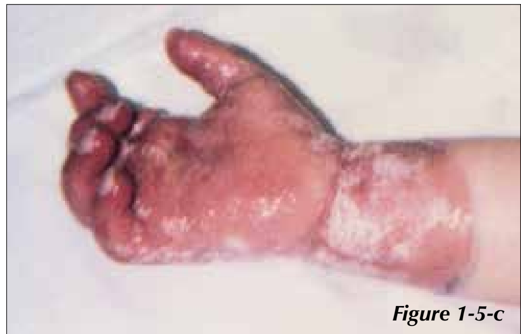
Figure 1-5-c

Figures 1-5-b *and* ***c.*** *The palms of each of the boy's hands are severely burned.*

Case Study 1-6

This 20-month-old boy was seen for a healed immersion burn. The caregiver stated that it was caused by splashing hot water. However, the stocking-glove pattern was indicative of an immersion burn.

Figure 1-6. *Stocking-glove pattern burn 3 weeks after the injury took place. The skin has been grafted and is healing.*

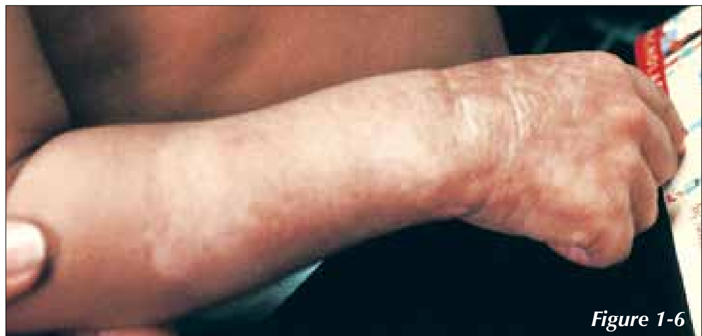
Figure 1-6

Immersion Burns

Stocking-Glove Pattern

Case Study 1-7

This 6-year-old girl was held in a bathtub of scalding water by her mother's boyfriend while the mother was away from home. The mother's boyfriend stated that the child had slipped on some soap in the bathtub. In the presence of her mother and the boyfriend, the child initially corroborated the boyfriend's history. Once separated from them for an interview, the child made the following disclosures.

When asked "When you were in the bathtub, did it hurt?" the child replied, "Yes." When asked "Did you cry?" she replied, "No." When asked why not, she said, "Because I had tape on my mouth." The child stated that the boyfriend used electrical tape to cover her mouth and bind her wrists and ankles prior to being submerged in the scalding water.

The boyfriend was later convicted and sentenced to a life term.

Figure 1-7-a. *The child's legs at the time of admission, less than 8 hours after the incident, revealing blistering and redness. The full severity of the scald burn may not become apparent until 24 to 48 hours after the event.*

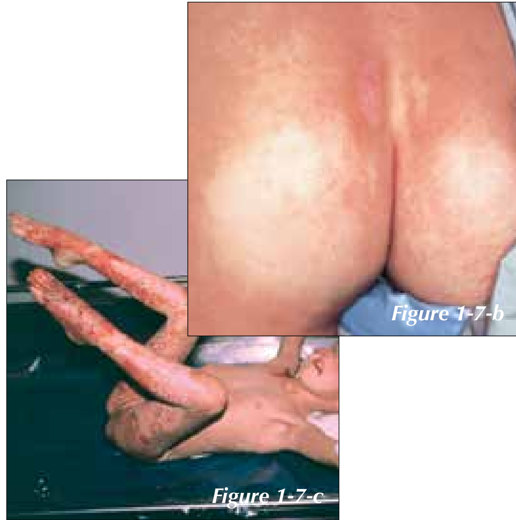

Figure 1-7-b. *Note the initial appearance of the doughnut-shaped pattern, the circular areas of unburned skin on the child's buttocks. This is the result of the buttocks being held forcibly against the cooler surface of the bathtub bottom. This doughnut pattern is an important indicator of abuse; however, it may not be present in all abusive burn injuries. A child can be held in scalding water without being forced to the bottom of the tub, which would produce burns to the entire buttocks.*

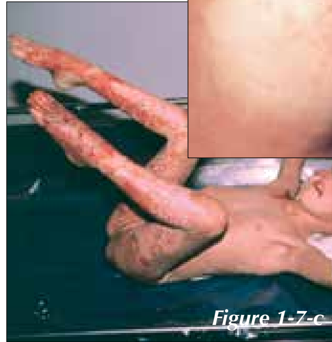

Figure 1-7-c. *After 24 hours, the burns show evidence of much more necrotic skin, represented by the white areas.*

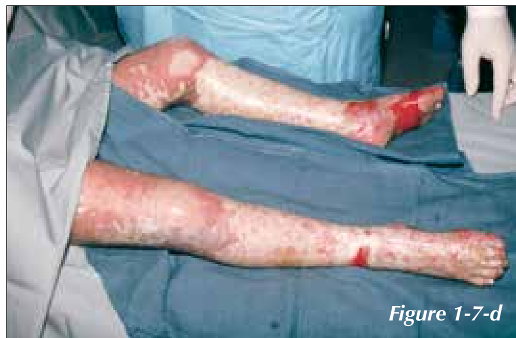

Figure 1-7-d. *The burns at 48 hours become better demarcated. Note the area of the left ankle that is not burned; this supports the child's statement that her ankles were covered with electrical tape.*

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