

in healthy children generally are distributed over bony prominences; bruises that occur in an unusual distribution, such as isolated to the torso, ears or neck, should raise concern. Bruises in nonambulatory infants are unusual, occurring in less than 2% of healthy infants seen for routine medical care. Occasionally a subtle bruise may be the only external clue to abuse and can be associated with significant internal injury.

Burns are common pediatric injuries and usually represent preventable unintentional trauma (see Chapter 44). Approximately 10% of children hospitalized with burns are victims of abuse. Inflicted burns can be the result of contact with hot objects (irons, radiators, or cigarettes) but more commonly the result of scalding injuries (Fig. 22-2). Hot tap water burns in infants and toddlers are sometimes the result of intentional immersion injuries, which often occur around toilet training



Figure 22-1 Multiple looped cord marks on a 2-year-old abused child who presented to the hospital with multiple untreated burns to the back, arms, and feet.

issues. These burns have clear lines of demarcation, uniformity of burn depth, and characteristic pattern.

Inflicted fractures occur more commonly in infants and young children. Although diaphyseal fractures are most common in abuse, they are nonspecific for inflicted injury. Fractures that should raise suspicion for abuse include fractures that are unexplained; occur in young, nonambulatory children; or involve multiple bones. Certain fractures have a high specificity for abuse, such as rib, metaphyseal, scapular, vertebral, or other unusual fractures (Fig. 22-3). Some metabolic diseases can be confused with abuse and should be considered in the differential diagnosis when appropriate.

Abdominal injury is an uncommon but serious form of physical abuse. Blunt trauma to the abdomen is the primary mechanism of injury, and infants and toddlers are the most common victims. Injuries to solid organs, such as the liver or pancreas, predominate and hollow viscus injury occurs more commonly with inflicted trauma than accidental. Even



Figure 22-2 A 1-year-old child brought to the hospital with a history that she sat on a hot radiator. Suspicious injuries such as this require a full medical and social investigation, including a skeletal survey to look for occult skeletal injuries and a child welfare evaluation.

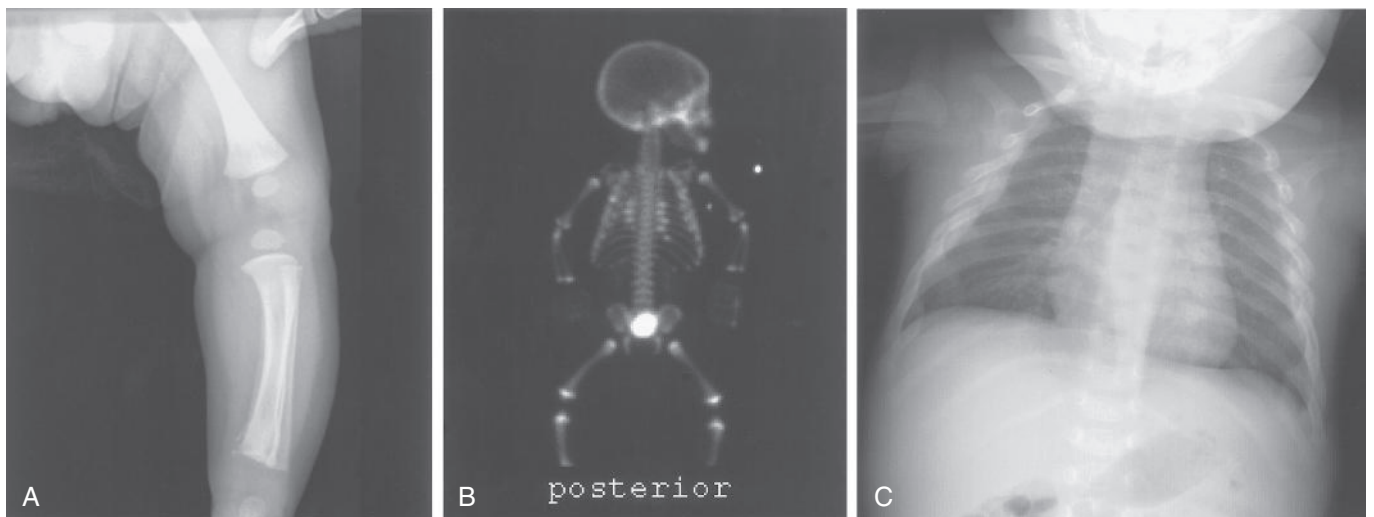


Figure 22-3 **A**, Metaphyseal fracture of the distal tibia in a 3-month-old infant admitted to the hospital with severe head injury. There also is periosteal new bone formation of that tibia, perhaps from a previous injury. **B**, Bone scan of same infant. Initial chest x-ray showed a single fracture of the right posterior fourth rib. A radionuclide bone scan performed 2 days later revealed multiple previously unrecognized fractures of the posterior and lateral ribs. **C**, Follow-up radiographs 2 weeks later showed multiple healing rib fractures. This pattern of fracture is highly specific for child abuse. The mechanism of these injuries is usually violent squeezing of the chest.