Picture of the Month

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Two fingers of a 6-week-old infant were noted to be discolored, “black and red,” following removal of mittens (Figure 1) that had been placed on both hands 48 hours earlier to prevent involuntary excoriations of the face by his fingernails. The infant’s mother had been advised by her mother-in-law not to trim his fingernails because, according to Hispanic folklore, it is believed that trimming the fingernails of an infant younger than 40 days old may result in poor vision. The infant had exhibited no unusual fussiness or irritability during this time.

The distal phalanx of the left index finger appeared denuded with surrounding erythema (Figure 2). The distal phalanx of the right index finger was necrotic distal to a piece of thread attached circumferentially. Surgical debridement and amputation of the distal phalanx were required (Figure 3). The third toe of another infant with an earlier stage of the same problem is shown in Figure 4.

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Hair-Thread Tourniquet Syndrome

Figure 1. The mittens worn by the infant are turned inside out to show the presence of loose threads.

Figure 2. The distal phalanx of the left index finger is denuded. A circumferential constriction of the skin is noted below the area of skin loss.

Figure 3. The distal phalanx of the right index finger has been amputated.

Figure 4. The distal portion of the third toe is swollen and erythematous. A strand of hair is apparent.

Hair-thread tourniquet syndrome is the term coined to describe the phenomenon caused by a strand of hair or thread tightly wrapped around an appendage. The resulting constriction, if not recognized and promptly removed, may lead to tissue loss or amputation of the affected appendage. Although infants are most frequently affected by this problem, cases in children aged 6 years have been reported. Hair-thread tourniquet syndrome crosses cultural, economic, and gender barriers and has been reported from several countries, including Spain, Greece, France, Australia, England, and the United States.

Most cases reported in the literature seem to be accidental in nature, although child abuse must be considered, especially with involvement of the penis. Hair or loose thread is most prone to wrap around an appendage when the appendage is confined in a tight-fitting garment. As the hair or thread wraps around the appendage, lymphatic drainage may be impeded, which results in swelling, venous outflow obstruction, and eventually, restriction of arterial flow. Loss of arterial blood supply may lead to loss of the appendage. As the swelling develops, the constricting band may become imbedded in the tissue of the appendage or even cut through the skin, making it difficult or impossible to discern.

In a review of 66 cases from the medical literature, 28 (43%) involved toes, 16 (24%) involved fingers, and 22 (33%) involved external genitalia. The median age of infants with toe involvement was 4 months (range, 20 days to 15 months), while the median age of infants with finger involvement was 3 weeks (range, 4 days to 19 months). Hair was the cause of the constriction in 79% of infants with toe involvement, while thread was responsible for 80% of the cases involving fingers. The penis was the appendage constricted in 21 of the 22 reported cases involving genitalia; hair was the responsible agent in 95% of the cases. The median age of penis involvement was 2 years (range, 4 months to 6 years).

Infants with hair-thread tourniquet syndrome may be irritable or display no unusual behavior. The digits of infants with unexplained crying or irritability should be carefully examined for this problem. Most often it is the discovery of swelling or discoloration of the appendage noted by caretakers while changing the infant’s clothing or during bathing that brings the problem to attention. Prompt recognition of the tourniquet effect and removal of the offending constricting agent are critical to prevent damage to or loss of the appendage. Careful examination of the site of constriction is necessary to assure that all strands of hair or thread are removed. Surgical incision may be necessary to assure release of the constricting agent.

As part of anticipatory guidance, parents should be alerted to the danger of using mittens or booties with loose threads or fibers. Coverings should not be used on infant’s extremities for extended periods of time without careful inspection of fingers and toes.

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REFERENCES