



# A Case of a Baby Care-Related Accident: Hair-Thread Tourniquet Syndrome

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**Cite this article as:** Uymur EY, Köse A, Topal M, Dinçer R, Güzel MF. A Case of a Baby Care-Related Accident: Hair-Thread Tourniquet Syndrome. J Emerg Med Case Rep 2017; DOI: 10.5152/jemcr.2017.1898

## ABSTRACT

**Introduction:** We present the case of a 3.5-month-old boy whose right second toe was affected by hair/thread wrapped around it and this situation's urgency.

**Case Report:** A 3.5-month-old boy was brought by his parents to the emergency clinic. The patient had a swollen, reddish-color right second toe with hyperemia. The parents did not know for how long the toe was affected. When anamnesis was deepened, no disorder was learned observing at birth. No other disorder was observed by the parents until they visited the emergency department at noon. No pathology was detected on plain radiographs. By continuing physical examination, a hair-wire wrapping around the toe with linear skin lesion was explored. Lesion was over extensor tendon on the dorsal face and intracutaneous on the plantar face. The wire was meticulously removed, and the dorsal skin lesion was sutured. Proper wound care was performed. On the 10<sup>th</sup> day, the sutures were removed. No sequelae were observed on follow-up. Based on the attitude of the parents and the cooperation of medical professionals, the case was considered to be a baby care-related accident.

**Conclusion:** Hair-thread tourniquet syndrome of an affected limb part is a life-threatening condition. Because it is rarely observed, its diagnosis can be delayed. However, ischemia of the affected extremity should alert the physician. Whenever the syndrome is diagnosed, proper treatment must be immediately initiated.

**Keywords:** Baby care-related accident, hair-thread tourniquet syndrome, digital ischemia

**Received:** 06.02.2017 **Accepted:** 31.05.2017 **Available Online Date:** 25.08.2017

## Introduction

Hair-thread tourniquet syndrome generally affects humans during the first 2 years. According to the literature, the affected sites include fingers, toes, and rarely external genitalia (1). Because the condition mimics compartment syndrome, its diagnosis and treatment should be immediately performed (2, 3). Otherwise, ischemia could progress to more serious consequences such as gangrene of the affected part.

## Case Report

A 3.5-month-old boy was admitted to the emergency clinic because the family noticed swelling and reddish coloration of the toe since morning. No other known disorder was previously present. Physical examination revealed that the right second toe was swollen, red, and hyperemic. No major nail pathology was observed. Capillary refill was found more rapid than other toes. A hair/thread was wrapped around the toe at the proximal interphalangeal joint level. The family was questioned regarding any suspicious or forensic events. No suspicious anamnesis was obtained. The only lack was the elapsed time of the lesion of the toe, whose duration was unknown. Written informed consent was obtained from the parents for the publication of this report.

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FIGURE 1. a-c. Swollen toe (a), vision of the dorsal skin lesion (b) and thread that was removed (c)



FIGURE 2. a, b. The 10<sup>th</sup>-day control of the toe. Dorsal view (a), plantar view (b)



FIGURE 3. a, b. The 25<sup>th</sup>-day control of the toe. Dorsal view (a), plantar view (b)

Urgent exploration was initiated in the emergency clinic. Local anesthesia using 2% lidocaine was administered to the digit. The lesion appeared linear all around the proximal interphalangeal joint level of the toe (Figure 1a). On the dorsal surface, skin lesion was over intact extensor tendon (Figure 1b). On the plantar face, lesion was intracutaneous. The toe was examined for any infection, and no infection was observed. While continuing wound cleansing, a hair/thread was observed to be wrapped around the toe. Skin lesions were concluded by sharp-cutting of hair-strangulation.

Using a spotlight source in the emergency clinic, the hair was carefully removed from the toe without any breaking-off (Figure 1c). The wound was irrigated. The capillary refill turned into normal. Local rifampicin antibiotherapy was initiated. The dorsal skin lesion was sutured. Regular physiologic dressing was applied. On the 10th day control, the sutures were removed (Figure 2). On the 25th day control, no sequelae were observed (Figure 3).

### Discussion

Because of its circulation-threatening attribute, hair-thread tourniquet syndrome is an emergency situation, particularly emergency physician whenever it is met. With urgent and proper treatments, including hair removal and suitable wound care, possible irreversible and irreparable complications can be prevented. We removed the hair, cleaned the wound, and sutured the dorsal side of the wound. After proper care, no painful sequelae were observed. Furthermore, because of its possible morbidities and rare occurrence, a good differential diagnosis must be performed with regard to conditions such as child abuse, amniotic band syndrome, and baby care-related accident.

Child abuse presents more lesions such as ecchymosis in the variable stages on the body which could arise suspicion for the physician. In addition, unsatisfactory or conflicting history can be obtained (4). Parents or proxy's mood, attitude and radiological changes such as

multiple fractures accompanying multiple healing stages could be other indicators. We did not observe any conflicting or unethical attitude of the parents in the emergency clinic, during control examinations, and any pathology on the radiographs. Parents continued the advised medical and wound care treatment. As a result, no catastrophic effect was fortunately encountered.

Amniotic band syndrome is present since birth and can be multiple (5). The parents of our patient reported that there was no disorder since birth. Moreover, no abnormal lesions were observed on other body parts.

In the literature, treatment comprises cautious removal of the strangulating material (1-4) using appropriate and delicate apparatus (3, 4) and observation after proper wound treatment. In intervention is performed early, no or minimal morbidity occurs. However, a delay would result in undesirable events such as the loss of the affected part.

Reasons among parents' worry, acute-occurring pathology, information lack about the elapsed time, and good cooperation with medical professionals led us to make a diagnosis of a "baby care-related accident." Baby care-related accidents owing to hair/thread are found in the literature (4). However, to our knowledge, it has not been previously reported. This situation should be considered, but unless proved otherwise, child abuse should be remembered. Whatever the reason, hair-thread tourniquet syndrome, even rarely observed, is an important disorder for the current case and for future incidences involving infant patients.

## Conclusion

Hair-thread tourniquet syndrome of an affected limb part is a life-threatening condition. Because it is rarely observed, its diagnosis can

be delayed. If delay of the diagnosis and intervention occur, catastrophic results may be inevitable. Moreover, ischemia of the affected extremity should alert the physician. Whenever the syndrome is diagnosed, proper treatment must be immediately initiated.

**Informed Consent:** Written informed consent was obtained from parents of the patient who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author contributions:** Concept - E.Y.U, A.K., M.T.; Design - E.Y.U, M.T., M.F.G.; Supervision - A.K., R.D.; Resource - M.Ö.K., S.G.T.; Materials - E.Y.U, M.T., M.F.G.; Data Collection and/or Processing - A.K., R.D., M.F.G.; Analysis and/or Interpretation - E.Y.U, A.K.; Literature Search - M.T., R.D., M.F.G.; Writing - E.Y.U, A.K., M.F.G.; Critical Reviews - E.Y.U, A.K., M.F.G.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

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