

CASE REPORT: HAIR TOE TOURNIQUET SYNDROME IN A 2 MONTHS OLD INFANT IN AL-MADHAYA PRIMARY HEALTHCARE CENTER, JAZAN REGION, SAUDI ARABIA, 2021.

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ABSTRACT

Hair Tourniquet Syndrome is a rare clinical phenomenon that involves hair, thread, or similar material which wrapped tightly around an appendage and result in many complications as pain, injury, and lead to loss of the appendage. We have witnessed A 2-months-old boy complaining of 4th right toe swelling and redness for 5 days, not improved with local antibiotics, associated with inconsolable crying, the parents denied any history of infection, trauma, similar condition, vitals were within normal, sterile surgical exploration was done under local anesthesia and hair thread was successfully removed. Hair Tourniquet Syndrome should be considered when a swollen appendage or swollen part of genitalia is seen. Diagnosis is based mainly on

detailed history and clinical examination and if the diagnosis has been confirmed, early release of constriction will help to prevent further damage.

KEYWORDS: Hair Tourniquet; Hair-thread tourniquet syndrome; Fingers; Infants.

1. INTRODUCTION

Hair tourniquet syndrome (HTS) also called Hair-thread tourniquet syndrome (HTTS) is a rare disorder.^[1] This syndrome has been described to involve the fingers, the toes, and even the genitals.^[2] The condition has been recognized since the 1600s when strangulating hair was reported around the penis.^[3]

Hair toe tourniquet syndrome is a condition in which a hair or thread is wrapped around a digit and results in acute ischemia, which usually occurs in children under the age of 1 year.^[4]

The toe is the most frequent location (95%).^[5] Etiology is still controversial but bad hygiene is one of the risk factors^[6], one possible risk factor is telogen effluvium, the hair loss commonly experienced by women after giving birth.^[7] HTTS has been recognized to be mostly accidental, although the hypothesis of child abuse must be considered.^[5]

Therefore, the literature recommends early recognition, detection, and release of constriction to prevent further complications and damage.

2. BACKGROUND

Hair tourniquet syndrome usually occurred in infants, this phenomenon were reported by Baloch N and his colleagues when they stated that four months baby girl who was crying and presented with redness and swelling at her 2nd and 3rd toes of the right foot with a hair end protruding through the wound. In this case were managed by removing and cutting of the constricting hairs.^[8]

Another way of management were seen in two cases which were reported by N. Alruwaili in which the digits were affected. The author reported that using of hair removal cream in both cases were successfully without complications, according to the author it was an easy, effective and less invasive treatment method compared with incision or blunt probe cutting techniques.^[9]

Hair tourniquet syndrome can also affect multiple toes as stated in one case report by R. A. Haene. The author noticed that early diagnosis and intervention is vital to attain a good outcome and prevent further harm to the child. In this report an eleven weeks old infant presented with swelling and discoloration of the left second toe because of hair thread tourniquet syndrome. This was treated by urgent surgical release of the constricting band, with a successful outcome.^[10]

David J. Barton et al have observed six cases of the hair-thread tourniquet syndrome, they found that hair or hair-like fibers in the infants can cause strangulation of an appendage which can affect multiple site as toes, fingers, or external genitalia. The age of all sex infants ranged between 12 days to 5 months of age. Three out of six cases presented with offending fibers which cause toe injuries. They also noticed that synthetic fibers from mittens in one case cause lead to hair tourniquet syndrome of the finger. However, All six patients were treated by immediate removal of the constricting fibers, and, in spite of the worrisome appearance of the tissue distal to the constriction, all six eventually healed without significant tissue loss.^[11]

Penile strangulation were also reported by J Sheinfeld and his colleagues, in this case the strangulation were severe and mainly caused by a coil of hair. the authors argued that early diagnosis and treatment of penile strangulation can prevent severe complications, such as urethrocuteaneous fistulas, necrosis of the glans and partial or and complete amputation of the glans.^[12]

3. CASE REPORT

A 2 months old boy brought to the family medicine clinic by his parents complaining of 4th right toe swelling and redness for 5 days, not improved with local antibiotics, associated with inconsolable crying, refusal of feeding, and vomiting during the last night. No fever or chills or diarrhea. The parents denied any history of infection, trauma, similar condition, or any previous health problems for the child. On examination: vital signs were within normal range. The child appears to be in pain with moving limb away while trying to do a local examination, the swelling in the fourth right toe was prominent which ended proximally with narrow wound along toe contour and a thin hair were arising from the dorsal side upon exploration (Figure 1 and 2). No sign of decreased perfusion or ischemic changes, no similar swelling in other digits, genitalia or other body parts. CBC was within normal, X-ray shows no abnormalities.

Diagnosis with Toe-tourniquet syndrome was suggested with differential diagnosis of infection, trauma, insect bite, and allergic or irritant dermatitis.

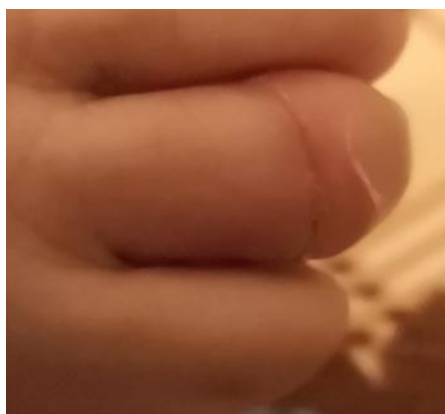


Figure 1: Circumferential groove of the 4th toe.



Figure 2: During exploration under local anesthesia, hair end appears.



Figure 3: Toe appearance 2 months after the treatment.

Cautious sterile exploration through creation of circumferential incision under local anesthesia was done and full hair extraction was maintained. Then frequent dressing with 10 days course of oral antibiotics and analgesia were prescribed.

Two months later, and during the well-baby visit we see the child with much better improvement, no more edema or signs of inflammation, only tiny scar was seen (Figure 3). The parents then advised to follow up if any complication arises and health education about preventive measures of such case were explained to the parents.

4. DISCUSSION

The toe tourniquet syndrome occurs mainly in infants. Strangulation of the toes by circular foreign material, such as hair or fiber, causes edema and constriction.^[13] The term toe tourniquet syndrome was first introduced by Quinn in 1971.^[14] In 1988 Barton et al coined the term hair-thread tourniquet syndrome, which broadly covers this condition where a strand of hair or a thread or fiber encircling an appendage causes ischemic strangulation.^[15]

Literature reviews have reported hair-thread tourniquet syndrome as affecting the following structures.^[16]

- Digits (hand digits (24–47%), toes (25–43%))
- External genitalia (penis (44%), clitoris (6%), labia)
- Head and neck (tongue, uvula, and neck)

Hair-thread tourniquet syndrome typically occurs in children, with one study indicated that the mean age as 5.5 ± 4 months.^[16]

Wrapping of a hair or thread around an appendage can produce a tourniquet effect, and the degree of damage usually correlates with the duration of the ongoing process. The constricting hair mainly cause decreasing of lymphatic drainage from the appendage. Diagnosis is always based on clinical examination, which at times is difficult because of edema or the hair being masked by the skin fold.^[17]

Early surgical-release must be performed if unwinding or simple cutting is unsuccessful.^[18] While delayed or incomplete treatment can lead to necrosis which may necessitate amputation.^[7]

Therefore guidance for parents especially the new parents can help prevent the problem^[6], as well as raising awareness of physicians toward early detection and management can help to prevent further outcomes.

5. CONCLUSION

Hair tourniquet syndrome should be considered when a swollen appendage or swollen part of genitalia is seen, particularly when there is circumferential depression, taking in mind other differential diagnoses including child abuse. Diagnosis is based mainly on detailed history and clinical examination and if the diagnosis has been confirmed, early release of constriction will help to prevent further damage and deformity.

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Authors Contribution

Abdaly, the principal investigator; **Abdaly**, and **Melaisi**, prepared the research proposal; **Abdaly**, **Melaisi**, **Mojammami**, **Tohari**, **Afaf** and **Hakmi** designed this research paper; **Abdaly**, **Qasimi** and **Sabai** wrote the manuscript.

All authors, read and approved the final manuscript.

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