Hair-thread tourniquet syndrome in a preterm baby

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Abstract

Hair-thread tourniquet syndrome is a rare disorder characterized by the encircling of an appendage by a hair or thread. It usually occurs in children under the age of one year. The tourniquet syndrome may occur in different parts of the body, particularly in toes, fingers, penis, clitoris, labia, neck and uvula. It is an emergency condition that induces progressive edema, ischaemia and tissue necrosis and can lead to autoamputation of digits or other strangulated structures. Emergency treatment is careful removal of the constricting fiber. We report a preterm newborn with hair-thread tourniquet syndrome affecting multiple toes born at the 28th gestational week with the aim of preventing potential complications by increasing awareness of the condition. (Turk Pediatr Ars 2015; 50: 245-7)

Keywords: Necrosis, prematurity, hair-thread tourniquet syndrome

Introduction

Hair-thread tourniquet syndrome is a medical condition where in a hair or thread-like material becomes tied around limbs tightly and leads to ischemia (1). Affected body prominences include toes and fingers, penis and clitoris which are genital prominences, neck and uvula (2). This condition may lead to tissue loss if not recognized and intervened urgently (3). Making a wrong diagnosis like infection without a careful physical examination may lead to deterioration of the patient's condition (4).

We found it appropriate to present this case which occurred as a result of tying of a thread broke off from a gauze bandage around the toes in a preterm baby hospitalized in our hospital, because this was a rare clinical phenomenon and we wished to increase awareness of this syndrome.

Case

A female patient who was born at the 28th gestational week from the second pregnancy of a 20-year old mother as the second living child by cesarean section with a birth weight of 1030 g was hospitalized in our hospital with a prediagnosis of respiratory distress syndrome. On the 12th day, swelling and redness was observed in the 2nd, 3rd and 4th toes by the ward nurse (Figure 1). The patient was evaluated by the ward physician who considered infection and a threat

tied around the toes was observed on physical examination. Since the thread was embedded in the tissue and disturbed circulation, it was urgently freed and the thread pieces embedded in the tissue were removed subsequently. No complication was experienced by the patient whose circulation in the toes improved postoperatively. When the origin of the thread was evaluated, it was found that cotton placed in a gauze bandage was used as backing under the shoulder of the baby and a piece of thread broken off from this gauze bandage caused to this condition.

Discussion

Toe tourniquet syndrome was described by Quinn in 1971 for the first time (5). In 1988, Barton et al. (6) reported that mother's hair, thread and thread-like materials could also lead to the same condition and presented a wider definition naming the condition as "hair-thread tourniquet syndrome".

In hair-thread tourniquet syndrome, lymphatic circulation is disturbed primarily in the limp strangulated and subsequently venous circulation is disturbed. As edema increases, arterial circulation is disturbed and finally necrosis occurs in the organ (7, 8).

The majority of the cases of hair-thread tourniquet syndrome occurs as a result of accidents. Generally, these

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Received: 23.05.2013 **Accepted:** 05.12.2013

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DOI: 10.5152/TurkPediatriArs.2015.1301

Figure 1. Thread which was tied around the 2nd, 3rd and 4th toes in the left foot and caused to swelling and disturbance in circulation

patients have a poor hygiene (9, 10). However, child abuse should be considered when tourniquet syndrome is found in various and distant sites and in multiple or separate sites and a meticulous interrogation should be performed, because children constitute the majority of these cases (10-12).

When all case reports were evaluated, it was found that 40.4% of the cases were reported in toes, 8.57% were reported in fingers, 44.2% were reported in penis, 3.3% were reported in clitoris and less than 1% were reported in labia, mons pubis, uvula and neck. Among the most common organs, complication developed with a rate of 2.3% in toes, with a rate of 54.5% in fingers and with a rate of 52.6% in penis (12).

Telogen effluvium is diffuse hair loss. Telogen effluvium which is observed especially between the 2nd and 6th months after delivery with a higher rate is a physiological condition. This condition affects about 90% of women who have given birth (11). However, intensive hair loss which occurs in this condition may lead to hair-thread tourniquet syndrome in the baby (6). In reported cases, the mean time of affection of toes is the fourth month (12). This time is in parallel with the period when hair loss is observed most intensively in mothers. Therefore, mothers who have just given birth should be informed about hair-thread tourniquet syndrome and they should be encouraged to tie back their hair when they are physically close to their babies and to cover their hair in such a way as to prevent falling off hair around.

Appropriate treatment of hair-thread tourniquet syndrome is urgent removal of the fiber which causes to obstruction (13). Treatment may not always be easy; it may be difficult to see and remove hair or thread, because it may be embedded in

the tissue because of edema and epithelial tissue may have covered it after a long time. Removal of the obstructive fiber by cutting may not be possible in the emergency room. Therefore, it is recommended to remove it in operation room (14). It has been reported that hair tourniquet syndrome may be successfully treated by using depilatory (15). Topical or systemic antibiotic is generally used after operation (11, 13, 14).

In the literature, complications have been reported most commonly in fingers and genital region (12). Hair-thread tourniquet syndrome should be considered especially in babies presenting with a complaint of crying and the extremities, clitoris and labia in female patients and penis in male patients should be inspected carefully during physical examination (16-18). Parents should be taught about the necessity of observing their babies' hands, feet and genital region when they become irritable, because it should be kept in mind that the reason for complications in tourniquet syndrome is delayed intervention.

It should be kept in mind that hair-thread tourniquet syndrome can be confused with infantile colic which is a more common problem and should be differentiated from infectious diseases related with organs including balanitis and paronychia.

The conclusion we have made as a result of this case report is that materials which may lead to thread separation like gauze bandage should not be placed in incubators.

Informed Consent: Written informed consent was not obtained due to retrospective nature of study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - S.K.; Design - O.B.; Supervision - O.B., L.K., S.K., H.H., S.K.; Funding - S.K., O.B.; Materials - S.K., O.B.; Data Collection and/or Processing - O.B., L.K., S.K., H.H.; Analysis and/or Interpretation - S.K., O.B.; Literature Review - O.B.; Writing - O.B.; Critical Review - S.K.

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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