Acta Orthop. Belg., 2004, **70**, 180-181

CASE REPORT

Hair-thread tourniquet syndrome
A case report

Kubilay KARALEZLİ, Yaman KARAKOÇ, Serkan İLTAR, Nazim KARALEZLİ, Kaan IRGIT

The authors report the case of a 3-month-old boy with hair-thread tourniquet syndrome, seen just distal to the MP joint on the right fourth toe. The patient was brought to the hospital with a history of irritability and weeping. On examination there was swelling, ecchymosis and a hair fibre was found wrapped around his right fourth toe. After the hair fibre was removed there was a fast healing period and no signs of tissue necrosis were seen.

Barton *et al* coined the term hair-thread tourniquet syndrome in 1988 (*1*). Hair-thread tourniquet syndrome involves fibres of hair or thread wrapped around an appendage (toe, finger, clitoris, penis etc.) producing tissue necrosis. The earliest reports about hair tourniquet syndrome date back to 1612 (*3*).

CASE REPORT

A 3-month old boy was brought to the hospital with constant weeping, irritability and swelling of his right 4th toe. On physical examination there was marked oedema and ecchymosis distal to the MP joint of the toe. A hair fibre was found just distal to the MP joint, wrapped several times around the 4th toe. There were no signs of tissue necrosis. The hair fibre was cut out and removed. The length and the colour of the hair fibre were similar to his mother's. It was thought that the fibre might have come from the sock that the baby wore after being bathed, the day before he was brought to the hospital. Irritability and weeping immediately subsided. The foot was kept elevated and the toe was observed for one night ; the oedema regressed and the colour of the toe returned to normal (fig 1). No signs of progressive vascular problem or tissue necrosis were noted. The patient was called for daily visits after being discharged. Neither wound nor vascular problems were observed in the follow-up (fig 2).

DISCUSSION

Hair-thread tourniquet syndrome involves fibres of hair or thread wrapped around an appendage causing tissue necrosis (*1, 3*). Infants under 6 months are particularly at great risk. There is often a delay of 3-4 days before the condition is recognised (*2*). Fibres of hair or thread may tightly wrap around an infant's finger, toe or genitals and act like a tourniquet. It can cause ischaemia, tissue necrosis and occasionally amputation. The majority of the toe and external genital cases were caused by hair,

From Ankara Research and Training Hospital, Ankara, Turkey.

Kubilay Karalezli, MD, Orthopaedic Surgeon.

Yaman Karakoç, MD, Orthopaedic Surgeon.

Serkan İltar, MD, Orthopaedic Surgeon.

Nazım Karalezli, MD, Orthopaedic Surgeon.

Kaan Irgıt, MD, Orthopaedic Registrar.

II. Department of Orthopaedics and Traumatology, Ankara Research and Training Hospital.

Correspondence : Kaan Irgit, Resit Galip Cad. Han Sok. 15/1 GOP 06700 Ankara, Turkey. E-mail : *kaan_irgit@hotmail.com* and *kaan.rgt@mailcity.com*.

Fig. 1. — Photograph of the patient two days after the injury

whereas the majority of finger strangulations were caused by thread from mittens (*1*). At greatest risk for strangulation are the middle finger and third toe, followed by the index finger and second toe (*1*). Penile and clitoral hair tourniquet syndrome cases have also been reported in the literature.

All patients must be treated by immediate removal of the constricting fibres. If the hair fibre has not been removed, the tourniquet effect causes lymphatic obstruction, oedema of the soft tissue, and secondary obstruction of venous outflow and arterial perfusion (*4*). This progressive ischaemic necrosis may lead to autoamputation and tissue loss. Because tissue necrosis is a possible consequence physicians must be aware and suspicious about this syndrome.

Sometimes a simple vertical, short and deep incision over the area of strangulation, avoiding injury to tendons and digital nerves and vessels may be necessary to restore circulation. In late presented cases wrapped fibre of hair or tread can be found in the form of an eschar lying in an epithelialised crease and in these cases treatment may involve excision of the eschar and surgery to reconstruct the defect.

Fig. 2. — Photograph of the patient 7 days after the injury

Based on our experience and that described in the literature, considering the potential consequences of delayed treatment, physicians should be aware of this syndrome especially in irritable, weeping infants with no other signs of a systemic disease.

REFERENCES

1. **Barton DJ, Sloan GM, Nichter LS, Reinisch JF.** Hair-thread tourniquet syndrome. *Pediatrics* 1988 ; 82 : 925-928.
2. **Harris EJ.** Acute digital ischemia in infants : the hair thread tourniquet syndrome-a report of two cases. *J Foot Ankle Surg* 2002 ; 41 : 112-116.
3. **Kuo JH, Smith LM, Berkowitz CD.** A hair tourniquet resulting in strangulation and amputation of the clitoris. *Obstet Gynecol* 2002 ; 99 : 939-941.
4. **Sylwestrak MS, Fischer BF, Fischer H.** Recurrent clitoral tourniquet syndrome. *Pediatrics* 2000 ; 105 : 866-867.