



## HAIR TOURNIQUET SYNDROME

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**(ABSTRACT)** Strangulation of digits, the 'toe-tourniquet' syndrome needs prompt intervention as failure to recognize it can lead to ischemia. It is common condition though relatively under reported.<sup>[1]</sup> Those who deal with children more frequently are aware of the condition, the diagnostic dilemma for accidental injury or child abuse arises.

This syndrome has been described as involving the fingers, the toes and even the genitals. We reporting two cases of hair tourniquet syndrome affecting toe of an infant. After the hair fiber was removed there was a fast healing period and no signs of tissue necrosis were seen. The prompt diagnosis and treatment of the condition is vital to attain a good outcome and prevent further harm to the child.

**KEYWORDS :** 'toe-tourniquet' syndrome, diagnostic dilemma.

**INTRODUCTION :**

The hair tourniquet is a well-described phenomenon. Typically, a hair or filament becomes tightly wrapped around an appendage, thereby causing swelling, pain, and, in extreme cases, necrosis. Affected areas include fingers, toes, and the genitalia.

The hair-thread tourniquet syndrome is a disease in which a hair or filament becomes wrapped around an end-perfusion appendage, thereby limiting adequate venous and lymphatic drainage of that tissue. This results in hyperemia, swelling and pain. If uncorrected, edema and interstitial pressures may increase to prevent adequate vascular supply, and the affected area can progress to necrosis. We are classically taught that this syndrome primarily affects the fingers, toes, and infantile penis and is an important consideration in the differential diagnosis of the colicky infant.<sup>[2]</sup>

**CASE REPORT :**

1. We got a patient of 10 days old male child presented with history of excessive crying which was noticed by parents on thorough examination it was found congestion of digits.[Figure 1-4]

Local examination revealed partially buried hair filament with multiple rounds over base of finger, it was gently explored and tourniqueting hair filament was cut and removed under local and removed.

Follow up was uneventful.

2. A 4 months old female child presented with swelling over 3<sup>rd</sup> toe of right lower limb, and presented after seven days of episode, the tourniquet was removed at home but there was edema, congestion and seropurulent discharge.[Figure 5]

It was managed by local wound care and systemic antibiotics. There was no need for any release incision. This baby again developed congestion over toe after three weeks, which was managed conservatively. [Figure -6]

**DISCUSSION :**

HTS involves circumferential winding of hair or thread from clothing around one or more appendage leading to its strangulation due to vascular compromise. The venous and lymphatic flow is affected first resulting in edema but later the arterial flow also gets hampered causing necrosis, gangrene, or auto-amputation.<sup>[3]</sup> It has been observed hair shrink on drying thereby aggravating the constriction.<sup>[4]</sup>

HTS has been variously described in the literature as toe tourniquet syndrome or Hair-thread tourniquet syndrome.<sup>[5][6]</sup> Its exact incidence is unknown, but it has been accepted that it is underreported in literature. First described by Quin HTS commonly affects infants.<sup>[5]</sup> However, a few cases have been described in adults with impaired cognitive function.<sup>[7]</sup>

Hair or threads from clothing are the common culprits. After

childbirth, mothers are in telogen effluvium phase and shed their hair which increases the risk to develop HTS.<sup>[8]</sup> Increased hair loss seen in chemotherapy patients also make the child vulnerable. When mittens and frequently washed old clothing is used, there is a chance for HTS to develop. It has sometimes also been described as a form of child abuse, and therefore, a careful clinical examination to rule out any other injuries is very important.

Most commonly involved parts are fingers, toes, and sometimes genitalia (penis and clitoris).<sup>[8]</sup> However, involvement of uvula and neck has also been reported.<sup>[9][10]</sup>

Important differential diagnoses include ainhum and other causes of pseudoainhum.<sup>[11][12]</sup>

Treatment consists of removing the constricting agent and if significant compartment syndrome is present, then a relaxing incision is needed to relieve it. If the hair or thread is easily visible during the examination, they can be cut using scissors or removed using forceps under magnification.

Depilatory creams applied on intact skins have been found to weaken the hair fiber. However, most of the times, due to excessive edema, no definite constricting agent is visible, and this necessitates examination under anesthesia and complete release of the constricting ring to ensure unimpeded blood flow.

In one of our patients, the hair was seen in the constricted region. It was easily removed and did not need any incision to relieve the compartment pressure, in the other it was managed conservatively.

To conclude, prompt diagnosis and urgent intervention in HTS save the digit from ischemic damage. Adequate parental counseling and effective preventive measures such as regularly checking the mittens and clothing for free hair/threads, and the child for any features of HTS helps in decreasing the incidence and morbidity of HTS.



First case showing edema and congestion with tourniquet tied

Case I



Hair

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HTS of 3<sup>rd</sup> toe

Case I



Follow up after 7 days of removal of hair tourniquet

Case I



Second case showing healing lesion at base of right 3<sup>rd</sup> toe



Developed congestion over toe after three weeks

Case II

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