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Case Report

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The fretful child with swollen appendage: Mitten the Insidious

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Abstract

Hair tourniquet syndrome is a rare medical condition involving a tightly constricting strand of hair or thread-like material strangulating a part of the bodily appendage, such as the fingers and toes, which prompts for urgent attention. Failure to recognize early and respond to worsening symptoms may lead to serious complications. Few cases have been reported as this condition affects primarily young children. Our aim for this topic is to increase awareness of hair tourniquet syndrome to healthcare providers. Proper exposure during routine physical examination for early detection, and timely referral for effective treatment. Here we report a case of hair tourniquet syndrome of the toe that was released surgically with a good outcome.

Keywords: Hair tourniquet syndrome, bodily appendage, children.
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Introduction

Case Report

An infant of 2 months old was referred by a medical officer from a nearby government health clinic to our emergency department for near gangrene of left 3rd toe secondary to hair/ thread strangulation. The child was brought to the clinic by the mother for a normal check-up, however, upon uncovering the child's socks it was discovered by the attending medical officer that the left 3rd toe appears swollen and congested. Mother was unsure how it happened as the child was not showing any signs of distress such as crying or withdrawn at home. Multiple attempts were done at the clinic to remove the foreign body manually but to no avail. Upon arrival to ED, the child appeared fretful while active upon handling. Vitals were stable, and the child is afebrile.

On presentation, the left 3rd toe appears swollen and congested, erythematous, tender with a visible constriction at the neck of the toe, capillary refill time was less than 2 seconds. The constricting foreign body was not obvious on the naked eye as a magnifying glass was not available.

Figure 1: Showing a tight constriction around the left 3rd toe causing swelling and a tourniquet-like syndrome.

On further history from the mother, there were no recent infections, no known congenital issues, no concerning past medical history. The child was taken care of by a babysitter prior to the event but the mother denies any form of possible abuse or trauma. Mittens and socks were commonly worn but the mother claims it is an unlikely cause of the problem. The case was referred to orthopedics for surgical consultation. Emergency operation to remove the foreign body of left 3rd toe under sedation was then consented by the mother.Intraoperative findings revealed a thread of hair circumferentially strangulating the left 3rd toe at the PIPJ level.The offending foreign body was then cut free by a small blade.There were skin breaks over the plantar surface due to the tightness of the strangulation.

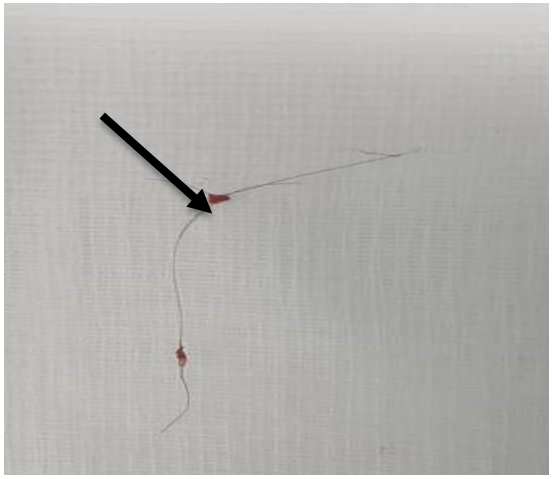

Figure 2: Intraoperative findings revealed the offending foreign body, a thread of hair circumferentially strangulating the left 3rd toe at the PIPJ level, which was surgically released.

Neurovascular observations were done overnight with discharge home the next day once the swelling had decreased, and after the digit was re-examined. Subsequent follow up was unremarkable.

Figure 3: Subsequent clinic follow up showed healed wound over the left 3rd toe.

Discussion

Hair tourniquet syndrome requires early recognition by the primary caretaker or healthcare provider. Emergency release of the tourniquet in a timely manner would ultimately relieve the symptoms and save the affected limb. Few cases have been reported, in which the majority occur in infants of 2 to 6 months old. It is also reportedly seen in toddlers and adolescents. The commonly affected parts are the toes, and fingers, followed by the genitalia as labia, clitoris, or even penis.(1,2,3,4) This is caused by tightly wrapped strands of hair strangulating the appendage, acting like a tourniquet which leads to obstruction of venous return and impairment of arterial flow causing tissue ischemia and later gangrene (3).

The phenomenon telogen effluvium may explain the presence of hair found in mittens or socks of newborns. It is a form of nonscarring alopecia characterized by diffuse hair shedding caused by metabolic or hormonal stress lasting up to 6 months, which in this case may be contributed during the postpartum period. (6)

Patients with hair tourniquet syndrome usually present to the emergency department in the early course of the syndrome, brought by anxious parents for their inconsolable child. It may also be discovered incidentally during routine pediatrics follow up at a nearby health clinic. On history, parents may claim that the child had been excessively crying and appears discomfort for few days, further examination requires full exposure of the body to look for signs of mechanical strangulation such as swelling, erythema, and edema of the affected part.

The condition can be easily missed if full body examination were ignored, often in those wearing mittens and socks. As the hair stretches over the appendage, it may cut and be deeply embedded into the tissue, furthermore hiding the hair by skin epithelialization. (1,3) At this stage, it is difficult to identify the culprit by naked eyes resulting in misdiagnoses such as allergy, insect bite, trauma, infection or congenital syndromes. (1) A diagnostic dilemma may arise and misinterpretation for child abuse or accidental injury by medical practitioners may be reported, alas, a consensus has been made that this condition is not the result of an intentional injury. (5)

Treatment consists of releasing the tourniquet after early detection. Releasing manually without sedation is difficult as the child would be irritable on even the lightest handling of the affected part. The technique of choice is to examine under anesthesia and removing the constricting band with a scalpel. (3) A longitudinal incision can be made at the anteromedial or anterolateral aspect of the digit. (3) Once the hair is removed, the area should be irrigated thoroughly to reduce the risk of infection. The child should then be monitored, and improved circulation of the affected part is to be expected.

The practice of wearing mittens covering the fingers or toes may insidiously mask the offending agent, it should be turned inside out and watched for loose hair. (5) Medical providers should be more vigilant when attending a crying child, a full examination of the body is required so that the diagnosis would not be missed or delayed. Early referral to the primary team for surgical consultation need to be made without delay, and early release of the constricting band is vital to prevent from further harm.

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