Hair tourniquet syndrome

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ABSTRACT

A frequently unrecognized and potentially devastating form of penile strangulation is that caused by human hair. Hair tourniquet syndrome frequently occurs during the time period when post partum mothers are experiencing increased hair loss. The majority of cases are thought to be accidental, however possibility of child abuse should be considered in every case.

KEY WORDS: Telogen effluvium, hair tourniquet syndrome, urethrocuteaneous fistula, gangrene

INTRODUCTION

The hair-thread tourniquet syndrome occurs when hair, and occasionally thread or fibre, wraps tightly around a young child’s appendage and obstructs the circulation. Although most cases are felt to be accidental child abuse must be considered in selected cases.[1] The condition, although potentially preventable, can be quite serious if not promptly recognised and treated.

Reflecting the type of appendage involved, hair-thread tourniquet syndrome cases can be grouped into 3 distinct subsets: cases involving the toes, cases involving the fingers, and cases involving the genitals.[2]

Penile tourniquet injury probably is not a rare entity and has been reported following the application of numerous foreign objects, including rings, rubber bands, bottles, pipes and threads.[3,4] A frequently unrecognized and potentially devastating form of penile strangulation is that caused by human hair.

CASE REPORT

A ten-year old Muslim boy was brought to the hospital with history of black discoloration of the shaft of penis and glans (Figure 1), and passage of urine through an abnormal opening on the ventral side of penis.

Two months prior, patient had developed penile swelling, involving shaft and glans, for which he received treatment from a general practitioner in his village. Edema was not relieved, but itching and purulent discharge set in. He continued to be treated by the same practitioner till he developed loss of sensation and bluish discoloration of the penile shaft, which later on turned blackish.

Physical examination of the penis revealed dried, shriveled up, blackish glans and distal penile shaft. There was a marked mid penile constriction. Urethrocuteaneous fistula was present on the ventral aspect of penis, proximal to the constriction.

Patient was examined, under anesthesia, inside the operating room. A coil of hair was found encircling the shaft of penis, which was deeply embedded in the necrotic tis-

Figure 1: Gangrenous distal shaft and glans
sue. The coil of hair was carefully removed and the gangrenous shaft amputated.

DISCUSSION

Telogen effluvium is a form of alopecia characterized by diffuse hair shedding, often with an acute onset. Typically a person sheds no more than 50 to 100 hairs per day. However, excessive hair loss on the order or >100 hairs per day can occur because of the reactive process such as that found in the post partum period. Hair tourniquet syndrome frequently occurs during the time period when post partum mothers are experiencing increased hair loss.

Human hair is extremely thin and, therefore, easily overlooked, especially when there is a foreign body reaction and local swelling. Hair has a tensile strength of greater than 29,000 pounds per square inch. It also stretches when wet, and contracts and tightens as it dries. These characteristics make it an excellent agent for intentional constriction.

Penile strangulation secondary to human hair was reported first by Morgenstern in 1888. Since then, a number of cases have been reported. These patients are always children, with an age range of 21 days to 8 years. Circumcision is an important predisposing factor, since it appears that the condition is much more common in circumcised boys. How these injuries occur is a matter of some speculation. The majority of cases are thought to be accidental. Strangulation of penis, by an ancient folklore, was used to ward of evil spirits. In more recent times it has been reported to have been used to prevent enuresis or nocturnal emission. Thomas et al., have raised a possibility of child abuse and the importance of its consideration in every case.

The wrapping of a hair or thread around an appendage may produce a tourniquet effect, the degree of damage is highly variable, and usually correlates with the duration of the ongoing process. A constricting hair may decrease lymphatic drainage from the appendage. The lymph edema so produced impedes venous drainage, causing more edema and eventually prevents arterial flow to the tissue. If left unrelieved obstruction will lead to necrosis and tissue loss.

Important anatomical properties of the penile shaft were reviewed, by Bashir and EL-Barbary, and correlated them to the progressive nature of injury. They categorized penile strangulation as: Grade 0: Constriction of skin without urethral injury, Grade 1: Partial division of corpus spongiosum with an urethrococutaneous fistula, Grade 2: Complete division of the corpus spongiosum and constriction of the corpus cavernosum and Grade 3: Gangrene, necrosis and, complete amputation of the glans. Based on an understanding of complication due to hair coil around an appendage, it is necessary to have high index of suspicion. The presence of a strangulating hair may go unnoticed, and the diagnosis may be missed, if the clinician is not alert to its possibility. Young boys especially circumcised presenting with penile or glanular swelling, purulent discharge or urine leaking from coronal sulcus, or a gangrenous glans.

Diagnosis is always based on clinical examination which at times is difficult due to edema or the hair being masked by the skin fold. Prompt removal of the hair by unwinding or cutting prevents complications like urethral fistula or gangrene. When severity is unclear, it is safer to err on the side of formal inspection in the operating room. If there is any doubt about the presence of a retained hair, incision should be made at the depressed area on one side of the latero-inferior aspects of the penis. This will avoid injury to the urethra, the main nerves and to the blood supply.

REFERENCES