

Hair-Thread Tourniquet Syndrome in an Adult Penis

Case Report and Review of Literature

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Received April 2011
Accepted August 2011

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INTRODUCTION

Hair-thread tourniquet syndrome (HTTS) is an unusual entity occurring mainly in young age. It is due to a hair-strangulation of an appendage, such as the penis, causing obstruction to circulation.⁽¹⁾ We report a new case in an adult patient.

CASE REPORT

A 37-year-old man presented to the urology outpatient's clinic with a 10-year history of post-coital pain. He had no history of trauma, foreign body, or allergy. He has been circumcised 32 years before.

Clinical examination revealed a constrictive ring scar at the distal penis (Figure 1). There was neither any change in the skin color or texture nor in sensation distal to the scar. He had minimal granulation tissue on the ventral aspect of the scar (Figure 2). There was a palpable dense periurethral fibrosis below the scar. The bladder did not distend. His blood urea nitrogen, electrolytes, and serum creatinine levels were normal. Findings on urinalysis were negative.

He reported that in his childhood and during 3 years his mother used to put a hair around the distal part of his penis to increase his future sexual function. This hair had caused infection; thus, it was removed long time ago.

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At surgery, under general anesthesia, the penile skin was dissected off the corporeal bodies, and dense fibrous tissue was circumferentially excised. Fibrous tissue was excised and removed (Figure 3), and the cutaneous incision was repaired (Figures 4 and 5). Pre-operatively, the urethra was intact at inspection. The patient was discharged from the hospital on the first postoperative day. He has been followed-up for 12 months. He has been voiding well with no sexual dysfunction (Figure 6).

DISCUSSION

Hair coil strangulation of the penis, also known as the penile tourniquet syndrome, is a rare event.⁽¹⁾ It is a serious complication, usually contested in North Africa.⁽²⁾ It is considered as a circumferential constriction of an appendage (digit or



Figures 1 and 2. The ring scar (circumferential fibrosis) on the penis (coronal sulcus) (arrow) and the exuberant granulation on the ventral aspect.



Figure 3. Specimen: ring-shaped excised skin.



Figures 4 and 5. Operative and immediate postoperative aspect.



Figure 6. Postoperative aspect after 2 months.

genitalia) by human hairs or occasionally a piece of thread or fiber.⁽³⁾ Hair remains the most common causative agent. Its physical characteristics make it an ideal tourniquet. It is thin, elastic, and expansible when wet, but constricts as it dries off without losing its strength.⁽⁴⁾

According to Mat Saad and colleagues who reviewed a total of 210 reported HTTS, penile involvement occurred in 44.2%, toes in 40.4%, and fingers in 8.57% of patients. Penile tourniquet was more common in patients around 2 years old.⁽⁴⁾ The oldest reported subject was 12 years.⁽²⁾

Hair-thread tourniquet syndrome in young age is presumed to be accidental.⁽⁵⁻⁷⁾ However, Barton and colleagues reported a case of criminal abuse.⁽³⁾ In the present case, the reason why this patient had the hair around his penis was not immediately apparent. This backs-up to his childhood, based on popular believes to increase sexual capability. The penile strangulation etiologies have been divided by Haddad into accidental, incidental, intentional, and undetermined causes. The circumcision has been considered to be a major risk factor of strangulation; the hair or other agents seem to constrict more easily a circumcised penis than one with a normal prepuce.⁽⁸⁾ Compression of the penis will cause blood and lymphatic flow occlusion. The severity of damage is dependent on the force and duration of the compression.⁽⁹⁾

Because the hair is difficult to see, diagnosis and treatment are often delayed. Swelling, erythema, circumferential constriction, and distal oedema resume the early clinical presen-

tation.⁽⁶⁾ Early recognition and removal are usually followed by complete recovery. If the tourniquet is not removed early, there may be progression to skin infection and ulceration. Therefore, it is of utmost importance for the physician to act quickly in order to prevent irreversible damage and necrosis of the penis.⁽⁹⁾

When diagnosed very late, the dorsal neurovascular bundle may be transected, leading to the loss of sensation over the distal part of the penis with a high risk of partial or total amputation of the penis distal to the tourniquet.⁽¹⁰⁻¹²⁾ Four grades of injury were described by Harouchi and associates,⁽¹³⁾ varying from superficial skin lesion only (Grade I) to the loss of the glans (Grade IV).

An unexplained pain and swelling of the penis should suspect this rare entity.⁽¹⁾ In our patient, there were no ischemic skin changes, no loss of sensation over the glans penis, and no urethra-cutaneous fistula. We can postulate that the hair tourniquet was not too tightly applied. The ischemia might be partial and chronic, thus causing minimal tissue damage.⁽¹⁴⁾ Fortunately, the dense fibrous tissue around the ring scar was limited to the skin and did not reach the urethra.

Hair-thread tourniquet syndrome of the penis in adult is a very rare and poorly recognized condition that needs to be known. Early diagnosis and rapid and adequate treatment can prevent from serious complications. Non-accidental causes should be considered carefully in these subjects. Furthermore, patient's history should be taken very carefully with meticulous enquiry on popular believes and practices in the society he originates from.

CONFLICT OF INTEREST

None declared.

REFERENCES

1. Silver RI, Docimo SG. Hair coil strangulation of the penis. *Urology*. 1997;49:773.
2. Mhiri MN, Midassi H, Mezghanni M, Smida ML. [Strangulation of glans penis by hair or "penis tourniquet syndrome"]. *Pediatric*. 1987;42:351-3.
3. Barton DJ, Sloan GM, Nichter LS, Reinisch JF. Hair-thread tourniquet syndrome. *Pediatrics*. 1988;82:925-8.
4. Mat Saad AZ, Purcell EM, McCann JJ. Hair-thread tourniquet syndrome in an infant with bony erosion: a case report, literature review, and meta-analysis. *Ann Plast Surg*. 2006;57:447-52.
5. Miller RR, Baker WE, Brandeis GH. Hair-thread tourniquet syndrome in a cognitively impaired nursing home resident. *Adv Skin Wound Care*. 2004;17:351-2.
6. Vazquez Rueda F, Nunez Nunez R, Gomez Meleno P, Blesa Sanchez E. [The hair-thread tourniquet syndrome of the toes and penis]. *An Esp Pediatr*. 1996;44:17-20.
7. Thomas AJ, Jr., Timmons JW, Perlmutter AD. Progressive penile amputation. Tourniquet injury secondary to hair. *Urology*. 1977;9:42-4.
8. Haddad FS. Penile strangulation by human hair. Report of three cases and review of the literature. *Urol Int*. 1982;37:375-88.
9. De Silva-Gutiérrez A, Osorio-Campos J, Arcos-Marcín M, Morales-Díaz J, Martínez-Méndez M. Glans autoamputation secondary to penile strangulation causing ischemic necrosis. *Rev Mex Urol*. 2008;68:341-3.
10. Singh B, Kim H, Wax SH. Strangulation of glans penis by hair. *Urology*. 1978;11:170-2.
11. Jezior JR, Brady JD, Schlossberg SM. Management of penile amputation injuries. *World J Surg*. 2001;25:1602-9.
12. Nazir Z, Rasheed K, Moazam F. Penile constrictive band injury. *J Pak Med Assoc*. 1993;43:135-7.
13. Harouchi A, El-Andaloussi ME, Benhayoun N. [Les strangulations du gland par cheveu]. *Inf Magh Medical*. 1980;2:19-26.
14. Okeke LI. Thread embedded into penile tissue over time as an unusual hair thread tourniquet injury to the penis: a case report. *J Med Case Rep*. 2008;2:230.