



Case report: Challenging adult case of erosive coronal sulcus hair thread tourniquet

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ABSTRACT

Hair thread tourniquet syndrome has been well described in the literature, with one of the rare presentations including resultant tourniquet of the penis. We describe an unusual case in an adult resulting in erosion of the urethra as well as the reconstructive and social challenges faced in an attempt to preserve the glans.

Section heading: Trauma and Reconstruction.

1. Introduction

Hair thread tourniquet syndrome is a well described pathology, usually affecting infants and children.¹ We present an unusual case of an adult with delayed presentation of penile hair thread tourniquet resulting in coronal sulcus with anterior urethral erosion.

2. Case presentation

A 57 year old uncircumcised male presented with a two week history of pain and swelling of the glans penis. He had no fevers, penile discharge or dysuria. He reported rarely retracting his foreskin, and sat to void reducing self-examination.

The patient's primary care physician diagnosed balanitis and treated the patient with topical steroids and oral cephalexin. Due to treatment refraction after one week, the general practitioner recommended an emergency department review. Unfortunately due to poor mental health, the patient waited a further seven days before presenting.

His past medical history includes type 2 diabetes mellitus (T2DM), hypertension, severe psoriasis, anxiety and depression. He was a current smoker with moderate alcohol intake. He had no fixed address moving between friends and families homes, and he had no mobile phone.

Emergency department examination revealed an unkempt gentleman with extensive psoriatic plaques across his body including trunk and all four limbs. Dermatology diagnosed a psoriatic flare, but referred urgently to urology due to particular concern for his penile findings.

On retraction of the foreskin, examination revealed a complex hair tourniquet of short matted hairs, at the level of the coronal sulcus. We

speculate that the pubic hair collected under the foreskin and after significant accumulation and time the single strands matted together forming a tight ring under the corona of the glans. The hair tourniquet had caused significant erosion of corporal tissue (Fig. 1a). The hair tourniquet was easily removed in the emergency department (Fig. 1b).

Due to significant deformity, the patient was consented for an emergency debridement and anastomosis of the defect. The patient absconded from the emergency department following explanation of the procedure and its potential risks, including prolonged hospital admission, failure of reconstruction, and potential need for repeat operations including terminalisation of penis and glansectomy.

Two days later, following multiple attempts to contact him, the patient re-presented to the hospital and was taken to the operating theatre. Intraoperative findings showed the distal penile urethra completely divided and the exposed edges partially healed, highlighting the chronicity of the condition. The glans was attached by approximately 1 cm of corpus spongiosum (Fig. 2a).

The area of erosion was debrided to healthy tissue, and an anastomosis with simple interrupted 3.0 chromic was constructed over an indwelling catheter (Fig. 2b). The patient self-discharged day 1 post operatively, against medical advice. Discharge advice included daily salt baths, topical chlorsig ointment, oral antibiotics and an early outpatient review. Initial outpatient review was promising, and the dorsal aspect of the wound healed.

Two weeks postoperatively the patient returned to theatre due to erosion of the ventral aspect of the glans penis and edges of previous suture line. The ventral erosion was thought to be multifactorial, contributed to by poor blood supply to glans, poor wound care, poor

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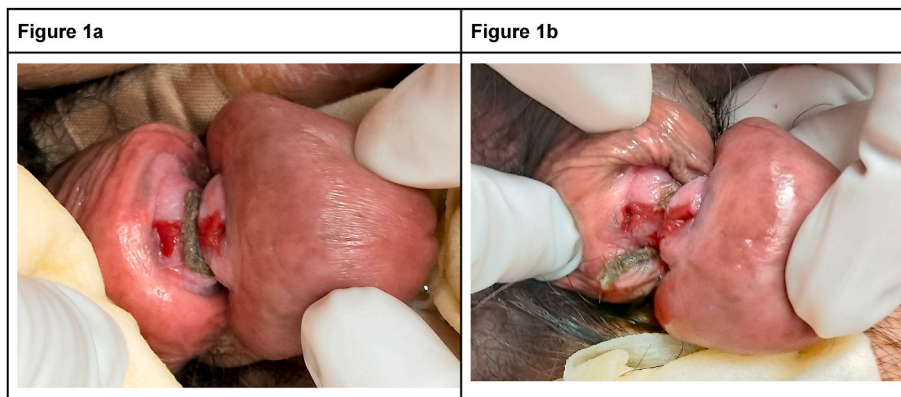


Fig. 1. Initial assessment within the emergency department. 1a: Shows hair tourniquet attached causing erosion of corporal tissue. 1b: Hair tourniquet partially removed revealing erosion through the urethra.

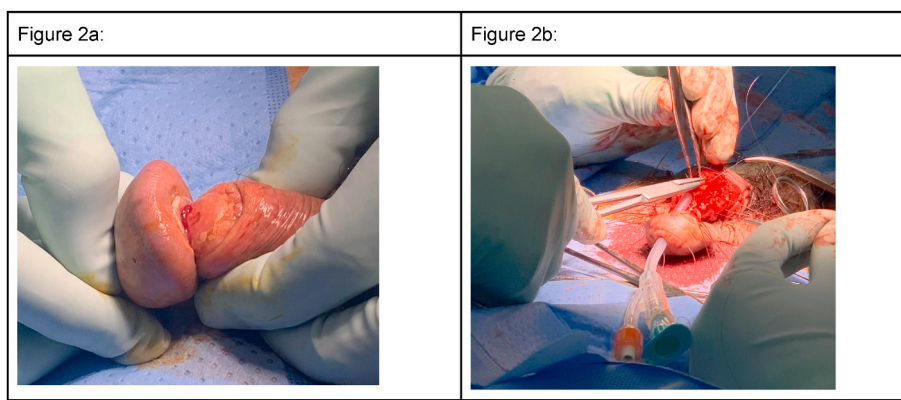


Fig. 2. Intraoperative assessment. 2a: Glans is attached by 1cm of corpus spongiosum. 2b: The urethra is reconstructed over indwelling catheter. hair tourniquet attached causing erosion of corporal tissue.

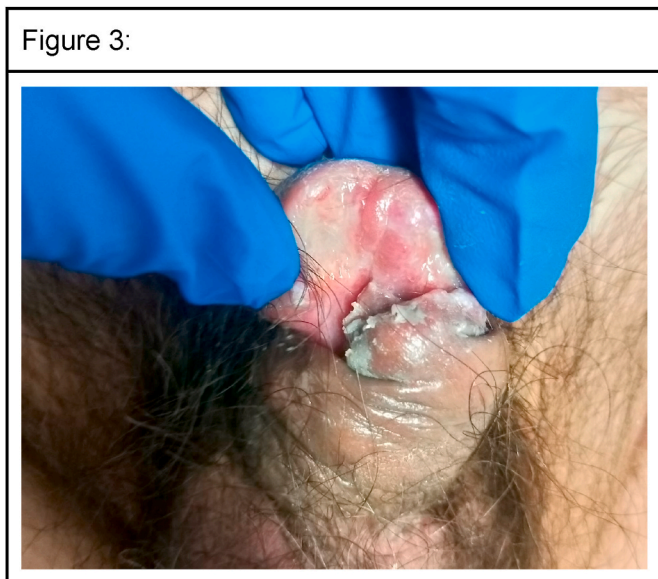


Fig. 3. 2 months after initial operation. A residual deformity of the ventral glans penis is seen with persistence of an acquired hypospadias.

hygiene (a recurrent hair ball was found under the foreskin adjacent to the ventral glans erosion) and patient factors for poor wound healing including T2DM and smoking. After a suprapubic catheter (SPC) was

placed under vision, the glans was debrided to healthy bleeding tissue and re-attached to the penile shaft. A circumcision was also performed. The patient self-discharged day 1 post operatively, without surgical review.

Many challenges arose engaging the patient in outpatient reviews, with concern that the patient would be lost to follow up with a supra-pubic catheter in situ. Wounds were noted to be healed at two months post presentation (Fig. 3), with residual deformity of the ventral glans penis, and inability to confirm the location of the urethral meatus. A patent urethra was confirmed with a cystoscope under anaesthetic, prior to spigotting the SPC and successfully completing a trial of void. In context of difficult patient engagement and risks to be lost to follow up we did not feel further operations to rehabilitate the glans would be in the best interest for the patient. Ongoing reviews in outpatient settings have shown good wound healing and a persistence of an acquired hypospadias.

3. Discussion

Traditionally hair thread tourniquet syndrome is found within the paediatric population, with the oldest reported case in the literature in an 11-year-old male.^{2,3} Our case, a 57 year old man with an erosive hair tourniquet, reminds clinicians to have an index of suspicion with males presenting with penile pain, highlighting the importance of thorough physical examination with retraction of foreskin.

Some groups have suggested that circumcision is a risk factor^{3,4} as hair can constrict more easily around a circumcised penis, however in this case we believe the presence a foreskin delayed the diagnosis as the patient, general practitioner and emergency department clinicians all

failed to diagnose the hair tourniquet syndrome.

Due to the significant erosion, the glans of our patient was relying solely on bulbourethral arterial supply. Poor arterial supply in conjunction with smoking status, diabetes and personal hygiene issues, placed him at significant risk of anastomotic failure with potential need for glansectomy. Despite this, an initial attempt of reconstruction over an in dwelling catheter was undertaken, and the success of the anastomosis and dorsal wound healing shows this can be achieved. The patient's greatest ongoing deformity arose on the ventral aspect of the glans, likely multifactorial in aetiology. It highlights the challenges in post-operative care in patients with significant anxiety issues, poor health literacy and no fixed abode. Early SPC placement and early circumcision could be considered. In this case the SPC diverted a foreign body (an IDC) and bacteria away from the wound, and a circumcision allowed easier post-operative wound care.

4. Conclusion

A high index of suspicion and thorough examination is required to diagnose adult hair tourniquet syndrome. Operative management needs to consider both patient factors and pathological factors.

Informed consent

Provided by patient.

Declarations of interest

None.

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Author contributions

Angela Holmes: Conceptualization, Writing - Original Draft, Visualization Sophie Tissot: Conceptualization, Writing – Original, Project administration Draft Karl Braslis: Writing - Review & Editing, Supervision.

Declaration of competing interest

None to declare.

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