

Penoplasty – Not Circumcision – for Buried Penis

MV Vincent, SE Dundas Byles, ND Duncan

INTRODUCTION

Buried or concealed penis is an uncommon condition in which the penile shaft is partially or completely obscured by preputial skin. In the majority of cases, it is congenital. Many patients are ill-advisedly referred for circumcision, a procedure which can compromise future repair and cosmetic outcome. We report on the management and outcome of two boys with congenital buried penis, one of whom was initially referred to the authors for circumcision.

Keywords: Boys, circumcision, subcuticular sutures

CASE REPORTS

Case 1

A 10-year old boy was seen in the paediatric surgical clinic after being scheduled for a circumcision, with a history of a barely visible penis since birth. Prior to referral, he had experienced progressive ballooning of the foreskin on micturition. He had no previous history of urinary tract infections and was otherwise well. On examination, he was of lean build, weighing 33 kg (50th centile). Significant findings were confined to his genitalia, where he was noted to have a completely buried penis (Fig. 1). Dribbling of cloudy urine was noted when gentle pressure was applied at the base of the penis to expose the penile shaft which was normal (Fig. 2). His mother was immediately counselled as to the



Fig. 1: Ten-year old boy with penis completely buried within preputial skin (Case 1).



Fig. 2: Evidence of dribbling of cloudy urine noted on partial retraction of foreskin, with a normal penile shaft demonstrated when gentle traction was applied to base of penis (Case 1).

hazards of proceeding with a circumcision, and instead he was consented for and underwent penoplasty. He was discharged home on the following day, having passed urine with no complaints, with minimal discomfort and no significant penile or scrotal oedema. At the two-week clinic review, both the mother and child were delighted with the cosmetic outcome of the procedure. At four months follow-up, he had no evidence of recurrence (Fig. 3).



Fig. 3: Appearance of genitalia four months after penoplasty (Case 1).

Case 2

A two-year old boy weighing 18 kg (above 95th centile) was referred to our paediatric surgical clinic with a history of dysuria and passage of malodorous urine. On examination, he had a completely buried penis (Fig. 4) and underwent penoplasty. He experienced urinary retention postoperatively which resolved once placed in a warm bath, and was discharged home on day one postoperatively. At the one-week clinic review, he had mild penile oedema, with a mildly sloughy wound and was thus commenced on a one-week

From: Department of Surgery, Anaesthesia and Intensive Care, University Hospital of the West Indies, Kingston 7, Jamaica.

Correspondence: Miss MV Vincent, The University Hospital of the West Indies, Department of Surgery, Anaesthesia and Intensive Care, Kingston 7, Jamaica. E-mail: michvincent@yahoo.com



Fig. 4: Completely buried penis of two-year old boy (Case 2).

course of antibiotics (Augmentin). On review two weeks later, the wound was no longer sloughy and his penile oedema had resolved. Now at three months follow-up, he has no recurrence and a good cosmetic outcome (Fig. 5).



Fig. 5: Appearance of genitalia three months after penoplasty (Case 2).

Penoplasty procedure

Penoplasty was performed under general anaesthesia, with prophylactic antibiotics (intravenous Augmentin) given in the immediate preoperative period. The foreskin was fully retracted and cleansed with betadine solution. A 3-0 silk traction suture was placed deep into the glans. A circumferential incision was then made about 5 mm proximal to the coronal sulcus, after infiltration of the phallus with 1:100 000 lignocaine in 1% adrenaline solution. The penis was fully degloved and a vertical longitudinal incision made ventrally along the median raphe, extending from the subcoronal circumferential incision to the base of the penis. On degloving the penis, we ensured that the dissection was deep enough, being carried out in the plane between Dartos fascia and Buck's fascia. In addition to ensuring adequate exposure of Buck's fascia for placement of anchoring sutures to the prepubic fascia, this procedure also ensured minimal bleeding.

Once fully degloved, the penile shaft was secured dorsally to the prepubic fascia at its junction with the corpora cavernosa with three sutures (vicryl 3/0) placed at 2, 10 and 12 o'clock. These anchoring sutures were intentionally placed longitudinally through Buck's fascia to minimize accidental damage to the dorsal nerves. Ventral anchoring sutures were also placed at 5 and 7 o'clock, ensuring that the urethra was not damaged in the process. Finally, redundant skin (which was minimal in both cases) was excised prior to closure of the ventral longitudinal and subcoronal incisions using interrupted 3/0 vicryl rapide sutures. Antibiotic ointment was then applied to the penis which was then loosely wrapped in sofratulle gauze. A urethral catheter was not placed postoperatively. Adequate analgesia was ensured postoperatively using oral paracetamol, oral cataflam and intramuscular pethidine – the latter only administered for the first 24 hours postoperatively.

DISCUSSION

Buried penis was originally described by Keyes in 1919 (1, 2). It is an uncommon condition in which the penis appears completely or almost completely obscured by preputial skin (1–5). Most cases are congenital in nature and associated with difficulty in maintaining proper hygiene, recurrent balanitis, spraying, dribbling of urine and ballooning of the prepuce on micturition. Parental and/or patient anxiety due to the poor cosmetic appearance is a common reason for referral (3, 4, 6). The terms 'buried penis', 'concealed penis' and 'megaprepuce' are often interchangeably used in the literature and attempts at classification to produce a unified terminology have so far been unsuccessful (2, 3, 7–12).

Acquired cases of buried penis usually occur as a complication of neonatal circumcision, whereby postoperative cicatricial scar formation over the glans leaves the penis entrapped. The condition is thus often referred to as 'trapped penis' (2–4, 6, 7, 13). In up to two-thirds of children, spontaneous resolution occurs and so surgical intervention before the age of three years is not recommended, unless the child is symptomatic (3, 13). Furthermore, topical application of steroids may be effective in two-thirds of cases (14).

The cause of congenital buried penis is most commonly thought to be due to abnormal attachment of the penile skin and Dartos fascia to the underlying Buck's fascia (2–6, 9, 11, 15). Other proposed theories include a paucity of ventral penile shaft skin (12, 16), excessive prepubic fat (3, 11, 17) and abnormal ventral displacement of the penis (18).

A number of urological procedures have been described for the correction of the buried penis, with penoplasty involving complete degloving of the penis with subsequent cover using dorsal skin presently accepted as the most appropriate procedure (1, 3, 4, 13, 19). The option of penoplasty is based on the premise that a buried penis occurs as a result of insufficient attachment of the skin and Dartos fascia to Buck's fascia, which is particularly so at the level of the

midshaft and proximally (6). Thus, the application of fixation sutures at the level of the penoscrotal junction and proximal penile shaft is usually advocated (3, 4, 6, 17). However, not all authors find fixation sutures necessary (5), and rely on the natural healing process to establish fixation of the shaft skin to the corporeal bodies (7). Finally, excision of excess or redundant shaft skin is usually performed and considered mandatory, as this avoids a 'bulky' penis postoperatively – improving cosmetic outcome and obviating the need for further surgical intervention to correct same (1, 15). Some authors add lipectomy or liposuction when the procedure is performed in obese boys (2, 17, 20), however, this has not been found to be necessary, as the results of penoplasty alone in obese boys is just as effective (3, 4), as was noted in our index case 2.

During penoplasty, there is usually adequate skin to obtain coverage of the penile shaft following degloving of the penis (3). In situations where this is not possible because of the presence of the typically noted constricting preputial band – which makes foreskin retraction and exposure of the glans difficult (7, 9, 10) – the prepuce can be unfurled to gain extra skin (6, 9, 12, 16), or ventral V-plasty (7) or Z-plasty (12) can be performed. Other options for skin coverage include use of an island pedicle flap (21, 22), free skin grafts (23) or scrotal flaps (19, 20). The problem of insufficient skin coverage is frequently seen, but more so in cases having wrongly undergone circumcision as the initial treatment option (3–4, 12, 24), particularly since the epithelial tissue of the inner preputial layer, which can be used during penoplasty for penile shaft skin coverage, is lost (12). This may then necessitate the use of potentially hair-bearing skin (12). In addition, following circumcision, the penis recedes further beneath the surrounding tissues, giving the impression that an inadequate circumcision was performed and so many of these children are then referred for redo circumcision (3–4, 9, 12, 18). For these reasons, circumcision for the correction of buried penis is clearly contraindicated (3–4, 9, 12, 18, 24).

Redman (16), in 2005, on describing his technique of preputial unfurling for correction of buried penis, a procedure which was first popularized by Donahue and Keating in 1986 (12), coined the procedure 'sleeve circumcision'. However, this terminology can be misleading (10) and is best avoided in an attempt to continue to emphasize the fact that buried penis is a contraindication to having a circumcision (3–4, 18, 24).

Another approach to the correction of buried penis involves translocation of the penile shaft toward the pubic symphysis as described by Joseph (18). This technique usually involves use of incisions at the base of the penis and is based on the theory of ventral displacement of the penile shaft as a possible aetiology of the condition. However, incisions at the base of the penis frequently lead to interrupted subcutaneous lymphatic drainage, causing significant long-standing postoperative peno-scrotal lymphoed-

ema (3, 6). Penoplasty utilizes a ventral longitudinal incision over the median raphe, thus obviating this complication.

With increasing awareness of the condition internationally, penoplasties are currently being carried out at an earlier age with many authors now proposing correction during infancy, between three and nine months of age (2–4, 9, 15).

In summary, buried or concealed penis is usually a congenital condition for which circumcision is contraindicated (3–4, 9, 12, 18, 24). Penoplasty involving complete degloving of the penis with placement of anchoring sutures between the prepubic fascia and Buck's fascia dorsally and Buck's fascia and the penoscrotal junction ventrally offers excellent cosmetic results – even in obese boys – with minimal complication rates and a low risk of recurrence [less than 4% – 6%] (2, 4). In acquired cases, occurring after neonatal circumcision, a period of conservative management may be indicated (13, 14).

REFERENCES

1. Chuang J, Chen L, Shieh C, Lee S. Surgical correction of buried penis: a review of 60 cases. *J Pediatr Surg* 2001; **36**: 426–9.
2. Maizels M, Zaontz M, Donovan T, Bushnick PN, Firlit CF. Surgical correction of the buried penis: description of a classification system and a technique to correct the disorder. *J Urol* 1986; **136**: 268–71.
3. Perger L, Robert SH, Feins NR. Penoplasty for buried penis in infants and children: report of 100 cases. *Pediatr Surg Int* 2009; **25**: 175–80.
4. Brisson P, Patel H, Chan M, Feins N. Penoplasty for buried penis in children: report of 50 cases. *J Pediatr Surg* 2001; **36**: 421–5.
5. Chu C, Chen Y, Diau G, Loh I, Chen K. Preputial flaps to correct buried penis. *Pediatr Surg Int* 2007; **23**: 1119–21.
6. Cromie WJ, Ritchey ML, Smith RC, Zagaja GP. Anatomical alignment for the correction of buried penis. *J Urol* 1998; **160**: 1482–4.
7. Alexander A, Lorenzo AJ, Salle JPL, Rode H. The ventral V-plasty: a simple procedure for the reconstruction of a congenital megaprepuce. *J Pediatr Surg* 2010; **45**: 1741–7.
8. Rod J, Desmouts A, Petit T, Ravasse P. Congenital megaprepuce: a 12-year experience (52 cases) of this specific form of buried penis. *J Pediatr Urol* 2013; **9**: 784–8. doi: 10.1016/j.jpuro.2012.10.010. Epub 2012 Oct 30.
9. Ruiz E, Vagni R, Apostolo C, Moldes J, Rodriguez H, Ormaechea M et al. Simplified surgical approach to congenital megaprepuce: fixing, unfurling and tailoring revisited. *J Urol* 2011; **185**: 2487–90.
10. Summerton DJ, McNally J, Denny AJ, Malone PSJ. Congenital megaprepuce: an emerging condition – how to recognize and treat it. *BJU* 2000; **86**: 519–22.
11. Casale AJ, Beck SD, Cain MP, Adams MC, Rink RC. Concealed penis in childhood: a spectrum of etiology and treatment. *J Urol* 1999; **162**: 1165–8.
12. Donahoe PK, Keating MA. Preputial unfurling to correct the buried penis. *J Pediatr Surg* 1986; **21**: 1055–7.
13. Eroglu E, Bastian OW, Ozkan HC, Yorukalp OE, Goksel AK. Buried penis after circumcision. *J Urol* 2009; **181**: 1841–3.
14. Palmer JS, Elder JS, Palmer LS. The use of betamethasone to manage the trapped penis following neonatal circumcision. *J Urol* 2005; **174**: 1577–8.
15. Boemers TML, De Jong TPVM. The surgical correction of buried penis: a new technique. *J Urol* 1995; **154**: 550–2.
16. Redman JF. Buried penis: a congenital syndrome of a short penile shaft and a paucity of penile shaft skin. *J Urol* 2005; **173**: 1714–17.
17. Shenoy MU, Srinivasan J, Sully L, Rance CH. Buried penis: surgical correction using liposuction and realignment of skin. *BJU Int* 2000; **86**: 527–30.
18. Joseph VT. A new approach to the surgical correction of buried penis. *J Pediatr Surg* 1995; **30**: 727–9.

19. Radhakrishnan J, Razzaq A, Manickam K. Concealed penis. *Pediatr Surg Int* 2002; **18**: 668–72.
20. Alter GJ, Ehrlich RM. A new technique for the correction of the hidden penis in children and adults. *J Urol* 1999; **161**: 455–9.
21. Wollin M, Duffy PG, Malone PS, Ransley PG. Buried penis. A novel approach. *Br J Urol* 1990; **65**: 97–100.
22. Kojima Y, Hayashi Y, Maruyama T, Sasaki S, Mogami T, Ueda K et al. Correction of completely buried penis using the modified preputial island pedicle flap method. *J Pediatr Surg* 1999; **34**: 1524–6.
23. Gillett MD, Rathbun SR, Husmann DA, Clay RP, Kramer SA. Split-thickness skin graft for the management of concealed penis. *J Urol* 2005; **173**: 579–82.
24. Sivakumar B, Brown AA, Kangesu L. Circumcision in ‘buried penis’ – a cautionary tale. *Ann R Coll Surg Engl* 2004; **86**: 35–7.