Case report

Circumcision in ‘buried penis’ – a cautionary tale

B Sivakumar¹, AA Brown², L Kangesu^{1,2}

¹St Andrews Centre for Plastic Surgery, Broomfield Hospital, Chelmsford, Essex, UK

²Department of Surgery, Southend Hospital, Westcliff-on-Sea, Essex, UK

Background: The aim of a circumcision is to remove sufficient foreskin from the penile shaft and preputial epithelium to uncover the glans. Removal of too much preputial skin may lead to an unsatisfactory cosmetic and functional result. Patients with a congenital anomaly known as ‘buried penis’ are particularly susceptible to this. In this condition, abnormal dartos fascial bands or muscle fibres tether the penile shaft and as a result conceal its true length.

Case report: A 5-year-old boy underwent circumcision but his ‘buried penis’ was not recognised by the surgeon pre-operatively. Unfortunately, his penile shaft was left almost entirely denuded of skin as a result. The wound required a full thickness graft. Follow-up at 1 year has so far been satisfactory.

Conclusions: This case highlights the importance of early recognition of a buried penis when considering circumcision. It demonstrates the abnormal anatomy of a buried penis and its management. It also provides a potential reconstructive option in cases of excess skin removal.

Key words: Circumcision – ‘Buried penis’ – Complications – Dartos muscle

Circumcision is a very common surgical procedure with over 30,000 operations being performed annually in the UK, mostly on children.¹ The British Medical Association and the American Association of Pediatricians recommend that circumcision be performed only for medical reasons – the most common of which is phimosis.^{2–4} Despite this, the majority are motivated by religious or cultural beliefs. The aim of circumcision is to remove sufficient foreskin from the penile shaft and the inner preputial epithelium to uncover the glans. The main factors to consider in order to minimise morbidity are attention to asepsis, adequate but not excessive excision of the foreskin, haemostasis and cosmesis.⁵ Complications occur in 2–10% of cases.^{4–6} Haemorrhage and sepsis are the commonest. Removal of too much preputial skin may lead to an unsatisfactory cosmetic and functional result. Routine circumcision is generally contra-indicated in

boys with congenital penile anomalies.⁷ ‘Buried penis’ is one such congenital deformity that often goes unrecognised. It is characterised by abnormal dartos fascial bands, tethering the penile shaft, concealing its true length. It is usually associated with prominent supra pubic fat.^{7–9} Circumcision of the standard variety should be avoided in such patients as it may result in excessive removal of skin, denuding the penile shaft.^{7,10} We present this case to highlight the importance of early recognition of a buried penis and to illustrate a potential reconstructive technique for its management.

Case report

A 5-year-old boy was referred for circumcision at the request of his mother. Her concern was that his prepuce was non-retractile because of a phimosis. This had led to

Correspondence to: Mr Branavan Sivakumar, Senior House Officer in Plastic Surgery, Mount Vernon Hospital, Rickmansworth Road, Northwood, Middlesex HA6 2RN, UK. E-mail: bran1973@hotmail.com

some ballooning of the prepuce. No episodes of infection had been observed.

At the time of surgery it was noted that the child had a 'small shaft'. A standard circumcision was performed. Subsequently, a wound haematoma developed which necessitated a return to theatre. At which point, a second senior surgeon diagnosed that excess skin had been removed. Examination revealed that the penis was retractile and the shaft, though present, was denuded of skin. By applying a stay suture, it was possible to pull the penis to length. Muscle fibres, in continuity with the dartos, enveloped the penile shaft retracting it towards the pubis. Division of these fibres allowed lengthening of the penile shaft, highlighting the shortage of skin. A full-thickness graft from the child's groin was used to cover this defect. This was taken lateral to the femoral vessels to minimise the potential hair growth from the graft in the future. The wound healed well and, so far, follow-up has been uneventful (Fig. 1). A subsequent legal case ensued and compensation payment was made without challenge.

Discussion

Circumcision is a frequently performed procedure with a low incidence of complications. It is generally accepted that standard circumcision is contra-indicated in cases of congenital penile deformity.⁷ It should only be contemplated in such cases, following appropriate specialist evaluation of its indications and fore-thought into potential operative complications. This case emphasises the importance of pre-operative identification of one such anomaly – the 'buried penis' – in order to prevent the inadvertent removal of excess skin from the penile shaft.

Many infants have excess 'baby fat' surrounding the penile base. This situation tends to resolve as the fat regresses with age and should not be considered a true case of 'buried penis'.⁷ A 'buried penis', despite being associated with a prominent supra pubic fat pad, is defined by tethering dartos facial bands which retract the penile shaft inward.^{7-9,11} In our case, actual muscle fibres were seen enveloping the penile shaft. Releasing these fibres revealed a normal corporeal length and a disastrous shortage of skin as a consequence of the circumcision.

Techniques to tackle the problems of skin coverage have been described.⁷ These include the use of preputial skin and a large Z plasty, based at the penopubic angle to transfer skin for proximal shaft coverage. However, in cases such as ours involving extensive penile denudation recognised immediately, studies have alluded to the use of full-thickness skin grafts.^{7,12} In the past, however, problems of colour matching and diminished sensation have meant skin grafts have been used as a last resort.⁷

Figure 1 Photographs at 7 months after surgery showing the penile shaft resurfaced with a full thickness from the left groin.

This case demonstrates the efficacy of dartos muscle fibre release to restore normal length in a buried penis. It also advocates the use of a full-thickness graft in reconstructing the extensive skin loss that can be encountered as a complication of circumcision in this condition.

At 1-year follow-up, the skin covering the shaft appeared supple and healthy with no evidence of scarring or contracture. A longitudinal ventral suture line optimised the cosmetic result. It is difficult, however, to comment on the functional outcome until the child is sexually active. However, an erection has been witnessed by the child's mother during which the shaft appeared to be straight. Long-term follow-up into adulthood is planned.

Acknowledgements

The authors express their thanks to Mr A Bracka, Consultant Genito-Urinary Plastic Surgeon, Wordsley Hospital, Stourbridge, West Midlands, UK for his advice in the management of this child.

References

1. Williams N, Kapila L. Complications of circumcision. *Br J Surg* 1993; **80**: 1231–6.
2. Rickwood AMK, Walker J. Is phimosis overdiagnosed in boys and are too many circumcisions performed in consequence? *Ann R Coll Surg Engl* 1989; **71**: 275–7.
3. Williams N, Chell J, Kapila L. Why are children referred for circumcision? *BMJ* 1993; **306**: 28.
4. Griffiths DM, Atwell JD, Freeman NV. A prospective study of the indications and morbidity of circumcision in children. *Eur Urol* 1985; **11**: 184–7.
5. Kaplan GW. Complications of circumcision. *Urol Clin North Am* 1983; **10**: 543–9.
6. Fraser LA, Allen MJ, Bagshaw PF, Johnstone M. A randomised trial to assess childhood circumcision with the Plastibell device compared to the traditional dissection method. *Br J Surg* 1981; **68**: 593–5.
7. Alter JA, Horton Jr CE. Buried penis as a contraindication for circumcision. *J Am Coll Surg* 1994; **178**: 487–90.
8. Crawford BS. Buried penis. *Br J Plast Surg* 1977; **30**: 96–7.
9. Maizels M, Zaontz M, Donovan J, Bushnick PN, Firlit CF. Surgical correction of the buried penis: description of a classification system and a technique to correct this disorder. *J Urol* 1986; **136**: 268–71.
10. Gough DCS. Intersex. In: Weiss RM, George NJR, O'Reilly PH (eds) *Comprehensive Urology*. London: Mosby, 2000; 243–4.
11. Horton CE, Sadove RC, Devine CJ. Reconstruction of male genital defects: congenital. In: McCarthy JG. (ed) *Plastic Surgery, Vol 6, The Trunk and Lower Extremity*. London: Saunders, 1990; 4177–9.
12. Donohue PK, Keating MA. Preputial unfurling to correct the buried penis. *J Pediatr Surg* 1986; **21**: 1055–7.
13. Sotolongo JR, Hoffman S, Gribetz ME. Penile denudation injuries after circumcision. *J Urol* 1984; **133**: 102–3.