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Our experience of proximal hypospadias repair using the Cloutier–Bracka technique at the Gynaeco-Obstetric and Paediatric Hospital, Yaounde-Cameroon

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ABSTRACT

Background: In parts of Africa, routine circumcision is practised and sometimes even on children with hypospadias. The lack of preputial foreskin renders urethroplasty more difficult and often requires to use of a mucosal graft as described by Bracka. **Objective:** The authors describe their experience of hypospadias repair using Bracka's technique. **Materials and Methods:** Over a period of 5 years, 100 cases of proximal hypospadias were operated in our institution. All patients aged 0–18 years who had already been circumcised were included in this study. **Results:** The outcome of the 12 cases operated according to Bracka's technique was analysed. The mean age was 11.5 years. The ectopic meatus was penoscrotal in three cases, scrotal in one case and perineal in eight cases. After reconstruction, the new meatus was sutured at the top of the glans in one case, at the prepuce in seven cases and at the penile midshaft in one case. The main complications noted were surgical site infection, wound dehiscence, residual chordee and urethrocutaneous fistula. No neourethral stenosis nor uretrocele was recorded. **Discussion:** The buccal mucosal graft urethroplasty as described by Bracka is associated with a lower risk of meatal strictures compared to other free mucosal grafts. The buccal mucosa is easier to harvest and causes less scarring than bladder mucosa. **Conclusion:** Repair of severe hypospadias remains a challenge for paediatric surgeons. The functional and cosmetic outcomes depend on the choice of the donor site for the graft and objective assessment of successful reconstruction criteria during follow-up.

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INTRODUCTION

Reconstruction of severe hypospadias using two-staged techniques is associated with an overall lower rate of complications, about 2.5–6% as reported in the literature[1,2] compared to one stage techniques. There is less room for this debate in sub-Saharan Africa as a significant number of cases are already circumcised. The latter is due to the routine practice of circumcision even in children with hypospadias in most African countries. Urethroplasty is, even more, challenging in this cases and often requires the use of a free mucosal graft. Thus, the Cloutier–Bracka two-stage procedure.

The purpose of this study was to report our experience of severe hypospadias repair using the Bracka's procedure.

MATERIALS AND METHODS

Over a period of 5 years, 11 surgical team trips were carried out a the Yaounde Gynaeco-Obstetric and Paediatric Hospital in collaboration with the

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non-governmental organisation "children action" and the teaching hospitals of Geneva and Lyon, France. A total of 100 patients were operated using different techniques. The medical records were reviewed retrospectively and selected cases were those aged 0–18 years operated on using the Cloutier–Bracka's technique. The surgery was performed under general anaesthesia with a caudal block. The first stage of the reconstruction aimed at straightening the penis by correcting the chordee, then urethroplasty was carried out by a glans split to create a gutter which is lined with a free graft of buccal mucosa covering the ventral surface of the penis [Figure 1]. One year later, tubularisation of the plate was done [Figure 2]. Duration of urethral stenting varied from 15 to 21 days. Final functional and cosmetic results were deemed satisfactory [Figure 3]. when no residual chordee nor excess scarring was seen, a slit-shaped meatus at the tip of the glans and if the reconstruction allowed the child to have micturitions with a straight and wide stream.

Figure 1: Buccal muccosa graft

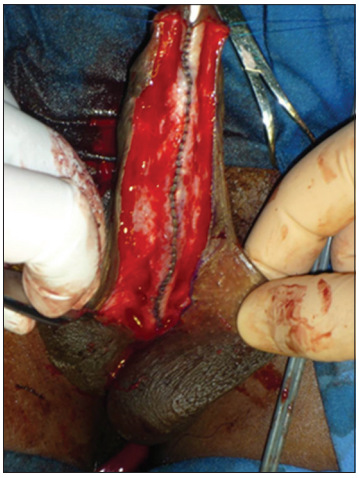

Figure 2: Tubularisation of the urethral plate

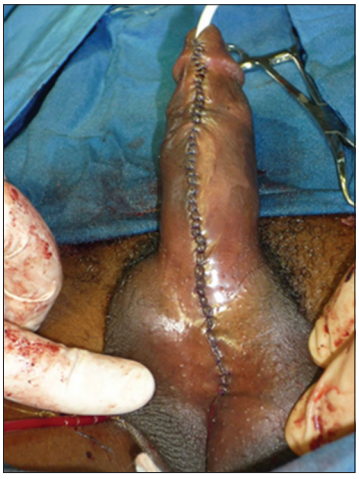

Figure 3: Immediate post-operative result

RESULTS

The outcome of 12 patients operated using the Bracka's technique was analysed. The mean age at surgery was 11.5 years (4–18). The ectopic meatus was penoscrotal ($n = 3$), scrotal ($n = 1$) and perineal ($n = 1$). Genetic studies were seldom in all the patients. One was a 45, XO/46, XY karyotype and the 11 others 46, XY. All presented with severe chordee and three had a small penis. Four had had previously failed hyposapdias surgery and all but one had been circumcised. The associated anomalies found were crytorchidism, abnormal scrotum, clef tlip and palate and migratory testes. The neourethral meatus was sutured in the at the apex (1), the glanular groove (7) and at the penile midshaft (1). Orchidoplexy, excision of a Mullerian remnant and the creation of a muscular collar aound the glans was done when necessary. The flap of tissue was harvested from the lip (10) the pruce (1) and was mixed in one case. Three patient still await the second stage of the reconstruction. Four complications were recorded in our patients; partial or total breakdown of the repair, urethrocutaneous fstula, post-wound infection and residual chordee. No meatal stricture nor urthrocele was recorded in our series with a median follow-up of 2, 6 years, 50% of patients had good functional and cosmetic results.

DISCUSSION

The two-stage repair of hypospadias is widely attributed to Nicolle[3] by many authors and his technique was based on descriptions by Turner-Warwick.[4] More recently, the two-stage repair has been popularised by Bracka.[5] This technique is characterised with good cosmetic results despite a higher rate of urethral strictures.[5] In this series, two-stage hypospadias repair using a buccal mucosa graft as described by Bracka[5]

is correlated with a lower rate of strictures compared to urethroplasties using other free grafts[6]. The use of a free graft of buccal mucosa taken from the inner aspect of the cheek or the inferior lip as described by Dessanti *et al*.[7] is more accepted as it is easier to harvest and also causes less morbidity and less scaring than bladder mucosa. However the choice of the donor site is still a debate, and some others report the use of post-auricular skin[8]. The use of a urethral catheter to drain urine and to calibre the newly reconstructed urethra is advocated by most, although no consensus exists about necessity and duration of urethral stenting. In this study, the catheter was removed after 10 days and our results are comparable to those of Castellan *et al*.[9] The quality of healing is a major concern in hypospadias surgery. Various attempts have been made to boost the factors involved in the healing process. Among them, hormonal stimulation of the hypospadias penis before surgery is the most commonly used. This once more emphasises the importance of a multidisciplinary approach to improve the outcome after surgery. Tissue engineering may be a promising avenue to provide allogenic urethral tissue for urethroplasty. The results of the repair depend on the adequate choice of the technique and the surgeon's experience.

CONCLUSION

The authors suggest that the Cloutier–Bracka's technique should be the first-line treatment in patients with proximal hypospadias who have been previously circumcised. This method provides good results, both regarding restoration of normal appearance, function and cosmesis, and is correlated with minimal complications. Long-term follow-up is rendered difficult due to the lack of objective criteria for assessment of cosmetic appearance.

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Conflicts of interest

There are no conflicts of interest.

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