



PEDIATRIC UROLOGY

ORIGINAL ARTICLE

Lingual mucosal graft two-stage Bracka technique for redo hypospadias repair



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KEYWORDS

Lingual;
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ABBREVIATIONS

BMG, buccal mucosa graft;
LMG, lingual mucosal graft;
VAS, visual analogue scale

Abstract Objectives: To report our initial experience in redo hypospadias repair with a lingual mucosal graft (LMG) using a two-stage Bracka technique.

Patients and methods: This study was prospectively conducted and included 26 patients with hypospadias with failed previous repairs. All the patients had a LMG using a two-stage Bracka technique. In the first stage, the harvested LMG, from the ventro-lateral surface of the tongue, was implanted in a well-prepared vascularised bed in the ventral aspect of the penis. After 6 months, tubularisation of the well-taken graft was completed. Tunica vaginalis or a dartos flap was used as second-layer coverage of the neourethra. Success was defined as acceptable aesthetic and functional outcomes without any additional surgical interventions.

Results: The mean (SD) patient age was 5.15 (1.6) years. The mean (SD) LMG length was 3.82 (0.9) cm and the width was 1.5 (0.5) cm. The mean (SD) number of previous repairs was 2.76 (1.1). The mean (SD) follow-up was 12 (2) months. Donor-site complications included: pain in all patients, with a pain score of > 3 on the visual analogue pain scale (0–10) in 10 (38%); and speech problems in 19 (73%). First-stage complications were graft loss ($n = 2$) and contracture ($n = 1$). The second stage was completed in 23 patients resulting in the following significant complications: meatal stenosis plus fistula ($n = 2$), breakdown ($n = 1$). Successful hypospadias repair was achieved in 77% (20/26) of the patients.

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Conclusion: Lingual mucosa is a reliable and versatile graft material in the armamentarium of two-stage Bracka hypospadias repair with the merits of easy harvesting and minor donor-site complications.

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Introduction

Hypospadias is one of the commonest congenital anomalies with an incidence of up to 1 in 125 live births [1]. One of the most difficult tasks is repair of previously multiple failed hypospadias surgeries, i.e. crippled hypospadias [2–4]. Many surgical techniques have been reported for re-operative hypospadias repair with complications rates ranging from 10% to 57% [3,5–8]. Buccal mucosa graft (BMG) hypospadias repair is the preferred technique when extra genital skin is needed [3,9], with better results obtained with the staged Bracka procedure [4,8–10].

A lingual mucosal graft (LMG) shares the same tissue characteristics and comparable urethroplasty results as a BMG but with easier harvesting and lower donor-site complications [11–18].

In the present study, we aimed to evaluate LMG two-stage Bracka redo hypospadias repair for aesthetic and functional outcomes, and donor-site complications.

Patients and methods

This prospective clinical trial was carried out between April 2013 and December 2015. Redo circumcised hypospadiac patients with a scarred fibrotic urethral plate, with or without penile chordee or deficient penile skin, were enrolled in this study. Any patient with oral pathology was excluded from the study. Approval from our Institutional Ethics and Review Committee and informed consent signed by the parents were taken for every case. In all, 26 circumcised redo hypospadiac patients were enrolled in the study (Table 1). A two-

stage Bracka repair was our chosen surgical technique with a LMG as the tissue substitution for the urethral plate. In the first stage, with the patient under general anaesthesia via a nasotracheal tube, penile degloving and removal of all scarred tissues including the urethral plate was done. Penile straightening was tested by artificial erection (Fig. 1), if residual chordee persisted, a dorsal plication was carried out according to Baskin’s modification of the Nesbit procedure [19].



Fig. 1 Graft harvesting from the ventro-lateral surface of the tongue.

Table 1 The patients’ characteristics.

Characteristic	Value
Number of patients	26
Age (at first stage), months, mean (SD, range)	61.8 (19.2, 30–132)
Previous repairs, <i>n</i> , mean (SD, range)	2.76 (1.1, 2–5)
Associated anomalies	
Penile chordee, mean (SD, range) <i>n</i> = 12	21.25 (8.61, 10–40)
Penile rotation, <i>n</i>	6
Orchidopexy for undescended testis, <i>n</i>	4
Urethral plate defect length, cm, mean (range)	3.08 (1.6–5.7)
LMG length, cm, mean (SD, range)	3.82 (0.9, 2–6.9)
LMG width, cm, mean (SD, range)	1.46 (0.3, 1.2–1.8)
Follow-up period after second stage, months, mean (range)	14.34 (8–22)

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