

Oral Mucosa Graft for Repair of Hypospadias: Outcomes at Puberty

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Abbreviations and Acronyms

BXO = balanitis xerotica obliterans

hyposp = hypospadias

OMG = oral mucosa graft

PS = penoscrotal

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Study received approval of hospital clinical audit department.

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Purpose: Oral mucosa graft has been used in the treatment of hypospadias for the last 15 years. We assessed the long-term outcome of oral mucosa grafts for urethral substitution in hypospadias surgery at our institution.

Materials and Methods: We retrospectively reviewed patients who underwent oral mucosa graft for hypospadias between 1994 and 2002. Data collected included indications, site of oral mucosa graft, complications and long-term outcomes. Followup information was obtained from the last clinical contact.

Results: A total of 37 patients underwent oral mucosa graft consisting of an onlay graft (30), urethral tube (5) or 2-stage Bracka type procedure (2). Of the patients 26 had undergone at least 1 previous operation for hypospadias. Following oral mucosa graft 10 patients had an early surgical complication requiring reoperation, including fistula (7), urethral stricture (2) and tortuous urethra (1). Three of the 5 patients (60%) with tubed grafts had complications. Long-term followup was available in 30 patients, of whom 28 are now post-pubertal and 2 are peripubertal. One patient required redo urethroplasty for obstructive balanitis xerotica obliterans in the grafted urethra. Five patients have varying degrees of meatal stenosis, with only 2 requiring intervention to date.

Conclusions: Oral mucosa graft has a significant associated early complication rate of fistula and stricture, with 27% of cases requiring further surgery. However, the majority of oral mucosa grafts have stable urethral outcomes at puberty.

Key Words: hypospadias; mouth mucosa; postoperative complications; urologic surgical procedures, male

THE majority of hypospadias cases can be repaired using the native urethral plate. In more severe cases or in previous unsuccessful repair new tissue from elsewhere may be needed for urethral reconstruction.

Oral mucosa graft is a versatile urethral substitute and a useful alternative tissue in salvage urethroplasty situations. Initially described by Humby in 1941,¹ the current enthusiasm for OMG was generated by publications by Burger² and Des-

santi³ et al in 1992. Early outcome studies have revealed that oral mucosa graft has a significant early complication rate,⁴⁻⁶ which is probably more a reflection of the complex circumstances in which it has been deployed rather than an inherent flaw of the graft. The few long-term reports available suggest stable urethral outcomes.^{4,7,8}

We have been using oral mucosa graft to treat complex hypospadias for the last 15 years. We have generally

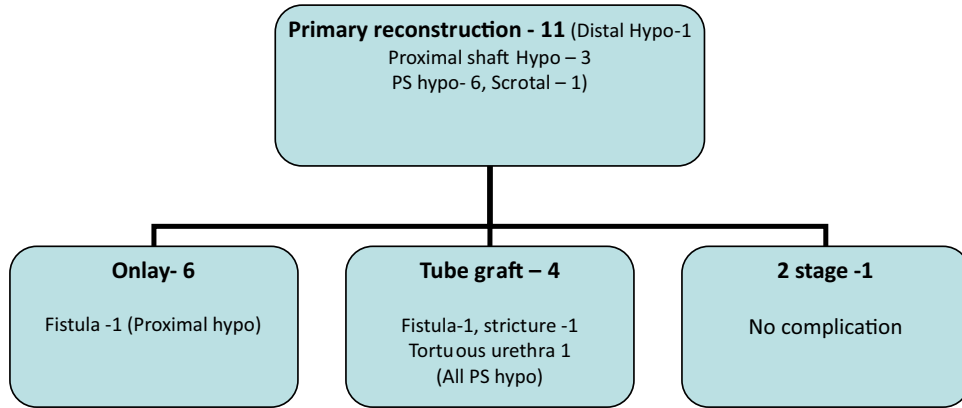


Figure 1. Early complications following OMG for primary reconstruction

used it as an onlay graft in previous failed repairs and occasionally as a tube graft or a 2-stage Bracka type procedure.⁹ We present the long-term followup of OMG for urethral substitution in hypospadias surgery at our institution 12 years following our first report,⁵ specifically looking at pubertal outcomes.

METHODS

We retrospectively reviewed all patients who underwent OMG for hypospadias between 1994 and 2002. Based on our protocol, we review complex hypospadias cases at puberty. Data collected included indications for OMG, donor site, complications of OMG, and early and long-term outcomes. Followup information was obtained from the last clinical contact. The study was approved by the clinical audit department of our hospital. Early complications are defined as complications occurring within 1 year of operation.

RESULTS

A total of 37 patients underwent OMG. Median age at operation was 7.5 years (range 2 to 15). In all

except 1 patient OMG was harvested from lower lip. Median graft length was 2 cm and width 1 cm. Donor site complication occurred in 1 patient, in whom a mucous retention cyst developed.

Of the patients 11 underwent PR with OMG for severe hypospadias. Meatal location was penoscrotal in 6, proximal penile in 3, scrotal in 1 and megameatus intact prepuce (with previous circumcision) in 1. A total of 26 patients underwent SR for complications of previous hypospadias repair, including repair breakdown in 13, urethral stricture in 7 and fistula in 6. The primary pathological finding in this group was distal shaft hypospadias in 19, mid shaft in 2 and penoscrotal in 5.

A total of 30 patients underwent ventral onlay graft, 5 urethral tube and 2 a 2-stage procedure. Of the patients 11 underwent Nesbit dorsal plication to correct chordee. In 31 cases OMG was placed up to the meatus and in 6 OMG was sited proximal to the meatus (as intact urethra distal to fistula).

Ten patients (27%) had significant early complications (figs. 1 and 2). Fistulas that required surgical closure developed in 7 patients (simple closure in

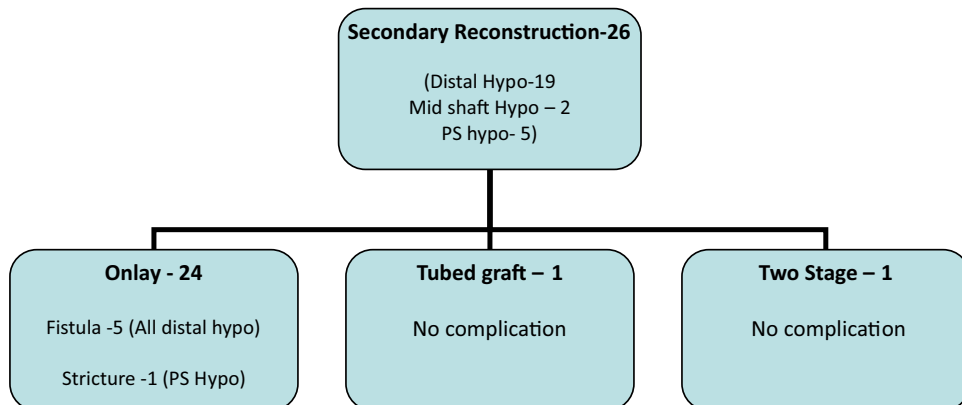


Figure 2. Early complications following OMG for secondary reconstruction

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