The Tongue as an Alternative Donor Site for Graft Urethroplasty: A Pilot Study

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Purpose: Urethroplasty with a buccal mucosal graft provides excellent clinical results but it may also cause oral complications in some cases. The mucosa covering the lateral and under surface of the tongue is identical in structure with that lining the rest of the oral cavity. We evaluated LMGs for urethroplasty.

Materials and Methods: From January 2001 to September 2004, 8 men 34 to 65 years old (mean age 46.1) with urethral strictures 1.5 to 4.5 cm long were selected for 1-stage dorsal onlay urethroplasty. The site of the harvest graft was the lateral mucosal lining of the tongue. Postoperatively all patients were followed with urethrography, uroflowmetry, cystourethrography and flexible urethroscopy after 3 and 12 months. Successful reconstruction criteria were peak flow rate greater than 15 ml per second and no need for postoperative urethral dilation.

Results: Median followup was 18 months (mean 22.1, range 3 to 47). Seven cases were successful. One patient had a partial urethral stricture. In successful cases cystourethrography revealed no significant graft contractures or sacculations and at flexible urethroscopy LMG was almost indistinguishable from native urethra. There were no pain, esthetic or functional complications at the donor site.

Conclusions: Harvesting the LMG is feasible and easy to perform. Compared with the buccal mucosal graft the LMG seems to be associated with less postoperative pain and a minor risk of donor site complications. These preliminary functional and esthetic data are satisfactory.

Key Words: urethra, urethral stricture, tongue, mucous membrane, transplants

Since 1909, a large variety of free extragenital graft tissues has been used for urethroplasty, such as the ureter, saphenous vein, appendix, full-thickness skin, bladder mucosa and buccal mucosa.[1] Current opinion is that, if free extragenital tissue is needed to perform urethroplasty, a BMG provides excellent clinical results[2–6] but may also cause oral complications. The main long-term donor site complications are persistent perioral numbness, salivatory changes and difficulty in opening the mouth.[6,7] Other complications are bleeding,[8] scarring and lip deviation or retraction.[9,10]

The mucosal covering the lateral and under surface of the tongue is identical in structure with that lining the rest of the oral cavity. Therefore, like buccal mucosal,[4] lingual mucosa has constant availability, easy harvesting, and favorable immunological properties (resistance to infection) and tissue characteristics (a thick epithelium, high content of elastic fibers, thin lamina propria and rich vascularization). We used a LMG for managing anterior urethral strictures and evaluated the functional results of urethroplasty and possible complications of the donor site. In what to our knowledge is a pilot study we describe the operative technique and our initial experience with the LMG in 8 patients with anterior urethral strictures.

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MATERIALS AND METHODS

From January 2001 to September 2004 we selected 8 men 34 to 65 years old (mean age 46.1) for 1-stage dorsal onlay urethroplasty[11,12] with an LMG. Stricture length was 1.5 to 4.5 cm (mean 3.1). Six strictures were in the bulbar urethra and 2 were in the penile urethra. Stricture etiology was inflammatory in 3 patients, iatrogenic in 2, post-traumatic in 2 and unknown in 1. Previous stricture treatments included dilations in all 8 patients and 2 or more optical internal urethrotomies in 6. All patients were evaluated preoperatively with uroflowmetry, flexible urethroscopy, and retrograde and voiding urethrography.

Surgical technique. The surgical procedure is performed with the patient under general anesthesia with nasotracheal intubation. The procedure begins with complete mobilization of the stenotic urethra from the corpora cavernosa via a transperineal or penoscrotal route. The urethra is rotated 180 degrees and the strictured tract is opened along its dorsal surface, extending the incision proximal and distal until healthy tissue is observed. The length of the urethrotomy is measured to harvest an adequate free graft.

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sible application of LMG could be as an integration in patients with extremely long strictures when a long graft is needed and the BMG is not sufficient.

CONCLUSIONS

Harvesting the LMG is feasible and easy to perform. The LMG seems to be associated with a minor risk of donor site complications. These preliminary functional and esthetic data are satisfactory.

Abbreviations and Acronyms

BMG = buccal mucosal graft
LMG = lingual mucosal graft

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