



## A STUDY OF OUTCOMES OF BMG URETHROPLASTY IN LICHEN SCLEROSIS

### Medical Science

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### ABSTRACT

**Aim:** To evaluate the outcomes from, single institution series of patients with lichen sclerosis (LS) who underwent BMG Urethroplasty.

**Materials and Methods:** We retrospectively reviewed 35 patients who underwent surgical management of their LS urethral strictures from 2016 to 2018, comparing outcomes of patients of bulbar and pan urethral stricture undergoing a single-stage buccal mucosa graft (BMG) urethroplasty. Demographic and surgical outcomes data were collected for all patients.

**Results:** Of the 35 patients, the mean follow-up was 15 months (6 to 24), mean age was 43 years (21-75). The mean stricture length was 4.63 cm (2 to 8cm), with 62.85% (22) of patients having a bulbar stricture. All the patients with bulbar stricture were planned for a single-stage BMG urethroplasty, recurrence found 13.63% (3). Single-stage BMG urethroplasty was also performed in 37.15% (13) patients with pan urethral stricture, a mean stricture length of 17.85 cm (15-21 cm), recurrence found in 30.76% (4) cases.

**Conclusion:** Management of LS strictures continues to pose challenges to the reconstructive surgeon due to the high rate of stricture recurrence and often progression. Patients undergoing single-stage often require revision and must be carefully observed for recurrent urethral stricture.

### KEYWORDS

buccal mucosal graft, LS- lichen sclerosis

### INTRODUCTION:

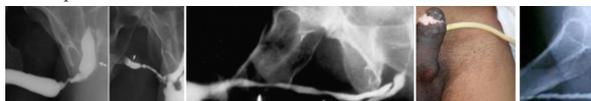
Buccal mucosa graft (BMG) was first described for urethral reconstruction by Humby in 1941. It has become an ideal urethral substitute because of ease of harvest, surgical handling characteristics, hairlessness, compatibility in a wet environment, and its early in-growth and graft survival. Because of these unique characteristics, buccal mucosa has endeared itself to the realm of reconstructive urology. Standard bulbar urethroplasties using buccal grafts should have a lifetime success rate.

LS is a scarring disorder characterized by tissue pallor, loss of architecture, and hyperkeratosis. Preputial scarring from LS can lead to phimosis, and circumcision is usually curative, although recurrence in the circumcision scar may occur. The late stage of this disease is called *balanitis xerotica obliterans*, which can involve the penile urethra and result in troublesome urethral stricture disease.

### PATIENTS AND METHODS

Between July 2016 and July 2018, 35 men with a mean age of 43 years (range 21 to 75) underwent BMG urethroplasty for both bulbar and panurethral stricture. All the patients who presented with lichen sclerosis underwent a single-stage procedure. The diagnosis was made according to the clinical appearance and confirmed by histology. No premalignant or malignant histological features were identified.

Patients were evaluated with a medical history, physical examination, retrograde urethrogram, urethroscopy, uroflowmetry, urinalysis and ultrasound assessment of post-void residual urine volume. The paired t test was performed on preoperative and postoperative Qmax. We found bulbar urethral stricture in 22 patients and pan urethral stricture in 13 patients. Single stage buccal mucosal graft dorsal onlay technique was used in all cases.



Bulbar urethral stricture

Panurethral stricture

Lichensclerosis with RGU

### Surgical Technique for 1-stage BMG

For pendulous and bulbar strictures urethroscopy was used to approximate the stricture site. An incision was made overlying the approximate area of the penis or perineum. A dorsal onlay was performed, the urethra was isolated in the area of the stricture circumferentially and rotated 180 degrees. A posterolateral

urethrotomy incision was made along the length of the stricture and approximately 1 cm into healthy urethra proximal and distal. Urethrotomy length was measured.

Attention was then turned to the mouth. All BMG harvests were completed using a single team approach by the surgeon (LAL) performing urethroplasty, as described by Morey and McAninch. Typically nasal intubation was used to enhance exposure and a Dingman retractor was used for the mouth. The donor site was marked and its margins were infiltrated with saline. The donor site was closed with a running 3-zero chromic suture. An graft was designed to fit the urethral defect in a tension-free manner with a 24Fr to 36Fr caliber lumen depending on location. The graft was prepared by removing any muscular, glandular or excess fibro-areolar tissue. The BMG onlay was then secured into the urethral defect using a 4-zero polydioxanone running suture on each side of the defect. Dilute methylene blue was irrigated into the urethra via the meatus to ensure a watertight seal. A suprapubic tube was placed for urinary diversion and a 16Fr silicone catheter was inserted into the bladder via the urethra and plugged. Pericatheter retrograde urethrogram was performed 14 days postoperatively to ensure no extravasation before the urethral catheter was removed.

### RESULTS:

A total of 35 men underwent BMG urethroplasty, including bulbar and panurethral stricture. mean followup was 15 months (6 to 24). The mean length of bulbar stricture was 4.63 cm (2 to 8cm), a mean stricture length of pan urethral of 17.85 cm (15-21 cm). The success rate of all bulbar was 86.36% (19 of 22). Complications occurred in 18.18% of the patients (4 of 22), including wound infection 4.5% (1 of 22) and recurrent strictures in 13.63% (3), of which one patient required dilation, two are managed with internal urethrotomy and. The success rate of all panurethral stricture was 69.23% (9 of 13). Complications occurred in 46.15% (6 of 13) of the patients including urinary tract infection in 7.6% (1) and recurrent strictures in 30.76% (4 of 13), of which 1 required dilation, 2 cases required internal urethrotomy and 1 underwent perineal urethrostomy. There were no donor site complications, postoperative erectile dysfunction or chordee

A total of 22 strictures were limited to the bulbar urethra and 13 involved the panurethra. Mean followup was 15 months (6 to 24).

In this group preoperative Qmax was range 0 to 13 per second vs a postoperative Qmax of range 10 to 46 per second. For all bulbar repairs mean preoperative Qmax was 6 to 13ml per second vs a

postoperative Qmax of 15 to 46 per second. In the panurethral repair group preoperative Qmax was 0 to 10 per second vs a postoperative Qmax of 10 to 34 ml per second.

Site of stricture	Number	Success rate	recurrence	infection	UTI	Fistula
Bulbar	22 (62.85%)	19 (86.36%)	3 (13.63%)	1(4.5%)	0	0
panurethral	13 (37.15%)	9 (69.23%)	4 (30.76%)	1(7.6%)	1(7.6%)	0

The lower success rate of 1-stage BMG pendulous stricture repairs in patients with LS may be due to residual LS remaining after excision since intraoperative identification of microscopic LS may be missed. Also, the mentioned less hospitable graft recipient environment of the pendulous urethra may exacerbate failure in the setting of LS,

The perioperative morbidity at all operative sites (mouth, penis and perineum) was low. At the graft harvest site we noted no complications such as hematoma, prolonged pain, numbness or mouth deformity despite closure of the donor site at surgery, which was recently reported in the literature to increase postoperative morbidity.

#### DISCUSSION:

This study agrees with the study by Barbagli et al, in that the success rates of 1-stage BMG placement the dorsal (83%, 20 of 24) surface of the bulbar urethra are similar ( $p = 0.605$ ). The success rates of 1-stage BMG placement into the bulbar (85% or 28 of 33) and panurethral (69% or 9 of 13) urethra are different but not significantly so ( $p = 0.15$ ). A higher complication rate and lower success rate in the panurethral was noted by others.

	Previous study <sup>1</sup>	Present study
Number of patients	20	35
Mean stricture length in cm	9.47 cm (4-21 cm)	bulbar 4.63 cm (2 to 8cm) pan urethral 17.85 cm (15-21 cm),
Success rate in %	75%	80%

#### CONCLUSIONS:

Buccal mucosa is an excellent graft for repairing the panurethral and bulbar urethra in single and with minimal donor and recipient site complications.. Our experience with the marked increase in recurrent USD in patients with LS especially which is high in panurethral stricture after 1-stage BMG urethroplasty agrees with that in other published reports and it is likely emblematic of this most recalcitrant stricture. It is clear that larger scale and long-term studies are necessary to determine the effectiveness of 1-stage reconstruction of strictures due to LS.

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