



Sexual complications after dorsolateral buccal mucosal substitution urethroplasty, Sohag experience.

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Abstract:

Objective: Decision of urethroplasty must consider postoperative both voiding and sexual wellbeing. We want to direct the interest towards sexual complications after dorsolateral buccal substitution urethral reconstructive surgery.

Methods: The study was initiated on January 2023 to January 2025, as a retrospective recording of the data of 80 patients underwent buccal graft substitution urethroplasty for anterior urethral stricture longer than 3 cm, age range 18-70 years. Voiding and sexual complications were recorded. Data was analyzed and presented by the use of SPSS version 26 program for data entry and analysis.

Results: The mean age was 45.5 ± 15.7 years old. BMI was 28.2 ± 4.1 kg/m². Aetiology of stricture was 52 cases of iatrogenic trauma, 4 cases of inflammatory origin, 16 cases of lichen sclerosus and 8 cases of idiopathic stricture. Operative time was 226.5 ± 30.8 minutes. Sexual complications were noticed in 8 cases (10%), in the form of 4 cases of ventral chordee and 4 cases of erectile dysfunction, 3 of them improved after 6 months of the operation.

Conclusion: Buccal graft substitution urethroplasty is a good choice to treat long anterior urethral stricture. Patient must be strictly informed about its Sexual and voiding complications. Erectile dysfunction may be transient and improve spontaneously

Keywords: Buccal graft – Urethroplasty –Long Stricture- Anterior – sexual Complications.

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Introduction:

The success after anterior buccal grafts urethroplasty is between 73% and 90%.⁽¹⁾

Penile and nonhirsute body skin, bladder epithelial layer, buccal and colonic mucosa can be taken to be a substitute in urethroplasty.⁽²⁾ Recently, buccal mucosa is recommended as the substitute of choice in management of long urethral strictures.⁽³⁾

Buccal mucosa can be used in many cases of complex urethral stricture. It provides better patency rates and better sexual functions.⁽⁴⁾

Complications of buccal graft urethroplasty can affect voiding and sexual functions of the patient. Complications like fistula or recurrence of stricture which demand secondary procedures and sexual complications like erectile dysfunction, ejaculatory disorders and chordee.⁽⁵⁾

The interest of this work is to report our results in urology department -Sohag university hospital in the management of long anterior urethral stricture using dorsolateral approach urethroplasty which is known as Kulkarni technique, and to evaluate the sexual complications which may occur.

Study design:

This retrospective study was conducted in urology department of Sohag university hospital in Upper Egypt throughout a 2-year duration between January 2023 and January 2025. Sohag faculty of medicine Ethical research committee approval was guaranteed and informed written consent taken from all included patients.

Data collection:

Patients scheduled for buccal mucosa graft urethroplasty due to non-traumatic non-obliterative urethral stricture ≥ 3 cm, and intraoperative decision of buccal graft urethroplasty is made. Patients with oral pathology or those who are not fit for surgery according to anesthesia consultation and patient with preoperative erectile dysfunction, Bleeding tendency, Children and those with other bladder and /or urethral pathologies like stones or mass are excluded from the study. Inclusion criteria were met in 80 patients during the period of the study.

Surgical technique:

Dorsolateral buccal mucosal substitution urethroplasty (Kulkarni technique) was used in all

cases. With nasal intubation, general anaesthesia was routine. The position was simple lithotomy position. The skin of the lower abdomen, scrotum and perineum down to the knees was sterilized appropriately. Through a midline perineal incision, the urethra remained attached to the corpora cavernosa. Methylene blue injected through the meatus and the urethra was opened along the dorsal surface. The buccal mucosal graft was harvested from the cheek and if needed from lower lip. The oral mucosa graft was sutured and fixed to the corpus cavernosum ventral surface. A Foley 18 Fr. Silicone catheter was inserted. The entire length urethral edge is connected with the side of fixed buccal mucosa, to encircle the catheter as a tube. Then the graft was totally covered by the spongiosum and muscles. After this step, we insert a suction drain and close the other layers up to skin by interrupted absorbable sutures. Catheter was left for one month. Suprapubic tube and suction drain are routine. Definition of Success of the operation was a $Q_{max} \geq 14$ ml / sec. and patent urethrogram. Definition of Failure was presence of obstructive LUTS, $Q_{max} < 14$ ml / sec. Stricture urethrogram and any postoperative urethral intervention, like dilatation or urethroplasty.

Statistical analysis:

The results were analyzed using SPSS version 26 application. The significance was determined at a p value < 0.05

Results:

Eighty patients with stricture ≥ 3 cm in anterior urethra, oral mucosal grafting urethroplasty done for all patients via dorsolateral approach (Kulkarni technique). Aetiology of stricture was iatrogenic trauma in the form of traumatic catheterization and TUR procedures in 52 cases (65%), inflammatory in 4 cases (5%), lichen sclerosus in 16 cases (20%) and 8 cases (10 %) were idiopathic stricture.

Surgical outcomes:

Intraoperative stricture length was 9.7 ± 2.8 cm, operative time was 227.5 ± 30.8 minutes. The 6 months post operative Q_{max} was 21.8 ± 8.3 ml/sec with postvoid residual urine of 68.8 ± 42.4 ml with P value of 0.02. Postoperative hospital stay was 3.5 ± 1.2 days.

Success rates:

Sixty-five cases (81.25%) of the cases were succeeded having good urine flow during the time of the follow up which was during the first 6 months after removal of the urethral catheter and patent Urethrogram.

Sexual results:

According to the results of IIEF questionnaire done at the end of the duration of follow up, three case (3.75%) have moderate erectile dysfunction improved spontaneously after 6 months, 1 case

(1.25%) had persistent ED who was planned to insert a penile prosthesis, 4 cases had chordee during erection. Other patients had improved sexual life as regard erection, ejaculatory function and orgasm.

Voiding Complications:

Two cases (2.5%) unfortunately presented with long segment urethral stricture recurrence, managed later on by staged urethroplasty. Five cases (6.25%) presented with short ring bulbar stricture they were managed by VIU.

Table 1. Demographic and preoperative data of the study population.

Variable	Dorso-lateral approach (n=80)
Age(year)	45.5±15.7
BMI	28.3±4.2
Comorbidities:	
DM	6(7.5%)
HTN	16(20%)
Previous urethral procedures (VIU/TUR)	12(15%)

Table 2. operative and postoperative data.

	Dorso-lateral approach	Pvalue
Operative time in minutes (Mean ± SD)	226.5±30.8 minutes	0.049*
Intraoperative stricture length: (cm)	9.7 ± 2.8 cm	0.89
Postoperative hospital stay: (days)	3.5±1.2	

Table 3. IIEF score results pre- and twelve months post-operatively.

	Dorsolateral approach	Pvalue
IIEF score pre	26.32±1.6	0.4
IIEF score 12 months post	27.5±1.12	0.05*

Discussion:

Management of anterior urethral stricture includes many urethroplasty techniques. Flaps and grafts from oral mucosa are widely used as the substitution urethroplasty materials. ⁽⁶⁾

El-Kassaby in 1993 used buccal mucosal grafting in urethroplasty as he mentioned that it is similar to urethral tissues. These similarities are the thick epithelium of oral layers, dense vascular plexus and thin lamina propria. ⁽⁷⁾

In this study, Kulkarni technique was used due to the benefits of preservation of one of the two sides neurovascular connections for auspicious postoperative consequences and avoiding of complications like erectile dysfunction and sexual problems.

The technique mastered by Kulkarni is also beneficial for the surgeon in the reconstruction of urethral strictures with excessive fibrotic

difficulties as unilateral management will allow him to operate on the side with least fibrosis.⁽⁸⁾

Basic data like age, body mass index and other comorbidities didn't show a significant change in success rates and occurrence of complications. Spilotros et al in 2017 published the data of 128 patients and noticed better outcomes in patients younger than thirty years. In this group they recorded recurrence in only two cases (6.3%), in comparison with patients of 31–50 years of age (15.2%) and older than fifty years (35.1%).⁽⁹⁾ Santucci⁽¹⁰⁾ did not record a statistically significant difference in success rate in seventy old age patients having buccal graft urethroplasty. In patients with bulbar stricture reconstruction done by Barbagli, recorded a success rate of 89.9% in patients aging less than 65 years compared to 100% in patients aging more than 65 years.⁽¹¹⁾ No recorded differences in case of age have been noticed by Kulkarni in twenty-four patients having dorsolateral urethral reconstruction.⁽¹²⁾

In a study -similar to our study- in treating long anterior urethral stricture in 31 patients treated by dorsolateral approach, Kartal et al in 2020 found that the mean operative time and hospital stay were 179.5 ± 30.0 minutes and 3.5 ± 1.2 days respectively. The mean follow up period was 59.8 ± 24.7 months. Success rate was 27 (87.1%).⁽¹³⁾

Kulkarni et al in 2017, reported a success rate of 84.9%, and he reported successful outcomes in 92% of twenty-four patients in a mean follow up of 22 months in 2009.⁽¹⁴⁾ Our success rate which is 81.25% after 6 months of follow up may be satisfactory in comparison with that reported by Kulkarni. But it may need revision after longer durations of follow up. Other results were reported by many authors; a multicenter study mentioned that the success of Kulkarni technique was 88% in 73 patients with a stricture length mean of 13.6 cm in a follow up period mean of 44 months.⁽¹⁴⁾

As regard the complications of buccal mucosa graft urethroplasty in 80 cases underwent dorsolateral approach after 6 months from time of catheter removal late complications like ventral penile curvature in 5 %. Erectile dysfunction in 5 %, Short bulbar urethral stricture in 6.25%, and recurrence of long anterior urethral stricture in 2.5% of cases.

In the study of Kartal et al, total of 31 patients underwent urethroplasty with the dorsolateral technique. They reported wound infection in 5 cases (13.5%) and 2 cases (6.5%) of erectile dysfunction.⁽¹³⁾

In the study of 128 patients of Spilotros et al, underwent various forms of buccal graft urethroplasty in 2017 found the total re-stricture rate was 19% and ED in 12.5%. All erectile dysfunction cases responded to oral PDE5 inhibitor treatment. They recorded graft contracture (3.1%) and graft failure (3.1%), all reported after repair of penile urethral stricture.⁽⁹⁾ During preoperative patient counselling, Sexual dysfunction which may occur after anterior urethral reconstruction is an extremely significant issue which must be discussed appropriately. Urethral surgery can affect different elements of sexual function: erection, ejaculation, penile cosmetic appearance, and genital sensation, leading to variable degrees of sexual dysfunction. Any genital complication or sexual dysfunction related to urethral reconstruction could affect quality of life, even if urethral patency is achieved.⁽¹⁵⁾

Evaluation of the results of dorsolateral technique described by Kulkarni for strictures > 8 cm by Spencer *et al.* They didn't find a significant difference in preoperative and postoperative erectile score (19.7 vs. 18.1; $P=0.17$).⁽¹⁶⁾

Penile chordee and curvature and shortening of the penis are potential drawbacks after urethral reconstruction, depending on its degree, it can severely harm sexual life and be a cause of patient's disappointment with urethroplasty good voiding outcomes.⁽¹⁷⁾

A series of 225 patients of Kessler *et al.*⁽¹⁷⁾ after different types of anterior urethroplasties. Patients reported none or little, moderate, severe chordee in 74.7%, 15.1% and 10.2% respectively. And 76% of patients who had tethering stated completely satisfactory sexual activity.

Spencer *et al.*⁽¹⁶⁾ stated their study sexual results of this technique in a cohort with a stricture length mean of 13.6 cm. They reported 25% of patients with curvature. Curvature resolved within the first year in 13 of 18 men (72%); however, two patients required surgical intervention in form of dorsal plication.

The present study describes the Kulkarni technique as a treatment for long anterior urethral

strictures; the less bleeding, the shorter surgical duration and urethroplasty without penile circumcision incision are its advantages. However, disadvantages like chordee and erectile dysfunction may occur. The limitations of this study are due to the short duration of follow up which was 6 months duration, and it should include a bigger number of patients.

Conclusions

BMG substitution urethroplasty is considered an option of choice for patient with long anterior urethral strictures with a success of 81.25 % at 6 months of follow-up. Complications including chordee and erectile dysfunction are a quality-of-life matter.

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: Ethical committee of Sohag Faculty of medicine approved the study and informed written consent taken from all participants.

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