"CLINICAL STUDY OF BUCCAL MUCOSAL GRAFT URETHROPLASTY IN MANAGEMENT OF RADIOLOGICALLY CONFIRMED STRICTURE URETHRA"

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ABSTRACT:

INTRODUCTION: Inflammation from any cause was found to lead to granulation tissue formation followed by scarring which led to a stricture in a hollow organ such as urethra. Buccal mucosa graft (BMG) was first described for urethral reconstruction by Humby in 1941.

AIM& OJECTIVES: This study was used to determine the role of Buccal Mucosal Graft Urethroplasty in Inflammatory stricture urethra and to evaluate the clinical outcome.

METHODOLOGY: This is a prospective study of 30 patients with inflammatory stricture of anterior urethra (bulbar and penile urethra) treated in a tertiary hospital during the period of January 2018 to December 2019.

RESULTS: In the present study,30 patients with Inflammatory strictures of urethra treated with Dorsolateral onlay Buccal mucosal urethroplasty, success was noted in 27 out of the 30 patients, which equals to about 90% of the study group with mean age of 49 years.

CONCLUSION: Dorsolateral Onlay Urethroplasty using Buccal mucosal graft by a unilateral urethral mobilization approach is an effective method of treatment.

Key Words: Buccal mucosal Graft, Inflammatory stricture, Prospective study, Qmax.

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INTRODUCTION:

Inflammation from any cause was found to lead to granulation tissue formation followed by scarring which led to a stricture in a hollow organ such as urethra.[1] Buccal mucosa graft (BMG) was first described for urethral reconstruction by Humby in 1941[2]. Because of its 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 approaching 92% [3,4]. This study was used to determine the role of Buccal Mucosal Graft Urethroplasty in Inflammatory stricture urethra and to evaluate the clinical outcome.

METHODOLOGY:

This is a prospective study of 30 patients with inflammatory stricture of anterior urethra (bulbar and penile urethra) treated in a tertiary hospital during the period of January 2018 to December 2019.All patients were treated with the modified technique of Buccal mucosal graft urethroplasty (Dorsolateral onlay BMG urethroplasty) by a unilateral urethral mobilization approach for anterior urethral strictures for a period of two years at Alluri Sitarama Raju Academy of Medical Services Hospital, Eluru. All data was collected and results were analysed.

INCLUSION CRITERIA:

1. All male patients between 20-70yrs of age.
2. Includes patients who are medically fit for surgery and undergoing operative intervention for mid to long segment stricture urethra.
3. Patients with inflammatory strictures only were included.
4. Patients with history of VIU or dilatation.

EXCLUSION CRITERIA:

1.Exclude patients having short segment (less than 1 cm length) stricture urethra.
2. Etiologies other than inflammatory like iatrogenic, traumatic and idiopathic were excluded.
3. Patients with posterior urethral stricture, complete blockade of urethral lumen and features of acute urethritis were excluded.
4. Patient who underwent previous urethral reconstruction surgery or other urethral abnormalities (i.e. hypospadias etc.).

Postoperatively both SPC and per urethral Foley's catheter was kept for 1month.

At the end of 1-month catheter free trial was given. Patients were further followed-up with Clinical examination, uroflowmetry and RGU at three months interval, further follow up was at six months, twelve months and also when the patient experiences any symptoms of poor stream. A working proforma was developed to collect all relevant patient information. Average follow-up was 10 - 12 months.

The results were classified into 2 outcomes -

1. Success was defined as a maximum flow rate of ≥ 10-15 ml/sec in patients according to their age specific flow rates, and normal urethral imaging in retrograde urethrogam.
2. Failure was defined as the presence of obstructive urinary tract symptoms, Qmax <10-15 ml/sec based on age specific flow rates, stricture diagnosed on retrograde urethrogram and the need for further postoperative urethral intervention.

Data was processed and analyzed using SPSS 16.0 (Statistical Package for Social Sciences) software. The test statistics used to analyze the data were descriptive statistics, Chi-square test. For descriptive statistics, percentages and proportions were used. For all analytical tests, the level of significance was set at 0.05 and $p < 0.05$ was considered significant.

RESULTS:

A prospective study was done in 30 patients attending a tertiary hospital after considering the inclusion and exclusion criteria.

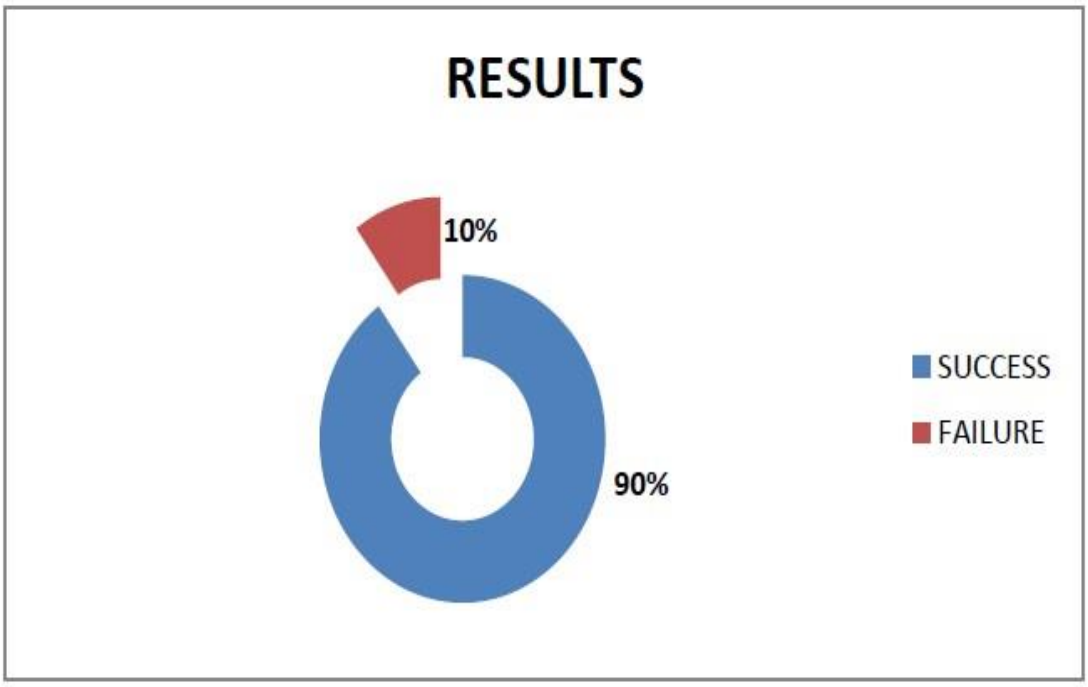
All were males in the age group of 30-70 years; mean age of the study group was 49 years. Of the 30 patients admitted in our hospital, 8 were above 60 years, 6 were in the age group of 5160 years, 5 were in the age group of 41-50 years, 9 were in the age group of 31-40 years and 2 were in the age group of 21-30 years.

In the present study,30 patients with Inflammatory strictures of urethra treated with Dorsolateral onlay Buccal mucosal urethroplasty, success was noted in 27 out of the 30 patients, which equals to about 90% of the study group. Failure with Qmax <10-15 ml/sec based on their age specific flow rates was considered. Failure was noted in 3 patients with age
> 50 yrs and had Qmax <10ml/sec. This corresponds to 10% of the study group. (Table.1, Figure.1).

TABLE.1: SHOWING THE OUTCOME AMONG STUDY SUBJECTS

RESULT	FREQUENCY(n)	PERCENTAGE (%)
SUCCESS	27	90
FAILURE	3	10

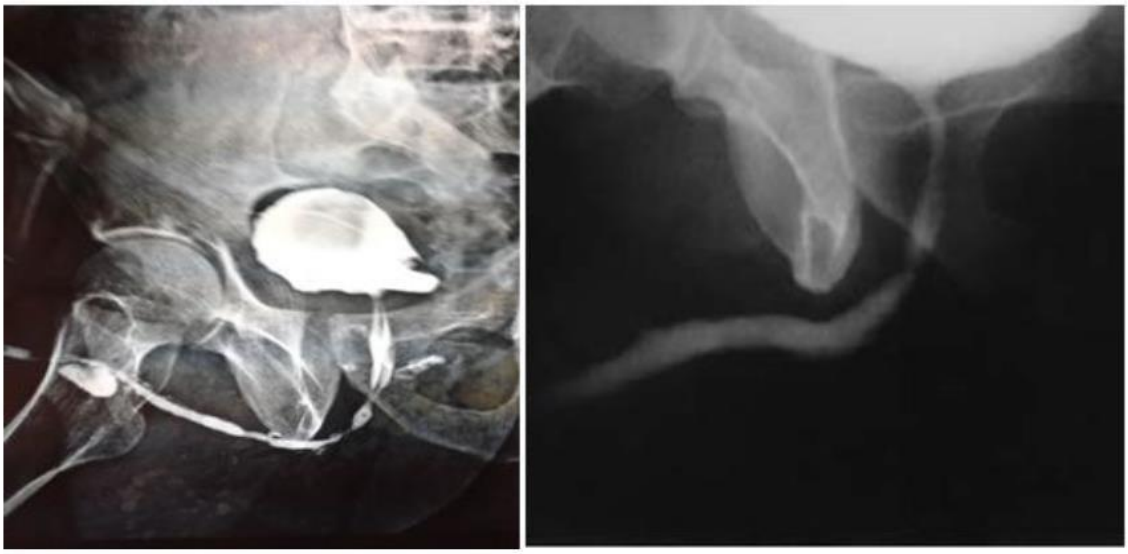
FIGURE.1: SHOWING THE OUTCOME AMONG STUDY SUBJECTS



Three patients in our study during the follow up at 3 months presented with reduced Qmax. One patient had meatal stenosis and was treated by meatoplasty. One patient had developed obliterative stricture and was managed by perineal urethrostomy. The other patient with proximal stricture was managed by VIU (Visual Internal Urethrotomy) (Case.1,2,3).

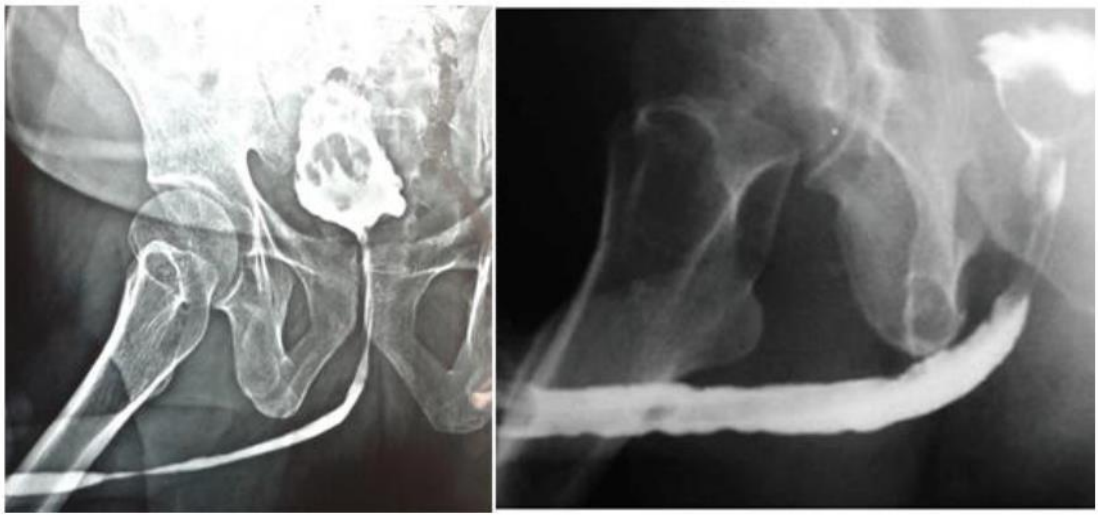
CASE 1: Pre and postoperative images of panurethral stricture

Pre and post operative RGU



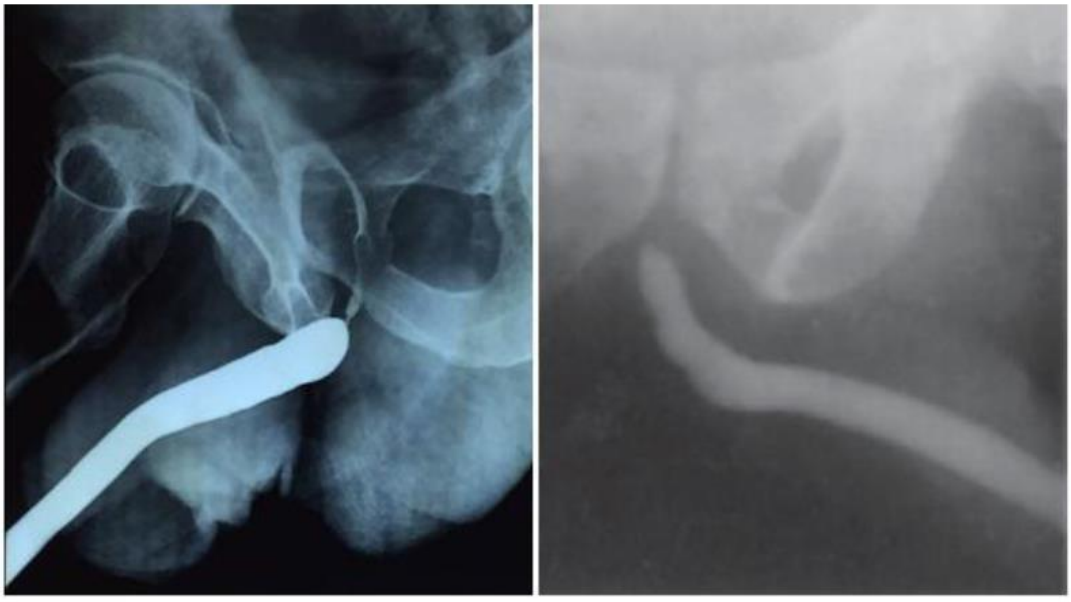
CASE 2: Panurethral stricture with improvement in calibre seen in post operative RGU.

Pre and post operative RGU



CASE 3: Bulbar urethral stricture with increase in calibre seen in post operative RGU.

Pre and post operative RGU



DISCUSSION:

In the current study, mean age of the study group was 49 years.This was nearly similar to study conducted by Singh et al[5] .

In the present study,30 patients with Inflammatory strictures of urethra treated with Dorsolateral onlay Buccal mucosal urethroplasty, success was noted in 27 out of the 30 patients, which equals to about 90% of the study group. Failure with Qmax <10-15 ml/sec based on their age specific flow rates was considered. Failure was noted in 3 patients with age > 50 yrs and had Qmax <10ml/sec. This corresponds to 10% of the study group.

Shah et al [6] reported outcome was successful in 38 patients out of 40 (95%). Songra et al [7] (2005) reported overall success rate was 85.71% and only 2 patients had restricture out of 14 patients. Iselin & Webster [8] in their series of 29 men who underwent dorsal onlay graft urethroplasty reported a high early success rate of 97% at a median follow-up of 19 months.

Study on dorsolateral onlay graft urethroplasty by Singh et al [5] shows short term success rate with a median follow-up of 19 months (range: 12-30 months) was 88% and a satisfactory result rate was 94%. Study on One-sided anterior urethroplasty: a new dorsal onlay graft technique by Kulkarni et al [9] shows study on 24 patients with mean follow up of 22 months shows 22(92%) had a successful outcome and two (8%) were failures. In a study by Habib et al [10], outcome was successful in 28 (93.3%) patients at 6 months follow up. In two patient's urine flow did not improve satisfactorily and their Qmax increased but was <10ml/sec. In a similar study by Islam et al [11], short term observation on average 12 months (from 4 months to 20 months) demonstrates satisfactory result in 25 (92%) patients.

CONCLUSION: Considering the findings of the study, we can conclude that Dorsolateral Onlay Urethroplasty using Buccal mucosal graft by a unilateral urethral mobilization approach is an effective method of treatment and is a satisfactory technique for the treatment of long segment anterior urethral strictures.

LIMITATIONS: Single centered study

CONFLICTS OF INTEREST: Nil

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