



OUR EXPERIENCE WITH BUCCAL MUCOSAL GRAFT URETHROPLASTY FOR LONG ANTERIOR URETHRAL STRICTURES.

Urology

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ABSTRACT

Aims and objectives: The use of Buccal Mucosal Graft (BMG) urethroplasty represents the most widespread method of urethral stricture repair. To evaluate the results of buccal mucosal graft urethroplasty in treatment of long Anterior urethral strictures.

Materials and methods: This was a retrospective study of 102 patients with anterior urethral stricture managed by buccal mucosal graft urethroplasty at our institute between August 2010 to August 2016. All patients underwent preoperative evaluation in the form of uroflowmetry, RGU and urethroscopy. The graft was harvested from the cheek. The graft was placed either ventrally or dorsally based on procedure opted. Data were analyzed using SPSS 17 version software. Catheter removal was done on 21st postoperative day. Follow-up consisted of uroflowmetry, PVR. Failure was defined as requirement of any post operative procedure.

Results: Mean age of patients was 44 (18-72 years). Mean stricture length was 6 cms (range 2 to 12 cm) with mean follow up of 34 months (range 12 to 60 months). Out of 102 patients who underwent urethroplasty during the study period 16 patients developed recurrence in which seven patients presented with stricture recurrence involving the entire grafted area and nine patients were found to develop stricture at anastomotic site. Four of them voided normally after single attempt of OIU. While other patients required further open surgery or repeat OIU during follow up and were considered as failure. Two patients developed urethrocutaneous fistula treated by additional procedure while none of the cases has wound infection or any long term donor site complication.

Conclusion: Longterm follow up of buccal mucosal graft urethroplasty has the promising results with fewer failure rate in our experience.

KEYWORDS:

INTRODUCTION:

Urethral reconstruction using a buccal mucosal graft (BMG) to substitute the urethral mucosa has become a well-established technique in management of anterior urethral strictures.^[1] Regardless of the experience of the surgeon, all buccal graft-urethroplasties have the potential to fail or deteriorate with time.^[1,2] Recurrence of stricture after substitution urethroplasty may take the form of either short segment fibrous ring strictures at the proximal or distal anastomotic sites or extensive fibrosis involving the entire grafted area. Patients with anastomotic ring strictures may be managed with additional procedure like dilatation or optical internal urethrotomy (OIU).^[1,2] However, management of patients who fail after an additional procedure or those with extensive fibrosis involving the entire grafted area may even require a redo procedure. The objective of this study was to share our experience with buccal mucosal graft urethroplasty on longterm follow up.

Materials and Methods:

This was a retrospective analysis of our urethroplasties. Between August 2010 to August 2016, we treated 102 patients who presented to our institute with anterior urethral stricture. Preoperative evaluation consisted of a detailed clinical history and physical examination, urine culture, uroflowmetry, post void residual urine, serum creatinine, ultrasound of kidney-ureter-bladder, retrograde urethrography and urethroscopy with a 6/7.5 Fr semi-rigid ureteroscope.

PROCEDURE:

Operation was performed under general anesthesia with nasal intubation. The buccal mucosal graft was harvested from the cheek using a two-team approach. The donor site was left open after obtaining adequate hemostasis. The graft was preferentially harvested from the one/ both the cheeks depending up on length of the stricture and graft obtained. when longer grafts were necessary lingual grafts were used in few patients.

The urethroplasty was done in the lithotomy position using either a midline or λ incision perineal incision. The bulbocavernosus muscle was divided and the bulbar urethra was exposed. a buccal mucosal graft placed either ventrally or dorsally and urethroplasty was performed by the standard surgical technique in all patients. In all patients, the urethrotomy was done through the strictured tract extending 1 cm into the normal urethra, to calibrate the distal and proximal lumina to at least 24 Fr.

Catheter removal was done at 21 days. All a symptomatic patients were followed up at every three months for atleast two years and every six months thereafter. In symptomatic patients who presented with obstructive lower urinary tract symptoms Follow-up protocol consisted of uroflowmetry and postvoid residual assessment, as well as urine culture and American Urological Association symptom score (AUA-SS), every 4 months for the first 2 years and then 6 monthly thereafter. Retrograde urethrography and urethroscopy was performed if a stricture was suspected based on obstructive symptoms, deterioration of flow rate or AUA-SS scores or increase in postvoid residual volumes. Failure was defined as requirement of any

postoperative procedure like dilatation or OIU.

Results:

Mean age of patients was 44 (18-72 years). Mean stricture length was 6 cms (range 2 to 12 cm) with mean follow up of 34 months (range 12 to 60 months). Out of 102 patients who underwent urethroplasty during the study period 18 patients developed complications like recurrence of stricture and urethrocutaneous fistula. A total of 16 patients developed recurrence in which seven patients presented with stricture recurrence involving the entire grafted area and nine patients were found to develop stricture at anastomotic site. Four of them voided normally after single attempt of OIU. While other patients required further open surgery or repeat OIU during follow up and were considered as failure. Two patients developed urethrocutaneous fistula treated by additional procedure while none of the cases had wound infection or any long term donor site complication.

Discussion:

Buccal mucosal urethroplasty has become the standard of care for long segment anterior urethral strictures. Since its description of procedure placement of graft has taken many modifications i.e. Dorsally, ventrally or laterally.^[3] All this has its own merits and demerits like dorsal placement of graft has advantage of using corporeal bodies to provide secure and well vascularized graft bed that prevents formation of pseudodiverticulum. Whereas, ventral placement of graft has ease to expose and good vascularity and it allows clear delineation of mucosal edges and assist in water tight anastomosis.^[2,3,4]

Our study has included 102 patients with 64 patients underwent ventral graft placement and 38 patients with placement of dorsal buccal mucosal graft with no difference in results with mean follow up of 44 months. Barbagli et al., in 2005^[5] with mean follow up of 42 months placement of graft into ventral, dorsal or lateral surfaces of urethra had similar results.

In 2006 barbagli et al^[6] proposed a technique of dorsal approach of urethra by preserving bulbospongiosus and perineal body thus later assist in propelling the urine from urethra. Kulkarni et al.^[7] in 2009, described a new technique of one-sided anterior dorsal oral mucosal graft urethroplasty, preserving the lateral vascular supply to the urethra, the central tendon of the perineum, the bulbospongiosum muscle and its perineal innervation with a success rate of 92%.

Kulkarni et al^[8] reported that the factors such as age, cause of stricture, length and prior instrumentation previously said to have influence on any kind of urethroplasty have no effect on the success rate, suggesting that other factors (possibly vascular and neurogenic injury) may play an important role in determining stricture recurrence.

References:

- [1] Xu Y-M, Qiao Y, Sa Y-L, et al. Substitution urethroplasty of complex and long-segment urethral strictures: a rationale for procedure selection. *Eur Urol* 2007;51:1093-9 (discussion 1098-9)
- [2] Ahmad H, Mahmood A, Niaz WA et al. Bulbar urethral stricture repair with buccal mucosa graft urethroplasty. *J Pak Med Assoc.* 2011 May;61(5):440-2
- [3] Dubey D, Kumar A, Mandhani A, et al. Buccal mucosal urethroplasty: a versatile technique for all urethral segments. *BJU Int* 2005;95:625-9
- [4] Raber M, Naspro R, Scapatucci E, et al. Dorsal onlay graft urethroplasty using penile skin or buccal mucosa for repair of bulbar urethral stricture: results of a prospective single center study. *Eur Urol* 2005;48:1013-7
- [5] Barbagli G, Palminteri E, Guazzoni G, et al. Bulbar urethroplasty using buccal mucosa grafts placed on the ventral, dorsal or lateral surface of the urethra: are results affected by the surgical technique? *J Urol* 2005;174:955-7, discussion 957-8
- [6] Barbagli G, De Stefani S, Sighinolfi MC, et al. Bulbar urethroplasty with dorsal onlay buccal mucosal graft and fibrin glue. *Eur Urol* 2006;50:467-74
- [7] Sanjay Kulkarni, Guido Barbagli, Deepak Kirpekar, Francesco Mirri, Massimo Lazzeri. Lichen Sclerosus of the Male Genitalia and Urethra: Surgical Options and Results in a Multicenter International Experience with 215 Patients. *Eur Urol* 2009;55: 945-956
- [8] Sanjay Kulkarni, Guido Barbagli, Salvatore Sansalone, Massimo Lazzeri. One-sided anterior urethroplasty: a new dorsal onlay graft technique. *BJU Int* 2009;104: 1150-1155