

Substitution urethroplasty using buccal mucosal graft and excision and primary anastomosis urethroplasty, a preliminary report

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Objective: To compare the success rate and outcome of substitution urethroplasty using buccal mucosal graft and excision and primary anastomosis urethroplasty in urethral stricture disease at our center.

Methodology: In this retrospective study, 80 male patients were recovered from hospital records. Patient were selected randomly which were managed with stricture urethra using above mentioned both techniques from hospital record.

Results: Mean age of participants was 17.51 ± 12.8 years. The etiology of the stricture was trauma in 32(40%), iatrogenic in 20(25%),

infection in 20(25%) and unknown in 8(10%) patients. The average follow up time for urethroplasty was 18 months.

Conclusion: Our study concluded that both EPA (excision and primary anastomosis) and substitution urethroplasty had higher long lasting success rates. But EPA had controversial sexual function effect that is not acceptable to many reconstructive urologists. (Rawal Med J 202;46:87-90).

Keywords: Stricture urethra, substitution urethroplasty, excision.

INTRODUCTION

Urethral stricture is most common problem among urethral diseases. Recent improvements and growth in science has given an evidence base treatment, instead there was concept of ancients that patient having stricture meaning it will be for lifetime with rare treatment.¹⁻³ In case of Internal optical urethrotomy, it does not possess a history spanning 5 millennia but limited to 2 millennia only. Different surgical procedures have been well-known for the management of urethral strictures like endoscopic techniques for primary and short strictures and open urethroplasty for recurrent or long strictures.

Two major approaches are available as surgical treatment; 1) Substitution urethroplasty for a long stricture more than 2 to 3 cm, and 2) Anastomotic urethroplasty for a short stricture less than 2cm, also known as excision and primary anastomotic urethroplasty (EPA). The EPA developed when to relieve the anastomosis tension.⁴ However, substitution urethroplasty is meant for restoration of urethral caliber by using skin flaps or grafts and is technically demanding technique.⁴⁻⁹ Primary objective of this study was to assess success rate and outcome of two surgical procedures i.e. substitution urethroplasty using buccal mucosal

graft and excision and primary anastomosis urethroplasty.

METHODOLOGY

Patients in this study were seen at at Department of Urology, Chandka Medical College Hospital/SMBBMU Larkana from April 2016 to March 2018. A total 80 male patients were retrieved from the hospital records. The patient selection was random. All the patients having urethral stricture disease were included in the study and those with documented urinary tract infection or on prolonged antibiotics and steroids were excluded from the study. The ethical approval was taken from ethical review committee of CMC/SMBBMU Larkana.

Data retrieved included demographic information, diagnostic history and surgical techniques. Stricture location and length were assessed and recorded with X-ray antegrade and retrograde urethrogram and also on intra-operative findings. Two surgical procedures were assessed for their success rates and outcome. EPA was preferred for stricture upto 2-3cm in bulbar urethra while substitution urethroplasty using buccal mucosal graft was preferred in stricture upto 2-5 cm at bulbar urethra. Patients were followed up at 3rd week and at 3rd

month post operatively with retrograde urethrogram and later further followed if they were symptomatic.
Statistical Analysis: Statistical analysis was performed using SPSS version 20.

RESULTS

We retrieved data of 80 male patients. Mean age was 17.51 ± 12.8 years. The etiology of the stricture was trauma in 32(40%), iatrogenic in 20(25%), infection in 20(25%) and unknown in 8(10%) patients. Most stricture were bulbar (Fig. 1). Type of urethroplasty performed was is shown in the Table 1.

Table 1. Types of urethroplasty performed.

Type of urethroplasty	Number	%
Excision and primary anastomotic	30	37.5%
Substitution urethroplasty	50	62.5%

Fig. Strictures location.

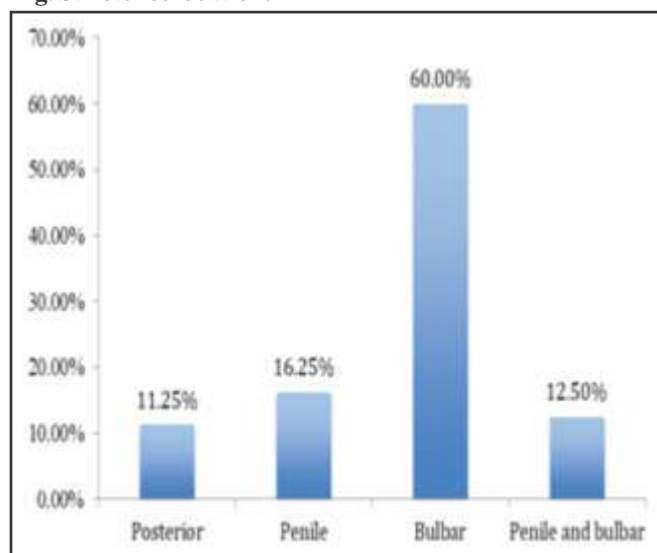


Table 2. Head to head comparison of complication.

Complication	Excision & primary Anastomotic repair (N=30)	Substitution urethroplasty (N=50)
Recurrence	2 (6.6%)	6 (12%)
Erectile dysfunction	1 (3.33%)	5 (10%)
Wound infection	4 (13.33%)	6 (12%)
Perineal hematoma	NO	2(4%)
Fistula formation	NO	2(4%)

Among 80 patients 30 patients were under went EPA, recurrence was seen in 2(6.6%). They were managed by direct vision internal urethrotomy, while repeat urethroplasty was required in one (3.33%), erectile dysfunction was reported in one (3.33%) patient and wound infection in 4(13.33%) patients. Fifty patients underwent substitution urethroplasty and infection was found in 6(12%) patients, perineal hematoma postoperatively seen in two (4%) patients and one (2%) patient developed excessive bleeding from harvested site of buccal mucosa, that was managed conservatively with epinephrine soaked packing. One (2%) patient reported with numbness over donor site, 2 (4%) patients developed postoperative urethrocutaneous fistula, one urethra-cutaneous fistula spontaneously healed with Foley catheter drainage after one week and recurrence was found in 6 (12%) patients (Table 2).

After a mean follow up of 18 months following both techniques, 50 patients (62.5%) were free from symptoms and no further intervention needed. Early recurrence was seen in 2 (2.5%) patients and late in 1(1.25%). Two patients (2.5%) managed with urethral dilations and one with direct visual internal urethrotomy postoperatively. Complications like neuropraxia in 9 (11.25%), UTI 13 (16.25%) and wound infection in 4 (5%) were resolved with conservative management. Erectile dysfunction was came across in 6 (7.5%) patients, out of 06, four patients treated with oral pharmacotherapy. Excision and primary anastomosis for urethral stricture has a high success rate of 98.8%. Where appropriate, we rely on that the procedure clearly.

For substitution urethroplasty, in all cases stricture was located in bulbar urethra, among them six patients had fully obliterated stricture. Overall urethral stricture length was 15 to 20 mm on retrograde urethrography and excised length was 10mm to 22 mm. In 9 of the 29 patient's ventral onlay and in 20, dorsal onlay was performed. Onlay graft length was 3 to 5 cm at a follow-up of 2 years. 27 patients out of 29 (93%) were free from stricture and complications include new erectile dysfunction

in 1 patient (3.3%), post-void dribbling in 13 (43.3%), pseudo-diverticulum formation in 2 (6.66%) and penile shortening in 5 (16.66). Complication rates for anastomotic and substitution urethroplasty were 9.1% (7/30) and 17% (15/50), respectively.

DISCUSSION

We found that the highest success rate was observed in excision and primary anastomotic procedure. This technique involves the scarred urethral part identification and then removing it later; to this spatulation for proximal and distal urethral ends was ensured to patent anastomosis. Long-term excellent results achieved by this technique with lowest complication rates. Similar results were observed in various published studies.^{10,11} Similar success rates were observed to the longer strictures more than 2 cm.¹²⁻¹⁴ The only drawback involve with EPA may be the sexual complication risks, which we have estimated in our study as overall 7%. Other studies also support our findings related to complication.¹⁵

We observed penile shortening and chordae after EPA. One other study overestimated the complication after EPA as 22%, which is higher than our results.¹⁵ The second operative procedure that is substitution urethroplasty, we had a success rate of 90% in our study. Wong et al reported that this is a definitive surgical procedure that treat urethral stricture with reported success rate of 85-90% for simple operations and above 80% in complex cases.⁹ It has proved cost effectiveness of procedure.¹¹⁻¹³

We also had very low complication rates for this procedure. Our findings are similar to earlier studies.^{13,14} Both the EPA and substitution urethroplasty have high long term success rates. Major complications in our study group were short term and infection related despite peri-operative antibiotics and negative preoperative urine culture. Wound infections accounted for 15/80 (3.2%) cases and most in all cases treated conservatively. Major limitation of this study was the inability to perform long term follow up, so stricture recurrence could be more than given in our study.

CONCLUSION

Both the EPA and substitution urethroplasty had high long-term success rates. But the EPA had controversial sexual function effect that is not acceptable to many reconstructive urologists.

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