Original Article

COMPARISON OF END TO END ANASTOMOTIC URETHROPLASTY AND OPTICAL URETHROTOMY IN THE MANAGEMENT OF PATIENTS PRESENTING WITH SHORT SEGMENT INCOMPLETE URETHRAL STRICTURE

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ABSTRACT:

OBJECTIVE: To compare end to end urethroplasty and optical urethrotomy in terms of postoperative urinary flow rate in patients presenting with short segment incomplete urethral stricture.

STUDY DESIGN: Randomized controlled trial (RCT).

PLACE AND DURATION WITH DATES: The study was conducted in department of Urology, Pakistan Institute of Medical Sciences (PIMS), Islamabad. The duration of study was 1 year.

METHODOLOGY: In present study, 47 patients were randomly allocated to each of the intervention groups i.e. Group A underwent end to end urethroplasty procedure and Group B underwent optical urethrotomy. Peak urinary flow rates were measured preoperatively, at one week after the catheter removal post operatively and at 3 months after the catheter removal post operatively. Outcome in both groups was compared using 't' test.

RESULTS: Mean age of patients in group A (End to End anastomotic Urethroplasty) was 31.98±11.14SD while mean age in Group B (Optical Urethrotomy) was 34.72±13.76SD. The mean peak urinary flow rate was found to be 21.39 ml/sec ± 1.89 SD in Group A and was 22.11 ml/sec ± 2.05 SD in Group B at one week post operatively after catheter removal ($P > 0.05$). The mean peak urinary flow rate was found to be 22.48 ml/sec ± 2.12 SD in Group A and was 17.99 ml/sec ± 1.52 SD in Group B at 3 months post operatively after catheter removal ($P < 0.05$).

CONCLUSION: End to end anatsomotic urethroplasty was found to be significantly better than optical urethrotomy in terms of peak urinary flow rate at one week and 3 months after catheter removal in the treatment of urethral strictures in men

KEY WORDS: urethral strictures, end-to-end anastomotic urethroplasty, optical urethrotomy

INTRODUCTION:

A urethral stricture is an obliterated process in the urethra, which results from fibrosis due to distraction in that area caused by trauma[1]. There is usually spongy scar tissue around the affected part of urethra that causes narrowing. The length of stricture varies from less than 1 millimeter to the full length of the urethra[2]. The stricture can be classified as iatrogenic, congenital, inflammatory, traumatic and due to

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malignancy of urethra. The symptoms caused by urethral stricture are poor stream, urinary hesitancy, dribbling of urine, spraying of urinary stream, urgency, dysuria, lower abdominal pain and urinary retention[3].

Options of treatment are wide ranging starting from urethral dilatation, endo-urological procedures and urethroplasty. Urethral dilatation is a simple procedure but with high recurrence rate i.e. 40-50% while the same is true for optical urethrotomy[4]. Surgical repair depends upon the length, size and site of urethral stricture. It includes augmentation urethroplasty, substitution urethroplasty, end-to-end anastomotic urethroplasty and optical urethrotomy. Surgical repair of urethral stricture with end-to-end urethroplasty has high success rate of 80% to 95%[5,6,7].

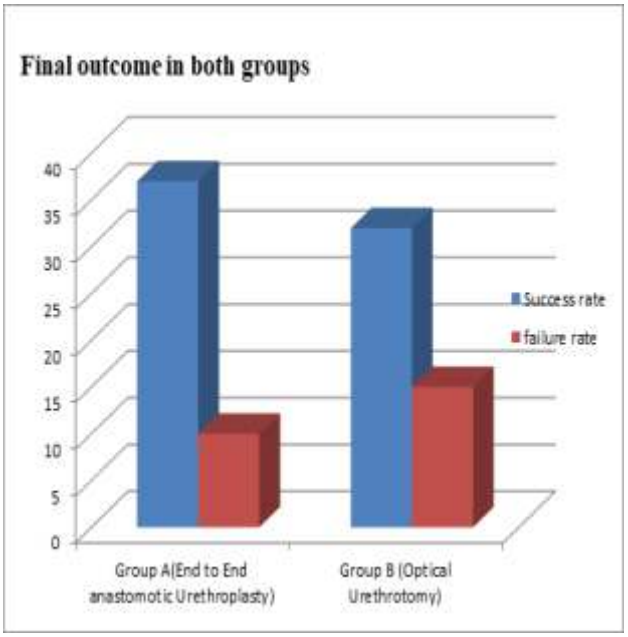
Aim of this study was to clear the current views about outcome of end-to-end urethroplasty by taking into consideration both posterior urethral strictures as well as bulbar urethral strictures compared to optical urethrotomy. Analyses of both the short and long term outcome in terms of complication occurrence and recurrence will clear the variability in these studies.

METHODOLOGY:

A randomized controlled trial was conducted at Department of Urology, Pakistan Institute of Medical Sciences (PIMS), Islamabad, Pakistan for duration of 1 year. Total sample size was 94 calculated by WHO calculator. Non probability consecutive sampling was used for selection of patients. Patients were randomly allocated into two groups through lottery method. In-group A patients were managed by end-to-end urethroplasty procedure and in group B patients were operated with optical urethrotomy. All male patients from 13 to 50 years of age undergoing surgical procedure i.e. end-to-end urethroplasty or optical urethrotomy of incomplete bulbar <1.5 cm and posterior urethral strictures were included in study. An exclusion criterion was based upon patients with long and completely blind bulbar urethral stricture and stricture of penile urethra, patients having enlarged prostate, post prostatectomy patients (TURP/TVP), patients of strictures with neurogenic bladder, congenital urethral strictures. Ethical approval was taken from ethical review board of PIMS, Islamabad. Informed consents were taken from all participants. Data was analyzed using SPSS version 23. T-test was used for comparison of outcome variables.

RESULTS:

Mean age of patients in group A (End to End anastomotic Urethroplasty) was 31.98±11.14SD while mean age in Group B (Optical Urethrotomy) was 34.72±13.76SD. The mean peak urinary flow rate was found to be 21.39 ml/sec ± 1.89 SD in Group A and was 22.11 ml/sec ± 2.05 SD in Group B at one week post operatively after catheter removal (P> 0.05). The mean peak urinary flow rate was found to be 22.48 ml/sec ± 2.12 SD in Group A and was 17.99 ml/sec ± 1.52 SD in Group B at 3 months post operatively after catheter removal (P<0.05).



Graph 1:
Final outcome in both interventional groups

Table 1:

Peak urinary flow rate in both interventional groups after one week

Interventional Groups	Frequency (N)	Mean peak urinary flow rate (ml/sec)	Standard deviation	P value
Group A (end to end Urethroplasty)	47	21.39	1.89	0.130
Group B (Optical Urethrotomy)	47	22.11	2.05	

Table no 2

Peak urinary flow rate in both interventional groups after 3 months

Follow up time after surgery	Frequency (N)	Mean peak urinary flow rate (ml/sec)	Standard deviation	P value
Group A (end to end Urethroplasty)	47	22.48	2.12	0.00
Group B (Optical Urethrotomy)	47	17.99	1.52	

DISCUSSION:

Urethral strictures are a frequent source of LUTS in men. Standard treatment comprises internal widening of the strictured area by simple dilatation or by telescope-guided internal cutting (optical urethrotomy), but these interventions are associated with a high failure rate requiring repeated treatment[8]. The alternative option of open urethroplasty whereby the urethral lumen is permanently widened by removal or grafting of the strictured segment is less likely to fail but requires greater expertise. It includes augmentation urethroplasty, substitution urethroplasty and end-to-end anastomotic urethroplasty[9,10]. Surgical repair of urethral stricture with end to end urethroplasty has high success rate of 80% to 95%[11].

Our analysis of results showed that patients treated with end to end anastomotic urethroplasty technique, mean urinary flow rate was found to be significantly better than patients treated with optical urethrotomy technique ($P < 0.05$). Lumen N, et al performed prospective analysis to evaluate the outcome of different techniques of urethroplasty and to assess the quality of an in-home algorithm. A prospective analysis was done in 21 patients who underwent urethroplasty. An assessment of the urinary flow, urinary symptoms (International Prostate Symptome Score <IPSS>), erectile function (International Index of Erectile Function-5 <IIEF-5>) and urinary continence (International Consultation Committee on Incontinence Questionaire male Short Form <ICI-Q-SF>) was done before urethroplasty and 6 weeks and 6 months after urethroplasty[12,13]. Akbar Hussain et al. reported that there were 26 cases with road traffic accident (indirect) and 14 had history of fall/direct trauma to perineum or urethra. Majority of the patients (57.5%) were between 16 to 30 years of age[14]. Twelve (30.0%) patients developed complications postoperatively. Early complications of wound infection occurred in 01 (2.5%) patients[15]. In another study conducted in Pakistan efficacy, safety and complications of optical urethrotomy in traumatic blind posterior urethral stricture

were assessed and compared with urethroplasty[16]. Authors found that results of urethroplasty were good (77.5%) as compared to optical urethrotomy (68.5%) in terms of mean urinary flow rates after intervention[17,18].

Limitations of study: There are a number of factors that influence the outcome of surgery including location of the stricture, stricture length, etiology, previous surgery and selection of procedure.

CONCLUSION:

End to end anatsomotic urethroplasty technique leads to a significant improvement in urinary flow rate. Patient satisfaction after urethroplasty was high and not related to absence of recurrence. Functional outcome should be assessed after urethroplasty.

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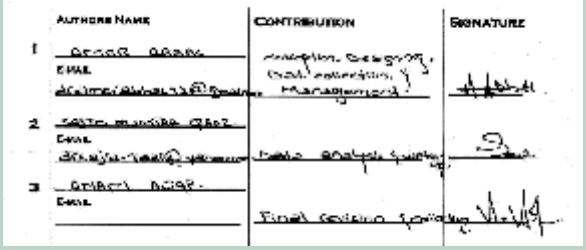

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