

# COMPARISON OF EFFECTIVENESS OF CLEAN INTERMITTENT SELF CATHETERIZATION WITH NO CATHETERIZATION AFTER INTERNAL OPTICAL URETHROTOMY FOR URETHRAL STRICTURE

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## ABSTRACT

**Objective:** To compare the effectiveness of clean intermittent self catheterization with no catheterization after internal optical urethrotomy for urethral stricture.

**Methodology:** This comparative clinical trial was conducted at the Department of Urology, Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar from January-December, 2016. A total 130 patients (n=65, each group) with urethral stricture disease and an average flow of urine  $\leq 5$  ml/sec were included. Patient(s) of group A were selected for CISC after internal optical urethrotomy (twice a day for one week, then once a day for four weeks and then once weekly for 7 weeks) while patients in group B were left as such after internal optical urethrotomy. The patients were followed up at 12 weeks after surgery to do urethrogram and uroflowmetry to determine effectiveness in terms of stricture recurrence. Data were analyzed using SPSS version 19.

**Results:** Mean ages of the patients were  $32 \pm 2.15$  and  $30 \pm 1.26$  years for group A and B respectively. Effectiveness among the two groups were 78.46% (group A) and 55.38% (group B), p value  $< 0.05$ .

**Conclusion:** Use of clean intermittent self catheterization was more effective in avoiding recurrence of urethral strictures than non-catheterized patients after internal optical urethrotomy.

**Key Words:** Clean intermittent self catheterization, Internal optical urethrotomy, Urethral stricture

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## INTRODUCTION

Urethral stricture is a disease of anterior urethra in which there is scarring process affecting the epithelium of urethra and spongy erectile tissues of corpus spongiosum causing fibrotic narrowing of the urethra<sup>1</sup>. The etiology of urethral stricture is unknown but it is found upto 0.6% in vulnerable populations. The Hospital data of developed countries including The United States and The United Kingdom showed that it affects 1/1000 men of  $\geq 65$  years and 1/10,000 men of 25 years of age<sup>2</sup>, while it is very rarely reported from Pakistan<sup>3</sup>. Patients with urethral stricture disease mostly show obstructive signs or features of urinary tract infections (UTIs) including prostatitis or epididymitis<sup>4</sup>. Urethral stricture may cause fatal conditions including uremia, Fournier's gangrene, bladder failure and even death<sup>5</sup>.

Previously the only available treatment for such conditions was to dilate the urethra with sounds while the

currently available management of such strictures include surgical procedures like urethral dilatation with sounds, internal optical urethrotomy (IOU), permanent urethral stents and open reconstructive surgery<sup>5</sup>. In IOU, the stricture is opened by a transurethral incision under direct vision and is preferred over other procedures in cases such as short and single stricture<sup>6</sup>. A number of techniques have been reported to decrease recurrence(s); among these the most common is dilatation and clean intermittent self catheterization (CISC). As such no difference has been observed in the above mentioned two methods concerning the stricture length; however, complications, the duration of follow-up and comparatively lower recurrence rate was observed in patients using self catheterization<sup>7</sup>. This technique presents the possibility of comparatively long-term cure and decreases the patient's number who are candidates for urethroplasty<sup>8</sup>. Hence, it can be recommended as a safe and effective way to manage the recurrence of urethral

strictures and a best alternative to repeated sounds dilatation<sup>7</sup>. Though good immediate results are obtained but still there is considerable risk of recurrence (10-50%)<sup>9</sup>. Self catheterization has been accepted to reduce the risk of stricture recurrence after urethrotomy. Regularly performing CISC may probably work by normally opening-up the cut and raw boundaries of a urethral stricture, hence avoiding them to stick-back and contract over after direct vision internal urethrotomy (DVIU) or trans-urethral blind dilatation<sup>10</sup>. CISC is a procedure of invasive nature which means to ask the patient himself to put or enter a semi-rigid or rigid rod like object into his urethra for the purpose of improving health related quality of life<sup>11</sup>. The current study was aimed to evaluate the effectiveness of CISC after internal optical urethrotomy in the treatment of urethral strictures in terms of stricture recurrence.

## METHODOLOGY

This comparative clinical trial was conducted at the Department of Urology, Institute of Kidney Diseases, Hayatabad Medical Complex, Peshawar for a period of one year i.e. January-December, 2016. The size of sample was obtained by using open epi sample size calculator, in which a total 130 patients (n=65, each group) were observed by taking 95% confidence interval, 80% power of the test and 22% recurrence rate in CISC group and 46% recurrence rate in control group after internal optical urethrotomy for urethral strictures<sup>12</sup>. Non-probability consecutive sampling technique was used for sample collection. All patients possessed urethral stricture(s) disease with an average flow of urine  $\leq 5$  ml/sec were included while patient(s) having enlarged prostate (weight more than 20 gm), patients with radiologically diagnosed bladder stone and urodynamically observed neurogenic bladders were excluded. The study was approved from hospital ethical and research committee; reference no. 78/Neph/IKD. A written con-

sent was obtained after explaining the purpose of the study from patients. Subjects were hospitalized for further investigations/evaluations. Detailed history was noted which was trailed by full physical examination and routine investigations (urine R/E, CBC, creatinine clearance, serum electrolytes, renal ultrasound, urethrogram & uroflowmetry). All candidates were divided into respective groups by lottery method. Patient(s) of group A were selected for CISC after internal optical urethrotomy (twice a day for one week, then once a day for four weeks and then once weekly for 7 weeks) while patients in group B were left as such after internal optical urethrotomy. The patients had optical urethrotomy on next OT day and were discharged on 2<sup>nd</sup> day of the procedure. The patients were followed up at 12 weeks after surgery to do urethrogram and uroflowmetry to determine effectiveness in terms of stricture recurrence.

Data were recorded using predesigned proforma and were analyzed using windows based executing application SPSS version 19. Mean  $\pm$ SD (Standard deviation) were evaluated for quantitative variables while frequencies and percentages were calculated for categorical variables. The Chi square test was utilized to compare the effectiveness of treatment in both groups with p value  $< 0.05$  considered as significant. The usefulness in the groups was stratified among different ages to find out the effect modifications.

## RESULTS

Mean ages of the patients were  $32 \pm 2.15$  and  $30 \pm 1.26$  years for group A and B respectively. Age wise distribution of the patients is shown in Table 1. Patients in the age group 51-60 years were maximum in both the groups A and B i.e. 38 and 36% respectively while patients of age group 20-30 years were minimum i.e. 10 and 12% for group A and B respectively.

**Table 1: Age wise distribution of patients in both groups**

Age (in Years)	Group A (n=65)	Group B (n=65)
20-30	6 (10%)	8 (12%)
31-40	14 (22%)	14 (22%)
41-50	20 (30%)	20 (30%)
51-60	25 (38%)	23 (36%)
Total	65 (100%)	65 (100%)

**Table 2: Effectiveness of clean intermittent self catheterization (CISC) vs non-catheterization**

Efficacy	Group A	Group B	P Value
Effective	51 (78.46%)	36 (55.38%)	0.005
Not Effective	14 (21.54%)	29 (44.62%)	
Total	65 (100%)	65 (100%)	

Effectiveness among the two groups were 78.46% (group A) and 55.38% (group B), p value <0.05. Catheterized patients were significantly less vulnerable to the risk of strictures as compared to patients who were not catheterized.

## DISCUSSION

The CISC has an important role in the management of recurrence of urethral strictures. Yet, it is also known that urethral stricture is quite tough condition to cure, as its recurrence rate is quite high especially in patient who have gone through endoscopic optical urethrotomy<sup>7</sup>. In our study, we have found that use of CISC is more effective in avoiding recurrence of urethral strictures than non-catheterized patients (78.46% vs. 55.38%, p value <0.05). Similar findings were reported by Khan et al<sup>13</sup>, the recurrence rate after CISC and internal optical urethrotomy was 22% compared to 46% recurrence rate in the control group. In another study, the recurrence rate was 19.35% in the CISC group compared to 77.41% in the control group<sup>7</sup>. In the study by Afridi et al<sup>12</sup>, the recurrence rate was 35.6% in the CISC after internal optical urethrotomy group compared to 57.5% in the control group.

Similar results were found in other studies. Gnanaraj et al<sup>14</sup> assessed 78 patients who were on self catheterization compared to 49 patients who were on dilatation. The first group had a significantly lower re-stricture rate of 5%. Tamella et al<sup>15</sup> reported frequency of recurrence after internal urethrotomy of 9% in patients randomized to CISC. Kjaergaard et al<sup>16</sup> randomized 21 cases who underwent CISC and 19% developed recurrence of urethral stricture within the first postoperative year.

The patients with recurrent strictures were having the involvement of posterior urethra which is really difficult to handle. During our study no complication was observed in the patients performing CISC. Our study has shown that CISC could be the possible alternative to reduce the recurrence of urethral strictures. Counseling the patients improved the compliance level and convinced the patients to perform CISC<sup>17,18</sup>.

## CONCLUSION

Use of clean intermittent self catheterization was more effective in avoiding recurrence of urethral strictures than non-catheterized patients after optical urethrotomy.

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### CONTRIBUTORS

SUH conceived the idea, planned the study and drafted the manuscript. SMAS, NSK and KA helped acquisition of data, did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.