Research Article

JPSN

Role of clean intermittent self-catheterization in prevention of recurent urethral stricture after optical internal urethrotomy

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ABSTRACT

Introduction: Urethral stricture is one of the common urological problem. There are different option to treat urethral stricture but, irrespective of the treatment the chances of recurrence is still high. Clean intermittent self-catheterization (CISC) was introduced by Lapides has greatly reduced the chances of recurrence. So, the objectives of this randomized clinical trial was to compare the chances of recurrence in optical internal urethrotomy (OIU) patients with or without CISC.

Materials and methods: A randomized controlled study conducted in the department of surgery, urology division at National medical college, Birgunj from June 2019 to June 2020. Total 97 cases of age 20-80 years with stricture up to 1-2 cm were included. All cases were randomized in two groups. Group 1 (optical internal urethrotomy with clean intermittent self-catheterization) Group 2 (optical internal urethrotomy without clean intermittent self-catheterization).

Results: Among total 97 cases 4 cases from group 1 and 7 cases of group 2 lost their follow-up which were excluded from the study. Total 86 patient completed the study, 43 in treatment group 1 and 43 in control group 2. Mean age of patient was 42.58±16.147 years in group 1 and 32.07±9.917 years in group 2. Majority of patient 56 (65%) were of age 20-40 years. Recurrence of stricture was seen in 9 (20.93%) cases in group 1 and 20 (46.51%) cases in group 2.

Conclusions: The study concluded that clean intermittent self-catheterization is a simple and effective way of reducing the chances of recurrence after internal optical urethrotomy.

Keywords: clean intermittent self-catheterization, optical internal urethrotomy, recurrence, urethral stricture

INTRODUCTION

Urethral stricture is one of the common urological problem that we encounter in OPD. It is scarring of sub-epithelial and fibrosis of corpus spongiosum that causes narrowing of urethral lumen.[1] The evidence is high in male than in female.

The prevalence of urethral stricture in United State is approximately 200 per 1,00,000 in younger men to >600 per 1,00,000 in men older than 65. Medicare data in United states indicate an incidence of 0.9% in 2001, although the true incidence is unknown. [2]

The male urethra is divided into an anterior and posterior division. The anterior division consists of the fossa navicularis, pendulous and bulbar urethra. The posterior division consists of the membranous and prostatic urethra. The membranous urethra marks the dividing line between the anterior and posterior urethra. Narrowing of the posterior urethra mostly results in contractures or stenosis of posterior urethra which usually happens in cases of pelvic fracture, urethral distraction and radical prostatectomy cases. Narrowing of the anterior division of the urethra are referred to as strictures. [3]

Etiology of urethral stricture is divided into 4 major parts: idiopathic, iatrogenic, inflammatory & traumatic.[2] A retrospective study done in Italy showed that 92.2% patient presented with anterior urethral stricture whereas 7.8% patient presented with posterior urethral stricture.[4]

There are several managements of anterior urethral stricture such as dilatation, direct vision optical internal urethrotomy (DVOIU), Urethroplasty. OIU was introduced by Saches in 1974, which was a fine movable scalpel to incise urethral stricture under direct vision.[5] Although the immediate result is good there is a chance of recurrence in 10-50% of patients after DVOIU. Thus, to decrease the rates of recurrence concept of Clean Intermittent Self Catheterization (CISC) was kept forward. Urethral Dilatation was introduced by Lapides in 1970 under aseptic technique.[5] Performing CISC regularly causes splinting of the raw, cut edges of urethral stricture and preventing them from sticking back together and contracting again after OIU.

As the available evidence on this problem is very limited in our setup and there is need of more research on this topic. Thus, objective of this study was to compare the recurrence of stricture after OIU with and without CISC. Based on these results patient could be provided with a better outcome.

MATERIALS AND METHODS

This study was conducted at Department of Surgery, Urology Division of the National Medical College and Teaching Hospital, Birgunj, Nepal from June 2019 to June 2020

Total 97 cases were considered in this study. Patients were randomly divided into two groups. Group 1 and Group 2. Group 1 underwent CISC after OIU whereas group 2 only OIU was done.

Patient ageing 20-80 years of age with stricture of length <2 cm was included in this study whereas patient with previous history of OIU, malignant urethral stricture was excluded from the study. Ethical clearance was taken from IRC and informed consent were taken from patient as well.

Before procedure urine C/S of all patient were done and if patient was positive were treated with antibiotics according to C/S report. All procedure were performed under spinal anesthesia. Patient was kept on lithotomy position and Xylocaine jelly was instilled per-urethral. Prophylactics antibiotics was given to all the patient. Initially cystoscopy was done with 22 Fr cystoscope and guide wire was passed beyond the stricture into the bladder. 21 Fr urethrotome was passed into urethra following the guidewire, stricture was incised with uretrotome at 12'O clock. Urethrotome was negotiated through the incised stricture passed under the guidance of guidewire and reached up to urinary bladder. Bladder was examined and uretherotome was removed. 16 Fr two-way silicone foleys catheter was passed over guidewire and was retained for 14 days. Patients were discharged next day and follow up on weekly and monthly basis. After 14 silicone foley's catheter was removed and patients were advised Clean intermittent self-catheterization daily for 7 days, alternate day for another 14 days, then weekly for 1 month and then monthly for 1 year, then once in a year.

Age in years, length of stricture and recurrence of stricture were research variable. Age grouping were demographic. Length of stricture were categorized <1 cm and >1 cm. Recurrence of stricture and length of stricture were analysed and expressed

as frequency and percentage. Age was expressed as mean and standard deviation by using IBM SPSS version 21. Chi-square test of independence was used to compare the proportion of stricture recurrence between the two groups. Alpha value of ≤ 0.05 was considered as statistically significant.

RESULTS

Total case from June, 2019 to June, 2020 were included in this study. Total 97 cases were considered among 11 patients lost their follow up so 86 patients were included in this study. 86 patients were divided randomly into 2 groups. 43 patients were included in group 1 (OIU+CISC) and 43 patients were included in group 2 (OIU).

The mean age of total cases (n=86) was 37.33±14.33 (20-80) years. The mean age of patient in group 1 was 42.58±16.15, while in group 2 was 32.07±9.92. Majority of patients 21 (49%) is between 20-40 years of age in group1 majority of patient 35 (82%) is of between 20-40 years of age in group 2. The mean age group distribution on each group is shown in Table 1.

Table 1: Age distribution of patients

Age group (years)	Group 1 (%)	Group 2 (%)	Total (%)
20-40	21 (49)	35 (82)	56 (65)
41-60	17 (39)	7 (16)	24 (28)
91-80	5 (12)	1 (2)	6 (7)
Total	43 (100)	43 (100)	86 (100)
Mean±SD	42.58±16.15	32.07±9.92	37.33±14.33

Table 2: Stricture recurrence comparison in the treatment groups

Stricture recurrence	Yes	No
Group 1	9	34
Group 2	20	23
Total	29	57
Statistics	$\chi^2 = 6.295$, p = 0.012	

In our study majority of patient 66 (76.74%) had <1 cm length whereas 20 (23.25%) patients had stricture length >1cm in both the groups. Length of stricture <1cm were seen in 34 patients (79%) and >1 cm were seen in 9 patients (21%) in group 1, whereas length of stricture <1 cm were seen in 32 (75%) patients and >1 cm were seen in 11 (25%) patients in group 2.

In our study recurrence of stricture was seen in 29 patients; 9 patients (21%) in group 1 (OIU + CISC) and 20 patients (46%) in group 2 (OIU without CISC) with p-Value of 0.012 (Table 2). Patients in group 1 (OIU + CISC) had satisfactory outcome 79% while in group2 (OIU without CISC) was 54%.

DISCUSSION

As stated earlier there are several management of anterior urethral stricture, but the case and safety of the OIU make it first choice of treatment. Clean intermittent self-catheterization, since introduction by Lapides has established its role in different bladder dysfunction as well as in presentation of urethral stricture after OIU.[6] We conducted prospective randomized control study trial in our setup to compare the outcome of OIU with or without CISC in urethral stricture.

In our study the age range was (20-80) years with mean age of 37.33±14.33. The mean age of patients in group1was 42.58±16.14 while in group2 32.07±9.91. Majority of patients in group1 (21, 49%) and group 2 (32, 85%) is between 20-40 years of age group. These results are comparable with study by Balndi et al and Menghini et al.[7,8]

In our study total 66(76.44%) patients had stricture length <1cm whereas 20(23.25%) patient had stricture length >1cm. As Menghini et al. and Khan M & et al. observed that greater the length of stricture, higher the chance of stricture and needs repeated OIU with CISC or dilatation.[8,9]

Recurrence of urethral stricture was seen in total 29 patients; 9 (21%) patient in Group1 (OIU+CISC) and 20(46%) patients in Group2 which was statistically significant (p-Value =0.0012). So, the satisfactory outcome in group1 was 79% while in group2 was 54%. Comparable results were seen in the study done by Rasool et al. and Khan et al.[5,10] whereas study done by Kumar et al. showed similar result in treatment group but higher percentage of recurrence in control group.[11]

CONCLUSION

Urethral stricture is one of the most common urological disease. Clean intermittent self-catheterization is simple, cost effective and easy to perform. It is associated with less morbidity. It reduces the chance of urethral stricture and help in maintaining the normal urethral caliber.

CONFLICT OF INTEREST

None

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