Original Article

Effectiveness Of Clean Intermittent Self-Catheterization In Patients With Recurrent Urethral Stricture Post Visual Internal Urethrotomy

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[1] Conception of study
[1,2] Experimentation/Study Conduction
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Article Processing
Received: 31/03/2022
Accepted: 21/10/2022

Cite this Article: *Ullah, N., Nawaz, J., Shoaib, M., Khan, A., Din, N. ud, & Fareed, T. (2023). Effectiveness Of Clean Intermittent Self Catheterization In Patients With Recurrent Urethral Stricture Post Visual Internal Urethrotomy. Journal of Rawalpindi Medical College, 27(1).*
DOI: https://doi.org/10.37939/jrmc.v27i1.1928

Conflict of Interest: *Nil*
Funding Source: *Nil*

Abstract

Objective: The objective of the study is to determine the effectiveness of CISC in the management of recurrent urethral strictures after visual internal urethrotomy.

Material and Methods: This study was performed in the Department of Urology Saidu teaching hospital Swat from June 2016 to July 2019 on 215 patients who were diagnosed as having urethral stricture disease. Patients were counseled for CISC after removal of the catheter 2 times a day for 8 weeks and at 8th-week cystourethroscopy was performed along with a detailed evaluation of symptoms of urethral stricture to know the recurrence of stricture.

Results: 81.39% of patients have no urethral stricture on cystourethroscopy and symptomatic evaluation at 8th-week post visual internal urethrotomy while 18.60% of patients have a recurrent urethral stricture. Length of urethral stricture is the most important prognostic factor; stricture of less than 1 cm has a success rate of 62.39% while stricture of more than one cm length has a success rate of 20% as shown in Table IV.

Conclusion: In this study, it has been confirmed that CISC is a safe, cost-effective procedure and most patients can do it at home without any complications.

Keywords: Stricture Urethra, clean intermittent self-catheterization, visual internal urethrotomy.

Introduction

Urethral stricture is common in men and mostly acquired in nature having an incidence of 229-627 per 100,000 males or 0.6% of the at-risk population[1]. Urethral stricture is a potentially debilitating disease if treated inadequately, most acquired strictures are due to trauma or infections. Nowadays gonococcal infections are uncommon, but catheter-induced infections are primary in causing urethral stricture secondary to infections. Iatrogenic trauma can occur during urethral instrumentation and during surgical procedures i.e., radical prostatectomy and other pelvic surgeries. Non-iatrogenic strictures can be due to road traffic accidents (RTA) or straddle injury which can lead to direct injury to the urethra. There are many treatment modalities of urethral stricture depending upon size, length, and recurrence of stricture. Internal Optical Urethrotomy (IOU) is the treatment of choice, especially if the stricture is primary, bulbar, and less than 1.5cm in length. It is currently the most commonly performed treatment for primary and short bulbar stricture [2]. The success rate of IOU is 60–70% in highly selected strictures i.e., primary stricture, length less than 1.5cm, and BMJ stricture[3]. Postoperative CISC of urethral stricture with properly designed urethral catheters for CISC, primarily treated by internal optical urethrotomy, significantly reduces the stricture recurrence[4,5].

The rationale of this study is to know the effectiveness of clean intermittent self-catheterization in the prevention and delaying recurrence of urethral stricture after direct visual internal urethrotomy, other important objectives are to know the frequency of complications of the procedure and compliance of patients to the clean intermittent self-catheterization. This study will help us in assessing several factors.
which can lead to the failure of CISC in terms of its physical and psychological stress on patients associated with CISC. Furthermore, through this study, we will be able to explore misconceptions of the risks of performing CISC and its reassurance to the patients, with a realistic idea of the side effects that can be anticipated. Finally, this study will help in making guidelines that will help both patients and their healthcare providers with high-quality teaching, continual advice, reassurance, and support, which in turn will improve adherence to CISC and patients' quality of life.

Materials and Methods

This is a descriptive case series study performed in the Department of Urology Saidu teaching hospital Swat from June 2016 to July 2019 on 215 patients who were diagnosed as having urethral stricture disease. Patients were sampled through consecutive non-probability sampling techniques. All patients who present with lower urinary tract symptoms to urology OPD passionate history including general physical exam along with DRE were performed and all baseline investigations were performed for making a proper diagnosis. After diagnosing urethral stricture patients were selected for direct visual internal optical urethrotomy and the procedure was performed using a 0-degree telescope with a cold knife at the end of the procedure 16 Fr Foley catheters were put in and removed after 3rd postoperative day. During the 1st follow up all patients were taught clean intermittent self-catheterization with a 12 Fr lubricated nelaton tube. It was properly demonstrated by the trained doctor who confirmed that they learned the procedure and were able to do it properly before going home. They were instructed to do it twice a day for 8 weeks. Patients who did not comply were excluded from the study. Telephone numbers, contact, and address of the patients were recorded to ensure proper follow-up. They were recalled for their next cystourethroscopy after 8 weeks and asked about obstructive voiding symptoms. Those who were lost to follow-up were excluded from the study. A urethroscopy was performed by the same operator and the presence or absence of stricture was noted by the trainee researcher on the proforma.

DATA ANALYSIS

Data was entered and analyzed using SPSS version 22.0. Mean and SD was calculated for numerical variables such as age and length of urethral stricture. Frequencies and percentages were calculated for effectiveness. Effectiveness was stratified with age, and length of urethral strictures. Post-stratification chi-square test was applied keeping P Value $\leq$ 0.05 as significant.

Results

There were 215 male patients in the study, as per age-wise distribution 50 (23.80%) patients were recorded in the 17-35 years age group, 83 (39.51%) patients were recorded in the 35-50 years age group and 82 (38.13%) patients were recorded in 51-65 years age group. Mean and SD for age was recorded as 44 years ± 11.34.

Table-1: Age distribution and length of stricture (n=215)

Age group	*Frequency(n)*	*Percentage (%)*
17-35 Years	50	23.80%
36-50 Years	83	39.51%
51-65 Years	82	38.13%
Mean and SD for Age	44 Years ± 11.34	
Mean and SD for Length of Stricture	1.8cm ± 0.60	

The mean and SD for the length of stricture were recorded as 1.8 cm ± 0.60 as shown in Table No. I. 81.39% of patients have no urethral stricture upon cystourethroscopy and symptomatic assessment at 8th-week evaluation while 18.60% of patients have recurrent urethral stricture as shown in Table II. Length of urethral stricture is the most important prognostic factor; stricture of less than 1 cm has a success rate of 62.39% while stricture of more than one cm length has a success rate of 20% as shown in Table IV.

Table-2 Effectiveness of cisc (n=215)

Effectiveness of cisc	*Frequency (n)*	*Percentage (%)*
Yes	175	81.39%
No	40	18.60%
Total	215	100%

Table-3 Stratification of effectiveness with age (n=215)

Age	*Effectiveness*	*Frequency(n)*	*Percentage (%)*	*P value*
17-35 Years	Yes	42	19.53%	
	No	08	3.72%	
36-50 Years	Yes	73	33.95%	0.034
	No	10	4.65%	
51-65 Years	Yes	61	28.37%	
	No	21	9.76%	

Table-4 Stratification of effectiveness with the length of stricture (n=215)

Length of stricture (cm)	*Effectiveness*	*Frequency*	*Percentage*	*P value*
	Yes	135	62.79%	
≤ 1	No	30	13.95%	
	Yes	43	20%	0.0001
> 1	No	07	3.25%	

Discussion

Urethral stricture disease has been cited as long ago as ancient Greek writings that have been using soft and hard metallic tubes for drainage of the bladder in patients who had urinary retention due to any cause[8]. Any process that injures epithelium or the underlying tissue of the urethra and which leads to scaring and finally contracture of the lumen can cause anterior urethral stricture. Most strictures are acquired in nature, and they can be due to infection or trauma. Although gonococcal urethritis is seldom the cause of urethral stricture nowadays due to the advent of prompt and effective antibiotic treatment and trauma remains the common cause of stricture. Traumatic strictures which is mostly due to straddle injury to the perineum present in the advanced stage when patients

present with obstructive voiding symptoms[9]. Iatrogenic strictures are uncommon due to the development of small endoscopes with better visual systems. Injury to the urothelium leads inflammatory process and scar formation in the spongiosum, scar tissue contracts and reduces the caliber of the urethral lumen resulting in resistance to the antegrade flow of urine[10]. The term urethral stricture generally refers to the anterior urethra and is secondary to scarring in the spongy erectile tissue of the corpus spongiosum[11]. The posterior urethral narrowing is referred to as urethral stenosis. The most common presentation includes obstructive voiding symptoms, urinary retention, or urinary tract infection [12]. Obstructive voiding symptoms are characterized by a weak stream, incomplete emptying of the bladder, urinary terminal dribbling, and urinary intermittent. Management of urethral stricture starts when symptoms of the patient appear i.e., lower urinary tract symptoms, bladder diverticula, bladder calculi, significant post-void residual volume, recurrent urinary tract infection, or when conservative management fails[13]. Historically, the treatment consists of urethral dilation with various sizes of bouges. Hamilton Russell described the first surgical procedure for the repair of a urethral stricture in 1914. Nowadays management of urethral strictures depends upon site, length, density, and recurrence of stricture.

In this study 215 enrolled patients for clean intermittent self-catheterization after visual internal urethrotomy. 23.80% of patients were recorded in the 17-35 years age group, 39.51% patients were recorded in the 35-50 years age group and 38.13% patients were recorded in the 51-65 years age group. Most of the urethral stricture patients are in the middle age group. Initially, all patients were counseled for CISC and explained the nature of urine and that it is the natural clean and clear secretion of their body. All patients were properly counseled about the nature of stricture its course, recurrence, complications, and the role of CISC in the prevention of stricture recurrence. CISC is safe, cost-effective, and easy to learn and perform procedures that all patients having intact limbs and vision can easily practice. There are many protocols of performing CISC some literature has reported twice weekly for 1-year other has reported two times weekly for six months. We have instructed patients to do twice daily CISC for 8 weeks followed by check cystourethroscopy for any stricture recurrence. The success of IOU for stricture mainly depends upon the length of stricture, a length less than 1 cm has a 62.79 % success rate, and a length more than 1 cm has a success rate of 20%.

Roosen J U in their study observed that 50% of patients develop recurrence following direct visual internal urethrotomy at the sixth month. They have offered CISC to twenty-nine patients who have been treated with internal urethrotomy. Ten patients were removed from the study as they didn't fulfill the criteria of CISC due to multiple reasons. 19 patients who regularly practiced CISC had significant improvement in their voiding functions and no recurrence occurred in them at the sixth month of evaluation. They have concluded that CISC is effective in preventing the recurrence of urethral stricture post-visual internal urethrotomy[14].

Vijaya Kumar et al randomly divided patients who were treated for urethral stricture with IOU into two groups of 20 patients, group A is the treatment group all those who will do CISC, and Group B control group .20% of patients among Group A developed recurrent urethral stricture and 75% in group B developed stricture. In group A the time of recurrence was also delayed as compared to group B. From their study, it has been confirmed that CISC post-IOU is safe and helps in the prevention of recurrence, and also delays the recurrence of stricture[15].

TL Tammela et al in their controlled study on patients who had undergone IOU for urethral stricture disease in 25 patients they have ceased CISC post-IOU at 6 months and in 24 patients at 12 months. There was no significant difference between the two groups in the rate of urethral stricture recurrence, but the maximum flow rate was significantly lower in those patients who had ceased CISC at 6 months upon evaluation of uroflowmetry at 6 and 12 months[16].

Osman Ergun et al in their study of ninety patients who were treated for urethral stricture with IOU. Two weeks after the operation, patients were divided into group A treated with CIC, group B treated with triamcinolone ointment CIC and group C with contractures ointment CIC. Their results showed that CIC is a safe, simple, and well-tolerated procedure and application of triamcinolone and contractures didn't decrease the recurrence rate of urethral stricture[17].

Conclusion

In this study, it has been proved that CISC is a safe, cost-effective, and easy-to-perform procedure for the prevention of recurrent urethral stricture.

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