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Original Research Article

Role of intermittent self catheterization in prevention of recurrence of stricture urethra following visual internal urethrotomy: a prospective single centre study

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ABSTRACT

Background: Stricture urethra is a highly recurrent disease. Various treatment modalities were used to prevent its recurrence post urethrotomy with variable success. The objective of this randomized study was to compare the stricture recurrence after optical internal urethrotomy with and without clean intermittent self catheterization in patients with anterior urethral stricture.
Methods: A total of fourty patients aging 20-60 years with urethral stricture of up to 1cm and up to six months duration were selected randomly in to treatment group A (20 patients) control group B (20patients) and all patients were treated with VIU followed with indwelling catheter for 7 days. Patients with traumatic urethral stricture, congenital or malignant strictures were excluded. The treatment group A was taught to perform self clean intermittent catheterization by inserting Nelaton catheter. All patients were followed regularly at 3,6,12 months.
Results: 4 (20%) patients in treatment group A had stricture recurrence while 15 (75%) out of 20 patients in control group B developed urethral stricture recurrence. In Group A 2 Patient developed stricture in first 6 months and 2 in next 6 months of follow up while in control group B 10 patients (50%)out of 20 had their recurrence in the first six months of follow-up while 5 (25%) in group B had their recurrence in the next six months of follow-up.
Conclusions: Clean self intermittent catheterization is a simple, safe, cost effective and easy to perform procedure for prevention of urethral stricture with good acceptability and compliance.

Keywords: Stricture urethra, Clean intermittent self catheterization, Prevention of urethral strictures

INTRODUCTION

Urethral stricture is common urological disorder and its oldest disease known to mankind. In general the term urethral stricture generally refers to anterior urethral disease, or a scarring process involving the spongy erectile tissue of the corpus spongiosum (spongiofibrosis).[1] Contraction of this scar reduces the urethral lumen leading to stricturing. In contrast posterior urethral strictures are not included in the common definition of urethral stricture. Previously infections and gonorrhoea were the common causes of urethral stricture. In developed world, gonoccocal strictures are rare and most strictures today are either iatrogenic or idiopathic unnecessary urethral catheterisation and repeat urethral instrumentation should be avoided to exacerbation. Unnoticed straddle trauma is also a major cause of stricture disease.[3] There has also been increase in the number of urethral strictures caused by balanitis xerotica obliterans (BXO). An old saying 'once stricture there is always stricture' was used to be true.[10] Despite good immediate results there is considerable risk of recurrence

between 10-50%. Direct visual optical internal urethrotomy (OIU) and urethral dilatation are the most commonly performed procedures for short segment (<1 cm) anterior urethral stricture.[2,9] This approach is appealing both for urologists and patients as it is minimally invasive. Since the introduction of optical internal urethrotomy by Sachse in 1974 using a fine movable scalpel to incise urethral stricture under direct vision, this technique has been used as the primary treatment of new as well as recurrentstrictures.[5] Despite good immediate results, there is a considerable risk of recurrence in 10 to 50% cases. Most recurrences occur within the first year. To prevent this high rate of recurrence the concept of clean intermittent self catheterization was introduced by Lapides in the early 1970s who proposed that strict aseptic techniques are not necessary for clean intermittent self catheterization. In this study we have investigated the effect of self catheterisation on the frequency of recurrence of urethral stricture.

METHODS

A Randomized control study was conducted at our hospital from January 2018 to January 2019. Males aging 20-60 years with urethral stricture of up to 1cm and up to six months duration were selected randomly in to treatment group A (20 patients) control group B (20 patients). Females, Patients of hypospadias, epispadias or neurogenic bladder were excluded from the study. Each patient with the provisional diagnosis of urethral stricture was subjected to retrograde urethrogram AP and oblique view. Optical internal urethrotomy (OIU) was performed depending upon length of stricture and grade of stricture.[4] Indwelling catheter was removed after 7 days following OIU. In group A, optical internal urethrotomy was done with clean intermittent self catheterization (CISC), while in group B optical internal urethrotomy was done and was not followed with clean intermittent self catheterization.[7] After one week patient was trained to perform CISC with nelaton catheter no 14.[11] Each patient in Group A was advised to perform the CISC once a day for initial one month and on alternate day for another 30 days. Interval of one day between successive CISC was added after every 30 days till the completion of six months. Patients were advised to wash Nelaton catheter, hands and genitalia before and after each CISC with antiseptic soap or lotion. They were advised to change the nelaton catheter after each 15 days. Patients were followed up for next six months on monthly basis and advised to consult early in case of any complication like haematuria, pyuria, epididymoorchitis or fever and in case of failure to perform CISC. Patients were followed up for next six months for reoccurrence of lower urinary tract symptoms (LUTS). Success of treatment was absence of symptoms (LUTS/retention). Compliance, success, failure and any complication of treatment modality were recorded. Data was collected by structure questionnaire for each patient, from date of operation until discharge from hospital, and outpatient follow-up at one, three months, sixth months and 12th months. Patients or their relatives either had written or verbal consent before being enrolled in this study a flow chart will be used for data collection.

RESULTS

The etiology of stricture Urethra was discussed in Table 1, urethritis post infection being common cause in both the Group 1 and Group 2. The other causes of stricture urethra are instrumentation, surgery for hypospadias, post TURP and idiopathic. The distribution of age groups is presented in Table 2 with majority of patients 41 (34.17%) in the age group of 51 to 60 years (8 in Group A and 7 in Group B). Mean duration of stricture was 2.5 months. The mean duration of stricture in treatment group 1 was 2.6 months and in control group 2 was 2.4 months. Mean length of stricture was 0.9 cm. The mean length of stricture in treatment group was 0.95 cm and in control group was 0.85 cm. Recurrence of stricture was seen in 4 patients (20%) out of 20 in treatment group 1 (OIU with CISC) and in 15 (75%) patients out of 20 in control group 2 (OIU without CISC) Table 3. In Group A and B Stricture was most common in first Six months which suggests that recurrence is most common in eary post operative period. The complications in post operative period were Urinary tract most common followed by bleeding and recurrence of stricture (Table 4). Urine culture was done and it was found to be *E. coli* being most common and antibiotics were given according to culture. Bleeding was most commonly due to inappropriate use of Nelatons catheter and subsequent trauma.

Table 1: Distribution of the study population according to the etiology of urethral stricture.

Etiology	Group 1 (Treatment)	Group 2 (Control)
Urethritis	8	9
Instrumentation	3	2
Surgery for hypospadias	0	1
Post TURP	2	2
Idiopathic	3	4
Trauma	2	2

Table 2: Distribution of patients with urethral stricture by age groups (n=40).

Age groups in years	Group 1 (Treatment)	Group 2 (Control)	Total	%
20-30	3	2	5	12.5
31-40	4	4	8	20
41-50	5	7	12	30
51-60	8	7	15	37.5

Table 3: Stricture recurrence in treatment and control groups after optical internal urethrotomy with and without clean intermittent self catheterization.

Group	Stricture recurrence	Stricture recurrence
	Yes	**No**
Group 1 (Treatment)	4	16
Group 2 (Control)	15	5

Table 4: Complications in postoperative period.

Complications	Group 1 (Treatment)	Group 2 (Control)
Urinary tract infection	3	12
Bleeding	3	9
Recurrence of stricture	4	15
Others	2 (Non compliance for CISC)	0

DISCUSSION

As stated earlier urethral strictures have plagued man since ages. There are various reasons why this condition does occur, and one of the causes is injury around the perineal area which may go unnoticed. A study done to evaluate the aetiology and characteristics of symptomatic anterior urethral suggested discussion analysis of age in our study showed that 27 (45.5%) of these patients were aged between 41 to 60years old, this mean that most of patients are middle age groups may be due to the etiology in which gonorrhea and urethritis were the most common cause of stricture. In our study urethritis is the most common cause of urethral stricture (42%)and this may be attributed to unprotected sexual practice or in complete ineffective treatment of that idiopathic and iatrogenic strictures are common [3]. External trauma was a relatively uncommon cause of anterior urethral stricture disease. Urethral strictures following sexually transmitted disease also occur which might cause complex urethral strictures. In the database taken this has not been recorded. Infact most of them do not seem to have any definite cause for the stricture formation, urinary tract infection was the main complication of the procedure, although mild bleeding occurred in the initial days of procedure which gradually resolved. Causes of this mild initial bleeding were probably friction injury at operated site during initial days of the procedure. Infective complication is due to the lack of aseptic measures which cannot be taken during this procedure. Only the cleanliness of the hands, nelaton and genitalia can decrease the rate of this complication. Compliance and success rate of CISC was excellent in our series like other series with initial difficulties of training.[12] Patients were reassured that urine was a clean and clear secretion of their own body. They were made more compliant by telling them about the recurrence rate of stricture formation, its infective and uraemic complications, and repeated surgical manipulations. Besides safety and easy administration, CISC is cost effective. Clean self catherization by nelaton catheter is reliable and safe procedure, having good compliance and very less morbidity.[8] Various studies reported in the literature have proved its success in the management of reoccurrence, however protocol is different in those series.[6] Some adopted weekly self dilatation for a year, others for two years and some reported it to be enough for two months. In our series the treatment group was taught to perform self clean intermittent catheterization by inserting size 14 Nelaton catheter daily for the first month then every other day for the next month and once weekly for the last third month. All patients were followed regularly at 3,6,12 months.

CONCLUSION

Stricture urethra is a common disease of human being and notorious for reoccurrence. CISC is relatively safe, cost effective, acceptable and easy to perform procedure with good compliance and very little complications and high success rate in prevention of urethral stricture. There is also a cost benefit in patients who have had single procedure followed by CISC. There is however no doubt that, complex strictures should be treated by reconstructive surgery.

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