

Clean Intermittent Catheterization With Triamcinolone Ointment Following Internal Urethrotomy

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Introduction: Our aim was to evaluate clean intermittent catheterization (CIC) results in combination with triamcinolone ointment for lubrication of the catheter after internal urethrotomy.

Materials and Methods: Seventy patients who underwent internal urethrotomy were assigned into 2 groups and performed CIC with either triamcinolone 1% ointment or a water-based gel (control) for lubrication of the catheter. They continued CIC regimen up to 6 month and were followed up for 12 months. Retrograde urethrography and urethrocystoscopy were done 6 and 12 months postoperatively. In case of obstructive symptoms or any difficulty in passing the urethral catheter, internal urethrotomy would be performed, if needed, and the same follow-up protocol would be started again. The recurrence rates after the first and second urethrotomy attempts were compared between the two groups.

Results: Thirty patients in the triamcinolone group and 34 in the control group completed the study. There were no significant differences in the baseline characteristics of the patients or the etiology of the stricture between the two groups. There was a 30.0% recurrence rate in the patients of the triamcinolone group versus 44.1% in those of the control group after the first internal urethrotomy ($P = .24$). Following the second internal urethrotomy, the urethra was stabilized in 88.9% of the patients in the triamcinolone group and 60.0% those in the control group ($P = .15$).

Conclusion: Administration of triamcinolone ointment in patients on CIC regimen after internal urethrotomy only slightly decreased the stricture recurrence rate, and its possible effects should be more investigated.

Keywords: urethral stricture, reconstructive surgery procedures, urinary catheterization, triamcinolone, urethra

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INTRODUCTION

Internal urethrotomy has been classically recommended for urethral strictures shorter than 1.5 cm, but has been associated with high recurrence rates.⁽¹⁾ A number of complementary procedures including clean intermittent catheterization (CIC) have been proposed to overcome this problem. In 1972, transurethral use of triamcinolone was proposed by Hebert.⁽²⁾ Clinical improvement of

hypertrophic scars after treatment with intralesional steroids has been shown.⁽³⁾ However, there are not enough clinical trials in the literature to support the use of these agents for internal urethrotomy cases. In an animal study, 5-fluorouracil/triamcinolone decreased scar tissue formation induced by acute subglottic trauma in rabbits.⁽⁴⁾ We compared the effect of using a corticosteroid (triamcinolone) for lubrication of

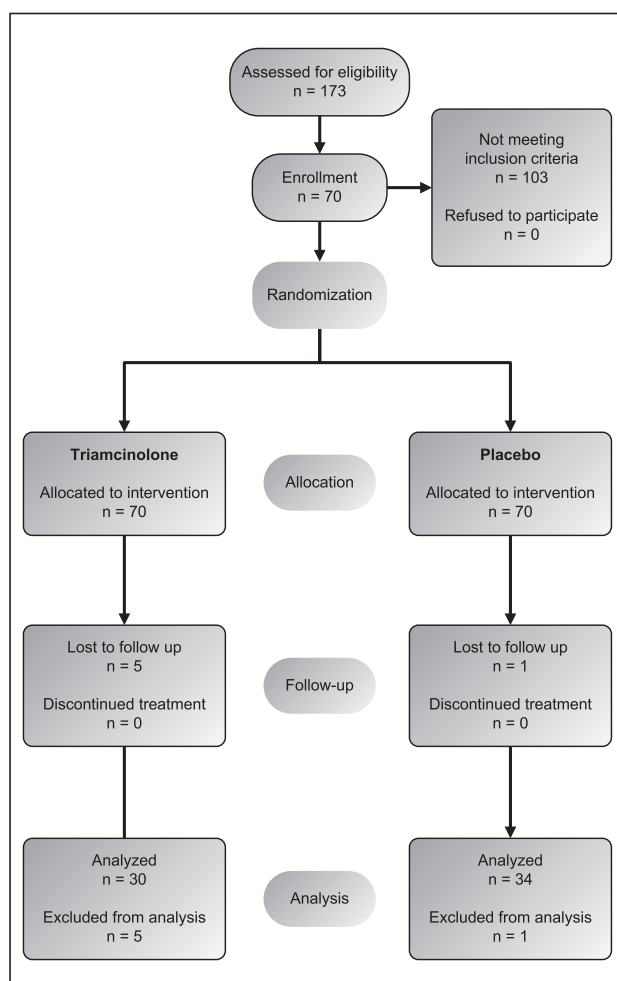
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the catheter with placebo (lubricant gel) on the development of scar tissue in the patients on CIC following internal urethrotomy.

MATERIALS AND METHODS

In this double-blind randomized placebo-controlled trial, patients with urethral stricture were approached at the urology clinic of Shohada-e-Tajrish Hospital. We excluded those with complete urethral obstruction and/or strictures longer than 1.5 cm. Informed consent was obtained from all the eligible patients. The Figure shows the allocation and assignment of the patients. The patients were scheduled for internal urethrotomy and CIC. Seventy patients were assigned into 2 groups to perform CIC with lubrication by either triamcinolone ointment (triamcinolone group) or a water-based lubricant



The Consolidated Standards of Reporting Trials flowchart of the randomized study.⁽⁶⁾

gel (control group) after internal urethrotomy. Randomization was performed using a random table. Triamcinolone 1% ointments and lubricant gel were manufactured and packed in similar tubes by the laboratory of the department of pharmacology at Shahid Beheshti University (MC).

All patients had some degrees of spongiofibrosis, defined as the presence of dense fibrosis in the urethral lumen during urethrocystoscopy. Spongiofibrosis was determined by retrograde urethrography, ultrasonography, and urethrocystoscopy. Internal urethrotomy was performed by incising the stricture site at 12, 3, 6 and 9 o'clock positions of the urethral lumen. Our technique was the same in all patients. We used classical cold knife urethrotomy in all of the patients and incised only the scar tissue and avoided cutting too deep to cause bleeding. Following internal urethrotomy, the patients were instructed to perform CIC by an 18-F Nelaton catheter. One milliliter of triamcinolone or one peanut size of the ointment was recommended to be used for lubrication of the catheter. The regimen was tapered over a 6-month period (Table 1). The patient and the physicians involved in the research project were blind to the type of the lubricants.

The patients were visited regularly after the internal urethrotomy 1, 2, 3, 6, 9, and 12 months postoperatively, and all underwent retrograde urethrography and urethrocystoscopy at the 6th and 12th months of follow-up. If the patients had recurrence of the obstructive and irritative symptoms or any difficulty in passing the urethral catheter, urgent retrograde urethrography, urethrocystoscopy, and internal urethrotomy (if needed) would be performed.

Table 1. Clean Intermittent Catheterization Regimen Following Internal Urethrotomy

Postoperative time	Catheterization
1st week	Daily
2nd week	Every other day
3rd week	Twice a week
4th week	Once a week
2nd month	Every 2 weeks
3rd to 6th month	Once a month
After 6 months	Cessation of regimen

Statistical analyses were done by the chi-square test and *t* test for comparisons of the dichotomous and continuous variables between the two groups, respectively, using the SPSS software (Statistical Package for the Social Sciences, version 13.0, SPSS Inc, Chicago, Ill, USA). A *P* value less than .05 was considered significant.

RESULTS

Five patients in the triamcinolone group and 1 in the control group were lost to follow-up, and therefore, were excluded. Analyses were done on the data collected from the records of 30 and 34 patients in the triamcinolone and control groups who fulfilled the 12-month follow-up period after the last internal urethrotomy. There were no significant differences in the baseline characteristics of the patients or the etiology of the stricture between the two groups (Table 2).

Recurrence was noted in 9 (30.0%) and 15 (44.1%) of the patients in the triamcinolone and control groups and needed a repeat procedure after the first attempted internal urethrotomy (*P* = .24). The urethra was stabilized in 8 of 9 patients (88.9%) in the triamcinolone group and 9 of 15 (60.0%) in the control group without any stricture recurrence during 12 months of follow-up after second internal urethrotomy (*P* = .15). There were no reported febrile urinary tract infection episodes or any other local or systemic complications specific to the use of triamcinolone ointment in our patients.

DISCUSSION

Internal urethrotomy has been recommended for urethral strictures shorter than 1.5 cm; however, it has been associated with high recurrence

rates.^(1,6-9) Hafez and colleagues believed that internal urethrotomy provided a safe therapeutic option for urethral strictures shorter than 1 cm in children.⁽¹⁰⁾ It was also mentioned that this procedure had 20% to 40% success rate and could be repeated 2 or 3 times in maximum.⁽¹¹⁾ Urethral stricture recurrence after the first, second, and third internal urethrotomies was reported to be about 50%, 60% to 100%, and 100%, respectively.⁽¹²⁾ Ishigooka and associates mentioned that factors with no influence on recurrent stricture formation included age, etiology, site of the stricture, and duration of indwelling catheterization. On the other hand, stricture length appeared to influence the outcome (*P* < .001). Recurrence rate was only 4.4% in short strictures (1 cm and shorter), while it was 42.9% in longer strictures.⁽¹³⁾ However, this was in contrast with the idea of some other researchers who believe that initial urethrotomy or urethral dilation followed by urethroplasty in those with recurrent stricture is the most cost-effective strategy.⁽¹⁴⁾

Clean intermittent catheterization following internal urethrotomy is an acceptable procedure to reduce the failure rate of the treatment.⁽¹⁵⁾ It was once recommended that CIC regimen be tapered within 3 to 6 months in such patients.⁽⁶⁾ Mazdak and colleagues found that submucosal injection of mitomycin C significantly reduced recurrence of the stricture after internal urethrotomy.⁽¹⁶⁾ Transurethral injection of triamcinolone was addressed by Hebert in 1972.⁽²⁾ Clinical improvement of hypertrophic scars after treatment with intralesional corticosteroid has been shown elsewhere.^(3,4) Sharpe and Finney believed that intralesional steroid might be used in many types of strictures, but it was especially

Table 2. Baseline Characteristics in Triamcinolone and Control Groups*

Characteristics	Triamcinolone	Control	<i>P</i>
Mean age	37.7 ± 17.1 (11 to 72)	34.5 ± 13.3 (10 to 80)	.14
Mean ureteral stricture length, cm	0.85 ± 0.40 (0.3 to 1.5)	0.90 ± 0.30 (0.4 to 1.5)	.11
Cause of urethral stricture			
Urethral distraction disease	15 (50.0)	14 (41.2)	.48
Straddle injury	4 (13.3)	8 (23.5)	.30
Urethral catheterization	5 (16.7)	5 (14.7)	.83
Others	6 (20.0)	7 (20.6)	.95
Previous urethroplasty	18 (60.0)	17 (50.0)	.42

*Values in parenthesis are ranges for age and stricture length, and percents for stricture cause and previous urethroplasty.

useful in cases with strictures in the distal urethra or the meatus, those occurring after radical prostatectomy, and in some cases with 1 or more urethroplasty procedures.⁽¹⁷⁾ Our study showed that adding triamcinolone ointment to CIC regimen after internal urethrotomy slightly decreased the recurrence of stricture after the first and second internal urethrotomies; however, we failed to achieve a statistically significant difference between the use of triamcinolone and conventional lubricant gels. Nonetheless, since the use of intralesional steroids is an easy method with low costs, it is worth to further study their effects in patients who undergo CIC after urethrotomy.

CONCLUSION

Administration of triamcinolone ointment in patients on the CIC regimen after internal urethrotomy slightly decreased the stricture recurrence rate. Its efficacy should be further investigated to confirm any practical benefit of this minimal modification of the treatment protocol for the patients.

CONFLICT OF INTEREST

None declared.

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