OUTCOME OF OPTICAL INTERNAL URETHROTOMY IN URETHRAL STRICTURE: A PROSPECTIVE STUDY

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ABSTRACT

Objective: *This study was conducted to assess the role of optical internal urethrotomy in patients with urethral stricture.*

Material and Methods: *This study was conducted at Khyber Teaching Hospital Peshawar and Khattak Medical Centre Peshawar from March 2003 August 2003. Male patients were selected from the patients presenting with history of urethral stricture regardless of age and etiology. Patients with neurogenic bladder, enlarged prostate, bladder stone or meatal stricture were excluded.*

All patients were investigated with standardized protocol. Optical internal urethrotomy was performed in all patients and they were followed at monthly interval. The success of procedure was evaluated by grading the patient response as excellent, good, acceptable and poor.

Results: *Out of 30 patients, 11(36.66%) were between 20 and 30 years of age. The most common cause was trauma 21(70%).The most common site was bulbous urethra in 22 (73.33%) cases followed by membranous urethra in 4(13.33%) cases. In patients with stricture of less than 1cm, 21/25(84%) showed excellent response while in stricture of more than 1cm, 1/5(20%) showed excellent response. Excellent results were seen in patients with stricture in 18/22 (81.81%) cases of bulbous urethra. Nine (30%) cases showed minor post operative complications with no major complications. No recurrence was reported in 3 months follow up.*

Conclusion: *Internal optical urethrotomy is a safe first line treatment in urethral stricture independent of the cause. It has low morbidity for the working class people.*

Key Words: *Optical Urethrotomy, TVP, Urethroscopy, Retrograde Urethrography, Trans Urethral Resection*

INTRODUCTION

Urethral stricture is well known to mankind as a complication of infectious disease and trauma affecting male population since long[1]. The history of urethral stricture is present in ancient Greeks, Egyptians and the management of urethral stricture was available in writing.[2] Urethral stricture begins as a fibrosing lesion of urethral mucosa with lumen reduction and resultant symptoms complex. A 50% reduction of urethral circumference for example reduces the lumen size up to 25% and produces significant urodynamic symptoms.[3] Before the discovery of antibiotics, Gonococcal infection was the commonest cause but now trauma both direct and indirect has been the commonest cause.[4,5] The etiology of urethral stricture was 67% traumatic, 21% iatrogenic and 12% inflammatory in India.[5] Iatrogenic trauma to the urethra during variety of procedures like cyctoscopy, transurethral resection of prostate (TURP), transurethral resection of bladder tumour (TURBT) or transvesical prostatectomy (TVP) is one of the cause of urethral stricture. Once the stricture develops it is very distressing for the patient and they usually complain of retention of urine, thin stream, hesitancy and dribbling of urine. The treatment modalities vary according to length of stricture, etiology and local factors. The treatment of urethral stricture dates back to the foundation of urology. Urethral dilatation is commonly used as out patient modality which causes a high complication rate like bleeding, septicemia, periurethral abscess, false passages and extravasation of urine. Optical urethrotomy is a relatively safe procedure which was introduced in

1974[6]. Good voiding results can be achieved with optical urethrotomy independent of etiology and location with an overall success rate of 80% and the cure rate with repeat internal urethrotomy is up to 50 to 70% [7]. The complication rate of internal urethrotomy is lower than urethral dilatation. The option of open urethroplasty is reduced by 60% [8]. The complications of internal urethrotomy are hemorrhage, false passages, breaking of knife, impotence, epididymitis and extravasation of urine[9]. Internal urethrotomy can be performed in outpatient setup under local anaesthesia.

The objective of this study was to assess the role of optical internal urethrotomy in treatment of urethral stricture and to evaluate the symptomatic improvement and efficacy in treatment of this rising problem in urology.

MATERIAL AND METHODS

This study was conducted in Khyber Teaching Hospital Peshawar and Khattak Medical Centre Peshawar from March 2003 to August 2003. A total of 30 patients were included in the study.

Patient Selection

Thirty male patients were selected from patients presented to surgical unit with history of urethral stricture regardless of age and etiology of stricture.

Exclusion Criteria

All patients having neurogenic bladder, enlarged prostate, bladder stone or meatal stricture were excluded.

Methods

Patients with voiding difficulty were assessed using clinical history and examination data along with abdominal and urethral ultrasonography, urethroscopy, retrograde cysto-urethrography, urethroscopy, urinary flow rates measurements, urine culture & sensitivity and assessment of renal profile. A diagnosis of urethral stricture was made in 30 patients. Preoperative assessment of the disease and clinical grading of

AGE DISTRIBUTION OF THE PATIENTS WITH URETHRAL STRICTURE

Age (years)	No. of patients	Percentage
11-20	7	23.33
21-30	11	36.66
31-40	8	20.66
41-50	3	10.0
51-60	1	3.33
Total	30	100

Table 1

the severity was made. Optical internal urethrotomy was performed in all the patients regardless of age, etiology or location of stricture using Saches cold knife optical urethrotome with telescope. All the procedures were done under general anaesthesia. Antibiotic prophylaxis was used. A metallic ureteric guide wire or 4 Fr ureteral catheter was first passed to guide the blade for accurate cutting across the stricture. The incision was placed at 12 o'clock position cutting through the entire fibrous tissue until the instrument passed easily. The urethra was calibrated up to 26 Fr followed by passage of 18 Fr silicon catheter and was left in place from 2 to 7 days. Monthly follow up was done with subjective and clinical assessment of the patients.

The results were graded:

Excellent ---- patient fully satisfied, good urine stream and with no complaints

Good ---- patient satisfied required urethral dilatation after 2 to 3 months

Acceptable ---- patient satisfied required urethral dilatation at monthly interval

Poor ---- patient not satisfied, stream remained poor, required regular dilatation

Patients were followed up monthly for three months for any recurrence.

RESULTS

This study was conducted on 30 male patients with urethral stricture. Nineteen (66.3%) patients were ranging in age of 21-40 years (Table 1). The most common presenting complaint was poor urinary stream in 21(70%) cases followed by dribbling of urine in 5 (16.66%) cases (Table 2). Out of 30 patients 13(43.33%) presented with the first year of symptoms and 10 (33.33%) presented with 1 to 5 year of duration (Table 3).

The most common cause of urethral stricture was trauma in 21(70%) cases, out of which direct trauma to the urethra was found in 12 (57.14%) cases and indirect trauma in 9 (42.80%) cases (Table 4). The most common site was bulbous urethra in 22(73.33%) cases followed by membranous urethra in 4 (13.33%) cases (Table 5).

PRESENTING FEATURES

Presenting feature	No. of patients	Percentage
Poor urinary stream	21	70
Dribbling of urine	5	16.66
Acute urinary retention	3	10
Recurrent UTI	1	3.33
Total	30	100

Table 2

DURATION OF SYMPTOMS AT THE TIME OF PRESENTATION

Duration of symptoms	No. of patients	Percentage
< 1 year	13	43.33
1-5 years	10	33.33
6-10 years	4	13.33
11-15 years	2	6.66
> 30 years	1	3.33
Total	30	100

Table 3

SITE OF STRICTURE

Site	No. of patients	Percentage
Bulbar urethra	22	73.33
Membranous urethra	4	13.33
Multiple strictures	3	10
Prostatic urethra	1	3.33
Total	30	100

Table 5

Overall response was excellent in 22 (73.3%) cases and poor in 3 (10%) cases. In patients with stricture length < 1cm response was excellent in 84.4% cases (n=21/25) and poor in 8% cases (n=2/25). In patients with stricture length > 1cm response was excellent in 20% cases (n=1/5) and poor in 20% cases (table 6).

Thirty percent of cases (9/30) showed minor complication with 6(20%) minor bleeds, 2(6.6%) fever and 1 (3.33%) impotence. Three months follow up of all patients revealed no recurrence of urethral stricture.

DISCUSSION

In the past gonococcal urethritis was one of the common causes of urethral stricture. But now pelvic trauma has been reported as the major cause of urethral stricture[4]. Urethral dilatation is oldest and simplest treatment of urethral stricture and remained gold standard for many centuries. Urethral dilatation is still used as an acceptable treatment of urethral stricture. In 1974 introduction of movable scalpel urethrotome brought revolution

ETIOLOGY OF URETHRAL STRICTURE

Etiology		No. of patients	Percentage
Trauma		21	70
	Direct	12	57.14
	Indirect	9	42.8
Iatrogenic		9	30
	Cystoscopy	4	44.44
	TVP	3	33.33
	Infection	2	22.22
Total		30	100

Table 4

in management of urethral stricture[6]. Internal optical urethrotomy is now considered the gold standard in management of urethral stricture because it is safe procedure and the complications of open surgery can be reduced up to 60%. Optical urethrotomy has a success rate of 80% and cure rate of 50 to 70%. Other alternative treatments can be considered for anterior urethral stricture only after failure of optical urethrotomy.

In our study we reviewed 30 male patients with urethral stricture and assessed the role of optical urethrotomy. The age difference in our study and that of the rest is due to life expectancy and safety measures in routine life. The traumatic etiology was 21(70%) in our study where direct trauma 12(57.1%) and indirect trauma 9(42.8%) which was consistent with other studies done in Pakistan. Rasool M et al in 2001 reported 66.66% of urethral stricture due to trauma [11]. A similar study was done in India by Mohanty and Kachroo in 1988 reported 67% traumatic incidence[5]. The high incidence in Pakistan and India is due to road traffic accidents and inadequate medical facilities. Smith et al[6] in 1986 reported 51.8% of iatrogenic strictures while in our study it was 9 (30%).

In our study 13(43.33%)cases of urethral stricture were reported in less than one year of developing symptoms while 10(33.33%) patients developed urethral strictures in 1 to 5 years. A delayed presentation in the west was reported by Smith et al 1986[6]. In our study the age range was from 11 to 60 years with mean age 25 years. Out of 30 patients 11(36.66%) of the patients were

RESULTS ACCORDING TO LENGTH OF STRICTURE

	Stricture length < 1cm (n = 25)	Stricture length >1cm (n = 5)	Total (n = 30)
Excellent	21(84.44%)	01(20%)	22 (73.3%)
Good	02(8%)	02(40%)	04 (13.3%)
Acceptable	--	01(20%)	01 (3.3%)
Poor	02(8%)	01(20%)	03 (10%)

Table 6

from 21 to 30 years and 8(26.66%) were in the range of 31 to 40 years. Jorden et al[12] reported more than 60% of the patients above the age of 50 years while in our study 63.32% of the patients were in the range of 11 to 30 years.

In contrast to our study Chelton et al[8] in 1983 reported 11.5% traumatic stricture. This may be because of the less number of road traffic accidents in west while early presentation in our study was due to road traffic accidents. Regarding site of urethral stricture 22(73.33%) of the patients in our study were having stricture of bulbar urethra while Ali MN[7] in 2001 reported 70 to 80% of the stricture in bulbar urethra which is consistent with our study. In our study 25(83%) were having urethral stricture of less than 1cm and in 21(84.44%) patients, the response to optical urethrotomy was excellent while 2(8%) were having poor response. Response of optical urethrotomy in urethral stricture more than 2cm was not very good while 20% excellently responded. Nielsen1984 reported better results when length of the stricture was less than 1cm[14]. Pansadoro-v 1984 reported 11% poor results when stricture length was less than 1cm[15].

In our study the patients were followed up for a short term of three months. The short follow up was because of two reasons; first the recurrence of stricture occurs with in three months of internal urethrotomy[16] and secondly the compliance of the patients in our study is lost with passage of time. Pansadoro-v [15] in 1996 did a long term follow up for 98 months and he concluded that the results of internal urethrotomy become evident with in few months. In our study complications like minor bleeding, urinary tract infection and fever were observed in few patients.

CONCLUSION

From our study in 30 patients we concluded that internal optical urethrotomy is safe first line treatment in urethral stricture independent of etiology. The overall success rate of internal optical urethrotomy is above 80%. Also internal optical urethrotomy has low morbidity rate in our patients. Clean intermittent dilatation is advised and it reduces the chance of recurrence. Long term follow up is needed to document the long term benefits of optical urethrotomy in patients with urethral stricture.

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