

Success and recurrence rate of optical urethrotomy in management of anterior urethral stricture in males

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Objective: To determine the success and recurrence rate of optical urethrotomy in management of anterior urethral stricture in males.

Methodology: This prospective observational study was carried out in urology Ward, Liaquat University Hospital Jamshoro, Pakistan from March 2009 to December 2009 and included 50 patients of anterior urethral stricture. Detailed history and clinical examination was recorded. All underwent investigations, anesthesia fitness, Uroflowmetry (UFM) and urethrogram. After optical urethrotomy, follow up of all patients was done. Data were analyzed through SPSS software.

Results: Age ranged from 16 to 70 years (mean 26.78 ± 2.3 years). Symptoms of patients were weak stream in 30 (60%), straining in 27(54%), painful micturition in 12 (24%), retention 14 (28%),

discharging urethra in 14 (28%), UTI in 9 (18%), hematuria in 5 (10%) and infertility in 3 (6%). Causes of stricture were mechanical trauma in 12 (24%), RTA in 7 (14%), STD in 3 (6%), infection in 5 (10%), iatrogenic in 13 (26%), others in 4 (8%) and past surgical history in 6 (12%). Stricture was at penobulbar junction in 38 (76%) patients, while penile was present in 7(14%) patients and meatus in 5(10%). The complications were bleeding in 16(32%) patients, damage to urethra in 2(4%) patients, false passage in 2(4%) patients, and rectal injury in 0 (0%) patients and recurrent in 18(36%) patients.

Conclusion: Internal optical urethrotomy is safe first line treatment in urethral stricture independent of etiology. The overall success rate was 63%. (Rawal Med J 201;42:219-222)

Key words: Optical urethrotomy, anterior urethral stricture, urinary retention.

INTRODUCTION

The anterior urethral stricture is an organic narrowing of the urethra caused by scarring of the urethral epithelium and the spongy erectile tissue of corpus spongiosum.¹ Infection is still an important cause of most inflammation of the male urethra in the developing world and is most commonly due to Neisseria gonorrhoea and infrequently caused by Chlamydia, lymphogranuloma venereum, tuberculosis and schistosomiasis.² The traumatic strictures are becoming increasingly important due to increase in civil violence and injury following road traffic accidents. The inflammatory reaction following trauma is limited and so the fibrosis that is responsible for stricture formation is localized and the stricture is short and formed within a short time from injury.³ Catheter induced strictures are not uncommon and pathophysiologically resemble trauma induced stricture. Malignant strictures are

not common but may be formed in association with urethral and penile tumors.⁴ Urethral stricture are more common in men because their urethras are more susceptible to disease or injury

Stricture disease represents a significant part of the workload of the urologist. A multitude of methods have evolved aiming to cure these patients but none has proven to be suitable for all types of strictures.⁵ A 50% reduction of urethral circumference reduces the lumen size up to 25% and produces significant urodynamic symptoms.⁵ From statistics in the United States and in the UK, it affects males with an increasing frequency with one in every 10,000 men aged 25 to about one in every 1000 males aged 65 or more.⁶ Therefore the treatment of urethral stricture disease continues to evolve and aim remains to restore the urethral continuity. Periodic dilatation has been reported as the oldest method of treatment. Later on it was supplemented by blind internal

urethrome with otis urethrotome. In the mid of this century, some investigators started to establish the continuity of urethra in the form of urethroplasty.⁵ More recently, the most popular form of treatment for anterior urethral stricture disease is optical urethrotomy by urethrome developed by Sache in 1974.⁷ Temporary dilatation after optical urethrotomy also described by some urologist for the prevention of stricture recurrence.⁸, In the last decade, with use of oral mucosa (buccal, lip and lingual), satisfactory reconstruction and outcome in the treatment of all types of anterior strictures on prolonged follow up has been noted.⁹ The objectives of the study was to evaluate success and recurrence rate of optical urethrotomy in management of anterior urethral stricture in males.

METHODOLOGY

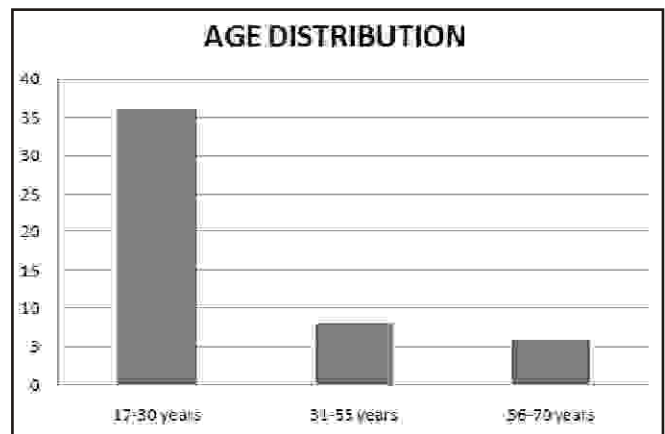
This study was carried out in urology Ward, Liaquat University Hospital Jamshoro, Pakistan from March 2009 to December 2009 and included 50 patients of anterior urethral stricture. These patients were admitted through emergency, out patient department, referral from General surgical units of Hospital and other peripheral Health units & Hospitals. Patients ≥16 years of age and diagnosed as case of anterior urethral stricture disease on the basis of history, clinical examination and investigations were included in the study. Patients below 16 years, posterior urethral stricture, female patients, renal failure, carcinoma of urethra, bladder outlet obstruction (B.O.O), benign Prostate, hypertrophy (BPH), carcinoma of Prostate were excluded from the study. The study were performed after the permission of ethical committee of hospital, and written informed consent for the study and procedure were obtained from the patient or next of kin. Detailed History was taken from all the patients with special regard to the weak urinary stream, straining to urinate, spraying of the stream, incomplete emptying, dribbling, urinary tract infection and inability to void. Detailed clinical examination was recorded in proforma. All patients underwent investigations of blood complete picture, urine detailed report, urine for culture & sensitivity, urea/creatinine, hepatitis B virus & hepatitis C virus antibodies, X-ray chest for anesthesia fitness,

ultrasound abdomen, pre & post voidal volume, uroflowmetry (UFM) and urethrogram. Patients underwent optical urethrotomy and follow up was done upto six months to assess recurrence. Data were analyzed through SPSS version 16.0

RESULTS

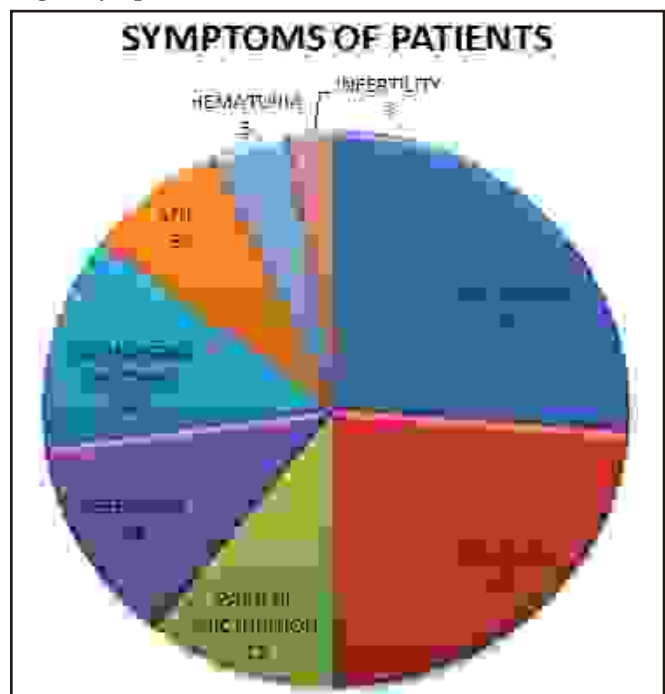
Age ranged from 16 to 70 years (mean 26.78±2.3 years) (Fig. 1).

Fig. 1. Age distribution of study population.



Most symptoms were weak stream (60%), straining (54%) and painful micturition (24%) (Fig. 2).

Fig. 2. Symptoms.



The most common cause of anterior urethral stricture in our study was mechanical trauma (24%), followed by RTA (14%), and infection (10%) (Table 1).

Table 1. Etiology of anterior urethral stricture (n=50).

Etiology	Number	Percentage
Mechanical Trauma	12	24
RTA	7	14
STD	3	6
Infection	5	10
Iatrogenic	13	26
Past surgical history	10	20

Table 2. Post operative complications.

Complication	Number	Percentage
Bleeding	16	32
Damage to urethra	2	4
False passage	2	4
Rectal injury	0	0
Recurrent after 6 month	18	36

The stricture was at penobulbar junction in 76% patients, while penile stricture was present in 14% patients and meatus was involved in 5(10%) patients. The complications seen in this study were bleeding, damage to urethra and false passage (Table 2). Recurrent after 6 month was seen in 18(36%) patients.

DISCUSSION

Urethral stricture is well known to mankind as a complication of infectious disease and trauma affecting male population since long.¹⁰ Urethral dilatation is still used as an acceptable treatment of urethral stricture. In 1974, introduction of movable scalpel urethrotome brought revolution in management of urethral stricture.¹¹ 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%.¹² Other alternative treatments can be considered for anterior urethral stricture only after failure of optical urethrotomy.

In our study, age ranged from 16 to 70 years with

mean age of 26.78 ± 2.3 years. The peak age group in our study was 2nd and 3rd decade of life. Singh et al reported age range from 18-73 years.¹² 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.¹³ According to Yunas et al, a large percentage (70%) of patients presented with poor urinary stream, 16.66% of patients had dribbling of urine, 10% had acute urinary retention and 3.33% of patients complained of recurrent UTI.¹⁴

In our study, the symptoms of patients were weak stream in 30(60%), straining in 27(54%), painful micturition in 12 (24%), retention 14 (28%), discharging urethra in 14 (28%), UTI in 9 (18%), hematuria in 5 (10%) and infertility in 3 (6%). 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 12(24%) in our study, while RTA in 7 (14%), STDs in 3 (6%), infection in 5(10%), iatrogenic in 13(26%), others in 4(8%) and past surgical history in 6(12%). Afridi et al¹⁵ in 2010 reported urethral stricture due to iatrogenic trauma; including history of previous catheterization 43.15%, followed by trauma 28.08%, while urethritis being the least common cause 18.49%. The high incidence in Pakistan and India is due to road traffic accidents and inadequate medical facilities.

We found urethral stricture at penobulbar junction in 38 (76%) patients, while penile was present in 7(14%) patients and meatus in 5(10%). However, a study by Fenton et al showed most (52%) anterior urethral strictures involved the bulbar urethra.¹⁶ We followed patients for a short term of three months and six months. The short follow up was because of two reasons; first the recurrence of stricture occurs within three months of internal urethrotomy and secondly, many patients in our study were lost to follow up. Pansadoro and Emiliozzi¹⁷ in 1996 did a long term follow up for 98 months and concluded that the results of internal urethrotomy become evident within few months. In our study, postoperative complication were bleeding in 16(32%) patients due to hard and long stricture & blood dyscrasias, damage to urethra in 2(4%)

patients, false passage in 2(4%) patients. However, postoperative complications observed in three months follow up of all patients by Yunas et al¹⁴ were minor with 6(20%) bleeds, 2(6.6%) fever and one (3.33%) impotence. In our study, recurrence rate was 18(36%) patients. Zehri et al¹⁸ reported a recurrence was 37% after 4.5 months follow-up.

CONCLUSION

Internal optical urethrotomy is safe first line treatment in urethral stricture independent of etiology. The overall success rate is above 63%. Also, internal optical urethrotomy has low morbidity rate in our patients. Long term follow up is needed to document the long term benefits of optical urethrotomy.

Author Contributions:

Conception and design: Javed Altaf Jat
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 Analysis and interpretation of the data: Adeel Hyder Arain
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 Critical revision of the article for important intellectual content: Javed Altaf Jat
 Statistical expertise: Javed Altaf Jat, Shabeer Mangi, Adeel Hyder Arain
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