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Demographic Trend of Stricture Urethral Disease: An Indian Scenario

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ABSTRACT
Introduction: *The etiology of urethral stricture disease is variable and many questions still remains unanswered. This study along with review of literature was done in a tertiary care center for evaluation of demographic characteristic of stricture urethra patients in our society and to determine the common themes that may influence possible prevention or treatment strategies.*
Materials and Methods: *This was a retrospective and prospective study of 60 patients with urethral stricture. The case records of all the cases diagnosed as urethral strictures were analyzed to determine the possible cause of stricture, their demographic profile, and their clinical presentation. Data were entered both prospectively through careful patient interrogation and retrospectively from a detailed chart review. Primary aetiology was defined as iatrogenic, traumatic, lichen sclerosus (LS), infectious, congenital, or unknown. Their stricture sites were also taken into account.*
Results: *Majority of patients in our study were young adults having mean age of 38.9 years. Out of 60 patients, 56 (93.3%) patients were male and 4(6.6%) were female. Overall, traumatic cause was the most common (58.3%). Most of patients were presented with acute urinary retention. Maximum number of stricture were found at bulbar urethra (43.3%) followed by bulbomembranous.*
Conclusion: *The distribution of urethral stricture etiology is not uniform across the world. Also It varies with age and it may influence the site of stricture in urethra. There is decreasing trend of infectious etiology of stricture urethra. Trauma especially external trauma is the commest etiology in developing country like India.*
Keywords: *Stricture, Urethra, Etiology,Trauma.*

INTRODUCTION

Stricture urethra is an ailment which is responsible for intense & prolonged mental & physical suffering to the patient. Historically, infection-related urethritis which accounting for 40% of stricture urethra, was the most commonly identified aetiology [1],[2]. Now a days, with improved public education, there is a shifting trend in diagnosis and treatment and now urethritis is only identified as the cause of urethral stricture in a small proportion of cases. The majority of urethral strictures are now thought to be iatrogenic or idiopathic in aetiology [2],[3]. However, there is significant regional variation in stricture aetiology with different patterns noted in other parts of the world [4],[5].

Discrepancies in stricture aetiology may be related to inherent regional differences and practice patterns, access to quality healthcare, social and environmental settings, or variation in diagnosis. These differences in aetiology of sticture can lead to variation in the manifestation and treatment, therefore, agreater understanding of global patterns can allow more appropriate comparisons of interventions and outcomes between regions, improved understanding of disease pathogenesis, and better strategies for disease prevention and treatment. This study along with review of literature was done in a tertiary care center for evaluation of demographic characteristic of stricture urethra patients in our society and to determine the common themes that may influence possible prevention or treatment strategies.

MATERIALS AND METHOD

This was a retrospective and prospective study of 60 patients with urethral strictures who were admitted from September 2011 to December 2013 to the Urology Department of our institution. The case records of all the cases diagnosed as urethral strictures were analyzed to determine the possible cause of stricture, their demographic profile, and their clinical presentation. Data were entered both prospectively through careful patient interrogation and retrospectively from a detailed chart review. Primary aetiology was defined as iatrogenic, trauma (including pelvic-fracture-related urethral injury [PFUI]), lichen sclerosus (LS), infectious, congenital, or unknown. Sub analysis was done of patients less than 50 years of age vs patients 50 years of age or greater. Their stricture sites were also taken into account. A cutoff of 50 years was chosen, since above this age the probability of iatrogenic manipulation of the urethra increases due to the increased incidence of benign prostatic hyperplasia, prostate cancer, bladder tumor, and urethral catheterization. Five stricture sites were determined: the posterior urethra, the bulbar urethra,the bulbomemranous urethra the penile urethra, and the pan urethra. Statistical analysis was done (with the Fisher's exact test), and a p value < 0.05 was considered statistically significant. A comprehensive electronic literature search was conducted using the keywords "etiology, urethra, and stricture."

RESULTS

A total of 60 patients were identified, all were Indian. Majority of patients in our study were young adults having mean age of 38.9 years. Out of 60 patients, 56 (93.3%) patients were male and 4(6.6%) were female. In 58.3% (35) patients were presented with traumatic history, 23.3% (14) with history of infection and 13.3% (8) with history of previous catheterization. Most of patients (58.3%) were presented with acute urinary retention for which suprapubic cystostomy was done either in our hospital or outside. Maximum number of stricture were found at bulbar urethra (43.3%) followed by bulbomembranous (22.6%) and penile urethra (18.3%).Prostatic urethral stricture was found only in one cases. Trauma was the most common cause of bulbar and bulbomembranous stricture (87.3%), while infection was main culprit for penile urethral stricture.

DISCUSSION

Urethral stricture disease is one of the oldest and most difficult modalities known to urology. The demographics of stricture are poorly understood and have been sparsely reported in published studies. We have tried to find the demographic status in our institution and compare our results with similar studies conducted world-wise.

There are 56(93.3%) male patients and 04(6.6%) female patients out of 60 patients as shown in table 1.

Table 1. Sex distribution

Sex	No. of Patients	Percentages
Male	56	93.3 %
Female	4	6.6 %
Total	60	100 %

This data shows low incidence of stricture urethra in female. Similar results have been found In Manzoor at el study in which 99.6% cases are male and only 0.4% are female patients[6]. Jorge A. Mertiniz at el

aslo shows incidence of male stricture is much higher than female[7]. Majority of stricture in female were due to severe infection while in male due to trauma.

Our study shows that the patient's age ranges from 10 to 70 years with mean age is 38.9 years. Maximum incidence of stricture is found between 41 to 50 years as shown in figure 1. In Heyns et al study, mean patients age was 49.9 year and age ranges from 2.8 to 93.4 years[8]. In Manzoor Hussain et al study, peak age of urethral stricture is in between 41 to 50 year and ranges from 14 to 80 years[6]. In Ba'adani at el study, mean age was 25.31years and age ranges in between 3 to 70 years [9]. These results are showing the similar age incidence in our study compare to other studies.

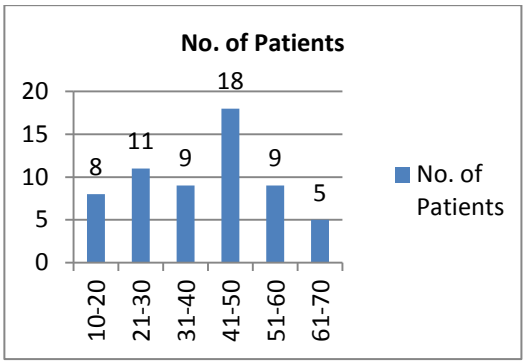

Fig 1. Age distribution of stricture urethra

Most of the patients are belong to rural area and of low socio-economic status in our study. This finding may be because our institute is a tertiary referral government centre where mostly poor patients from rural area and low socioeconomic status came for medical treatment.

Trauma is the most common etiologic factor found in our study followed by infection, catheterization and instrumentation[10]. This is probably because of increasing incidence of road traffic accidents and pelvic fracture. This shows the increasing incidence of trauma in the developing country which is in contradiction with reports from Western literature which shows iatrogenic/instrumental trauma as the commonest cause.[11],[12] Incidence of infection is towards a decline as shown in our study. Manzoor Hussain at el from Pakistan shows 49.5% strictures are due to pelvic fracture trauma (road side accident) in developing countries[6]. In Jorge A.Mertiniz et. al study ,trauma was sole cause of stricture, external trauma in 97.7% cases and internal trauma in 2.3% cases[7]. In Tritschler at el study, 45% of urethral stricture were iatrogenic, 30% idiopathic, and 20% are due to bacterial urethritis [13]. In Ba'adani at el study,trauma (road side accident) was most common cause of stricture[9].In our study, we find that trauma (external) is the commonest etiologic factor i.e. 53.3% of total cases. It is followed by infection in 23.3% cases and catheterization and instrumentation in 13.3% and 5% respectively as shown in table 2.Iatrogenic etiology is less frequent in our study as compare to western studies.

Table 2. Etiology of stricture urethra

Etiology	No. of Patients	Percentages
Trauma	32	53.3 %
Infection	14	23.3 %
Catheterisation	8	13.3 %
Instrumentation	3	5 %
Others	5	8 %
Total	60	100 %

Most of the patients presented with acute retention of urine (58.3%) in our study.26% patients presented with increased frequency and urgency and 15% patients with poor steam of urine as shown in table 3.

Table 3. Presentation of urethral stricture patients

Presentation	No. of Patients	Percentages
Thining of Stream	9	15 %
Increased Frequency and Urgency	16	10 %
Acute Retention	35	58.3 %
Total	60	100 %

In Manzoor Hussain study 92% patients presented with retention of urine at first presentation and 7.8% patients presented with lower urinary tract symtoms [6]. Heyns at el showed 76% patients presented with lower urinary tract symtoms, 36.8% patients with acute retention of urine [9]. In Jorge A.Mertiniz study, 93% patients presented with acute retention of urine, 2.3% patients with LUTS [7].

In our study, overall bulbar urethra (43.3%) is most common site of stricture followed by bulb

membranous urethra as shown in table 4 and figure 2. Similar results were also found in in Heyens et al and Badaani et al study [8],[9].

Table 4. Relation with Site of Stricture

Site of Stricture	No. of Patients	Percentages
Bulbar	26	43.3 %
Penile	11	18.3 %
Prostatic	01	1.6 %
Others	06	10 %
Total	60	100 %

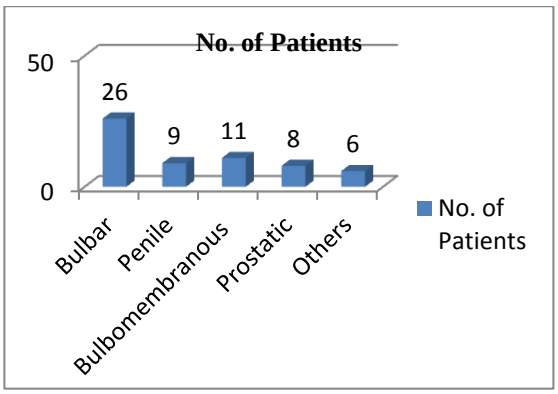

Figure 2. Urethral stricture sites

In our study, the length of stricture is being 2cm or less in 48.3% of cases. 23.3% cases have stricture length in between 2.1 to 3cm and 23.3% cases in between 3.1 to 4cm.As shows in table, length of stricture is less than 3cm in 69.6% patients in traumatic etiology and 63% in infective etiology. It is clear from this study that most of the patients had stricture less than 3cm in length. In Heyns et al study, mean length was 1.6cm (median-1cm,range-0.5 to 5cm),the length being 2cm or less in 56% of cases [8]. These results were compatible with our study. In Ba'daani at el study, the length of the urethral stricture was 10-30 mm in 39 patients (63%), <10 mm in 13 patients (21%) and of 30-70 mm in 10 patients (16%) [9].

Our study is not free of limitations, the first limitation is that this is a single centre study and second Sample size of study is small to apply our results at the population. So further multicentric and larger sample size randomized studies are needed in future for better understanding of demographic characteristic of stricture urethra.

CONCLUSION

Our study and a review of the literature suggest that the distribution of urethral stricture etiology is not uniform across the world. Also It varies with age and it may influence the site of stricture in urethra. Our study shows that there is decreasing trend of infectious etiology of stricture urethra. Trauma especially external trauma is the commest etiology in developing country like India. Bulbar and bulbomembranous stricture are most common sites of stricture formation. This higher incidence is coinciding with higher incidence of trauma as etiology. Further studies are needed to know the etiology and ways to reduce the incidence of strictures.

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