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Research Article

**PREVALENCE AND CAUSES FACTOR OF URETHRAL
STRICTURES AMONG MALE PATIENTS**¹Dr Salman Hussain, ²Dr Ayeza Arjamand, ³Dr Nuzha Sajjad¹MBBS, King Edward Medical University, Lahore, ²MBBS, Avicenna Medical College, Lahore,³MBBS, Foundation University Medical College. Islambad.**Article Received:** May 2019**Accepted:** June 2019**Published:** July 2019**Abstract**

Background: Urethral stricture is a common urological condition that mostly affects the male population in worldwide and potentially impact on the socio-economic and health care cost.

Objective: To identify the prevalence and causes of urethral strictures among male patients in urology referral center.

Methods: A cross sectional study and data had been collected retrospectively from 420 samples to determine the prevalence of male patient with a history of urethral strictures. The collection data will be collected from 15th April 2019 to 15th May 2019.

Findings: The location site commonly more anterior compared to posterior in both young males and elder populations. Younger male populations were prone to inherit bulbar strictures. Otherwise, elderly populations were more susceptible to urethral strictures disease after age of 55 years old.

Key Words: Urethra Stricture, Prevalence, Causes, Trauma, Non-trauma Factor.

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INTRODUCTION:

Urethral stricture is an abnormal narrowing of the tube that carries urine out of the body from the bladder (urethra). Urology stricture is abnormal scarring in or around the urethra that narrows or blocks the urine passageway through which urine flow from the bladder (Shadab, Pankaj, Muni, Ahmad & Ali, 2016). Urethral stricture is a common urological condition that mostly affects the male population and potentially impact on the socio-economic and health care cost. Urethral strictures are based on male anatomical sites and divided into anterior and posterior section. The location generally influences the modality of treatment and also the cost of treatment (Hampson, McAninch, & Breyer, 2014). The posterior urethra includes, the bladder neck (the opening of the bladder), the prostatic urethra (the part of the urethra by the prostate), the membranous urethra and external urinary sphincter. It caused by an injury linked to a pelvic fracture. Whereas the anterior urethra includes the bulbar urethra (under the scrotum and perineum, the area between the scrotum and anus), the penile urethra (along the bottom of the penis), the meatus (the exit at the tip of the penis). It is caused by trauma from a straddle injury (from falls onto objects where the legs are on either side), direct trauma to the penis, catheterization. Other common causes are trauma to the urethra, infection such as a sexual transmitted disease, post complication from surgical instruments and urinary catheterization. The aim of the study is to identify causes of urethral stricture and to determine specified location site of the urethral strictures.

METHOD:

A cross sectional retrospective study with quantitative approach and was carried out in Urology Clinic, from 15th April 2019 to 15th May 2019. The secondary data were collected retrospectively to determine the prevalence of male patient with history of urethral strictures from medical record department. The universal sampling was used to recruit male patients that diagnosed as urethral stricture attended at Urology Clinic, from 1st of January 2013 until 31stDecember of 2018 (n=420). The first section is demographic information of patient's data, age, race, occupation category and diagnosis. The second section is causes of urethral stricture were that divided two groups: trauma and non-trauma. Trauma was involving urethral catheterization and instrumentation, penile fracture, pelvic fracture and perineal fracture or straddle injury. Non-trauma was involving infection-recurrent urethritis and congenital. The third section is location sites of stricture that divide three anterior, posterior and long segmented strictures. Anterior strictures were

including meatus, penile urethra and bulbar urethra strictures. Posterior strictures were including membranous urethra, prostatic urethra and bladder neck strictures. Long segmented strictures were including anterior and posterior and multi length strictures. All the three sections are using English version and the validity of content were assessed and reviewed by a urology clinical supervisor. All data had converted into database SPSS version 24.0 for analysis. Each demographic variable was descriptively analyzed by calculating the mean (SD), median, and mode and frequency distributions. Chi-square test is using to examine association between the prevalence and causes factor with age and location site in which a significant level value had considered when set at $P < 0.05$.

RESULTS:

In this study, four hundred and twenty male patients with proven urethral strictures screened from general urology patients from urology clinic based on the inclusion criteria.

Demographic Characteristics among Urethral Strictures Male Patients:

Table 1 shows the age group of the urology male patients who experienced symptoms of urethral strictures. The age group of 51 to 60 years old samples have the highest prevalence of 30.2 % (127). This is followed by age group from 41 to 50 years old samples, 24.5 % (103) and 31 to 40 years old group of 19.8 % (83). The age group of 21 to 30 and 61 to 70 have almost similar prevalence namely 10.7 % (45) and 11.9 % (50) respectively. The age group of 18 to 20 has lowest prevalence of 2.9 % (12). Table 2 shows, the races for male patients with diagnosis of urethral strictures, the results show the highest attendance to the urology were the Malay, 39.8 % (167) followed by the Chinese 22.1 % (93) and Indian 16.4 % (69). The attendance to the urology clinic was not just confined to the major races in Malaysia but also includes foreigners, 11.9 % (50) and other minority races in Malaysia, 9.8 % (41). Table 3 shows the occupation categories of the male patients with diagnosis of urethral strictures. The result shown, it can be established that majority of the male patients in urology referral centre were from the non-professional category, 35.2 % (148). This is followed by the semi-professional category, 22.9 % (96) and the pensioner, 18.6 % (78). Meanwhile, the professional and student category made up only the minority group of patients with urethral strictures, 13.1 % (55) and 10.2 % (43) respectively. Table 4 above shows the causes of the urethral strictures of the male. Based on the result, infection of recurrent urethritis shows highest percent of the causes of the urethral strictures, 26.9 % (113). This is followed by

pelvic fracture which accumulated 26.2 % (110) and perineal fracture or straddle injury, 17.1 % (72). The least percent were contributed by iatrogenic injury related to urethral catheterization, 11 % (46), penile fracture, 7.1 % (30), iatrogenic related to instrumentation, 6.2 % (26) and congenital hypospadias surgery, 5.5 % (23). Based on Table 5, 6 and 7 showed that location of urethral strictures among 420 male's patients who had diagnosed with urethral strictures. The locations are classifying to anterior, posterior and long segmented stricture site. Specifically results in Table 5, it can be established that bulbar strictures stated highest prevalence on anterior section of male urethral strictures, 24.8 % (104). This is followed by penile urethra and meatal stenosis which is 18.8 (79) and 17.7 % (72) respectively. Based on the Table 6, it shows that membranous urethra stated highest prevalence on posterior strictures, 16.7 % (70). Meanwhile, prostatic urethra and bladder neck recorded the same frequency, each 6 % (25). Table 7 illustrates that multiple length stricture with highest prevalence on the long-segmented stricture site that equivalent to 8.6 % (36) and followed by anterior and posterior strictures which is equivalent to 2.1 % (9).

Table 1: Age Group of the Male Patients (N=420)

Age group	Frequency	%
18-20	12	2.9
21-30	45	10.7
31-40	83	19.8
41-50	103	24.5
51-60	127	30.2
61-70	50	11.9
Total	420	100.0

Table 2: Race of the Male Patients (N= 420)

Race	Frequency	%
Malay	167	39.8
Indian	69	16.4
Chinese	93	22.1
Another Malaysian	41	9.8
Foreigner	50	11.9
Total	420	100

Table 3: Occupational Categories of the Male Patients (N=420)

Race	Frequency	%
Student	43	10.2
Pensioner	78	18.6
Professional	55	13.1
Semi-professional	96	22.9
Non-professional	148	35.2
Total	420	100

Table 4: Causes of the Urethral Strictures of the Male Patients (N=420)

Race	Frequency	%
Iatrogenic Related To Urethral Catheterization	6	11
Iatrogenic Related To Instrumentation	6	6.2
Penile Fracture	0	7.1
Pelvic Fracture	110	26.2
Perineal Fracture Or Straddle Injury	2	17.1
Infection-Recurrent Urethritis	13	26.9
Congenital Hypospadias	3	0.5
Total	20	100

Table 5: Location of the Urethral Stricture for Anterior Stricture (N=420)

Location of the urethral stricture	Frequency	%
Meatal stenosis	72	17.1
Penile urethra	79	18.8
Bulbar urethra	104	24.8
Total	255	60.7

Table 6: Location of the Urethral Stricture for Posterior Stricture (N=420)

Location of the urethral stricture	Frequency	%
Membranous urethra	70	16.7
Prostatic urethra	25	6
Bladder neck	25	6
Total	120	28.7

Table 7: Location of Urethral Strictures for Long Segmented Stricture (N=420)

Location of the urethral strictures	Frequency	%
Anterior and posterior	9	2.1
Multiple length stricture	36	8.6
Total	45	10.7

Association between the Prevalence and Causes of Urethral Strictures: Table 8 shows the association between the causes and age of the male patients with diagnosis of urethral strictures. Based on the investigation done, there is a significant relationship between the causes and age of the male patients with diagnosis of urethral strictures when $X^2: 112.981, p < .000$. It means that there is a strong association between the age and causes of the male patients with

diagnosis of urethral strictures. This on the other words means that the higher the age of a patient, the higher the risk of a patient effected with urethral stricture able 9 shows the association between the occupation statuses and causes of urethral strictures. Based on the investigation done, there is a significant relationship between the occupation status and causes of urethral strictures when X^2 : 145.110, $p = < .000$. It means that there is a strong association between the occupation status and causes of the male patients with diagnosis of urethral strictures. This means the higher risk of an occupation, the higher risk of a patient affected by the incidence of urethral stricture. Table 10 shows the association between the race and causes of urethral strictures. Based on the investigation done, there is no significant relationship between the race and causes of urethral strictures when X^2 : 32.197, $p = > .122$. It means that there is no relationship between the race and causes of the male patients with diagnosis of urethral strictures.

Table 8: Associations between the Age and Causes Urethral Strictures (N=420)

Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square 112.981 ^a	30	$p < 0.001$
Likelihood Ratio 81.749	30	$p < 0.001$
Linear-by-Linear 12.580 Association	1	$p < 0.001$

Table 9: Associations between the Occupation Status and Causes of the Urethral Stricture (N=420)

Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square 145.110 ^a	2 4	$p < 0.001$
Likelihood Ratio 98.284	2 4	$p < 0.001$
Linear-by-Linear 1.305 Association	1	0.235

Table 10: Associations between the Race and Causes of the Urethral Strictures (N=420)

Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square 32.197 ^a	24	0.122
Likelihood Ratio 30.763	24	0.161
Linear-by-Linear .837 Association	1	0.360

Association of the Prevalence with Specified Location Site of the Urethral Strictures: Table 11 shows the association between the age and location of urethral strictures. Based on the investigation done, there is a significant relationship between the age and location site of urethral strictures when X^2 : 46.476, $p = < .093$. It means that there is relationship between the age and location site of the male patients with diagnosis of urethral strictures

Table 11: Associations between the Age and Location Site of the Urethral Strictures (N=420)

Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square 46.476 ^a	35	0.093
Likelihood Ratio 47.968	35	0.071
Linear-by-Linear .235 Association	1	0.628

DISCUSSION:

Based on the investigation done, there is a significant relationship between the causes and age of the male patients with diagnosis of urethral strictures in urology referral center when X^2 : 112.981, $p = < .000$. It means that there is a strong association between the age and causes of the male patients with diagnosis of urethral strictures. This on the other words means that the higher the age of a patient, the higher the risk of a patient effected with urethral stricture. The result was consistent with findings made by Santucci et al. mentioned that elderly population with marked increase risk of inheriting urethral strictures after age of 55 years old There is a significant relationship between the age and location site of urethral strictures when X^2 : 46.476, $p = < .093$. It means that there is relationship between the age and location site of the male patients with diagnosis of urethral strictures. It means the higher the age of male urology patients, the higher the risk of inheriting the posterior urethral strictures. The association between the occupation status and causes of urethral strictures in urology referral center in can be declared as statistically significant. Based on the investigation done, there is a significant relationship between the occupation status and causes of urethral strictures when X^2 : 145.110, $p = < .000$. It means that there is a strong association between the occupation status and causes of the male patients with diagnosis of urethral strictures. This means the higher risk of an occupation, the higher risk of a patient affected by the incidence of urethral stricture. Therefore, age can be distinguished as a demographic parameter in the incidence of urethral strictures for future researches. It can be utilized to measure the high-risk group of inheriting urethral

strictures as to create awareness and better compliance in future national health system. This can potentially reduce the cost of treatment. In the health setting with inadequate resources, the treatment in early stages could be dilatation via day care procedure however moderate and severe symptoms may require a surgical intervention which was costly and length of stay in ward will increase tremendously (Stein et al., 2013.)

CONCLUSION:

The study found that urethral stricture was a common disease among male urology patients but costs of managing its complication were quite high. Age group of 51 to 60 years old samples experienced the highest prevalence on this disease. Elderly male adults were more susceptible to the development of urethral strictures. The occupation category of the male patients with diagnosis of urethral strictures in urology referral center. Based on the table, it can be established that majority of the male patients in urology referral center were from non-professional category. The professional and student category charted the minority group of the patients with diagnoses of urethral strictures. Infection of recurrent urethritis shows highest percentage of the causes of the urethral strictures. On the study analysis of the anterior strictures, the incidences can be established that bulbar strictures stated highest prevalence on anterior section of male urethral strict. On the other

hand, long segmented strictures did contribute in the incidence of urethral strictures. Multiple length strictures with highest prevalence on the long-segmented stricture site. The membranous urethra stated highest prevalence on posterior strictures.

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