
Aetiology of Urethral Strictures at Moi Teaching and Referral Hospital

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Abstract

Introduction

Urethral stricture disease is still a major cause of morbidity and life-long disability in third world countries. We reviewed the records of patients at MTRH to determine the aetiology of urethral strictures.

Methods and Materials

A retrospective review of patients' records from 2003 to 2007, was carried out. Variables of interest included age, gender, and aetiology of urethral strictures.

Results

There were 143 patients out of which 112 had complete data that could be analyzed. Fifty one percent of urethral strictures were due to urethritis, 47% were due to trauma and 1.8% due to rare causes like urethral diverticulum and urethral carcinoma. Accidental trauma caused urethral strictures among younger people 27.7+/-14.3 years while strictures due to urethritis were commoner among middle aged patients 45.6+/-16.3 years.

Conclusion

Urethritis, iatrogenic and accidental trauma are still the commonest causes of urethral strictures in our environment. These causes are preventable.

Introduction

Urethral stricture disease is caused by any process that injures the urethral epithelium or the underlying spongiosum leading to healing by scar formation. The scar causes obliteration of the urethral lumen which leads to poor stream of urine or subsequent cessation of urine flow. The resultant scar can be of various depths, densities and lengths, replacing portions of the corpora spongiosum with loss of urothelium and subsequent circular contraction of the lumen. Strictures are documented in ancient literature from the Greek and Egyptian period and are a common sequel of sexually transmitted illness (STI). This results in a chronic inflammatory process (1). Earlier studies indicated sexually transmitted diseases to be still common in the age group 15 to 50 years in developing countries (2). This trend is reported to have changed with gonorrhoea, the historical cause of urethral stricture

having been replaced by urethral instrumentation and external trauma as the most common cause of the disease(1,2). However there are still some incidences of urethral stricture disease especially in men with a history of chlamydia or gonorrhoea (3, 4, 5, 6,). As trauma becomes the leading role of urethral stricture disease in other centers we postulated that at Moi Teaching and Referral Hospital (MTRH), inflammatory cause is the leading cause of urethral stricture disease.

Methods

We conducted a retrospective study covering a period of five (5) years, from 1st January 2003 to 31st December 2007 at MTRH, the second largest public tertiary institution in Kenya. Data on all cases of urethral stricture disease seen at the hospital during the period of study was collected. The parameters studied included age, sex, and aetiology of the urethral stricture.

Results

We sampled 143 files out of which only 112 had adequate information. All patients except one were male. The mean age of the patients with urethral stricture disease was 42.7 years (SD 20.8) years with a range of 3 months to 86 years.

In 50.9% of cases urethral strictures were due to urethritis, 47.3% due to trauma while 1.8% were due to rare causes like urethral diverticulum and urethral carcinoma (Table 1). In cases due to trauma the causes were distributed almost equally between iatrogenic (28%) and accidental trauma (25%) (Table 2).

Urethral stricture disease in the female patient occurred as a complication of vesico vaginal fistula (VVF) repair.

Urethral stricture due to accidental trauma occurred on average among younger patients (mean 27.7 +/-14.3 years) while strictures due to urethritis occurred in middle aged patients (mean 45.6+/- 16.3 years).

Table 1: Etiology of Urethral Strictures Compared with the Age of Presentation

Etiology	Mean Age (SD)	Frequency (%)
URETHRITIS	46 (16)	57 (51)
TRAUMA	52 (25)	53 (47)
OTHERS	28 (14)	2 (2)
TOTAL	68 (5)	112 (100)

Table 2: Comparing the cause of strictures in different age groups with subdivision of traumatic causes

Age group	causes of strictures				Total
	urethritis	non accidental trauma	accidental trauma	Others	
0-9	0	0	1	0	1
10-19	3	4	8	0	15
20-29	7	4	6	0	17
30-39	12	3	4	0	19
40-49	15	0	3	0	18
50-59	7	2	3	0	12
60-69	7	7	0	1	15
70-79	4	6	0	1	11
80-89	2	2	0	0	4
Total	57	28	25	2	112

Urethral stricture disease due to accidental trauma occurred more in the younger age group (27.7+/-14.3 years), while urethritis caused strictures among the middle age group (47.6+/- 16.3).

The association between the age and aetiology was statistically significant (ANOVA, F (3,108) =9.278, p<0.001).

Discussion

The trend in the aetiology of urethral stricture disease has been noted to have changed in the developed world and in some urban centres in developing countries (2). In both situations, trauma is the leading cause having overtaken urethritis (7,8,9). Inflammatory strictures seen in the developed countries are caused by Lichen Sclerosus (LS) a form of chronic dermatitis or Balanitis Xerotica Obliterans (BXO), a variant of Lichen Sclerosus (10,11). At the Moi Teaching and Referral Hospital, urethritis remains the highest cause of urethral stricture disease, being responsible for up to 51% of all the patients in our study. Despite the hospital being the second National Referral Hospital in the country, its catchment area is mainly the rural farming population in Western Kenya. This trend may be replicated in most rural populations in developing countries. Studies published before the 1980's indicated that urethritis was the most common cause of urethral strictures at 40% (12). Some recent studies still show that urethritis still leads as a cause of urethral stricture disease at 63%, a rate much higher than would be expected. Sub-Saharan African countries still have a high prevalence of urogenital infections especially gonococcal urethritis, which when inadequately treated leads to urethral stricture formation (8). High prevalence of gonococcal urethritis is attributed to lack of information about STI's among youth, early onset of sexual activity, sex with multiple partners and reluctance to use condoms. Other causes identified include prostitution, lack of adequate attention to urethral discharge, antibiotics resistance, lack of screening for Chlamydia trachomatis and incomplete diagnosis of STI's relying mainly on the clinical diagnosis (13). Poverty may also contribute to inadequate treatment as the patients may be unable to afford a complete dosage of the prescribed antibiotics, even when accurate diagnosis has been made. Health facilities which are inadequately equipped for treatment of STI's and counterfeit drugs can lead to missed opportunity for adequate treatment. However with the advent of HIV and AIDS, and the extent of health education carried out for over 25 years, it

would have been expected that urethritis should by now have been overtaken by trauma as the leading cause of urethral stricture disease.

In our study, trauma was responsible for 47% of cases. Among the traumatic causes, non-accidental trauma was attributed to in 25% of all strictures, while accidental trauma caused 22.3% of all strictures. In the developed world, the commonest causes of urethral trauma that lead to urethral stricture disease are urethral instrumentation, and external trauma (2). Iatrogenic or non-accidental urethral injuries in our centre were due to catheterization, instrumentation and prostatectomy (both open and transurethral) and following radiotherapy for carcinoma of the prostate. All these conditions lead to tissue damage which heals by scar formation and narrowing of the urethral lumen. In prolonged catheterization, urethral injury could be due to urethral inflammation or ischemia (14,15). Ischemia may also result from prolonged hypotension in the catheterized patients (16,17,18). Studies have shown that 3.2 injuries occur in every 1,000 patients catheterized (19), while 22% of all strictures are caused by accidental trauma. In a study by Mathur R, et al, trauma was the commonest cause of urethral disease in men with a mean age of 35.5 years (range 15-65 years) (2). In our study, accidental trauma occurred more among younger men (27.7 ± 14.3 years). This is the most economically active age group which is vulnerable to trauma and urethral trauma may be part of the multiple injuries such a patient may have sustained (20,21). Larger urban centres even in developing countries have trauma being the leading cause of urethral strictures. Mathur R, et al found trauma to be the commonest cause at 54%, Similar to Tijan KH, et al (N=60) where trauma was the undisputed cause of urethral strictures (8,9). Similar to Tijan KH, et al (N=60) where trauma was the undisputed cause of urethral strictures (8,9).

Inflammatory strictures as those caused by urethritis tend to be multifocal making them more difficult to treat.

In our study, the mean age of men affected by urethral stricture disease as a sequel to urethritis was 45.6 years with a range of 25.3 years to 55.9 years. Duration of time from infection to the onset

of symptoms may be many years apart. So far no study has conclusively determined the length of time required between infection and stricture formation. This could explain why manifestation of urethral stricture disease occurs in mid-life when history of urethritis may have occurred several years earlier.

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