

URETHRAL STRICTURE MANAGEMENT EXPERIENCE AT NNEWI, SOUTH EAST NIGERIA

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Objectives The aim of this study was to evaluate the aetiological pattern, treatment and outcome of urethral strictures at our institution.

Patients and Methods This is a 5-year retrospective review of all cases of urethral strictures treated at the Urology Unit of Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria between January 1998 and December 2002. These were confirmed radiologically. Information regarding age, sex, occupation, aetiology, site of lesion, treatment modality, outcome of treatment and complications was collected and analyzed.

Results Sixty-two patients with urethral strictures with a mean age of 43.2 (range 16 to 81) years were seen during the study period. Strictures resulting from infection accounted for 30 (48.5%) while trauma was responsible for 32 (51.6%) with road traffic accident topping the list at 18 (29%). Iatrogenic trauma was responsible for only one case (1.6%). The strictures were located in the anterior urethra in 32 (51.6%), posterior

urethra in 23 (37%) while in 7 (11.4%) both the anterior and posterior portions of the urethra were involved. Fifty-two patients (83.9%) had been treated at the time of analysis. Out of this number, 39 (75%) had urethral dilatation, 12 (23.1%) had urethroplasty while one (1.9%) had urethrotomy. Urethroplasty though performed on only 12 patients gave better results with a 16.7% recurrence rate and a 25% overall complication rate, while in those treated by dilatation, 24 (61.5%) required repeated dilations between 6 and 12 months in order to maintain a satisfactory urine flow.

Conclusion Urethral stricture is still a major urological problem. Trauma is currently the leading cause of urethral stricture in our environment. Urethroplasty gives a much better result than dilatation and should be the treatment of choice where the skill is available. Manpower development in this regard is recommended.

Key Words: urethral stricture, aetiology, management, complications

INTRODUCTION

Urethral stricture is a serious disorder and often times a complex surgical problem occurring predominantly in males. It remains a major problem in our urologic practice.

In the past, urethritis due mainly to *Neisseria Gonorrhoeae* was the predominant aetiological factor while trauma to the urethra contributed less than 5%¹. The incidence of post-infective urethral stricture has reduced tremendously with prompt and appropriate antibiotic treatment of urethritis. Recently, another inflammatory disease of the corpus spongiosum caused by Lichen Sclerosus (LS), Balanitis Xerotica Obliterans (BXO), has been described

as a cause of urethral stricture². BXO affects predominantly the anterior urethra for varying lengths but more especially the glanular area.

More recently, reports from Europe and America indicate that trauma is the leading cause of urethral stricture³. Among the traumatic strictures, iatrogenic injuries to the urethra arising from instrumentation as in endoscopic procedures, which are increasingly being practiced, now account for over 60%³.

Unlike in Europe and America, endoscopic urological surgery is infrequently practiced in our environment except in few teaching and specialist hospital centers. Iatrogenic trauma does not currently constitute a major cause of

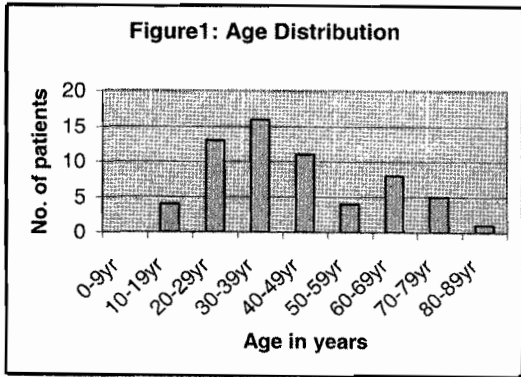


Fig. 1: Age distribution

urethral stricture in our environment. Osegbe et al.⁴ had noted a rising incidence of traumatic strictures but these were due to road traffic accidents and injuries sustained at construction sites both associated with modern development in Nigeria.

Urethral stricture management poses a serious challenge to the urologists due to its complex nature. Various modalities and methods devised over the years for its treatment show that no single method is satisfactory⁵⁻¹⁴. Recently, the use of free grafts of buccal mucosa, bladder and penile skin which were less favoured after initial popularity is gaining ground especially for the repair of the anterior urethra⁹⁻¹¹.

This study is a review of the aetiological pattern and evaluation of the management of urethral stricture in the past 5 years in our institution. This will help us to improve our management strategies.

PATIENTS AND METHODS

This is a 5-year retrospective review of all cases of urethral stricture treated at the Urology Unit of Nnamdi Azikiwe University Teaching Hospital, Newi, Southeast, Nigeria, between January 1998 and December 2002. All the cases were radiologically confirmed. Information regarding age, sex, occupation, aetiology, site of lesion, treatment modality, outcome of treatment and complications was collected and analyzed.

The outcome of treatment was assessed subjectively based on the patients' perception,

Table 1: Causes of Urethral Strictures

Aetiology	No. of Patients	%
Infection	30	48.5 %
Trauma	32	51.5%
- road traffic accident	18	29.0%
- post prostatectomy	6	9.7%
- fall from height	3	4.8%
- fall astride	3	4.8%
- post catheterization	1	1.6%
- kick in the perineum	1	1.6%
Total	62	100%

and objectively based on direct observation of the urine flow and follow-up retrograde urethrogram.

RESULTS

Urethral stricture was confirmed radiologically in all the 62 patients seen during the study period. The age distribution is shown in Fig. 1. The mean age was 43.2 years, with a range of 16 to 81 years, while the median age was 39 years and mode 32 years. All patients were males.

Infection was responsible for 30 strictures (48.5%) while trauma was implicated in 32 (51.5%). Details are shown in Table 1. Road traffic accident accounted for 18 (29%) cases while catheterization accounted for only one (1.5%). Of the 32 patients with post-traumatic stricture, 20 (62.5%) were associated with pelvic fractures. The lesions were in the anterior urethra in 32 patients (51.6%) and in the posterior urethra in 23 (37.0%) while 7 patients (11.4%) had lesions in both anterior and posterior urethra.

The predominant occupational group seen in the study was traders [20, (32%)], and they make up the greater part of the population of this environment. They are extremely mobile, traveling by road in the course of their daily business pursuits. It is not surprising that they accounted for most of the traumatic cases.

Table 2: Treatment Modalities for 52 Patients

Treatment	No. of Patients	%
Urethral dilatation	39	75%
Urethroplasty	12	23.1%
- end-to-end anastomosis	7	13.5%
- substitution urethroplasty	5	9.6%
Urethrotomy	1	1.9%
Total	52	100%

The three patients who fell from height were all palm wine tappers that had fallen from the top of palm wine trees. No injury was sustained at a construction site.

Of our 62 patients, 52 (83.9%) had been treated at the time of this analysis and 10 (16.1%) were on urinary diversion while awaiting urethral reconstruction. Details are shown in Table 2. Thirty-nine out of these 52 patients (75.0%) had urethral dilatation while 12 (23.1%) had urethroplasty and 1 (1.9%) urethrotomy for distal penile stricture. The mean age of the patients that had urethroplasty was 30.1 years.

Out of the 12 patients subjected to urethroplasty, end-to-end anastomosis was done in 7 (58.3%) while 5 (41.7%) had substitution urethroplasty using a distal penile skin island flap.

Out of the 39 patients treated with dilatation, 8 (20.5%) had a satisfactory urine stream more than one year after a single dilatation, while 7 (18.0%) required a second dilatation after one year due to recurrent stricture. These 15 cases (38.5%) did not require any other treatment while the remaining patients of this group required repeated dilatation at intervals of between 6 and 12 months in order to maintain a reasonably satisfactory urine flow.

Follow up ranged from 6 months to 5 years with a mean of 2.0 ± 1.3 years. Only 25 patients (48.1%) were followed up for up to 3 years while 36 (69.2%) were followed up to one year. The remaining patients were lost to follow up before the end of one year. The longest follow-up among the urethroplasty

group was 3 years and this patient voided satisfactory.

Out of the 12 cases that had urethroplasty, one (8.3%) had mild wound infection, which resolved following sitz bath and antibiotic therapy, while 2 (16.7%) had recurrent stricture. One had an anastomotic stricture that was revised while another failed due to dense fibrosis 3 months after surgery and is currently awaiting a repeat urethroplasty. Mild chordee was recorded in one case (8.3%) following excision of the penile stricture and end-to-end anastomosis. This did not disturb vaginal penetration so it was not revised. The remaining patients had satisfactory results and were voiding satisfactorily at 6 months and beyond.

Among the 39 patients that had urethral dilatation, 5 (12.8%) had urinary infection, 4 (10.3%) epididymo-orchitis, 2 (5.1%) had a false tract created, while 1 (2.6%) developed urinary incontinence which resolved within 2 weeks.

There were 3 cases of erectile dysfunction associated rather with the stricture and remained after reconstruction. However, there was a good response to the use of sildenafil citrate.

DISCUSSION

Trauma was the commonest cause of stricture in this study unlike in earlier reports from other environments where infection, especially due to *Neisseria gonorrhoeae*, was the dominant cause¹. This changing pattern was also observed by Osegbe et al⁴ in Lagos, Nigeria. They noted a change in the frequency distribution with an increasing prevalence of traumatic strictures as a result of increasing vehicular accidents on our roads and accidents at construction sites, which characterize our developing economy. In this study, the traumatic strictures were mostly due to road traffic accidents while there was no case of construction site injuries. The few falls from height were palm wine tappers who fell from palm trees. This may be due to the fact that construction activities like high-rise building and highways are uncommon in our semi-urban environment. There was only one case of iatrogenic stricture resulting from urethral catheterization. This is in contrast to the current trend in Europe and America where the incidence of iatrogenic strictures is high resulting from endoscopic

transurethral surgery that is commonly practiced^{3,8}. Blandy³ noted that accidental and iatrogenic traumata accounted for as much as 35.1%, while Smith et al.⁸ observed that only a quarter of all strictures occurred as a result of infection.

The mean age of 43.2 years as well as the aetiological frequency distribution in this study is comparable to the findings of Osegbe et al⁴ but differs in the traumatic group; in our study post-prostatectomy strictures accounted for as much as 6/32 (18.8%) in contrast to their observation of 4/57 (7.0%).

The predominant occupation was trading. Traders in Nigeria travel extensively and very frequently by road, and this has contributed to the increasing number of traumatic strictures. 62.5% of all strictures resulting from trauma were associated with pelvic fractures. This explains why most of the strictures were located in the bulbomembranous area.

The patient's age, fitness, site and length of stricture, aetiology, affordability and the skill of the surgeon determined the choice of treatment. Patients with ultra-short strictures and post-prostatectomy strictures as well as very elderly and unfit patients were generally treated by dilatation. Urethroplasty was preferred for younger men, and this treatment modality achieved a much better result than dilatation. However, fewer patients had urethroplasty because of scarcity of skilled personnel, patient's age, fitness and often affordability. Most of our earlier patients and especially the elderly and the more feeble ones had dilatation.

Complications arising from urethroplasty were mild and correctable in most cases. In a few other cases, these were tolerable and did not require any correction. Only 16.7% of our patients needed a revision of the urethroplasty in contrast to the patients treated with dilatation where over 60% required repeated dilatation to achieve a satisfactory and sustained urinary flow. This confirms the superiority of urethroplasty over dilatation in the treatment of urethral strictures.

Urethral stricture remains a major urological problem in the developing world. This is further complicated by the increasing incidence of

traumatic strictures following developmental efforts. Lack of access to appropriate facilities and manpower to perform corrective surgery increases the morbidity and economic burden of this ailment. Creation of awareness and the development of the urology specialty together with training of the required manpower in our centers will help alleviate these sufferings.

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RESUME

La prise en charge de la sténose de l'urètre: Notre expérience à Nnewi, Nigéria du Sud Est

Objectifs Le but de l'étude est d'évaluer le modèle, le traitement et les résultats étiologiques du traitement des restrictions urétrales. **Patients et Méthodes** Il s'agit d'une étude rétrospective de tous les cas de rétrécissement urétrale traités à l'unité d'urologie de l'hôpital universitaire de Nnamdi Azikiwe, Nnewi du sud-est Nigéria durant cinq ans entre janvier 1998 et décembre 2002. Les lésions ont été confirmées radiologiquement. Les informations concernant l'âge, le sexe, le métier, l'étiologie, la localisation de la lésion, la modalité thérapeutique, les résultats du traitement et les complications ont été collectées et analysés. **Résultats:** Soixante-deux des patients présentant un rétrécissement urétrale ont été colligés pendant la période d'étude avec un âge moyen de $43,2 \pm 18,5$ ans. Les rétrécissements post infectieux ont représenté 30 cas (48.5%) tandis que le trauma était responsable de 32 cas (51.6%) dont 18 cas (29%) des accidents de la route et un cas seulement (1.6%) d'origine iatrogène. Les zones de sténoses étaient situées au niveau de l'urètre antérieur dans 32 cas (51.6%), l'urètre postérieur dans 23 cas (37.0%) tandis que dans 7 cas (11.4%) l'urètre antérieures et postérieures étaient impliqués. Cinquante-deux patients (83.9%) avaient été traité à l'heure de l'analyse. Trente-neuf (75%) ont eu une dilatation urétrale, 12 (23.1%) ont eu une uréthoplastie tandis qu'un patient (1.9%) avait eu une urétrotomie. L'uréthoplastie réalisée chez seulement 12 patients a donné les meilleurs résultats avec un taux de récurrences de 16.7% et un taux global de complications de 25% tandis que chez ceux traités par la dilatation, 24 patients (61.5%) ont eu des dilatations répétées entre 6 à 12 mois afin de maintenir une miction satisfaisante. **Conclusion** Le rétrécissement urétral est toujours un problème urologique important. Le trauma en est actuellement la principale cause dans notre environnement. L'uréthoplastie donne des résultats bien meilleurs que la dilatation et devrait être le traitement du choix. Le développement d'équipes spécialisées à cet égard est recommandé.

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