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ABSTRACT

Objectives: **To review the management of watering-can perineum (WCP) in a Nigerian centre and to outline challenges of its management.**
Design: **A retrospective review of cases of watering-can perineum over a seven-year period.**
Setting: **Usmanu Danfodiyo University Teaching Hospital, Sokoto, a Nigerian tertiary health centre.**
Subjects: **Forty one patients with the diagnosis of watering-can perineum managed from January 1997 to December, 2003.**
Results: **There were 41 cases of watering-can perineum. The mean age at presentation was 46.0 years (range: 7 to 80). Characteristically, all the patients had long standing neglected urethral stricture. Eighteen (43.9%) presented with single active fistulae while eight (19.5%) had more than four (9.8%) active external openings. Fistulae were located in the perineum (58.5%), scrotum (41.6%), penis (14.6%), penoscrotal junction (9.8%) and thigh (49%). The strictures were post inflammatory in 73% of patients. Bulbar strictures constituted 63.4% of cases. At presentation, patients were in general planned for initial suprapubic cystostomy (SPC) followed by assessment of stricture and finally urethroplasty in six months. Patients who could not afford urethroplasty were offered dilatation. The immediate outcome of urethroplasty was satisfactory in 70.6% of patients.**
Conclusion: **Watering-can perineum was a common sequel of long standing neglected inflammatory urethral stricture. SPC followed by urethroplasty gave the best results. Prevention and adequate treatment of urethritis, prompt treatment of urethral stricture, and affordable and accessible reconstructive urologic service are recommended to reduce the incidence of WCP and suffering of the patients.**

INTRODUCTION

The management of complicated urethral stricture is a continuing challenge to urologist. Urethral stricture may be complicated by multiple perineal fistulae referred to as watering-can perineum (WCP). The external opening of these fistulae may also be in the scrotum, penis or thigh (1,2). WCP is now an uncommon complication of urethral stricture in many parts of the world (3). This complication of long-standing inflammatory urethral stricture was encountered in many parts of Africa (4-6). It is, to date, a common presentation of stricture disease in our practice. Patient with stricture in parts of Africa may be offered dilatation, suprapubic drainage or urethrostomy due to local complication, paucity of reconstructive urologist, or the cost of such reconstruction (7). The volume of patients competing for limited resources may also determine the line of management (8).

The aim of this study was to retrospectively review cases of WCP seen in our centre and to discuss challenges encountered managing these complications in a resource poor environment with limited surgical facilities and expertise.

MATERIALS AND METHODS

The study was a retrospective analysis of 41 consecutive cases of WCP seen at Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria from January 1997 to December, 2003. This hospital is located in the North Western region of the country and is a tertiary referral centre. The following information were obtained from the case files of patients: age, sex, presentation, number and site of active fistula, cause of fistula, associated complications, serum urea and creatinine, urine culture, treatment offered and outcome. Only patients presenting with active fistula were included in the study. Patients with post-operative fistula were also excluded. The Management of the patients consisted of initial resuscitation, broad-spectrum antibiotics, drainage of abscess where present and initial suprapubic cystostomy (SPC). This was followed by assessment of stricture using retrograde urethrocystogram (RUCG), and in some cases micturating cystourethrogram (MCUG), and finally urethroplasty in six months. Patients who could not afford urethroplasty were offered dilatation. We had no facilities for urethrotomy during the study period.

RESULTS

There were 310 cases of urethral stricture managed during the period, giving a prevalence rate of WCP among the stricture patients of 13.2%. The mean age at presentation was 46.0 years with a range of between seven years and 80 years. Characteristically, all the patients had long standing urethral stricture with a mean duration of lower urinary symptoms of 4.6 years (range 1 to 27 years). The mean duration of WCP before presenting was 28 days (range 1 to 720 days). Eighteen (46.2%) patients had single active fistula while 23 (53.8%) had multiple active fistulae. Majority of the patients, 24 (45.3%) had perineal fistulae. Active fistulae were also noted in the scrotum in 17 (32.1%) penis in six (11.3%), penoscrotal junction in four (7.5%) and upper thigh in two (3.7%) patients. A traumatic distraction injury of the membranous urethra and a straddle bulbar injury contributed to the two thigh fistulae.

The strictures were inflammatory in 30 (73.2%) patients, secondary to pelvic trauma in two (4.6%) and as a result of straddle injury in three (7.3%) patients. In six (14.6%) patients the aetiology was not stated. It should be noted that 12 (29.0%) patients on regular urethral dilatation for bulbar stricture developed WCP. The site of urethral stricture was as in Table 1. The associated complications were as depicted on Table 2. Significant phallic deformities were seen in five (12.9%) patients. Three were significant cordee requiring release and two were gross penile lymphoedema necessitating reduction phalloplasty.

The various treatment regimens instituted on these patients were as in Table 3. All the fistulae were found to be closed with no residual external tracts at the time of attempted urethroplasty. Seventeen patients had urethroplasty, seven of them after failure of dilatations. On lay pedicled penile island flap urethroplasty was employed in nine (22.0%) patients, scrotal skin in four (9.7%) patients and anastomotic urethroplasty in four (9.7%) patients.

Table 1

Site of urethral stricture in patients with watering-can perineum

Site (urethra)	No. of patients	(%)
Membranous	2	4.9
Bulbar	26	63.0
Bulbar and penile	1	2.4
Penile	10	24.4
Bulbar and submeatal	1	2.4
Submeatal	1	2.4
Total	41	100

Table 2

Associated complications of stricture in patients with watering-can perineum

Complication	No.	(%)
Positive urine culture	25	61.0
Periurethral abscess	9	22.0
Creatinine ≥2mg%	8	19.5
Fournier' s gangrene	7	17.5
Groin hernia	6	14.6
Phallic deformity	5	12.9
Urethral stone	4	9.7
Bladder stone	2	4.9
Infertility	3	7.3
Epididymo-orchitis	3	7.3
Total	23	100

Table 3

Treatment offered to 41 patients with watering-can perineum

Treatment	No.	(%)
Cystostomy followed by dilatation	13	31.7
Cystostomy followed by urethroplasty	10	24.4
Cystostomy, then dilatation, then urethroplasty	7	17.1
Cystostomy then lost to follow-up	4	9.7
1st stage urethroplasty	2	4.8
Left hospital without treatment	5	12.7
Total	41	100

Dilatation was only employed on these complicated strictures in patients who could not afford urethroplasty. Five patients on urethral dilatation developed recurrence of WCP. Two patients were lost to follow -up after the first stage of a two-stage urethroplasty. Only 13 patients were followed-up for twelve months and above. Among the 17 patients who had urethroplasty, 12 (70.6%) were satisfied with the urinary stream within the period of follow-up. Two (4.8%) patients died, one 24 hours and the second 72 hours after suprapubic cystostomy. Both died secondary to severe sepsis.

DISCUSSION

Trauma and surgery are the leading cause of urethrocutaneous fistulae (1). Multiple perineal fistulae secondary to inflammatory strictures and commonly referred to watering-can (pot) perineum, are becoming a rarity (3). The burden at inflammatory strictures in many parts of Africa is high due to elevated prevalence of gonorrhoea (4,9-12).

Failure to present early for treatment of urethral stricture contributed to the high prevalence of WCP. Prolonged high pressure voiding resulted in extravasations of infected urine, periurethral abscess, sinuses fistulae and, in some cases, Fournier's gangrene. These different stages in the natural history and pathogeneses of WCP were observed among our patients. In most patients sinuses and healed tracts could be observed in addition to active fistulae. Majority of cases presented three to four weeks after fistulation. We noted that they had initial relief of obstructive symptoms. These were followed by steady worsening of obstructive symptoms due to gradual healing and narrowing of fistulous tracts. Our patients abhor exposing their perineum as perineal and external genital diseases are stigmatised in this society. This contributed not

only to the delay but to inadequate treatment of urethritis and stricture disease.

The complications noted were a reflection of neglected strictures. It could also be deduced that the development of periurethral abscess, Fournier's gangrene and urethral stones contributed to the development of fistulae. Urethral stone could lead to deterioration of voiding and mucosal ulceration thus promoting extravasations, abscess formation and fistulae.

Within six months of suprapubic drainage, all fistulae and sinuses were found to be closed. Patients who could not afford urethroplasty were offered dilatation. The problems associated with dilatation were: failure to dilate, recurrence of strictures and recurrence of watering-can perineum. Scrotal skin was used during the early years of this review. The high prevalence of scrotal involvement in the pathology of WCP made scrotal skin unsuitable in most of the cases. In patients who had penile skin gangrene and fibrosis making penile flap precarious, the use of buccal mucosa is an attractive alternative in view of the success reported even in patients with extensively diseased urethra (13-15). The draw back of staged surgery was loss of patients after first stage of two-stage urethroplasty. Staging was also prohibitively expensive. One should always consider a one-stage surgery in this environment. The economic cost of WCP was very high. In addition to the cost of treatment and at least two hospital admissions these peasant farmers would be out of work for 9–12 months.

Due to poor follow-up it was difficult to access the long-term outcome of urethroplasty. We had no standard uroflowmetry during the period of study. Post-operative urethrogram was a financial burden on these patients. However, 70.6% of patients were satisfied with the urine flow in the immediate post-operative period.

CONCLUSION

Watering-can perineum was a common sequel of long standing neglected inflammatory urethral stricture. SPC followed by urethroplasty gave the best results. Prevention and adequate treatment of urethritis, prompt treatment of urethral stricture, and affordable and accessible reconstructive urologic service are recommended to reduce the incidence of WCP and suffering of the patients.

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REFERENCES

1. Jordan G.H. and Schlossberg S.M. Surgery of the penis and urethra. In: Walsh P.C., Retik A.B., Vaughan D.E., Wein A.J. eds, Campbell's Urology, 8th edn. Philadelphia: Suonders. 2002; **110:** 3886-3954.
2. King M., Bewes P.C., Kairns J., Thornton J. (Eds.) Primary surgery, Non-trauma, 11th edn. Oxford: *Oxford University Press.* 1990; **23:** 366-405.
3. Pandhi D. and Raddy B.S. Watering-can perineum – a forgotten complication of gonorrhoea. *J. Eur. Acad. Dermatol. Venereol.* 2002; **16:** 486-487.
4. Osoba A.O. and Alausa O. Gonococcal urethral stricture and watering-can perineum. *Brit. J. Vener. Dis.* 1976; **52:** 387-393.
5. Sharfi A.R. and Alarabi Y.E. The watering-can perineum: Presentation and management. *Brit. J. Urol.* 1997; **80:** 933.
6. Ahmed A. and Kalayi G.D. Urethroplasty at Ahmadu Bello University Teaching Hospital. *East Afr. Med. J.* 1997; **74:** 255-257.
7. Ouattara K., Koungoulba M.B. and Cisse C. Current status of urethral stricture in Africa/Apropos of 72 cases. *Ann. Urol.* 1990; **24:** 278-292.
8. Ogbonna B.C. Managing many patients with a urethral stricture: Cost-benefit analysis of treatment option. *Brit. J. Urol.* 1998; **81:** 741-744.
9. Aghaji A.E. and Odoemene C.A. One-stage urethroplasty for stricture: Nigeria experience. *Int. J. Urol.* 2001; **8:** 380-385.
10. Ahmed A. and Kalayi G.D. Urethral stricture at Ahmadu Bello University Teaching Hospital Zaria, Nigeria. *East Afr. Med. J.* 1998; **75:** 582-585.
11. Steenkamp J.W. and de Kock M.L. Epidemiology of urethral stricture at Tygerberg Hospital. *S. Afr. Med. J.* 1994; **84:** 276-278.
12. Nwofor A.M.E. and Ngezu A.L. Urethral stricture management. Experience at Nnewi, southeast Nigeria. *Afr. J. Urol.* 2004; 107-111.
13. Barbagli G., Palminteri E., Lazzeri M. and Guazzoni G., One-stage circumferential buccal mucosa graft urethroplasty for balbus stricture repair. *Urology.* 2003; **61:** 452-455.
14. Andrich D. and Mundy A.R.J. Substitution urethroplasty with buccal mucosal-free grafts. *J. Urol.* 2001; **165:** 1131-1134.