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Clinical profile and management of urethral stricture

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Abstract
Urethra is an age old disease resulting in bladder out flow obstruction. It occurs predominantly in males. The average age of incidence is in. mid-forties (46yrs.). Study performed during the period extending 50 cases of stricture urethra presented in the Department of Urology at Krishna Hospital and Medical Research Centre, Karad. There are two peaks of incidence-one in the fourth decade and the other in the sixth decade. Strictures occurring in the younger age group are mainly following infection and trauma while those occurring in elderly are mainly following surgical intervention. Majority or the patients present with 3 or more complaints pertaining to bladder out flow obstruction. Any urethral insult or injury results in a urethral stricture, Hence precautions while handling the urethra are a must for-prevention is better than cure.

Keywords: urethra stricture, urethrotomy, stricture length, dilatation, bladder

Introduction
The entity known as urethral stricture is nothing more than a scar, the natural result of tissue (urethral) injury or destruction. If the scar happens to be a circle the scar contracture shortens the circumference of the circle and hence the area of the lumen. Strictures of the urethra have always posed a major challenge to the urologists and surgeons, who over the years have attempted to conquer this tubular structure. Urethral stricture is one of the most common cause of bladder outflow obstruction. These strictures manifest as weak stream, hesitancy, straining, dribbling, retention etc. and thereby are responsible for psychological and social trauma to the patient. For centuries surgeons have been instigated to adopt newer modes of therapy especially the last few decades have seen major advanced towards better understanding of the pathophysiology of urethral strictures, coupled with methods of treating these. These has been introduction of numerous modifications of the basic procedures based on principles of regeneration, resection, anastomosis and substitution, each having its own merits and demerits. However, history has proved the "sensitive" nature of the urethra and the notorious tendency of the strictures to recur and hence the eponym "Urethra never forgives".

With so many options available to him, it becomes a necessity for the surgeon to adopt to a modality of treatment which is more suitable, depending upon his skill, facilities available and most important the patient requirement and compliance. In a country like ours where majority of the population reside in the rural area, is illiterate and are poverty stricken a more economic and practical line of treatment has to be considered. In this dissertation an attempt is made to evaluate 50 cases of urethral strictures in a semi-urban setup.

Aim and objectives
To establish that clean intermittent dilatation following saches urethrotomy for management of stricture urethra bears positive influence on results.

Review of Literature
Surgical procedures of urethra have been described in the literature since ancient times, various forms and uses of bougies are described in the Ayurveda, Hindu medical practitioners used dilators as early as the sixth century BC. The tombs of Egypt contained bronze bougies in case the need arises to dilate the deceased's stricture in his next life [1, 2]. Castle [3] (1831) used bougies made of wax catgut or silver for intermittent dilatation.

Ferri [1, 4]. of Naples in 1530 first used a cutting sound to cut the stricturous portion of the urethra, and thus flagged off an era of urethrotomy. Jean Civialle and Guillon [1, 4]. (1831) first used a blind urethrotome with retractable blades. Maisonneuve [1, 3]. (1848) further improved upon this urethrotome by fitting filiform guides. Though Nitze[5] developed cystoscope in 1877, it was the invention of fibre-optics and the rod lens system (Hopkins-1960) which revolutionized the endoscopic surgery. Fisher [1] had described the procedure of notching of short urethral strictures under direct vision in 1937, using a wire hook. In 1957, Ravasini described direct vision urethrotomy with electrocautery. Keitzer*et al* [6] (1961) substituted the electrocoagulation loop of the resectoscope with a blade. They used this method for direct vision incisions of bladder neck contractures.

In 1972, Sachse [7, 8] made a breakthrough in the treatment of urethral strictures by introducing the optical urethrotome. It comprised of a fine movable scalpel to cut urethral strictures

under direct vision. The first optical urethrotomy performed in the United Kingdom was in Avon Area in 1975, Smith *et al* [9] (1978) reporting a satisfactory initial experience. Since then the use of Saches optical urethrotomy has spread rapidly and has gained popularity amongst many of the surgeons. With advent of the LASER, its use was applied endoscopic for treatment of urethral strictures, initially in animals and subsequently in humans, Bulow and Associates first demonstrated the ability of Neodymium: Yttrium Aluminum Garnet laser to remove urethral obstruction without perforation or bleeding. However lasers have still to gain a popular ground for treatment of urethral strictures.

Following the popularity of visual internal urethrotomy various techniques were suggested to prevent the cut raw edges from adhering to each other; this included self-retaining catheters for variable duration of time, instillation of steroids and metallic dilators and bougies. Recently a new technique to maintain caliber of the urethra following internal optical urethrotomy or dilatation was proposed by E.J.G. Milory*et al*[10] (1988) by using a tubular mesh from surgical grade of stainless wire ("WALL STENT"). Surgical attempt to repair a stricture began with excision and end-to-end anastamosis, introduced by Marion [11]. (1921). This operation is being practiced with great success and is considered ideal for short segment strictures, especially of traumatic etiology. The idea of substituting skin to enlarge a stricturous portion of the urethra was adopted from plastic surgeons who used it to inhibit contractures. Hamilton Russel [12]. (1912) devised buried strip principle for strictures of bulbar urethra. Denis Browne [13]. (1936) used this principle to overcome the paucity of circumferential skin on the penile surface, in his reconstruction of the penile urethra. Impressed by the Denis Browne operation, Johanson [14]. (1953) introduced his two-stage urethroplasty, which became so successful that hundreds of men were released from torment of suprapubic tube and repeated dilatations. Swinney [3]. (1954) too, applied this principle in the management of complicated urethral strictures. Two- stage urethroplasty though highly successful, had a disadvantage that the patient must undergo a minimum of two surgeries. Lead better and Leadbetter [15]. (1962) devised one-stage urethroplasty based on pedicled island skin graft.Orandi [16, 17]. (1968, 1672) popularized this procedure. Though single-stage procedures are preferred by many, two-stage urethroplasty continues to be ideal for inflammatory, complicated and recurrent strictures (Bhandari, 1984).

Devine and Horton [18]. (1963) showed full thickness skin to be superior to split grafts for urethral reconstruction. Devine *et al* [19]. (1968) used free skin grafts for urethral reconstruction. In 1981, Panda and Subudhi [20] devised sleeve urethroplasty for long anterior urethral strictures. Thus, with passage of time, the man of medicine understood better the pathophysiology of urethral strictures and aimed at complete resolution of these.

Insult or injury to the urethra leads to formation of scar as part of natural process, and contraction of this scar shortens the circumference of the urethra resulting in a stricture and hence narrowing of the lumen.

Materials and Methods

During the period extending 50 cases of stricture urethra presented in the Department of Urology at Krishna Hospital and Medical Research Centre, Karad and were included in this study. Patients with small single stricture. Patients willing for surgery with written and inform consent. The basic principle of internal optical urethrotomy is to carry out incision through the Rigid stricture under direct vision, allowing the stricture to be disrupted such that the underlying soft elastic tissue allows for expansion of the urethra. With stenting, urethral regeneration can be accomplished thereby preventing restructure.

Observations and Results

Various observations made during this study are exhibited in a tabulated form as under:

Table 1: Age Distribution

Age Group (Yrs.)	Number of Cases	Percentage (%)
0 – 10	2	4
11-20	3	6
21 – 30	5	10
31 – 40	11	22
41 – 50	4	8
51-60	12	24
61 – 70	8	16
71-80	5	10
Total	50	100

The study of 50 cases of urethra! strictures exhibited 2 peaks of incidence of occurrence *viz*; fourth and sixth decades; the average age of incidence being 46 yrs. (As shown in table no. 1)

Table 2: Sex Distribution

Sex	Number of Cases	Percentage (%)
Male	48	96
Female	2	4
Total	50	100

It is obvious from the above table that urethral stricture occurred predominantly in the males i.e. 96%, with only 4% of cases belonging to the fairer sex.

Table 3: Presenting symptoms

Symptoms	Number of Patients Presenting	Percentage (%)
Frequency	22	44
Dysuria	22	44
Weak Stream	21	42
Bladder Discomfort	21	42
Urgency	16	32
Hesitancy	12	24
Straining	12	24
Retention	11	22
Burning Sensation	9	18
Dribbling	8	16
Overflow Incontinence	0	0
Others	6	12
3 Or More	34	68

As revealed by the above table, weak stream, frequency, dysuria and bladder discomfort were by far the commonest symptoms Amongst the other symptoms fever and / or

haematuria were complained of by 5 patients. History of crying while micturating was revealed of, by mother of an infant presenting with meatal stenosis.
More than two thirds of the cases studied had 3 or more symptoms.

Table 4: Etiological Distribution

Aetiology	Number Of Cases	Percentage (%)
Congenital	2	4
Infectious	11	22
Traumatic	6	12
Iatrogenic	16	32
Idiopathic	13	26
Balanitis Xerotica Obliterans	2	4
Total	50	100

The above table shows that most strictures of the urethra in this study were of iatrogenic origin (32%). 22% of the urethral strictures were attributed to have an infectious etiology, while in 26% cases the cause could not be determined. Of the 16 urethral strictures of iatrogenic etiology, 6 were following prostatectomy (T.U.R.P), 4 cases had history of catheterisation, 1 of endoscopic urethra lithotomy and 1 of radiotherapy for carcinoma of the cervix. 1 patient had undergone T.U.R.P. followed by radiotherapy for prostatic carcinoma.

Table 5: Overall Results of Dilatation Therapy

Results	Number of Cases	Percentage (%)
Good	7	77.78
Poor	1	11.11
Lost To Follow Up	1	11.11
Total	9	100.00

Primary Dilatation followed by regular calibration, adopted as a definitive line of treatment produced good results in 77.78% of cases. It failed in 1 (11.11%) case and 1 (11.11%) case was lost to follow up.

Discussion

Urethral stricture is nothing but a scar that occurs as a natural result of urethral insult or injury, the contracture of the scar shortening the circumference of urethra and the area of the lumen. This entity known as urethral stricture, a common cause of bladder outflow obstruction finds place in the Ayurveda [1, 2] indicating the chronicity of the problem. Through ages there has been progress in understanding of the pathophysiology and modalities of treatment for urethral stricture. Therapy for urethral stricture has advanced a long way from the age old method of dilatation to the newer procedures of internal optical urethrotomy and reconstructive surgeries. This work tries to summaries the problem of urethral stricture in rural India and its management in a semiurban setup. Fifty cases of stricture urethra presenting at our hospital, from September1993 to July1995areincluded in this study. All strictures were of simple variety and were critically evaluated for their characteristics and response to the therapy, utilizing a combined approach involving clinical, radiological and endoscopic findings. Depending upon its situation and nature (i.e. elastic or fibrous) urethral strictures were subjected to either dilatation or internal optical urethrotomy or a reconstructive surgery (i.e. meatoplasty). The follow up period varied from 3 months to 18 months.

Conclusions

Any urethral insult or injury results in an urethral stricture, Hence precautions while handling the urethra are a must for-prevention is better than cure. Majority or the patients present with 3 or more complaints pertaining to bladder out flow obstruction. Frequency, dysuria, bladder discomfort, weak stream and urgency are the commonest complaints of patients with stricture urethra. Most of the strictures are iatrogenic in origin–mainly following endoscopic surgeries and catheterisation idiopathic and infection were the next common etiologies in that order. Strictures of iatrogenic etiology are predominantly located in the bulbar and meatal-submeatal parts of the urethra. Extra care and gentleness while negotiating instruments through the seregions may probably prevent epithelial damage and there by stricture formation. Also using a smaller caliber catheter of silicone type and for an optimal duration may decrease the incidence of post-catheterisation strictures. Perioperative antibiotics therapy decreases the incidence of recurrence and there by influences the overall out come following internal optical urethrotomy. The chances of obtaining a better cure rate following a single urethrotomy are improved if followed by clean intermittent dilatation rather than urethrotomy alone. The length and size of the stricture dose not bear any influence on the final outcome. Breeding and fever are the commonest complications following internal optical urethrotomy. Incontinence occurs if care is not taken while performing a cold knife urethrotomy on a stricture situated in the sphincter active posterior urethra. There is no mortality resulting from the procedure. The overall success rate with internal optical urethrotomy followed by clean intermittent dilatation approaches 90%, and should be considered as treatment of choice for all simple strictures especially in a semiurban setup.

References

1. Attwater HL. The History of Urethra/ Strictures. Brit. J Urol. 1943; 15:39.
2. Jordon GH, Devine PC. Management of Urethral Stricture Disease, Urologic Clinics of North America. 1988; 15(2):277-289.
3. Bhandari M. Urethral Stricture - Involution of Management. Indian. J, Surgery, 1985, 49-50.
4. Kirchheim D. Internal Urethrotomy. In Glenn, J. F. Urologic Surgery, (3rd.Ed.)., Philadelphia J.B. Lippincott, 1983, 749-735.
5. Fair WR. Transurethral Prostatic Electroresection. Urologic Surgery, (3rd.Ed.) Philadelphia. J.B Lippincott, 1983, 891.
6. Keitzer WA, Cervantes L, Demoulangan A, Cruz B. Transnrethral Incision of Bladder neck for Contracture. J. Urol. 1961; 86:242-246.
7. Sachse H. Arztiche For lbildnngotaging. Praxis. Kurier. 1972; 36:85.
8. Sachse H. ZurBehandlung der Harnivhren-Striklur Dietransiirethraleschlitziirgitnter Sichfmitscharfenschnitt.

Fort schr. Med, 1974, 9212.
9. Turner-Warwick, R.T. The Management of Traumatic Urethral Stricture and Injuries. Br. J Surg. 1973; 60:775.
10. Milroy EJ, Chappie CR, Cooper JE, Edlin A, Wallsten H, Seddon AM, *et al*. A New Treatment for Urethral Strictures. Lancet. 1988; 1(8600):1424-1427.
11. Bhandari M, Kumar S, Anastamotic Urethroplasty. Indian J. Surgery, 1985, 94-95.
12. Russel RH. The treatment of urethral strictures by excision. Brit. J. Surg. 2(375):1914-1915.
13. Brown D. An Operation for Hypospadiasis. Lancet. 1936; 1:141-143.
14. Johanson B. Reconstruction of the Male Urethra in Strictures. Acta. Chir.Scandinav, 1953, (176).
15. Leadbetter GW, Leadbciter WF. Urethral Strictures in Male Children. J.Urol. 1062; 87:409-415.
16. Orandi A. One Stage Urethroplasty.J. Urol. 1968; 40:717-19.
17. Oraridi, A.One Stage Urethroplastv4 year follow up. J Urol. 1972; 107:977-80.
18. Devine CJ, Horton CE. One Stage Hypospadias Repair.J. Urol. 1961; 85:l66.
19. Devine PC, Horton CE, Devine CJ, Devine Sr, Jr CJ, Crawford HH, Adamson JE. Use of Full Thickness Skin Grafts in Repair of Urethral Strictures. Urol. 1996; 90:67-71.
20. Panda SN, Subhudhi CL, Sleeve iirelhroplasty. New technique. Urology. 1981; 17:166-168.