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# Management of Anterior Urethral Stricture: Experience from Tertiary Level Hospital in Jaipur

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## I. Introduction

The term 'Urethral stricture' is specifically used for narrowing or obliteration of lumen of anterior urethra due to scarring of urothelium and or corpus spongiosum [1]. Posterior urethral stricture is not included in the definition of 'urethral stricture'. It is actually a distraction defect caused by avulsion secondary to pelvic fracture or radical prostatectomy and is called 'Distraction Defect' [1]

Urethral stricture disease occurs mainly in men and is a common and challenging urologic condition at any age [2]. Clinically, patients suffer from voiding and storage symptoms that greatly affect quality of life . Incidence and epidemiology differ worldwide based on geography, population, and mean country income. Both the principal causes and treatments of urethral strictures have changed over time. Endoscopic treatment can transiently improve urinary flow; however, open urethroplasty is now regarded as the gold standard treatment for urethral strictures. Oral mucosa is currently considered the most widespread substitute material for urethral reconstructive surgery [3]

## II. Subjects and methods

A retrospective review of records from 2015 to 2018 was done. Data on aetiology, site, treatment and outcome of treatment of anterior stricture disease were collected and analysed with SPSS20.0.

They were followed for a mean period of 12 months with the help of RGU, MCU and Uroflowrate at three months, six months and one year. Cystoscopy was reserved for those who had recurrent symptoms or RGU/UFR was suspicious of recurrent stricture.

Success was defined as no obstructive symptoms and no recurrence in RGU, UFR or cystoscopy.

## III. Result

There were 202 patients treated for urethral stricture within the study period. The youngest patient was 11 years while the oldest was 79 years. The mean age of the patients was

48 ± 9.24 years. As shown in table 1, the peak age incidence was between 20 and 39 years (*n* = 90; 44.55).

**Table 1Age distribution**

| Age (years) | Number (%) |
|---|---|
| 0-19 | 13(6.43) |
| 20-39 | 90(44.55) |
| 40-59 | 54(26.73) |
| 60-79 | 45(22.27) |
| Total | 202(100) |

Trauma constituted the commonest aetiological factor for urethral stricture (*n* = 154; 76.23%). Of this, 112 patients' stricture (55.44%) resulted due to iatrogenic causes from poor techniques of urethral catheterization and endoscopy while the remaining 42 patients' stricture (20.79%) had road traffic accident,

pelvic fracture and fall astride injuries over blunt edges. 48 patients(23.76%) had post inflammatory urethral stricture .

**Table 2. Aetiological factors**

| **Aetiological factors** | **Number(%)** |
|---|---|
| Trauma | 154(76.23%) |
| Iatrogenic | 112(55.44%) |
| Others(RTA) | 42(20.79%) |
| Post inflammatory | 48(23.76%) |
| Total | 202(100) |

50% had stricture at bulbar urethra, this was followed by stricture at penile urethra 30% and meatal urethra 12.4% Multiple strictures were found in 7.6% of cases.

**Table 3. Site of urethral Stricture**

| **Site of urethral stricture** | **Number (%)** |
|---|---|
| Penile | 30%(60) |
| Bulbar | 50%(101) |
| Meatal urethra | 12.4%(25) |
| Multiple | 7.6%(15) |

106 patients (52.47%) had urethroplasty .Out of these substitution urethroplasty was done in 35 patients (penile skin island flap n = 2, buccal mucosal n = 33), while 71 patients had anastomotic urethroplasty. optical internal urethrotomy (OIU) was done for 60 patients

(29.7%), 36 patients (17.82%) had urethral dilatation .The type of treatment administered is shown in table 3.

**Table 4. Treatment modalities for urethral stricture**

| **Treatment modalities** | **Number & Percentage** |
|---|---|
| Urethroplasty substitution | 35(17.32%) |
| Anastomotic | 71(35.14%) |
| Dilatation | 36(17.82%) |
| OIU | 60(29.7%) |

41 patients (20.29%) had various types of post-operative complications. 36 patients

(17.82%) had re-stricture and 5 patients (2.47%) had infection. The infections were due to surgical site infection following urethroplasty. Optical internal urethrotomy had the highest complication rate. Out of 60 patients who had this procedure 16 patients had re-stricture that warranted repeated procedure and urethroplasty.

**Table 5. Post-management complication**

| **Procedure** | **Complications** | |
|---|---|---|
| | Infection | Re-stricture |
| Substitution urethroplasty | 1 | 2 |
| Anastomotic urethroplasty | 4 | 8 |

| | | |
|---|---|---|
| Urethral dilatation | 0 | 10 |
| OIU | 0 | 16 |
| Total | 5 | 36 |

161 patients (79.7%) had satisfactory outcome in their treatment. There was no mortality recorded in the course of treatment.

## IV. Discussion

Urethral stricture is one of the common and challenging problems with which most male presents to urologists and it's treatment depends on the etiology of the stricture and the nature, site and extent of the stricture. The mean age of stricture in males is third and fourth decade in most studies [4]. In the present study too, the mean age of patients in each group was between 30 and 39 years. Many authors have found iatrogenic cause as the commonest etiological factor followed by traumatic cause [5, 6, 7] The commonest etiology found in the present study was iatrogenic (55.4%) followed by trauma. Earlier, the most important cause of urethral stricture was infection, but with introduction of efficient antibiotics and extensive use of transurethral surgery, iatrogenic strictures have become more common.

Use of antibiotics for treatment of urethritis reduces that progression to spongiofibrosis and strictures. This may be responsible for the observed low contribution of inflammation as a major cause of stricture in this study. Optical internal urethrotomy (OIU) was performed with cold knife making transurethral incision over scar tissue. Other studies showed no major difference in reccurence rates following urethral dilatation and OIU (8,9). In the present study for OIU duration of catheterization was 7 days and complication of restenosis was 26.66%.

The success rate for OIU in the present study was 73.33% . Similar success rates for OIU have been reported by various other studies [2, 10]. In Other study, the authors have conluded that the post operative results depends on period of catheterisation which should be left indwelling only until re-epithelisation has taken place [11].

Urethroplasty is the gold standard for the treatment of urethral stricture disease [12,13]. The choice of technique for urethro-plasty for an individual case largely depends on the expertise ofthe surgeon, size and site [14]. Anastomotic urethroplasty was the commonest surgical intervention in this study, 71 patients (35.14%) had the procedure, while 35 patients (17.32%) had substitution urethroplasty. Anastomotic urethroplasty was done for mainly short segment bulbar urethral stricture . average length in our study was 1.9cm. It involves total excision of the stricture, spatulation of the two ends and end to end anastomotic. Substitution urethroplasty is performed for long segment bulbar, or penile urethral stricture. Most of our urethroplasties were done at one stage as had been reported elsewhere [15,16]. Substitution urethroplasties were done for stricture more than 2cm. Saphenous vein graft were used in 2 patients while 33 patients had buccal mucosal as graft. Success rate of substitution urethroplasties in our study was 94%, anastomotic urethroplasties having 83% success rate whereas saphenous vein graft urethroplasties having 50% success rate.

## V. Conclusion

Our results of anastomatic urethroplasties and substitution urethroplasties are comparable with international studies. Among all options for anterior urethral stricture management substitution urethroplasties had higher success rate.


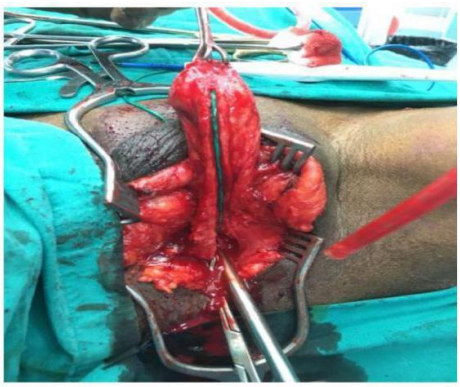

**Figure 1: RGU showing penobulbar stricture**

**Figure 2: Strictured urethra opened ventrally through perineal incision**

**Figure 3: Buccal mucosal graft**

**Figure 4: Buccal mucosa graft placed as dorsal inlay**

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