

# Urethral Strictures and its Management at Tertiary Hospital of Nepal

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## ABSTRACT

**Background:** Urethral stricture can occur from urethral meatus to bladder neck. Treatment of urethral stricture include dilatation, endoscopic incision and anastomotic urethroplasty. The aim of this study is to report our experience in the management of different types of urethral strictures.

**Methods:** We retrospectively reviewed the chart of all the patients of urethral stricture who received treatment at Kathmandu model hospital between January 2015 and October 2019. Different types of urethral stricture along with various modalities of treatment given were recorded.

**Results:** Fifty patients were included in this study, all were males. Mean age was 49 (16-82) years. Bulbar urethra was the most common site in 54% of cases and bulbomembranous least common, only 10% of cases. Depending on sites and size of stricture, different types of surgery performed were meatoplasty, dviu and anastomotic urethroplasty.

**Conclusions:** Urethral stricture is a troublesome disease and can occur anywhere from meatus to the bladder neck. Different surgical techniques are present and the treatment should be individualized, depending on location and length of the stricture.

**Keywords:** Urethra; urethral stricture; urethroplasty

## INTRODUCTION

Urethral strictures is a common condition which occurs in any segment of the urethra, i.e. from urethral meatus to the bladder neck.<sup>1</sup> Urethral stricture in developed countries are mostly idiopathic(41%), and iatrogenic(35%) whereas trauma(36%) is the most common cause in developing countries.<sup>2-4</sup>

Treatment of urethral stricture includes meatoplasty, dilatation, direct vision internal urethrotomy (DVIU) and urethroplasty. The factors need to be consider for proper surgical procedure selection are etiology, location, severity and prior treatment of stricture.<sup>5-6</sup> Meatoplasty is a technique of widening the external urethral meatus whereas urethral dilatation widens the urethral lumen. DVIU is another form of management in which stricture part is incised transurethrally using endoscopes. Urethroplasty is associated with significantly better long-term success and can be performed using a variety of techniques.<sup>7-9</sup>

Success of treatment is defined as no further need for surgical intervention.<sup>8-10</sup> The aim of this study was to report the management of different types of urethral strictures in our center.

## METHODS

After the approval from institutional research committee of Public Health Concern Trust Nepal, we retrospectively reviewed the chart of all patients of urethral stricture who underwent different types of surgery at Kathmandu model hospital from January 2015 to October 2019. Male patient older than sixteen years, diagnosed and treated for urethral strictures were included.

Preoperatively all the patients were investigated for the presence of urinary infection. Retrograde and voiding urethrography were also done to assess location, severity and length of the strictures. Different types of strictures found and various modalities of treatment given were recorded. Postoperative status of patient were seen on followup records of 3-12 months. Success of the treatment for urethral stricture was defined by no further need for surgical intervention or instrumentation after primary procedure.

## RESULTS

Chart of total fifty patients were studied. Mean age was 49 (16-82) years. The most common site was bulbar urethra in 54% of cases and bulbomembranous the least common, only 10% of cases Table 1.

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Table 1. Sites of stricture

| Site of stricture | No. of cases (%) |
|-------------------|------------------|
| Meatal            | 12 (24%)         |
| Penile            | 6 (12%)          |
| Bulbar            | 27 (54%)         |
| Bulbomembranous   | 5 (10%)          |

Depending on sites and size of stricture, different types of surgery performed were meatoplasty, dviu and anastomotic urethroplasty Table 2.

Table 2. Types and results of surgery

| Types of surgery          | Number (%) | Success    |
|---------------------------|------------|------------|
| Meatoplasty               | 12 (24%)   | 10 (83.3%) |
| Dilatation                | 13 (26%)   | 8 (61.5%)  |
| DVIU                      | 23 (46%)   | 18 (78.2%) |
| Anastomotic urethroplasty | 8 (16%)    | 7 (87.5%)  |

Meatoplasty was performed in 12 cases, which was successful in 83.3% of cases, two requiring meatal dilatation later. Urethral dilatation was done in 13 cases with 61.5% success. DVIU was done in 23 cases with success of 78.2%, three requiring redo dviu and remaining failed two were managed by urethroplasty. Anastomotic urethroplasty was done in 16% of cases with 87.5% success. One required follow up cystoscopy and dilatation later.

## DISCUSSION

Urethral strictures is a common condition that imposes a significant burden on the health care system.<sup>1</sup> The treatment need to be individualized and the location and length of stricture should be taken into account for the management of urethral strictures. Here we studied fifty cases of urethral stricture, extending from meatus to the bulbomembranous urethra. In this series maximum number of strictures were found in bulbar urethra (54%), which was followed by meatal (24%), penile (12%), and bulbomembranous (10%) being the least common. Various other studies have also reported bulbar urethra being the commonest site of urethral stricture.<sup>8,9</sup> Fenton AS et al also found bulbar urethral stricture more prevalent (52%) in their 194 anterior urethral stricture study.<sup>3</sup> They think traumatic stricture tend to occur almost exclusively in bulbar urethra, most are related to straddle injury. The position of bulbar urethra in the perineum is more vulnerable for getting injured. In our study though we did not study the cause of the urethral stricture, but most of them were traumatic in origin.

The treatment of urethral stricture has undergone significant changes, passing from minimally invasive

interventions with different degree of success to definitive open urethroplasty.<sup>11</sup> Treatment of urethral stricture include meatoplasty, dilatation, DVIU and anastomotic urethroplasty. The treatment should be individualized, depending on location, extent and length of the stricture.

Meatoplasty is a technique of widening the external urethral meatus by raising the urethral flap and suturing it to glans penis. Meatoplasty was done in 12 cases in our study with success in 83.3%. Remaining two cases needed meatal dilatation followed by repeated self dilatation. We did urethral dilatation in 13 of our cases with 61.5% success. This is comparable to other studies in which the success rates after urethral dilatation lies between 50-60%.<sup>12,13</sup> Though this is not a curative, urethral dilatation had been the method of choice for 3000 years. Even in the period of Sushruta, dilatation was practiced for the management of urethral stricture. Dilatation gives relief to the patient by fracturing the scar tissue and widening the urethral lumen. However, since the development of direct vision internal urethrotomy(DVIU),urethral dilatation as a primary treatment for urethral stricture disease has decreased. DVIU was done in 23 cases in our study, which was successful in 78.2%.The remaining 5 cases needed repeat procedure and or definitive urethroplasty. In other studies also ,the surgical outcome of DVIU has success rate of 20-80%, depending on the length of the stricture.<sup>14</sup> It has been stated that urethral dilation and DVIU have similar long-term outcomes in short strictures, with success ranging from 35-70%.<sup>12,13</sup> In our study the outcome of DVIU and urethral dilatation are almost similar with more successful in DVIU. This may be due proper selection of the cases i.e single stricture less than 1.5cm and most of them were in bulbar urethra. Or, it may be that we need an extended followup in order to establish the long term outcome of DVIU. Santucci et al in their series have found very low long-term success rate of DVIU, only 8%, over a mean followup of 5 years.<sup>15</sup> Longer strictures are less responsive to endoscopic treatment, with success rates of only 20%. Given the low efficacy of endoscopic treatment, urethroplasty should be offered to patients with long urethral strictures. Urethroplasty, the open reconstructive treatment for urethral strictures, is associated with significantly better long-term success rates than dilatation or any endoscopic procedures.<sup>14</sup> Complete excision of the strictured segment with end-to-end anastomosis of healthy edges of urethra was done in eight cases with the success rate of 87.5%. One case needed repeated self dilatation to maintain the patency of urethral lumen. Though we have a small number of urethroplasty, our results are comparable to other large studies.<sup>9,11,16</sup> Further large number of cases need to be studied for the establishment of the outcome of

our urethroplasties. Retrospective study with limited number of cases and no established time period frame of followup are the limitation of this study.

## CONCLUSIONS

Urethral stricture is quite troublesome disease and can occur anywhere from meatus to bladder neck. Different techniques are present for the management of the urethral stricture and the treatment should be individualized, depending on location, extent and length of the stricture.

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