To assess the short-term functional outcomes on urinary symptoms, erectile function, urinary continence after Urethroplasty

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Abstract
The study was conducted in Department of General Surgery Maharaja Yeshwantrao Holkar Hospital, Indore. The study was conducted prospectively and on 50 patients presenting with symptoms of urethral stricture. It included both anterior and posterior stricture. A detailed preoperative assessment along with careful history-taking and physical examination was carried out and patients were evaluated by means of retrograde Urethrogram, Urethrosonogram, and uroflowmetry (pre-operatively possible only in cases not having SPC).

Using patients as their own control, we have observed in patient-reported outcomes, significant improvement in urinary symptoms and QOL scores with preservation or improvement of erectile function after urethroplasty. After urethroplasty surgery the patient concerns with pain, sexual function and voiding complaints are the primary determinants of patient satisfaction. Patients with objective evidence of recurrent stricture were more likely to be satisfied if they reported minimal pain, erectile and voiding dysfunction.

Keywords: Urethroplasty, life, erectile function & urinary continence

Introduction
As there is an increasingly widespread use of Urethroplasty for urethral stricture treatment [1], the potential complications of the surgery need to be better understood in order to reduce their probability of occurrence and enable the specialist to provide the right information during counseling.

Urethral stricture disease occurs in 0.6% of the general population, and despite known risk factors (including trauma, endoscopic interventions, inflammation, and infection), the most common etiology is idiopathic.

Urethral stricture disease causes obstructive and Irritative voiding symptoms however, hematuria, recurrent urinary tract infection, inability to catheterize at the time of unrelated surgeries, or bladder stone also occur that might have an impact on the patient’s quality of life. Different techniques of Urethroplasty in the treatment of urethral stricture disease are well described [2,3]. Although international accepted guidelines about the treatment are lacking, some recommendations have been made [4-6] on timely basis. The primary outcome parameter of papers assessing the different techniques of Urethroplasty has been stricture recurrence.

Material and Method
The study was conducted in Department of General Surgery Maharaja Yeshwantrao Holkar Hospital, Indore. The study was conducted prospectively and on 50 patients presenting with symptoms of urethral stricture between the time periods from January 2018 to August 2019. It included both anterior and posterior stricture. A detailed preoperative assessment along with careful history-taking and physical examination was carried out and patients were evaluated by means of retrograde Urethrogram, Urethrosonogram, and uroflowmetry (pre-operatively possible only in cases not having SPC).

Sample size
- Minimum number of cases 50.
Inclusion criteria
1. Patients with a urethral stricture treated with Urethroplasty
2. Patients who give written informed consent.
3. Male patients of 18 years and above.
4. Patients having history of urethral trauma are also included.

Exclusion criteria
1. Patients not willing to come up for regular follow-up.
2. Patients not willing to give written consent.
3. Patients taking drugs for erectile dysfunction.
4. Patients with objective evidence of recurrent stricture were more likely to be satisfied if they reported minimal pain 
   and erectile function after urethroplasty. After urethroplasty surgery the patient concerns with pain, sexual function and voiding 
   complaints are the primary determinants of patient satisfaction. Patients with objective evidence of recurrent stricture were more 
   likely to be satisfied if they reported minimal pain, erectile and voiding dysfunction.

Total 50 patients were taken for urethroplasty after proper consent & anesthetic fitness. After surgery per urethral silicon catheter was kept for three weeks in simple strictures and for six weeks in cases of complex strictures. The functional outcome on urinary and sexual function was assessed using validated questionnaires that were offered to the patient before operation and at the 6 weeks and 6 months follow-up visits.

Results

Table 1: Comparison of Preop & postop mean value of urinary score as per IPSS method

| Parameter | Time Interval | Mean Urinary Score | Std. Deviation | Paired T Test | P Value | Result |
|-----------|---------------|-------------------|----------------|--------------|---------|--------|
| Urinary Score [International Prostate Symptom Score (IPSS)] | PREOP | 24.700 | 50 | 2.765 | 15.827 | 0.000 | Significant |
| | After 6 Week | 15.360 | 50 | 6.366 | | | |
| | PREOP | 24.700 | 50 | 2.765 | 24.215 | 0.000 | Significant |
| | After 6 Month | 10.200 | 50 | 6.411 | | | |

Table 2: Comparison of Pre op &postop mean value of quality of life score as per IPSS method

| Parameter | Time Interval | Mean QoL Score | Std. Deviation | Paired T Test | P Value | Result |
|-----------|---------------|----------------|----------------|--------------|---------|--------|
| Quality of Life Score [International Prostate Symptom Score (IPSS)] | PRE | 4.200 | 50 | 1.161 | 13.252 | 0.000 | Significant |
| | After 6 Week | 2.560 | 50 | 0.884 | | | |
| | PRE | 4.200 | 50 | 1.161 | 23.125 | 0.000 | Significant |
| | After 6 Month | 1.980 | 50 | 0.958 | | | |

Table 3: Comparison of Preop &postop mean value of index as per iief-5 method

| Parameter | Time Interval | Mean Index (IIEF-5) | Std. Deviation | Paired T Test | P Value | Result |
|-----------|---------------|-------------------|----------------|--------------|---------|--------|
| International Index of Erectile Function (IIEF-5) | PRE | 9.420 | 50 | 1.214 | 23.426 | 0.000 | Significant |
| | After 6 Week | 17.140 | 50 | 3.245 | | | |
| | PRE | 9.420 | 50 | 1.214 | 25.212 | 0.000 | Significant |

Discussion
Patient-reported outcome measures (PROMs) are health questionnaires that patients complete before and after an intervention to determine whether their symptoms or health-related quality of life (HRQoL) have changed [7,8]. An urethral surgery PROM comprising a LUTS construct consisting of six summative questions is used in European centres [9]. It is derived from the International Consultation on Incontinence Questionnaire Male Lower Urinary Tract Symptoms (ICIQMLUTS) module [10, 11] a LUTS-specific quality-of-life (QoL) question; and Peeling’s voiding picture [12]. The EQ-5D [13] was included to assess overall HRQoL, supplemented with two further questions addressing overall patient satisfaction. The tool is statistically valid and reliable according to established psychometric criteria as responsiveness to change, acceptability to patients, content and criterion validity, test-retest reliability, and internal consistency.

IPSS
It included 8 questions (7 urinary symptom questions + 1 quality of life question)

While comparing preoperative urinary symptoms with postoperative urinary symptoms, the difference in Urinary Score between the two intervals of both the pairs at 6 weeks and 6 months was found to be statistically significant (P<0.05).

The mean Urinary Score preoperatively was 24.7 which is significantly higher than that at 6 weeks which was 15.36 and at 6 months which was 10.2. It implies that the mean Urinary Score as Per IPSS Method differs significantly on comparing preoperative symptoms with post-operative symptoms of the same patient.

On the other hand While comparing preoperative quality of life with postoperative quality of life score, the difference in Quality of Life Score between the two intervals of both the pairs (Preop; 6 weeks and preop;6 months) was found to be statistically significant (P<0.05). The mean Quality of Life Score preoperatively was significantly higher at 4.2 compared to 2.56 at 6 weeks and 1.98 at 6 months.

Conclusion
Using patients as their own control, we have observed in patient-reported outcomes, significant improvement in urinary symptoms and QOL scores with preservation or improvement of erectile function after urethroplasty. After urethroplasty surgery the patient concerns with pain, sexual function and voiding complaints are the primary determinants of patient satisfaction. Patients with objective evidence of recurrent stricture were more likely to be satisfied if they reported minimal pain, erectile and voiding dysfunction.

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