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An Observational Study on the Evaluation of the Sexual Functions in Post Urethroplasty Patients

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ABSTRACT
Urethral stricture is a narrowing of the urethra due to scar tissue, which leads to obstructive voiding dysfunction with potentially serious consequences for the entire urinary tract. The consequences of this obstruction can enormously impair the patient's quality of life by causing micturition disturbances; they can also damage the entire urinary tract, resulting in loss of renal function. To evaluate the sexual functions in pre and post urethroplasty patients. The present study was a prospective observational study. This Study was conducted from March 2022 to March 2023 at urology department, Government medical college Thiruvananthapuram. Total 35 patients were included in this study. Our descriptive analysis shows Sexual drive varied significantly when compare with pre-opvs 3 months and 3 months vs 6 months (p = 0.001). But when we compare sexual dive with pre-op to 6 months, it was statistically insignificant (p = 0.11). Erectile functions also was varied significantly pre-op to 3 months (p = 0.002) and 3 months to 6 months (p = 0.001). So, present study shows significant deterioration of erectile functions after the operation. The ejaculatory function has been decrease after the urethroplasty operation and it was statistically significant when we compare pre-op score to 3 months (p = 0.02) but statistically significant improvementat 3 months to 6 months score (p = 0.001). However, there was statistically insignificant at 6 months compare to pre-op value (p = 0.9). The mean score if erectile function in urethroplasty in bulbomembranous strictures at 3 months and 6 months was 0.5±0.4 and 1.17±0.7 and it was highly significant statistically (p = 0.001). Non-bulbomembranous strictures patients had mean score of 5.31±2.4 and 6.17±2.55 at 3 and 6 months and it's also statistically significant but not worse as bulbomembranous stricture group. Our study was a prospective study and it showed the above results. But the pre- operative and postoperative psychometric analysis was not done which could have possibly rule out psychological factors of the burden of the disease and operation and others associated psychological factors that may aggravate the result in sexual functions. Limitations of this study include its small cohort, its short follow-up.

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Key Words
Urethroplasty, urethral stricture, sexual functions

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INTRODUCTION

Urethral stricture is a narrowing of the urethra due to scar tissue, which leads to obstructive voiding dysfunction with potentially serious consequences for the entire urinary tract. The consequences of this obstruction can enormously impair the patient's quality of life by causing micturition disturbances; they can also damage the entire urinary tract, resulting in loss of renal function. Almost all strictures for which a cause can be identified are acquired[1]. The largest group (45%) is iatrogenic and result from urethral manipulations (traumatic indwelling catheter, transurethral interventions, correction of hypospadias, prostatectomy and brachytherapy). Thus, for example, the incidence of urethral stricture after transurethral prostate resection (the most common prostate intervention) is 3% to 5%. Another cause of urethral stricture is traumatic urethral rupture associated with pelvic fracture. Bacterial urethritis can also lead to stricture (around 20% of cases), classically, these are cases of untreated gonorrhea. Another inflammatory disease associated with (distal) urethral stricture is balanitis xerotica obliterans, a chronic inflammatory disease whose exact etiology is unknown. Around 30% of urethral strictures are idiopathic[1]. In these cases the most likely trigger is considered to be some forgotten minor trauma that occurred a long time in the past (e.g., perineal injury while riding a bicycle).

The pathology of urethral stricture disease is poorly understood. External trauma generally causes partial or complete disruption of an otherwise normal urethra-that is clear. How a stricture develops in other circumstances remains unclear but it would seem that for whatever reason a scar develops as a consequence of changes in the structure and function of the urethral epithelium and the sub epithelial spongy tissue causing a fibrotic narrowing of the urethra. Secondary changes in the epithelium more proximally develop there afterwards causing a progressive stricturing of an increasing length of the urethra from before backwards. Longstanding urethral obstruction may cause secondary complications in the rest of the urinary tract[2].

Surgical reconstruction of refractory stricture urethra is the mainstay of treatment and it is even done as a first line of treatment. A variety of treatment approaches exist, including urethral dilation, internal urethrotomy and urethral stenting. Open urethroplasty is a highly effective and durable approach for treating stricture disease and is the principal mode of therapy nowadays. The ideal postoperative outcome for urethroplasty surgery includes attaining a meaningful improvement in voiding efficiency and symptoms. In addition, sexual function after surgery significantly impacts patient perception of surgical success independent of post-operative urinary functions. Sexual morbidity, mainly erectile dysfunction, is significant in determining overall patient satisfaction after reconstructive surgery for urethral stricture disease[3]. Reconstructive techniques have been advanced markedly over the past two decades and their success rate has been well documented in the literature. Surprisingly, despite the significant dissection required for the many complex urethroplasty, little has been reported in Indian and global literature regarding the effect of sexual function due to urethral reconstruction.

Erectile dysfunctions are a multidimensional but common male sexual dysfunction that involves an alteration in any of the components of the erectile response, including organic, relational and psychological. Roles for non-endocrine (neurogenic, vasculogenic and iatrogenic) and endocrine pathways have been proposed. Erectile dysfunction can have deleterious effects on a man's quality of life; most patients have symptoms of depression and anxiety related to sexual performance. These symptoms, in turn, affect his partner's sexual experience and the couple's quality of life.

Erectile function is a predictor of overall patient satisfaction after repair of urethral strictures. Importantly, erectile dysfunction is no longer simply confined to sexual activities but acts as an indicator of systemic endothelial dysfunction. From a clinical standpoint, erectile dysfunction often precedes cardiovascular events and can be used as an early marker to identifymen at high risk of major cardiovascular disease[4]. Erectile dysfunction in urethral stricture may be as a result of pre-operative vascular dysfunction following trauma, as in pelvic fracture and it may be associated with vascular disease due to endothelial disease due to diabetes mellitus, smoking and other metabolic disease. It may be form other non-vasculogenic organic cause especially psychiatric disorders, stress and hypogonadism. Pre-operative neurovascular disruption, injury to tunica, resultant cordee formation may also lead to erectile dysfunction.

Erectile dysfunction (ED) is defined as a persistent inability (lasting for at least 6 months) to attain and maintain an erection sufficient to permit satisfactory sexual performance[5].

MATERIALS AND METHODS

Study design: It was a prospective observational study.

Study area: The study was conducted at, The Department of Urology, Government Medical college Thiruvananthapuram.

Study population: All patients of urethral disease requiring urethroplasty, presenting to the Department of Urology during the study period.

Study period: March 2022 to March 2023.

Sample size: 35

Sample design: Urological patients after clinical diagnosis of urethral stricture or any form of urethral diseases requiring urethroplasty and requiring incision of bulbospongiosus muscle was included consecutively according to the following criteria.

Inclusion criteria:

- Urethroplasty requiring incision of bulbospongiosus muscle
- Sexually active male

Exclusion criteria:

- Patients with the prior history of sexual dysfunction
- Age below 18 years and above 79 years
- History of significant co-morbidity like neurovascular disease, mentally distress patients etc. affecting sexual functions

RESULTS AND DISCUSSIONS

Urethroplasty for urethral stricture has long been practiced in urology. With the advance of sciences, multiple newer modalities along with older techniques are in the field but free graft urethroplasty and anastomotic urethroplasty in selected cases, have been accepted as a gold standard and practice widely. In recent decades, the incident and association of sexual dysfunction with urethral stricture disease and urethroplasty have been matter of research and debate. Quite a few journals and report are available in the literature with variable results and in Indian literature, reports are limited.

During urethroplasty, dissection and aggressive mobilization of the bulbospongiosus muscle to expose the bulbar urethra may result in more or less subtle changes in ejaculation dynamics. Since it has long been consider as important muscle for ejaculation. It was also noted that there were very negligible percentage of patients present with erectile dysfunction after anterior urethroplasty. And very few papers were there regarding the portion of urethral stricture and subsequent urethroplasty which produce significant number of sexual dysfunction.

So, in present study we intentionally exclude those anterior stricture diseases which produce a very negligible sexual dysfunction as per literature.

The study was a prospective study and it was done in the Department of urology. Before beginning of the study proper statistical analysis was made and the study samples were defined with proper inclusion and exclusion criteria. Our study included 35 patients. After proper consent patients were selected for the study underwent BMSFI questionnaire. After anastomotic or BMG urethroplasty as recommended underwent follow-up at three and six months with same BMSFI questionnaire. No patients ware lost to follow-up and all were compliant.

Table 1: Distribution of Cause of stricture of the study group population, Uroflowmetry findings of study population and operation of study subjects (N = 35)

Cause of stricture of the study group population, Uroflowmetry findings of study population and operation of study subjects	Frequency	Percentage
Cause		
Trauma	9	25.70
Instrumentation	7	20.00
Urethritis(BXO)	3	8.60
Sexual exposure	5	14.30
Unknown	11	31.40
Total	35	100.00
UFM (QMAX in mL sec^{-1})		
4	5	14.30
5	6	17.10
6	2	5.70
7	6	17.10
8	3	8.60
9	1	2.90
Not done due to SPC	12	34.28
Total	35	100.00
Operation		
Anastomotic	26	74.29
BMG	9	25.71
Total	35	100.00

The patients were categorized into age, socioeconomic status, occupation, religion and education.

The patients were aged between 22-66 years with a mean age is 42.20 and out of this 35 patients, maximum are the age group of 41-50 years with a percentage of 34.28%. About 5.7% are more than 60 years of age and 25.7% that is 9 patients are less than of 30 years of age (Table 1).

Out of 35 patients 23 patients are Hindu which is 65.7%. Rest other is Muslim patients. It indicate hospital attendance almost represent the society.

Pre-operative and Cystoscopic examination revealed maximum of our population had stricture disease in bulbar urethra 51.4% and when we search for the probable cause of the stricture, it was unknown in maximum no of cases (31.4%) and then trauma (25.4%) (Table 2).

The length of the stricture maximum found around 2 cm (41.75%). And regarding operation maximum patient underwent anastomotic urethroplasty was 74.29%. The limit for anastomotic urethroplasty was usually set at 2-3 cm and obviously patient consent as some patient choose anastomotic urethroplasty instead of visual internal urethrotomy and this also explains why the strictures treated with anastomotic urethroplasty were significantly shorter and more in number (Table 3).

Table 2:- Comparison of sexual function in pre and post-operative patients (N = 35), after anastomotic urethroplasty (26) and after BMG urethroplasty (9)

Functions	Pre op mean score	3 months mean score	6 months mean score	Statistical test
Post-operative patients (35)				
Sexual drive	4.31±1.68	2.03±1.43	4.14±1.8	Paired t test
Erection	7.49±2.51	4.49±2.92	5.31±3.01	Paired t test
Ejaculation	6.03±1.2	5.37±1.92	6.00±1.7	Paired t test
After anastomotic urethroplasty (26)				
Sexual drive	4.12±1.7	2.00±1.4	3.85±1.8	Paired t test
Erection	7.23±2.5	3.69±2.5	4.31±2.4	Paired t test
Ejaculation	5.96±1.24	5.04±1.9	5.69±1.8	Paired t test
After BMG urethroplasty (9)				
Sexual drive	4.89±1.5	2.22±1.4	5.00±1.3	Paired t test
Erection	8.22±2.3	6.78±2.8	8.02±2.5	Paired t test
Ejaculation	6.22±2.3	6.33±1.5	6.89±1.3	Paired t test

Table 3: Comparison of sexual function in a patients with trauma and non-traumatic

Functions	Pre op mean score	3 months mean score	6 months mean score	Statistical test
Trauma				
Sexual drive	3.89±1.5	1.33±1.11	4.33±1.7	Paired t test
Erection	7.33±1.6	2.78±2.3	3.44±2	Paired t test
Ejaculation	5.56±1.01	4.67±2.3	5.11±1.9	Paired t test
Non-traumatic				
Sexual drive	4.46±1.7	2.19±1.4	4.38±1.9	Paired t test
Erection	7.62±2.7	5.08±2.89	5.96±3.05	Paired t test
Ejaculation	5.96±1.2	5.62±1.7	6.31±1.6	Paired t test

Our descriptive analysis shows sexual drive significantly varied when compare with pre-op vs 3 months and 3 months vs 6 months (p = 0.001). But when we compare sexual dive with pre-opto 6 months, it was statistically insignificant (p = 0.11). Erectile functions also was varied significantly pre-op to 3 months (p = 0.002) and 3-6 months (p = 0.001). So, present study shows significant deterioration of erectile functions after the operation. The ejaculatory function has been decrease after the urethroplasty operation and it was statistically significant when we compare pre-op score to 3 months (p = 0.02) but statistically significant improvement at 3 months to 6 months score (p = 0.001). However, there was statistically insignificant at 6 months compare to pre-op value (p = 0.9).

Erickson *et al*.[6] shows bulbar urethroplasty results show a higher likelihood of post- operative ED than penile urethroplasty (76 vs. 38%, p = 0.05). This result is perfectly understandable, given the considerable improvement in urethral caliber achieved, resulting in better expulsive capacity of the seminal fluid.

After posterior urethroplasty the incidence of ED was around 90%[7]. Most PFUDD patients suffer from pre-existing ED. It was postulated that this occurs from trauma itself, before urethroplasty is performed.

It also shows in our study that after the anastomotic urethroplasty all the three parameters varied significantly more than BMG urethroplasty group. However ejaculatory function also deteriorated initially but came towards pre-op value gradually. In men with normal preoperative EF, bulbar urethroplasty compared with penile urethroplasty was more likely associated with temporary ED (76% vs 38%, respectively, p = 0.05), in the bulbar urethroplastygroup, there was a non- significant higher rate of impotence with the anastomotic technique compared with augmented anastomotic repairs[8].

In this patient when we saw urethroplasty has been done in more posterior urethra, the chance sexual dysfunction was much more than anterior urethroplasty. In present study we also find significant dysfunction in terms of erectile function and sexual drive in anastomotic urethroplasty in bulbomembranous strictures. The mean score if erectile function in urethroplasty in bulbomembranous strictures at 3 months and 6 months was 0.5±0.4 and 1.17±0.7 and it was highly significant statistically (p = 0.001). Non-bulbomembranous strictures patients had mean score of 5.31±2.4 and 6.17±2.55 at 3 and 6 months and it's also statistically significant but not worse as bulbomembranous stricture group.

Patients with less than and more than 40 years of age have improvement of both sexual function and ejaculatory function and compare to pre-op value (p = 0.339, p = 0.88). But erectile functionsin both the group decrease significantly (p = <0.001) and when we see the mean score there were more deterioration in less than 40 group.

Study done by Sharma *et al*.[9] shows that less than 40 years patients have more improve outcome than the patients with more than 40 years age.

O'Leary *et al*.[10] showed all domain scores appear to decline with advancing age but sexual interest, problem assessment and satisfaction showed less decline than erectile and ejaculatory function. Fenton *et al*.[11] and Mundy[12] also showed that advance has erectile functions recovery than younger age group.

This finding is not going along with world data. This can be explained by the fact that, this study was not intended to design to see age based changed and purposefully exclude those patients with more anterior stricture disease which does not cause much changes in sexual functions. If we see more deeply, we can found less than 40 years age patients have more traumatic history and bulbomembranous stricture which has profound impact in sexual function.

Psychological analysis was not a part of our study. The results seems to be more psychological influence rather than anatomical. Further studies are needed with stronger power of study to validate.

CONCLUSION

The study was conducted to assess the incidence of sexual dysfunction in post urethroplasty patients. Sexual function is much more than the ability to achieve an erection and to broadly assess the function we choose BMSFI questionnaire to evaluate our patients. There are established fact that a lower incidence of sexual dysfunction in anterior urethroplasty by various paper. So we intentionally choose urethroplasty patients who required bulbospongiosus muscle incision. And it is also an important muscle which helps in ejaculation. The series conducted of 35 patients. The series has confidence limit of 95%. All the patients were pre-operatively counsel about their operative procedure and risk and benefit associated with it. Pre-operative BMSFI questionnaire has been explained to them. Thestudy was open and no binding was done. All the patients were under follow-up. Of all study subjects (N = 35) maximum stricture present with bulbar urethral strictures (51.4%). The findings were similar in cystoscopy and RGU-MCU groups. Majority of patients present with stricture which were equal or less than 2 cm (74.28%) and rest were more than 2 cm (25.7%). According to indication and patient consent these patients undergone either anastomotic (74.29%) or BMG urethroplasty (25.71%). When we search for the cause of the stricture, we found nothings in 31.4% of patients and then next important cause was trauma (25.7%). Friedman test was conducted in the study population to see the changes in sexual functions. Overall all the three parameter, sexual drive, erectile function and ejaculation has been decreasein 3 months improved towards pre-op level at 6 months except erectile functions. The changed was more profound in anastomotic urethroplasty patients also in bulbomembranous group of patients compare to BMG urethroplasty and non- bulbomembranous group of patients. When we done the Friedman test in traumatic patient there were significant changes in erectile function even in 6 months but the non-traumatic group has more improve outcome on erectile functions. Ejaculatory function is more or less similar to pre-op value or ever better in some group (non-traumatic, BMG urethroplasty). We found a significant variation of results among different papers in India and worldwide. It can be explained be the fact that the study of sexual function is more.

Subjective and depends on perception of individual, which can be varied in different settings.

But, the pre-operative and postoperative psychometric analysis was not done which could have possibly rule out psychological factors of the burden of the disease and operation and others associated psychological factors that may aggravate the result in sexual functions. Limitationsof this study include its small cohort, its short follow-up.

REFERENCES

1. Lumen, N., P. Hoebeke, P. Willemsen, B.D. Troyer, R. Pieters and W. Oosterlinck, 2009. Etiology of urethral stricture disease in the 21st century. J. Urol., 182: 983-987.
2. Pérez, P.R. and A.M. Llinares, 1996. Complications of the lower urinary tract secondary to urethral stenosis. Actas Urol. Esp., 20: 786-793.
3. Xie, H., Y.M. Xu, X.L. Xu, Y.L. Sa, D.L. Wu and X.C. Zhang, 2009. Evaluation of erectile function after urethral reconstruction: A prospective study. Asian J. Androl., 11: 209-214.
4. Gandaglia, G., A. Briganti, G. Jackson, R. A. Kloner, F. Montorsi, P. Montorsi and C. Vlachopoulos, 2014. A systematic review of the association between erectile dysfunction and cardiovascular disease Eur. Urol, 65: 968-967.
5. NIH., 1993. NIH consensus conference. impotence. NIH consensus development panel on impotence. JAMA, 270: 83-90.
6. Erickson, B.A., J.S. Wysock, K.T. McVary and C.M. Gonzalez, 2007. Erectile function, sexual drive, and ejaculatory function after reconstructive surgery for anterior urethral stricture disease. BJU Int., 99: 607-611.
7. Fu, Q., X. Sun, C. Tang, R. Cui and L. Chen, 2012. An assessment of the efficacy and safety of sildenafil administered to patients with erectile dysfunction referred for posterior urethroplasty: A single-center experience. J. Sexual Med., 9: 282-287.
8. Erickson, B.A., M.A. Granieri, J.J. Meeks, J.P. Cashy and C.M. Gonzalez, 2009. Prospective analysis of erectile dysfunction after anterior urethroplasty: Incidence and recovery of function. J. Urol., 183: 651-661
9. Sharma, V., S. Kumar, A.K. Mandal and S.K. Singh, 2011. A study on sexual function of men with anterior urethral stricture before and after treatment. Urol. Int., 87: 341-345.
10. O'Leary, M.P., T. Rhodes, C.J. Girman, D.J. Jacobson, R.O. Roberts, M.M. Lieber and S.J. Jacobsen, 2003. Distribution of the brief male sexual inventory in community men. Int. J. Impotence Res., 15: 185-191
11. Fenton, A.S., A.F Morey, R. Aviles, C.R. Garcia, 2005. Anterior urethral strictures: Etiology and characteristics. Urology, 65: 1055-1058
12. Mundy, A.R., 1993. Results and complications of urethroplasty and its future. Br. J. Urol., 71: 322-325.