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Research Article

OUTCOME OF SINGLE OPTICAL INTERNAL URETHROTOMY IN NAÏVE URETHRA IN YOUNG POPULATION.

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Abstract:

Objectives: To determine the outcome of Optical Urethrotomy for urethral stricture in young population.

Methodology: A total of 80 patients aged between 20 and 30 years presented and evaluated in urology outpatient clinic. Baseline uroflowmetry was performed in all patients, decrease flow rate ($Q_{max} < 15\text{ml/second}$) were further evaluated with urethrogram. Patients with stricture length of $< 2\text{cm}$ were operated as day care surgery for the optical internal urethrotomy under spinal anesthesia. Catheter was kept for 3-5 days and patients were followed with uroflowmetry at 3 months' interval for 12 months. Treatment failure was considered as low Q_{max} ($< 15\text{ml/second}$), requiring urethral dilatation or optical urethrotomy at any point of follow-up. Data was prospectively maintained in computerized performa. Statistical analysis was done on SPSS version 21.

Results: The mean age of our study population was 26.3 ± 5.9 (median=24.5years). Out of 80 patients, 35 (43.7%) patients had unknown etiology, 18 (22.5%) patients had history of trauma, 16 (20%) patients had history of sexually transmitted infection and 11 (13.75%) patients had history of instrumentation. Pre-operatively, the mean Q_{max} was $8.4 \pm 2.1\text{ml/second}$. Urethrogram findings showed stricture length of $1.3 \pm 0.5\text{cm}$ and bulbar urethra level was most commonly ($n=61$, 76.25%) affected. Stricture length on urethrogram was $1.3 \pm 0.5\text{cm}$. Postoperatively, catheter was removed on $3.8 \pm 1\text{day}$. Eighteen (22.5%) of patient presented with poor flow rate on 1st follow-up, subsequently further 13 (16.25%), 7 (16.6%) and 5 (13.5%) patients presented with poor flow rate on 6th, 9th and 12th month of follow-up respectively. Overall 25% patients required urethral dilatation and 28.7% patients required 2nd Optical internal urethrotomy at the end of 12 months follow up. At the end of 12 months' follow-up, 47.5% of patients presented with failure to single optical internal urethrotomy.

Conclusion: Idiopathic etiology is common cause of urethral stricture in male ageing between 20 to 30 years. Approximately half of the patients needed urethral dilatation or repeat optical internal urethrotomy in first year of follow-up. Optical internal urethrotomy is feasible option in younger population with 43% success rate.

Key words: Urethral stricture, Optical Internal Urethrotomy.

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INTRODUCTION:

Male urethral stricture is one of the common disease causes narrowing of the urethral lumen. It can involve any segment of urethra from the meatus to the bladder neck. Data from the USA reports the incidence of 1000-1200 cases per 100,000 individuals and the incidence is much higher in population aged more than 55 years¹. Variable etiology is being reported worldwide, in developed countries idiopathic etiology is common whereas in developing countries trauma is the leading cause of urethral stricture^{2,3,4}. Other causes include sexually transmitted infections (STI) and instrumentation or iatrogenic etiology³. Universally all patients present with lower urinary tract symptoms, ejaculatory dysfunction, recurrent urinary tract infections (UTI) and in advance cases with abscess or urethra-cutaneous fistula^{5,6}. Apart from ultrasound and urine culture, uroflowmetry (UFM) and urethrogram are the key investigations to objectively determine the urinary flow rate, stricture site and length⁷. Bulbar part of urethra is the most frequent site reported for urethral stricture^{8,9}. Optical internal urethrotomy (OIU) is one of the most frequent treatment procedure done for urethral stricture disease^{3,10}. With long term experience, many factors are reported to be determinate the success of OIU. Elder age, stricture length of >2cm, previous failed OIU, associated abscess or urethro-cutaneous fistula are recognized factors for failure of OIU. Current published data reports variable success rate. With the emerging trend of urethroplasty and related erectile dysfunction, many urologists and even younger population prefer OIU^{11,12}. Particularly, data of young population is scantily reported and jointly evaluated with elderly population. Our study is mainly focused on the outcome of OIU of naïve urethra on younger age group. For the assessment of failure, long term assessment with flowrate is important component in the follow-up^{13,14}. In our current study, we have attempted to analyze the younger population prospectively for 1 year and assess the flowrate on each follow-up.

MATERIAL AND METHOD:

Setting: Jeejal Mau Hospital - Hyderabad

Duration of Study:

June 2018 to July 2019.

A total of 80 patients aged between 20 and 30 years presented and evaluated in urology outpatient clinic. All patients were symptomatically evaluated, ultrasound and uroflowmetry was performed, decrease flow rate ($Q_{max} < 15\text{ml/second}$) were further evaluated with urethrogram. All patients had urine culture prior to urethrogram. Patients having culture positive UTI were treated with antibiotics according to the sensitivity. Multiple (>1), long (>2cm) and patients previously operated for urethral stricture were excluded from the study. Stricture length of <2cm were operated as day care surgery for the optical internal urethrotomy under spinal anesthesia. Catheter was kept for 3-5 days and patients were followed with uroflowmetry at 3 months' interval for 12 months. Treatment failure was considered as low Q_{max} (<15ml/ second), requiring urethral dilatation or optical urethrotomy at any visit of follow-up. Data was prospectively maintained in computerized performa. Statistical analysis was done on SPSS version 21.

RESULTS:

The mean age of our study population was 26.3 ± 5.9 (median=24.5years). Out of 80 patients, 35 (43.7%) patients had unknown etiology, 18 (22.5%) patients had history of trauma, 16 (20%) patients had history of sexually transmitted infection and 11 (13.75%) patients had history of instrumentation. Pre-operatively, the mean Q_{max} was $8.4 \pm 2.1\text{ml/second}$. Urethrogram findings showed stricture length of $1.3 \pm 0.5\text{cm}$ and bulbar urethra level was most commonly ($n=61$, 76.25%) affected (Table # 1). Postoperatively, catheter was removed on $3.8 \pm 1\text{day}$. Eighteen (22.5%) of patient presented with poor flow rate on 1st follow-up, subsequently further 13 (16.25%), 7 (16.6%) and 5 (13.5%) patients presented with poor flow rate on 6th, 9th and 12th month of follow-up. Overall 25% patients required urethral dilatation and 28.7% patients required 2nd Optical internal urethrotomy. At the end of 12 months' follow-up, 47.5% of patients presented with failure to single optical internal urethrotomy (Table # 2).

Table # 1. Pre-operative patient's parameters (n=80).	
Age (mean)	26.3±5.9
Etiology.	
Idiopathic	35 (43.7%)
Traumatic	18 (22.5%)
Sexually transmitted infection	16 (20%)
Instrumentation	11 (13.75%)
Pre-operative urine flow rate.	
Pre-op Qmax (mean).	8.4±2.1ml/second
Pre-operative Urethrogram Findings.	
Bulbar Urethra	61 (76.25%)
Peno-bulbar Urethra	16 (20%)
Penile Urethra	03 (3.75%)
Stricture length (mean).	1.3±0.5cm

Table # 2. post-operative patient's parameters.				
Catheter removal	Mean= 3.8±1 days, median = 3 rd post-operative day.			
Follow up				
	Successful group Qmax >15ml/sec	Failure group Qmax <15ml/sec		
	Qmax (mean)	Qmax (mean)	Intervention	Failure Rate
1 st Follow-up (3 months)	n=62 22.4±6.3ml/sec	n= 18(22.5%) 13.7±3.4ml/sec	Urethral dilatation n=12 Optical urethrotomy n=6	22.5%
2 nd Follow-up (6 months)	n=49 19±5.1ml/sec	n=13(16.25%) 10.3±4.1ml/sec	Urethral dilatation n=6 Optical urethrotomy n=7	38.7%
3 rd Follow-up (9 months)	n=42 20±5.6ml/sec	n=7(16.6%) 12.1±5.2ml/sec	Urethral dilatation n=2 Optical urethrotomy n=5	47.5%
4 th Follow-up (12 months)	n=37 21±3.3ml/sec	n=5(13.5%) 10.4±5.5ml/sec	Urethral dilatation n=0 Optical urethrotomy n=5	53.7%

DISCUSSION:

Urethral stricture is one of the oldest urological disease and still it is variably treated with deferent treatment options¹⁵. Almost 50 years ago Sachse published the landmark approach of optical Internal Urethrotomy with cold knife¹⁶. In our study, population was composed of age group of 20 to 30 years. This age group also preferred OIU because of self-consciousness about possible sexual dysfunction complication. With inherited high risk of erectile dysfunction in urethroplasty^{17,18} majority of our patients of this age group avoided urethroplasty as the first choice. Guidelines recommend stricture length less than 2.0cm has good outcome in OIU¹⁹, in our study mean stricture length was 1.3±0.5cm and further justifies the optical internal urethrotomy. Iatrogenic stricture was common observation in our study followed by trauma and sexually transmitted infections. Contrarily in India, trauma was leading

cause of urethral stricture and in western world iatrogenic stricture are still common^{2,4}. As reported in literature, our study also reports bulbar urethra as common site of involvement⁵. Post-operatively at 3 months' follow-up, 77.5% of our study population had significant improvement in flowrate (Qmax>20ml/Sec). Subsequently on follow-ups 57% of patients had failure of single optical internal urethrotomy at 12 months. Majority of our failure presented in early follow-ups, which may be due to underlying severe spongio-fibrosis. Literature reports variable success rate from less than 10% to 80% depending upon the multiple factors like, increase age or pediatric age group, >2cm stricture, deep spongio-fibroses, penile urethra and previous failed OIU^{3,19,20}. Overall the success rate in our study was 43% at the 12months follow-up, which is comparable or even better than published literature^{21,22}. To improve the outcome of OIU many modifications has been

attempted. Optical internal urethrotomy with holmium laser has shown relatively high success rate in short term follow up, similarly steroids, Mytomycin C and Hyluronidase are also used and shown 80% success rate in short-term follow up,^{23,24, 25, 26}. Till now Optical internal urethrotomy is standard option, and much long-term studies are needed to support the implementation of modifications.

CONCLUSION:

Idiopathic etiology is common cause of urethral stricture in male ageing between 20 to 30 years. Approximately half of the patients needed urethral dilatation or repeat optical internal urethrotomy in first year of follow-up. Overall single optical Internal Urethrotomy is feasible choice in younger population with stricture length less than 1.5cm.

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Conflict of interest: None

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