



PSYCHOLOGICAL & SEXUAL OUTCOMES IN ADULTS FOLLOWING URETHROPLASTY IN STRICTURE URETHRA

Urology

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ABSTRACT

Aim: To evaluate the impact of urethroplasty surgery on Psychological and sexual functions.

Material And Methods: This is a prospective, hospital-based study that was conducted in urology department of Government Kilpauk Medical College from March 2019 to March 2020. A total of 35 patients with anterior urethral stricture who underwent urethroplasty were included in the study. The mean age of the patients was 35.3 ± 6.9 years (range: 25–48 years).

Result: The incidence of erectile dysfunction (ED) after urethroplasty was 22.8% (8 patients) after 3 months, which was statistically significant ($P = 0.001$), while at 6 months posturethroplasty, just 3 (8.6%) patients showed ED, with no statistically significant difference ($P = 0.15$). The psychological effects of ED (Low self-esteem, depression and anxiety) after urethroplasty was 14.2% (5 patients) after 3 months, while at 6 months posturethroplasty, only 1 (2.8%) patient, with no statically significantly difference ($P = 0.10$). ED according to the etiology of urethral stricture, there was no statistically significant difference between postinflammatory and post-traumatic cases at 3 months ($P = 0.643$) and at 6 months ($P = 0.245$).

Conclusion: Our study suggests that Urethral reconstructive surgery has a minimal effect on the ejaculatory and orgasmic functions. The impact on erectile function after urethroplasty is greater in men in the age group of more than 40 years than in men in the age group of 20–40 years with no statistically significant difference.

KEYWORDS

Erectile dysfunction, urethroplasty, orgasmic functions, stricture urethra.

INTRODUCTION

Urethral stricture accounts for about 52% of urethral and 1.8% of urologic pathology, respectively, and presents an estimated prevalence of 0.6%^{1,2}. Relatively young, active individuals are mostly affected. Its association with an unequivocal negative impact on the quality of life, whether resulting from the disease itself and its complications or weather consequences of the treatment employed, was studied³.

Urethral stricture refers to the scar formation involving the spongiformis erectile tissue of the corpus spongiosum, resulting in a concomitant narrowing of the urethral lumen. The process leading to this fibrosis is primarily subepithelial inflammation and hemorrhage and later stages are characterized with sclerosis and fibrosis. The etiology of urethral stricture disease is multifactorial and mostly consists of iatrogenic reasons (catheterization / endoscopic procedures) as well as trauma, infections, prostatectomy and other post - prostate cancer treatments, lichen sclerosis and idiopathic reasons. Posterior urethral injuries are often associated with pelvic fractures. Treatment alternatives include; dilatation, internal urethrotomy, laser treatments, and open reconstruction. In the past, known as the reconstructive ladder, it has always been suggested that the simplest procedure should always be tried in the first stage, and in case of failure, proceeding to more complex approaches is recommended in guidelines^{4,5}. In modern urethral reconstruction, in the treatment of urethral strictures, urethroplasty, excision and primary anastomosis are accepted as the "gold standard" treatment method due to low morbidity and cost effectiveness besides long - term high success rates. Certainly there are also strictures that require tissue transfer; grafts and flaps are successfully deployed here⁶.

In addition to psychogenic factors, erectile dysfunction (ED) after urethroplasty may be due to damage to the cavernous nerve, damage to the perineal nerve, and deterioration of the flow of the bulbar artery. In order to reduce this damage, it is suggested to protect bulbospongiosus muscle and peroneal nerves, not to cut central tendon, not to damage the bulbar artery, use buccal mucosal graft without cutting corpus spongiosum⁷. The neurovascular structures responsible for the erectile function pass from a distance of approximately 3 mm from clockwise 1 and 11 right outside the corpus spongiosum and some branches from the cavernous nerves enter the corpus spongiosum across the entire penis. The intercranial area shows that this vessel and nerve bundle is unprotected and vulnerable to trauma. For this reason, the bulb can be very easily damaged during the dissection of the urethra⁸. In addition to the effect of the perineal nerve on ejaculation, there is also an effect on erectile function. For this reason, the perineal nerve is thought to be

an extra neural pathway for erectile function through unrecognized reflex mechanisms. To protect erectile functions after urethroplasty, it would be beneficial to preserve this neural tissue, if possible⁹.

AIMS AND OBJECTIVES

To evaluate the impact of urethroplasty surgery on Psychological and sexual functions.

MATERIALS AND METHODS

This is a prospective, hospital-based study that was conducted in department of urology from March 2019 to March 2020. A total of 35 patients with anterior urethral stricture who underwent urethroplasty were included in the study.

Statistical Analysis:

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. Two-sample t-tests for a difference in mean involved independent samples or unpaired samples. Paired t-tests were a form of blocking and had greater power than unpaired tests. One-way analysis of variance (one-way ANOVA) was a technique used to compare means of three or more samples for numerical data (using the F distribution). A chi-squared test (χ^2 test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate.

Once a t value is determined, a p -value can be found using a table of values from Student's t -distribution. If the calculated p -value is below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis is rejected in favour of the alternative hypothesis.

p -value ≤ 0.05 was considered for statistically significant.

RESULT AND ANALYSIS

In our study the mean age of the patients was 35.3 ± 6.9 years (range: 25–48 years).

We found that the incidence of ED after urethroplasty was 22.8% (8 patients) after 3 months, which was statistically significant ($P = 0.001$),

while at 6 months posturethroplasty, just 3 (8.6%) patients showed ED, with no statistically significant difference ($P=0.15$).

The psychological effects of ED after urethroplasty was 14.2% (5 patients), which was statically significant ($P = 0.001$), while at 6 months posturethroplasty, only 1 (2.8%) patient, with no statically significant difference ($P=0.10$).

We examined that the incidence of ED according to the etiology of urethral stricture, had no statistically significant difference between post inflammatory and post-traumatic cases at 3 months ($P = 0.643$) and at 6 months ($P = 0.245$). It was found that the impact on erectile function after urethroplasty is greater in men in the age group of more than 40 years than in men in the age group of 20–40 years with no statistically significant difference between the two age groups ($P = 0.334$).

In our study the length of urethral stricture, the impact on erectile function after urethroplasty was greater in shorter urethral stricture segment (1.9 ± 0.3 cm) than in longer urethral stricture segment (3.2 ± 1.4 cm) with no statistically significant difference between the two groups ($P=0.515$).

We found that the effect of the etiology of urethral stricture on IIEF score, there was no statistically significant difference between postinflammatory and post-traumatic cases neither after 3 months of urethroplasty ($P = 0.459$) nor after 6 months of urethroplasty ($P = 0.454$). As regards the effect of the etiology of urethral stricture on EO score, there was no statistically significant difference between postinflammatory and post-traumatic cases neither after 3 months of urethroplasty ($P = 0.297$) nor after 6 months of urethroplasty ($P = 0.389$).

Our study showed that the effect of type of urethroplasty on IIEF score, there was a statistically significant difference between anastomotic urethroplasty and free graft urethroplasty after 3 months ($P = 0.001$) with no statistically significant difference after 6 months of urethroplasty ($P=0.939$; Table 1).

Table 1: Effect Of The Type Of Urethroplasty On International Index Of Erectile Function Score

Items	Anastomotic urethroplasty	Free graft urethroplasty	p-value
IIEF score reoperatively	23.7 $\pm$ 0.74	23.2 $\pm$ 1	0.192
IIEF score 3 months posturethroplasty	19.5 $\pm$ 3.35	22.3 $\pm$ 0.68	0.001*
IIEF score 6 months posturethroplasty	23 $\pm$ 1.76	23 $\pm$ 1.05	0.939

IIEF, International Index of Erectile Function. *It means statistically significant P value less than 0.05.

It was found that the effect of the type of urethroplasty on EO score, there was a statistically significant difference between anastomotic urethroplasty and free graft urethroplasty after 3 months ($P = 0.001$) with no statistically significant difference after 6 months of urethroplasty ($P=0.244$; Table 2).

Table 2: Effect Of The Type Of Urethroplasty On Ejaculation/ orgasm Score

Items	Anastomotic urethroplasty	Free graft urethroplasty	p-value
EO score preoperatively	8.9 $\pm$ 0.69	8.8 $\pm$ 0.84	0.893
EO score 3 months posturethroplasty	7.6 $\pm$ 1.08	9.2 $\pm$ 0.72	<0.001*
EO score 6 months posturethroplasty	8.8 $\pm$ 0.56	9 $\pm$ 0.77	0.244

EO, ejaculation/orgasm. *It means statistically significant P value less than 0.05.

DISCUSSION

Erectile function is usually discussed as only a small part of broader reports of operative outcomes. Some reports have indicated that the age of the patient, sexual function before surgery, elapsed time after surgery, and stricture length and severity are likely to have direct influences on long-term erectile function after treatment¹⁰. The incidence of ED after urethroplasty in our study was 22.8% (8 patients)

after 3 months and was 8.6% (3 patients) after 6 months. The psychological effects of ED was 14.2% (5 patients) after 3 months, while at 6 months was only 1 (2.8%) patient.

Erickson et al.¹¹ reported that ED after urethroplasty was 38% (20/52 patients). Eighteen patients recovered at a mean postoperative period of 6 months. In another study done by Dogra and colleagues, 78 men underwent single-stage anterior urethroplasty from January 2008 to March 2010 and were followed prospectively. This study showed that 38% of patients developed ED posturethroplasty. After 6 months, 96% of patients were recovered from ED and only 4% of patients showed persistent ED¹². The results of these studies were compatible with the results of our study.

The IIEF score is a validated, multidimensional, self-report instrument widely used for the evaluation of male sexual function. It has been recommended as a primary end point for clinical trials of erectile dysfunction and for diagnostic evaluation of erectile dysfunction severity. The IIEF is divided into five domains of sexual function, including EF, orgasmic function, intercourse satisfaction, sexual desire, and overall satisfaction¹³.

In a prospective study done by Erickson et al.¹¹, a total number of 52 patients who underwent anterior urethroplasty were included in the study. He detected that patients who underwent anastomotic repairs had higher postoperative ED rates (50%) than patients who underwent free graft repairs (26%). In another study, Dogra et al.¹⁴ showed that patients who underwent anastomotic repairs had higher postoperative ED rates (28%) than patients who underwent free graft repairs (10%). The results of our study were compatible with the results of these studies.

Stricture length often correlates with the severity and magnitude of fibrosis within the urethra and surrounding tissues. It is this parameter that governs which reconstructive procedures are selected, with more elaborate tissue transfer techniques being required for strictures of greater length. Long strictures are often associated with inflammatory disease, repeated urethral dilations and instrumentations, a history of prolonged urethral catheterization, and/or traumatic urethral distraction.

According to the length of urethral stricture, our study detected that the impact on erectile function after urethroplasty is greater in shorter urethral stricture segment (1.9 ± 0.3 cm) than in longer urethral stricture segment (3.2 ± 1.4 cm) with no statistically significant difference between the two groups ($P = 0.515$). In similar studies by Xie et al.¹⁵, Erickson et al.¹¹ and Dogra et al.¹⁴, the length of urethral stricture was not found to be statistically significant with occurrence of ED after urethroplasty. The results of these studies were compatible with the results of our study.

According to the orgasmic function, our study showed that urethroplasty does not significantly affect orgasm after 6 months of follow-up ($P=0.86$).

Two studies evaluated the orgasmic function posturethroplasty. In both studies, the orgasmic domain was analyzed together with the other domains of IIEF. Both works refer to case series with less than 20 patients on various circumstances, urethroplasty for hypospadias and bulbar urethroplasty. None of the authors found any negative influence of urethroplasty on orgasmic function^{12,16}.

CONCLUSION

Our study suggests that Urethral reconstructive surgery has a minimal effect on the ejaculatory, orgasmic functions and psychological effects of ED. The impact on erectile function after urethroplasty is greater in men in the age group of more than 40 years than in men in the age group of 20–40 years with no statistically significant difference. The incidence of ED is higher in patients undergoing anastomotic repair than in patients undergoing free graft urethroplasty.

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