

Outcome of Urethroplasty in Management of Urethral Stricture: Experience at Institute of Kidney Diseases Hayatabad Peshawar

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ABSTRACT

Objective: To determine the frequency of successful outcomes of urethroplasty in the management of urethral stricture

Methods: It is a descriptive study, conducted in the department of Urology at the Institute of Kidney diseases Peshawar from April 2016 to December 2019. A total number of 85 patients for urethroplasty were included in the study by non-probability convenient sampling. The entire pre-operative, per-operative, and postoperative data were collected on structured proforma and analyzed on SPSS®, version 20.0.

Results: The mean age of the patient in this study was 41 years. Regarding etiology, External trauma was the major cause in the form of road traffic accidents in 38.82% while straddle urethral injury in 29.41% of patients, other less frequent causes included iatrogenic urethral trauma and infective stricture. The bulbar urethral stricture was found in 55.29% of cases, with proximal penile and bulboperineal accounting for 23.52% and 21.17% respectively. Significant past surgical history found was suprapubic catheterization in 100%, a failed primary attempt of internal optical urethrotomy (IOU) in 29.41%, multiple recurrences in 48.23%, and re-do urethroplasty in 10.58% of cases. The most common procedure performed was end-to-end anastomotic urethroplasty in 81%, other procedures included penile flap urethroplasty, pull-through procedure, and 10.58% of cases required pubectomy. Urethroplasty was found highly successful in 94% of mean follow-ups 15 months. The cause of failure was wound infection in 1, UTI in 2, and necrosis of penile skin flap in 2 patients.

Conclusion: Our initial results conclude that anastomotic urethroplasty is an effective and mainstay treatment modality in the management of urethral stricture disease. It bears less rate of recurrence of urethral stricture.

Keywords: Urethroplasty, urethro stricture, Recurrence

INTRODUCTION

Urethral stricture is described as “fibrosis in the spongiosum of the urethra leading to narrowing of the urethral caliber”. The resulting urinary symptom badly affects the quality of life of the individual. Urethral stricture is highly prevalent in males almost affecting 15 to 20% in their lifetime,¹ other showed somehow different prevalence among males having a prevalence between 0.2- 0.6%² and 0.2% to 0.9%.³

These are one of the few challenging cases to deal in the urology. A variety of modalities are available for dealing the urethral stricture, these include dilatation; direct visual internal urethrotomy (DVIU), anastomotic urethroplasty, different graft procedures, flap urethroplasty and finally staged urethroplasty.^{4,5} Regarding the surgical modality of treatment for the posterior and bulbar urethra the option is related more to the length of the urethral stricture and is somehow standardized. For urethral stricture <1cm direct visual urethrotomy is the preferred option while for length >1cm urethroplasty is a better option.^{6,7}

The purpose of this study is to determine the outcome of urethroplasty in the management of urethral stricture in our institute.

Objective: To determine the frequency of successful outcome of urethroplasty in management of urethral stricture

METHODS

Study Design: Descriptive study

Setting: Institute of Kidney Diseases Hayatabad Medical Complex Peshawar

Duration: April 2016 to September 2019.

Sample Size: 85 patients

Sampling technique: Non probability consecutive sampling

Inclusion Criteria: We included all patients with urethral stricture who underwent urethroplasty in our institute.

Data Collection Procedure: Following the institute of kidney diseases and renal transplant research ethics board approval this descriptive study identified all patients with urethroplasty procedures. All the data comprising pre-operative, per-operative,

and post-operative was collected on structured Proforma and analyzed on SPSS®, version 20.0.

RESULTS

The mean age of the patient was 41 years (Range 21-58 years). External trauma in form of road traffic injury was the main cause, etiology shown in Figure 1. Regarding the anatomical site, the proximal penile urethra was involved in 20 patients, the bulbar urethra in 47, and the bulboperineal urethra in 18 cases (Figure 2). Regarding past surgical history supra pubic catheter was placed in all the cases, failed primary attempt of internal optical urethrotomy (IOU) in 25 patients, and multiple recurrences over the year after IOU in 41 cases, 10 patients with complex blind urethral stricture were booked directly for urethroplasty and 9 patients had re do urethroplasty. Regarding urethroplasty, end-to-end anastomotic urethroplasty was performed in 69 patients (81 %), penile flap urethroplasty in 5 (5.8%) patients, and pull-through procedure in 7 (8.2%) patients (Figure 3). Pubectomy was required in 9 patients. Urethroplasty was found successful in 80 patients (94%) in a mean follow -up 15 months, while failure was recorded in 5 patients (Table 1, Figure 4). The cause of failure was wound infection in 1, UTI in 2, and necrosis of penile skin flap in 2 patients.

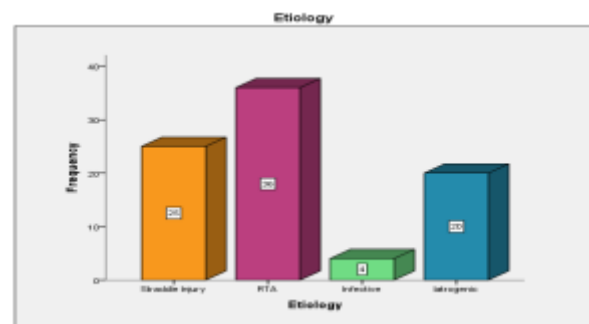


Figure 1: etiology of urethral stricture

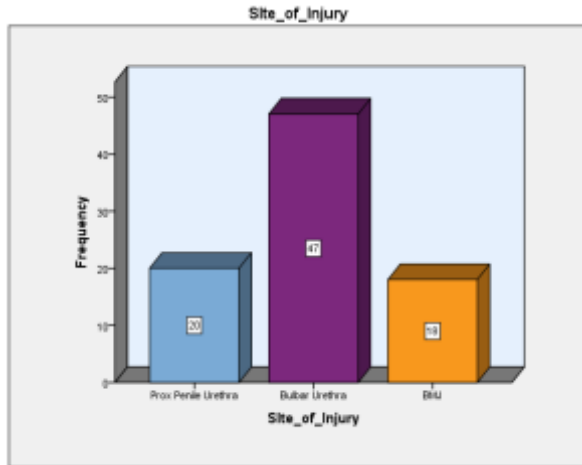


Figure 2: site of injury

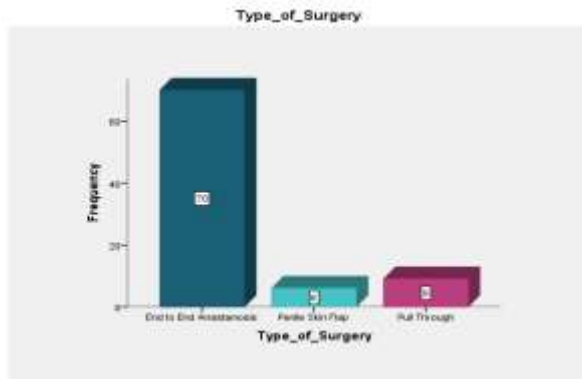


Figure 3: Type of surgery

Table 1: Outcomes of urethroplasty

Outcome	Frequency	Percent
Successful	80	94.1
Unsuccessful	5	5.9
Total	85	100

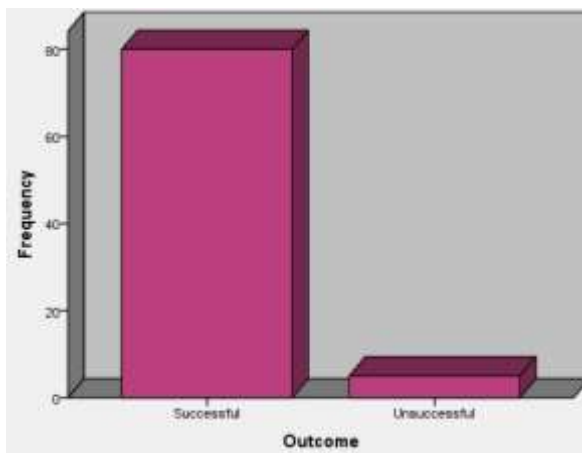


Figure 4: outcomes of urethroplasty

DISCUSSION

Management of Urethral Stricture has evolved over time. In the developed world, Urethral strictures are managed in the specialized centers by surgeons with special interest in

reconstruction. The referral systems are well regulated allowing management of patients in the specialist units.

On the opposite side, developing world has generally not been able to practice the sub-specialization. Majority of these patients receive multiple interventions varying from aggressive attempts at dilatation to reconstruction at centers with least experience which aggravates the magnitude of injury and negative impact on the final outcomes by the time patient reaches the specialized centres.⁸

In current study regarding urethroplasty, overall success was 94% in mean follow up of 15 months. In a study in Tanzania by Musau P, Mteta AK overall success rate for urethroplasties was 92.1%.⁹ In a systematic review by Robine E et al, the success rate related to the length of stricture was 68.7% to 98.8% for 1-3.5 cm in anastomotic urethroplasty and 60% to 96.69% for 4.4-4.7 cm in augmented urethroplasty.¹⁰ Choi J et al noticed success rate by different stricture location as, 97.8%, 87.9%, and 74.1% for bulbar, penile and posterior urethroplasty respectively.¹¹ Success rate was 85.00% in study by Zhou SK et al.¹² The major cause of urethroplasty failure in current study was infection followed by penile skin flap necrosis.

urethral stricture was trauma, due to either traffic accidents or injuries from falling.¹³ Other causes in our study were straddle urethral injury in 29.41% (n=25) patients, iatrogenic urethral trauma in 23.52% (n= 20) patients and infective stricture in 4.7% (n=4). In the study by Cotter KJ et al, in 63% of stricture etiology was idiopathic/unknown.¹⁴ Ansari MS et al identified in their study that 36.9 has traumatic, 31. % 8 has iatrogenic and 28.7% has idiopathic stricture.¹⁵

We found proximal penile urethra involved in 23.5%, bulbar urethra in 55.2%, and bulboperineal urethra in 21.1% of cases. Hussain M et al identified 38.8% had bulbar, 40.7% pelvic fracture urethral injury (PFUI), 10.1% penile, and (10.4%) had the pan-urethral location of stricture.¹⁶ Roehrborn CG, McConnell JD found a bulbar urethral stricture in 63.6%.¹⁷ Redón-Gálvez L et al has a bulbar urethral location in their study in 64.2%.¹⁸

In our study regarding urethroplasty, end-to-end anastomotic urethroplasty was performed in 81 %, penile flap urethroplasty in 5.8%, and pull-through procedure in 8.23%. Pubectomy was required in 10.58%. Gimbernat H et al showed End-to-end anastomosis in 31.7%, flap urethroplasty in 25.6%, urethroplasty with free graft in 37.8%, and two-time urethroplasty in 4.9%.¹⁹ In a study by Roehrborn CG et al, a patch graft repair was used in 49.1%, an end-to-end technique in 29.1% and a transpubic repair in 21.8%.¹⁷ Tinaut-Ranera J et al mentioned 32.3% underwent meatoplasty (repairing stricture of the meatus and navicular fossa), 41.9% underwent end-to-end urethroplasty, 12.9% received a penile skin flap, 6.5% received a scrotal flap, 3.2% received a preputial flap and 3.2% underwent a two-stage surgery without receiving a graft.²⁰

CONCLUSION

Urethroplasty is the standard of treatment for urethral stricture disease with high success rate. In selected cases, endoscopic urethrotomy may be an option that does not worsen the outcome after a subsequent urethroplasty.

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