

MALE URETHRAL STRICTURE CHARACTERISTIC IN DR KARIADI GENERAL HOSPITAL SEMARANG: A DESCRIPTIVE STUDY

¹Erwin Parulian Pasaribu, ²Nanda Daniswara, ²Ardy Santosa, ²Eriawan Agung N, ²Muhammad Adi S, ²Sofyan Rais.

¹ General Surgery Resident, Faculty of Medicine/Diponegoro University, Kariadi General Hospital, Semarang.

² Department of Urology, Faculty of Medicine/Diponegoro University, Kariadi General Hospital, Semarang.

ABSTRACT

Objective: This research was conducted to describe male urethral stricture characteristic in Kariadi General Hospital Semarang. **Material & Methods:** The data is collected retrospectively from the male urethral stricture patient medical records Kariadi General Hospital Semarang between January 2013 until December 2017. The data is analyzed descriptively to describe the characteristics of male urethral stricture patients, patient age, etiology, site, definitive surgery, and complications. **Results:** Within the period, 171 patients with male urethral stricture. The mean age was 52.11 years (range 9-86). The causes of stricture were trauma in 145 patients (84.8%), infection in 25 patients (14.6%) and iatrogenic in 1 patients (0.06%). Strictures site were posterior in 146 patients (85.4%) and anterior in 25 patients (14.6%). The definitive surgery for strictures were from DVIU in 132 patients (77.2%) and urethroplasty in 39 patients (22.8%). Complications rate were recurrence of stricture 56 patients (32.74%), bleeding 6 patients (3.05%), extravasation 14 patients (8.18%), erectile dysfunction 4 patients (2.34%). **Conclusion:** Trauma is the leading cause of urethral stricture in Kariadi General Hospital. The most common definitive therapy for urethral stricture in Kariadi General Hospital was still DVIU, but there has been an increase for urethroplasty and we still get the learning curve for it.

Keywords: Urethral stricture, trauma, DVIU, urethroplasty.

ABSTRAK

Tujuan: Penelitian ini dilaksanakan untuk mengetahui karakteristik striktur urethra pada pasien laki laki di RSUP Dr. Kariadi Semarang. **Bahan & Cara:** Data dikumpulkan secara retrospektif dari rekam medis pasien striktur uretra pria RSUP Dr. Kariadi Semarang antara Januari 2013 hingga Desember 2017. Data dianalisis secara deskriptif untuk menggambarkan karakteristik pasien striktur uretra pria, usia pasien, etiologi, situs, operasi definitif dan komplikasi. **Hasil:** Dalam periode tersebut, didapatkan 171 pasien dengan striktur uretra pria. Usia rerata adalah 52.11 tahun (kisaran 9-86). Penyebab striktur adalah trauma pada 145 pasien (84.8%), infeksi pada 25 pasien (14.6%) dan iatrogenik pada 1 pasien (0.06%). Situs penyempitan posterior pada 146 pasien (85.4%) dan anterior pada 25 pasien (14.6%). Operasi definitif untuk striktur berasal dari DVIU pada 132 pasien (77.2%) dan urethroplasty pada 39 pasien (22.8%). Tingkat komplikasi adalah rekurensi striktur 56 pasien (32.74%), perdarahan 6 pasien (3.05%), ekstrasvasi 14 pasien (8.18%), disfungsi ereksi 4 pasien (2.34%). **Simpulan:** Trauma adalah penyebab utama striktur uretra di RSUP Dr. Kariadi. Terapi definitif yang paling umum untuk striktur uretra di RSUP Dr. Kariadi masih DVIU, tetapi telah ada peningkatan untuk urethroplasty dan kami masih mendapatkan kurva belajar untuk itu.

Kata Kunci: Striktur uretra, trauma, DVIU, urethroplasty.

Correspondence: Erwin Parulian Pasaribu; c/o: General Surgery Resident, Faculty of Medicine/Diponegoro University, Kariadi General Hospital, Jl. DR. Sutomo No. 16 Randusari, Semarang 50244, Indonesia. Phone: +6282114732722. Email: pasaribu_erwin_oke@yahoo.com.

INTRODUCTION

Urethral stricture is chronic fibrosis and narrowing of the urethral lumen caused by acute injury, inflammatory conditions, and iatrogenic interventions including urethral instrumentation or surgery and prostate cancer treatment.

The symptoms of urethral stricture are non-specific and may overlap with other common conditions including lower urinary tract symptoms (LUTS) and urinary tract infections (UTI) to confound timely diagnosis. Urologists play a key role in the initial evaluation of urethral stricture and currently provide all accepted treatments. Thus,

urologists must be familiar with the evaluation and diagnostic tests for urethral stricture as well as endoscopic and open surgical treatments. This guideline provides evidence guidance to clinicians and patients regarding how to recognize symptoms and signs of a urethral stricture/stenosis, carry out appropriate testing to determine the location and severity of the stricture, and recommend the best options for treatment. The most effective approach for a particular patient is best determined by the individual clinician and patient in the context of that patient's history, values, and goals for treatment. As the science relevant to urethral stricture evolves and improves, the strategies presented here will be amended to remain consistent with the highest standards of clinical care.

OBJECTIVE

This research was conducted to describe male urethral stricture characteristic in Kariadi General Hospital Semarang

MATERIAL & METHODS

The data is collected retrospectively from the male urethral stricture patient medical records Kariadi General Hospital Semarang between January 2013 until December 2017. The data is analyzed descriptively to describe the characteristics of male urethral stricture patients, patient age, etiology, site, definitive surgery, and complications.

RESULTS

The urethral stricture is a narrowing of the urethral lumen caused by scarring, leading to urinary obstruction. The consequences of obstruction may affect the quality of life of the patient by causing a disorder of the microcyst. Causes urinary tract disorders, which can result in loss of renal function. The urethral stricture can be divided into two main, anterior and posterior types. In a retrospective analysis of all reconstructed strictures in one

institution, most strictures are anterior. The caries of urethral stricture in table 1 show that in 2017 most are posterior type (35%), and anterior type (12%). While in the year 2014 anterior type (24%) and posterior type (14%).

The causes of urethral stricture are iatrogenic strictures caused by catheterization, instrumentation, infection strictures, one of which is caused by gonorrhea, traumatic stricture, and congenital stricture in table 2 the causes of urethral stricture in 2017 show traumatic (36%), infection (12%), idiopathic and iatrogenic (0%). While in 2014 infection (28%), traumatic (14%). But the iatrogenic cause by 2015 is as much (100%).

Table 3 shows the most common definitive type of operation in Kariadi General Hospital in 2017 is often done in Kariadi General Hospital in 2017 is open surgery (41%) and endoscopy (29%). While in 2013, 2014, and 2015 the type of definitive surgery that is often done is endoscopy.

Table 1. Distribution of stricture type in Kariadi General Hospital Semarang.

Year	Type of stricture	
	Anterior	Posterior
2013	20%	10%
2014	28%	14%
2015	16%	17%
2016	24%	24%
2017	12%	35%

Within the period, 171 patients with male urethral stricture. The mean age was 52.11 years (range 9-86). The causes of stricture were trauma in 145 patients (84.8%), infection in 25 patients (14.6%) and iatrogenic in 1 patients (0.06%). Strictures site were posterior in 146 patients (85.4%) and anterior in 25 patients (14.6%). The definitive surgery for strictures were from DVIU in 132 patients (77.2%) and urethroplasty in 39 patients (22.8%). Complications rate were recurrence of stricture 56 patients (32.74%), bleeding 6 patients (3.05%), extravasation 14 patients (8.18%), erectile dysfunction 4 patients (2.34%).

Table 2. Distribution of causes of urethral stricture in Kariadi General Hospital Semarang.

Year	Cause			
	Traumatic	Infection	Idiopathic	Iatrogenic
2013	10%	20%	0%	0%
2014	14%	28%	0%	0%
2015	16%	16%	0%	100%
2016	24%	24%	0%	0%
2017	36%	12%	0%	0%

Table 3. Distribution The type of operation of urethral stricture in Kariadi General Hospital Semarang.

Year	Type of operation	
	Endoscopy	Open Sugery
2013	12%	10%
2014	17%	10%
2015	19%	10%
2016	23%	28%
2017	29%	41%

Table 4. Characteristic of Male Urethral Stricture in Kariadi General Hospital Semarang.

No	Characteristic	Classification	Total	Percentage
1	Total Male Urethral Stricture in RS Dokter Kariadi Semarang		171	
2	Age	Youngest (years old)	9	
		Oldest (years old)	86	
		Mean	52.11	
3	Causes	Trauma	145	84.8%
		Infection	25	14.6%
		Iatrogenic	1	0.06%
4	Stricture Site	Posterior	146	85.4%
		Anterior	25	14.6%
5	Definitive Surgery	DVIU	132	77.2%
		Urethroplasty	39	22.8%
		Recurrence of Stricture	56	32.74%
6	Complication	Bleeding	6	3.05%
		Extravasation	14	8.18%
		Erectile Dysfunction	4	2.34%

DISCUSSION

Stricture implying narrowing of the urethra is one of the most common urologic diseases in developing countries. The urethra is divided into anterior urethra comprising penile and bulbar urethra. The posterior urethra is formed by membranous and prostatic urethra. The term stricture is generally used to refer to anterior urethral narrowing secondary to damage to urothelium or corpus spongiosum which heals by scarring.¹ The most common cause of stricture previously was inflammation secondary to urethritis (gonorrhea) which is rarely seen these days. Another inflammatory cause is lichen sclerosus et atrophicus or BXO which involves penile skin as well as proximal urethra but its exact etiology is not known.² Strictures secondary to trauma can occur either due to straddle injury to the perineum causing bulbar urethral injury or pelvic fracture causing posterior urethral distraction injury.³ There is an increase in

incidence of iatrogenic strictures secondary to more number of transurethral surgeries and procedures performed these days. The cause of stricture still remains unknown in some cases.⁴

Urethral stricture can affect any age group. Strictures in young patients are most commonly secondary to trauma or iatrogenic injury while inflammatory and idiopathic causes are more common in middle-aged and elderly patients. The bulbar urethra is the most common site of stricture. Panurethral stricture involving penile and bulbar urethra is mostly seen in patients with BXO.⁵

Diagnosis can be established by the typical history of painful and obstructed micturition combined with retrograde urethrogram and uroflowmetry.⁶ Uroflowmetry quantitates the severity of stricture while retrograde urethrogram gives an anatomical orientation to plan the surgery. A simple ultrasound of the abdomen can identify any upper tract injury and any residual urine in bladder. Emergent treatment by urinary diversion via a

suprapubic cystostomy is required for patients presenting with acute urinary retention or with upper tract deterioration.⁵⁻⁶

Definitive treatment of stricture may involve endoscopic or open surgery. Visual internal urethrotomy using an endoscopic knife was found to be useful in short segment (< 1.5 cm) and fresh bulbar urethral strictures.⁷ It has a high recurrence rate of 50-60% in some series. Open reconstructive surgery is the gold standard.

Urethroplasty using various grafts like oral mucosa, penile skin, bladder mucosa, colonic mucosa, etc have been documented.⁸ Urethroplasty using buccal mucosa is one of the most common surgeries performed with a high success rate.⁹ It is most suitable for bulbar urethral strictures. The penile foreskin is preferred for distal urethral strictures and meatal stenosis. For post-traumatic strictures, complete excision of scar tissue and direct end to end anastomosis of the urethral ends is the preferred modality of surgery.¹⁰

CONCLUSION

Trauma is the leading cause of urethral stricture in Kariadi General Hospital. The most common definitive therapy for urethral stricture in Kariadi General Hospital was still DVIU, but there has been an increase for urethroplasty and we still get the learning curve for it.

REFERENCES

1. Sievert KD, Selent-Stier C, Wiedemann J, et al. Introducing a large animal model to create urethral stricture similar to human stricture disease: a comparative experimental microscopic study. *J Urol*. 2012; 187: 1101–1109.
2. Das S, Tunuguntla HS. Balanitis xerotica obliterans-a review. *World J Urol*. 2000; 18: 382–387.
3. Figler BD, Hoffer CE, Reisman W, Carney KJ, Moore T, Feliciano D, Master V. Multi-disciplinary update on pelvic fracture associated bladder and urethral injuries. *Injury*. 2012 Aug; 43(8): 1242-9.
4. Lumen N, Hoebeke P, Willemsen P, De Troyer B, Pieters R, Oosterlinck W. Etiology of urethral stricture disease in the 21st century. *J Urol*. 2009; 182: 983–987.
5. Fenton AS, Morey AF, Aviles R, Garcia CR. Anterior urethral strictures: etiology and characteristics. *Urology*. 2005; 65: 1055–1058.
6. Brandes SB. Totowa. Urethral Reconstructive Surgery. Humana Press; 2008.
7. Pansadoro V, Emiliozzi P. Internal urethrotomy in the management of anterior urethral strictures: long-term follow-up. *J Urol*. 1996; 156: 73–75.
8. Barbagli G, Guazzoni G, Lazzeri M. One-stage bulbar urethroplasty: retrospective analysis of the results in 375 patients. *Eur Urol*. 2008; 53: 828–833.
9. Andrich DE, Mundy AR. What is the best technique for urethroplasty? *Eur Urol*. 2008; 54: 1031–1041.
10. Mundy AR. Reconstruction of the urethra after pelvic trauma. *Acta Urol Belg*. 1998; 66.