

DEMOGRAPHIC STUDY AND THE MANAGEMENT OF URETHRAL STRICTURE IN H. ADAM MALIK GENERAL HOSPITAL

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ABSTRACT

Objective: This study aims to describe the demographic data and clinical characteristics of patient with urethral stricture in Adam Malik Hospital. **Material & Methods:** This research was a retrospectively designed descriptive study, with a consecutive sampling method. Data such as age, clinical symptoms, length and locations of stricture, and the type of operation conducted, were obtained from medical records from May 2013 to June 2017. All subjects had given consent that their medical records can be involved in this research. **Results:** 60 urethral stricture cases were found, with trauma as a major cause with a percentage of 58.3% of the cases. While the iatrogenic cause (combining post cystoscopy and post operation) contributed only 15% of the total cases. The mean age for subjects was 34.07 ± 2.044 and most of them complained about urinary retention and difficulty in initiating micturition (hesitancy). In contrast, the symptoms that were rarely revealed by subjects were weak stream and pain during micturition, with total of only 3.4% of the cases. A large part of the urethral stricture cases originated from the Bulbous part (30%) with the stricture mean length is 18.32 ± 1.944 , and the part where stricture would least likely happen is the membranous and the prostatic part (8.3%). Urethrotomy (Sachse) was the favorite surgical technique used by urologists to manage urethral strictures. **Conclusion:** This research showed that the characteristics of patients who were diagnosed having urethral stricture in Indonesia are similar with the results from other studies conducted before. It also showed even though urethroplasty has vast advantages compared to the conventional urethrotomy (Sachse), it was still underappreciated by the surgeons.

Keywords: Urethral stricture, demographic study, urethrotomy.

ABSTRAK

Tujuan: Mendeskripsikan data demografi dan karakteristik klinis pasien dengan striktur uretra di RS. Adam Malik. **Bahan & Cara:** Penelitian ini merupakan penelitian deskriptif dengan desain retrospektif, yaitu metode consecutive sampling. Data meliputi umur, gejala klinis, lama dan lokasi striktur, serta jenis operasi yang dilakukan, diperoleh dari rekam medis Mei 2013 hingga Juni 2017. Semua subjek telah memberikan persetujuan bahwa rekam medisnya dapat dilibatkan dalam penelitian ini. **Hasil:** Ditemukan 60 kasus striktur uretra dengan trauma sebagai penyebab utama dengan persentase 58.3% kasus. Sedangkan penyebab iatrogenik (penggabungan post cystoscopy dan post operasi) hanya menyumbang 15% dari total kasus. Usia rata-rata subjek adalah 34.07 ± 2.044 dan sebagian besar mengeluh tentang retensi urin dan kesulitan dalam memulai miksi (keragu-raguan). Sebaliknya, gejala yang jarang diungkapkan subjek adalah aliran lemah dan nyeri saat berkemih, dengan total kasus hanya 3.4%. Sebagian besar kasus striktur uretra berasal dari bagian Bulbus (30%) dengan panjang rata-rata striktur 18.32 ± 1.944 , dan bagian yang paling kecil kemungkinan terjadinya striktur adalah bagian membranosa dan bagian prostat (8.3%). Uretrotomi (Sachse) adalah teknik bedah favorit yang digunakan oleh ahli urologi untuk mengelola striktur uretra. **Simpulan:** Penelitian ini menunjukkan bahwa karakteristik pasien yang terdiagnosis striktur uretra di Indonesia sama dengan hasil penelitian lain yang pernah dilakukan sebelumnya. Hal ini menunjukkan meskipun urethroplasti memiliki banyak keuntungan dibandingkan dengan uretrotomi konvensional (Sachse), masih kurang dihargai oleh ahli bedah.

Kata Kunci: Striktur uretra, data demografi, uretrotomi.

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INTRODUCTION

Understanding the anatomy of urethral is very important for diagnostic and treatment of urethral stricture. Normally, the men's urethra has a length of approximately 30 french or 20 cm and surrounded by the corpus spongiosum. The corpus spongiosum has a double blood supply that is from both the distal branches of the internal pudendal deep artery. The internal artery of the pudendal then continues as a common penile artery. The male urethra is divided into two parts, namely the anterior and posterior parts. The anterior part consists of fossa navicular, pars pendulous, and pars bulbous while the posterior part consists of pars membranous and pars prostatic. In medical nomenclature, the narrowing of the urethra in the posterior part is often referred to as contracture or stenosis, posterior urethral injury is a complication of other medical actions such as trauma or radical prostatectomy. Only in medical nomenclature is the narrowing of the anterior part of the urethra can be called stricture.¹

Before the 21st century, most anterior urethral strictures occur due to urethritis or inflammation of the urethra from sexually transmitted diseases.² About 40% of all strictures in the 1960s-1980s were a direct result of urethritis.³ Currently urethritis only contributes < 3% of all strictures in developed countries. This is due to an increase in awareness, prevention strategies, and campaigns that have caused the handling of infectious diseases faster at the right time and with better antibiotics. Generally, the urethral stricture is divided into four main etiologies: idiopathic, iatrogenic, inflammatory, and traumatic. Urethral stricture caused by idiopathic and iatrogenic are more common in developed countries. Inflammatory and traumatic causes of 15% and 19% of strictures, respectively. Idiopathic strictures occur more frequently in the bulbar urethral region and are more common in younger patients (48% versus 23%). This may arise due to undetected trauma in childhood or the presence of congenital anomaly abnormalities during the development of the urethra. In older patients, decreased tissue blood supply and ischemia are possible mechanisms.⁴

This causes urethral stricture to come from other factors, such as prostatectomy, urethral catheterization, transurethral resection, cystoscopy, brachytherapy, hypospadias surgery, lichen sclerosis, urethritis, urethral tumors, penile fractures, perineal trauma, pelvic fractures, and

idiopathic factors.³ Patient's age and the location of urethral stricture are important for determining most of the causes of urethral stricture.⁵ Urethral stricture most often occurs in bulbous pars. Kashefi et al in their study showed that an estimated 3.2 urethral strictures per 1000 inpatients were caused by catheterization trauma.⁶ In patients over 45 years, TURP and radical prostatectomy are the most common causes of urethral stricture/contracture.³ Pathological changes which is associated with urethral stricture is fibrosis in the cavernous tissue. The lumen of the urethra narrows as the corpus spongiosum contracts with scar tissue in the urethra. The damaged urethral epithelium changes into a layered squamous epithelium that is not resistant to changes in pressure and distension of the urethra during normal conditions. This is further aggravated by nonelastic unstable fibrotic tissue, which is subsequently damaged by hydrostatic pressure.⁷

Management principles have changed little since the beginning, but imaging and operations have now improved to provide better curative results. Current choices for stricture problems include urethral dilatation, direct visual internal urethrotomy (DVIU), urethral stent insertion, and urethroplasty.⁶

A recent study showed that 82.5% of certified urologists in the US treat urethral stricture with DVIU and only 0.7% of urologists than experts of urethral reconstruction using DVIU. Many of the literature supporting DVIU with success rates range from 22% to 100% for short-term outcomes.⁸

Before intervening, doctor-patient consultation must include a discussion of curative choices and management. Interventions must be tailored to each case, strict characteristics, and patient expectations. Dilatation of the urethra has been practiced for centuries and has become a tool for handling curative surgical interventions. Until now, urethroplasty is the golden surgical procedure for handling strictures. There are various types of urethroplasty, each of which can be used in different conditions. The type of stricture, length, and cause are the basis for choosing stricture treatment.⁹

Based on a study of Medicare, from 1992-2001, the percentage of the use of urethroplasty was 0.6-0.8% compared to other modalities although its effectiveness has been tested better than other modalities.¹⁰ A study in England in 2006 revealed that more urethrotomy compared to urethroplasty, 500 urethroplasty vs 7.000 urethrotomy,¹¹ although according to Osterberg et al urethroplasty will

provide more benefits in terms of effectiveness and low recurrence, thereby reducing the patient's cost.¹²

OBJECTIVE

This study aims to provide an overview of patients with urethral stricture and treatment performed at H. Adam Malik Hospital in Medan from 2013-2017.

MATERIAL & METHODS

This study is a prospective descriptive study of urethral stricture patients in Medan, Indonesia. The study was conducted at H. Adam Malik Hospital in Medan between May 2013 and June 2017 by collecting data from medical records. Data collected included name, age, clinical symptoms, stricture location, stricture length, and type of action performed. Data were analyzed using SPSS 20 regarding age averages, location of the most common strictures, mean length of strictures, and types of actions used to deal with certain strictures or locations of certain strictures. All patients included were given written explanations and agreements.

RESULTS

Based on the data obtained, the causes of urethral stricture in patients at Adam Malik Hospital can be divided into four, namely: Infection, post cystoscopy, post surgery, and trauma. And trauma is the main cause with a percentage of 58.3% of cases of urethral stricture. Although there are studies that show that the trend of using endoscopic devices as an option for operative management also increases cases of iatrogenic stricture, in the data obtained it appears that cystoscopy and surgery after being combined only contribute to 15% of the overall incidence of stricture. One unexpected outcome is the high number of stricture caused by infection. In modern medical times where antibiotics and health facilities are easily accessible, strictures caused by infection should be avoided. Other factors such as the psychosocial, economic and local health system aspects not discussed in this study also need to be considered after seeing a high percentage of stricture cases caused by infection (26.7%).

Associated with the increasing cases of iatrogenic stricture, this study also showed unexpected results. Where only 43.3% of patients with strictures had a history of surgery.

Table 1. Etiology of Stricture.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Infection	16	26.7	26.7	26.7
	Post Operative	6	10.0	10.0	36.7
	Post Cystoscopy	3	5.0	5.0	41.7
	Trauma	35	58.3	58.3	100.0
	Total	60	100.0	100.0	

Table 2. History of surgery.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	26	43.3	43.3	43.3
	No	34	56.7	56.7	100.0
	Total	60	100.0	100.0	

Table 3. Clinical manifestation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Intermittency urine	15	25.0	25.0	25.0
	Weak urine stream	1	1.7	1.7	26.7
	Difficult to urinate	15	25.0	25.0	51.7
	Anuria	28	46.7	46.7	98.3
	Dysuria	1	1.7	1.7	100.0
	Total	60	100.0	100.0	

Table 4. Stricture location.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Prostatica	9	15.0	15.0	15.0
	Membranous and Prostatica	5	8.3	8.3	23.3
	Membranous	12	20.0	20.0	43.3
	Bulbo-Membranous	8	13.3	13.3	56.7
	Bulbous	18	30.0	30.0	86.7
	Pendulous	8	13.3	13.3	100.0
	Total	60	100.0	100.0	

Generally, patients with strictures will come to a health facility with some urinary disorders. Among them are intermittency urine, weak urine stream, difficulty urinating, anuria, and dysuria. Anuria is the main reason for patients with strictures in Adam Malik Hospital come to the hospital (46.7%), followed by difficulty urinating or intermittency urine (25% each), and the least reason is dysuria.

Based on its location, the incidence of stricture is relatively spread evenly along the urethra, except in two parts, the first is the bulbous pars where the percentage of stricture cases found there is 30% of the total cases, and the least combination of membranous and prostatic pars occurs in stricture cases (8.3%).

Table 5. Statistics.

		Age	Length of stricture
N	Valid	60	60
	Missing	0	0
Mean		34.07	18.32
Std. Error of Mean		2.044	1.944
Range		72	73
Minimum		11	3
Maximum		83	76

The age of the patient is one of the things considered in this study. Where based on previous research, cases of stricture often occur in sexually active age, namely young adults to adulthood, together with cases of urinary tract stones and sexually transmitted infections. In a study involving patients with strictures at Adam Malik Hospital, it was found that the age of patients ranged from 11 to 83 years. The long range of patients (72 years) is also one indicator of increasing public awareness of personal health.

DISCUSSION

This study showed that urethral stricture patients in H. Adam Malik Hospital had an average age of 34 years, this is different from the study by Lazzerri et al. and Santuci et al. Who stated that the incidence of urethral stricture will increase at the age above 55 years. This can be caused by the differences in conditions and causes between Indonesia as a developing country and other countries. The incidence of infection in Indonesia is still high enough that in younger patients with less hygiene, can lead to infection and complications of urethral stricture, it is reflected in the number cause strictures caused by infection is high enough that 16 of the total 60 patients (26.7%).

The most common etiology of strictures in this study were trauma in 35 patients from 60 patients (58.3%), this could be caused by accidents that were still quite high in Medan, in accordance with research by Stein et al, where the most common causes of urethral stricture is Trauma. The location of strictures is most common in bulbous pars and this is consistent with the existing research conducted by Wein et al & Lazzerri et al. Based on the type of action performed on urethral stricture patients at H. Adam Malik Hospital is urethrotomy with Sachse blades and after being classified according to stricture length and stricture location, Sachse is most commonly performed in all types of strictures (short, medium, and long) and in all stricture locations (anterior and posterior).

This is in accordance with the Urethral Stricture American Guideline and research by Bullock et al, where urethrotomy was performed when urethral stricture was diagnosed for the first time and urethrotomy was carried out even though in other studies it was said that urethroplasty was better in terms of effectiveness than urethrotomy,

especially in recurring urethral strictures, but not in accordance with the study of Osteoberg et al., which states that urethroplasty has high effectiveness and low recurrence rates.¹²

Further research from other urological centers is needed to compare the types of actions that have been carried out as a comparison of the types of actions taken at the H. Adam Malik Hospital in Medan.

CONCLUSION

This study states that the character of urethral stricture patients in Indonesia is not much different from previous studies. The study also showed that urethrotomy (Sachse) was more widely used than urethroplasty. This is consistent with previous studies even though urethroplasty has better effectiveness.

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