



## **Causes and Management of Urethral Strictures in Elderly: A Review**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

### **Article Information**

DOI: 10.9734/JPRI/2021/v33i40B32271

Editor(s):

(1) Dr. Sawadogo Wamtinga Richard, Ministry of Higher Education, Scientific Research and Innovation, Burkina Faso.

Reviewers:

(1) Dhihintia Jiwangga, Universitas Airlangga, Indonesia.

(2) Sawsan M. Jabbar AL-Hasnawi, University of Kerbala, Iraq.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/71768>

**Review Article**

**Received 01 June 2021**

**Accepted 05 August 2021**

**Published 10 August 2021**

### **ABSTRACT**

Urethral stricture disease is a moderately frequent condition that comes at a high financial cost and can have long-term consequences. Understanding urethral stricture epidemiology is critical for identifying risk factors linked with illness genesis or development. This knowledge might lead to better therapies and preventive actions, which could lower disease severity, generate better health outcomes, and save costs. Based on existing published case series, we conducted a comprehensive assessment of urethral stricture disease, highlighted knowledge gaps, and recommended future research initiatives.

*Keywords: Urethral strictures; consequences; management, elderly.*

## 1. INTRODUCTION

The urethra is the tube that transports urine from the bladder to the penis and out the urethral meatus (the aperture at the tip of the penis). Scarring narrows the channel that discharges urine out of your body, causing urethral stricture (urethra). A stricture inhibits urine flow from the bladder and can result in a range of medical issues in the urinary tract, such as irritation or infection [1].

Urethral strictures are common disease that exist mostly in elderly, in 2001, the number of outpatient hospital visits for Medicare patients was 21 per 100,000, which is half the number of urolithiasis visits in the same demographic, highlighting the disease's importance among the elderly [2]. Urethral stenosis is a collection of disorders with a significant morbidity rate especially in males.

Surgical procedures are performed on patients on a regular basis. Urethral stenosis is more common in the older population as a result of aging-related disorders. Stenosis can arise as a result of benign prostatic enlargement, endoscopic urological manipulations, or rectal or prostate cancer radiation therapy in the pelvis [3].

Some people with severe urethral strictures are unable to urinate at all. Urinary retention is a medical issue that requires immediate attention. A poorly draining bladder can potentially cause hydronephrosis and renal failure by allowing urine to back up into the kidneys [4].

Most strictures needing substitution urethroplasty and may be treated successfully with modern surgical techniques, but if the process could be done endoscopically rather than openly, the patient would certainly benefit. [5] Also urethral stricture not only affects the patient, but also family members and caregivers, particularly wives and partners, are greatly affected by urethral stricture disease. Sleep disturbances, diminished social connections, mental stress, and impaired sexual intimacy are some of the long-term effects on family members [6].

## 2. EPIDEMIOLOGY

Urethral strictures are still a prevalent occurrence nowadays. Males are affected with a rising prevalence from around 1 in every 10 000 men aged 25 to about 1 in every 1000 men aged 65 or more, according on hospital episode statistics

in the United Kingdom and equivalent data from the United States [5].

Urethral stricture is a fairly frequent condition in men, with a prevalence of 229-627 per 100,000 males, or 0.6 percent of the at-risk group, which is mostly elderly men [7,8]. after the age of 55. Patients with urethral stricture are regarded a susceptible group because they have a high rate of urinary tract infections (UTIs) (41%) and incontinence (11%) as a result of the disease [7-9]. Urologists might anticipate to see an increase in the number of older patients with urinary tract problems. In the aged population, UTI is the most common difficulty [10].

### 2.1 Causes

An infection, such as a sexually transmitted illness, or injury from surgical equipment can induce edema in the urethra, and in the vast majority of cases, no cause can be identified, The most common causes of urethral strictures in adults are:

- prostate surgery
- injury from a fall onto the scrotum or perineum
- Urinary catheterization and other surgical techniques
- Removal of kidney stones in elderly [11].

According to study In Port Harcourt, the most common cause of USD is trauma. Strictures caused by medication were common. The results of urethroplasty are satisfactory. Reduced urethral injuries should be a priority [12].

In addition to Age, also obesity, smoking, diabetes mellitus, hypertension, heart disease, and renal disease are all patient variables that enhance the likelihood of stricture or stenosis formation [13-16].

Post-radiation strictures are seen 1–3 years after prostate cancer therapy and are most commonly found in the bulbomembranous urethra (>90%). Also Cryotherapy is linked to a 2.5–5.6% chance of urethral stricture or stenosis, which occurs predominantly in the bladder neck and prostatic urethra [13].

According to a study older men tolerate urethroplasty, and these findings suggest that treatment should not be denied only because of age. The possibility of a compromised flap blood supply in this population has been proposed but

not proved. Patients with a reduced stream following stricture surgery should be evaluated for benign prostatic hyperplasia [17].

## 2.2 Diagnosis

A weaker urinary system is the most visible symptom of urethral stricture. This can manifest itself in a variety of ways, including:

- Urinating with difficulty.
- Urination with pain.
- Infection of the urinary tract.
- Prostatitis. [4]
- urine that is bloody or dark
- blood in the sperm or a slowed or reduced urine flow
- spraying urine stream
- abdominal ache
- leakage from the urethra
- penile enlargement
- bladder control problems [11]

CT urography has become the primary imaging modality for examining the urinary system in a variety of clinical settings throughout the last decade [18].

Dual-energy CT urography is a new technology that enables the production of virtual nonenhanced images from a single contrast-enhanced acquisition phase. The single-phase dual-energy approach, while promising, has yet to gain widespread adoption due to its low sensitivity for small stones, picture noise, and erroneous attenuation values for virtual nonenhanced images. [19-22]

## 3. MANAGEMENT

When a lower urinary tract obstruction at the bladder level is suspected, a urinary catheter should be placed [23] there's more than one method to approach urethral stricture most of them are surgical procedures such as:

Direct vision internal urethrotomy (DVIU) is used to remove scar tissue, allowing the tissue to repair by secondary intention at a wider caliber and expanding the size of the urethral lumen. In general, studies have found no difference in urethral dilation versus internal urethrotomy in terms of recurrence rates. Many studies have looked into the benefits of leaving a urethral catheter in place following urethrotomy, but no consensus has yet been formed on whether to do so and for how long [12,24,25-30].

In a study A total of 54 percent of cases were due to traumatic strictures. Tunica Albuginea Urethroplasty was used on 127 of the 302 patients, while U-shaped Prostatobulbar Anastomosis was used on the rest. The best outcome was shown in post-traumatic strictures, while the worst was seen in post-infectious strictures. Complications were reported at a rate of 13.24 percent overall [19].

In a study End-to-end anastomosis was performed on 99 patients (54.1%), and intracavitary surgery was performed on 40 patients (21.9%), including endoscopic holmium laser, cold knife incision, endoscopic electroknife scar removal, balloon dilatation, and urethral dilation [31].

The therapy of obstructive uropathy is predicated on resolving the obstructive process as soon as possible. It's likely that a Foley catheter will be used. The first attempt is usually with a 16- or 18-Fr Foley. The presence of blockage may make urethral catheterization unsuccessful at first, necessitating higher-level procedures. A trial of urethral catheterization using a Coudé tip Foley is the most common next step. [26,32-35]

Medication therapy may be used in specific circumstances. Medications that inhibit alpha-1-adrenergic receptors (e.g., tamsulosin, terazosin) have been shown to relieve symptoms of urinary obstruction related to BPH by relaxing the smooth muscle in the bladder neck and prostate. [36] in the upcoming part we will further discuss the main management methods

### 3.1 Dilation

Urethral stricture or stenosis is frequently managed with either serial urethral dilation, such as filiform and followers or urethral sounds, or radial dilation, such as balloon dilation. Minimally invasive management of urethral stricture with balloon dilation is effective in the management of short segment non-traumatic urethral stricture. Balloon dilatation of the urethra is safe and effective option [37].

### 3.2 Direct Vision Internal Urethrotomy

The most common therapy for urethral strictures is incision, and according to a recent study, 82.5 percent of board qualified urologists in the United States treat urethral strictures using DVIU. [38,39] those who are not respond to DVIU are often treated with Repeat direct vision internal

urethrotomy, and so does the Patients with lengthy strictures (>2 cm), penile strictures, or membranous stenosis, or numerous strictures

### 3.3 Urethroplasty

For the treatment of urethral stricture and stenosis, most reconstructive surgeons consider urethroplasty to be the gold standard.

The excision of the urethral scar and reconnection of the urethra is known as excision and primary anastomosis (EPA). According to the research, it is the best treatment for short bulbar urethral strictures, regardless of their cause or previous treatment [40].

According to Webster and Guralnick For lengthy bulbar urethral strictures with a 1- to 2-cm region that is exceptionally narrow and dense, augmented anastomotic urethroplasty combines the concepts of excision and anastomosis with those of onlay grafting. The worst area of the stricture is segmentally excised (but only up to 2 cm) and the dorsal or ventral urethral wall is anastomosed in this approach [41].

### 4. CONCLUSION

Urethral stricture is serious disease that affects large number of the elderly population, until this moment the most effective treatment is the different surgeries techniques that are being used. The ideal treatment for older people is very different from that for younger individuals. Most patients will see significant improvement, if not a cure, with a mix of behavioral, pharmacological, and surgical therapy. Endoscopic surgery has been replaced by urethroplasty as the primary treatment for urethral stricture, which has far less complications. Reducing the surgery complication by using less invasive methods is the primary goal for the current research that may in future propose even more effective solutions.

### CONSENT

It is not applicable.

### ETHICAL APPROVAL

It is not applicable.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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*Peer-review history:*

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