



# Climacturia (Uroclimax) in Men After Radical Prostatectomy: A Comprehensive Review of the Current Literature and Treatment Strategies

Kirtishri Mishra<sup>1,2</sup> · Nishant Jain<sup>1,2</sup> · Laura Bukavina<sup>1,2</sup> · Aram Loeb<sup>1,2</sup>

Published online: 8 November 2019  
© Springer Science+Business Media, LLC, part of Springer Nature 2019

## Abstract

**Purpose of Review** Climacturia is an underreported condition seen in men who undergo radical prostatectomy. An estimated 16–93% of these patients may suffer from climacturia, with significant adverse effect on their sexual satisfaction and quality of life. Our understanding of the pathology is limited, with no standard treatment algorithm. In this review, we aim to contextualize the condition in relation to the current literature and offer an in depth evaluation of the treatment strategies, with a focus on the surgical interventions.

**Recent Findings** There has been an increased emphasis on evaluating patients for climacturia routinely after radical prostatectomy. Due to the increased identification of climacturia, the last two decades have seen the development of novel techniques to address the condition. Behavioral therapy is the initial intervention that should be tried; however, depending on other comorbidities, the patient can be offered surgical interventions. These include artificial urinary sphincter, male sling, or dual implantation of penile prosthesis with an artificial sphincter or a sling.

**Summary** In this review, we provide a comprehensive review of the etiology, pathophysiology, and treatment strategies related to climacturia. This review focuses on current literature on the topic, with an emphasis on the available surgical interventions.

**Keywords** Climacturia · Men's health · Sexual dysfunction · Sexual medicine

## Abbreviations

RALP Robot-assistant laparoscopic prostatectomy  
PCa Prostate cancer

RP Radical prostatectomy;  
EBRT External beam radiation therapy  
PFPT Pelvic floor physical therapy  
SUI Stress urinary incontinence  
AUS Artificial urethral sphincter  
IPP Inflatable penile prosthesis  
MUMS Male urethral mini-sling

This article is part of the Topical Collection on *Male Sexual Dysfunction and Disorders*

✉ Aram Loeb  
aram.loeb@uhhospitals.org

Kirtishri Mishra  
kirtishri.mishra2@uhhospitals.org

Nishant Jain  
nxj129@case.edu

Laura Bukavina  
laura.bukavina2@uhhospitals.org

<sup>1</sup> University Hospitals Cleveland Medical Center, Urology Institute, 11100 Euclid Avenue, Mailstop LKS 5046, Cleveland, OH 44106, USA

<sup>2</sup> Case Western Reserve University School of Medicine, 10900 Euclid Avenue, Cleveland, OH 44106, USA

## Introduction

Postprostatectomy sexual dysfunction has been recognized for decades. In 1996, Koeman et al. brought a significant awareness to the constellation of symptoms associated with radical prostatectomy (RP) [1]. Following closely thereafter, a landmark article by Lauman et al. in 1999 cited the incidence of sexual dysfunction in the general population to be 43% in women, and 31% in men [2]. This work highlighted sexual dysfunction as a public health concern. Since then, there has been mounting evidence that satisfactory sex function is vital to maintaining a high quality

of life [3]. Despite this, we often fail to evaluate a patient's sexual function completely after a prostatectomy [4]. In a 2012 study, Flynn and colleagues reported that there is great variability in the routine assessment of sexual health in patients who are treated for cancer [4]. While oncologic providers queried prostate cancer patients more regularly about sexual function, their evaluation was mainly focused on erectile function, based on the International Index of Erectile Function (IIEF), with only one question that inquired directly about ejaculation [5, 6]. As a result, symptoms related to orgasm-associated incontinence, or climacturia, were missed.

The term climacturia was introduced in 2006 by Lee et al. when they explained it to be “urine leakage at the moment of climax” [7]. The authors of this review argue that a more correct term would be *uroclimax* to follow traditional nomenclature used to describe presence of an abnormal finding (in this case urine) during a normal process (in this case climax) (i.e., blood in urine = hematuria; air in urine = pneumaturia; feces in urine = fecaluria; bacteria in urine = bacteriuria; therefore, urine “in climax” = *uroclimax*, not climacturia). Therefore, we will refer to the condition as *uroclimax* for the remainder of this review, as we believe this term is more accurate and less confusing to patients and providers in other specialties.

*Uroclimax*, a grade I complication (Clavien-Dindo), has an incidence ranging anywhere from 16 to 93% after prostatic surgery depending on the definition used, which further contributes to the lack of standardized guidelines [8–16]. The condition can be present in both men and women; however, majority of cases result as a complication after prostatic procedures. Other forms of incontinence associated with sexual activity include foreplay incontinence and coital incontinence [17]. Furthermore, the prevalence of *uroclimax* changes as patients are further removed from their surgery. In a study by Mitchell et al., the percentage of patients who reported any bother from urinary incontinence was 44.4% at 3 months, and decreased to 36.1% at 24 months [18••]. In the same study, 22.4% of patients reported major bother during sexual intercourse, which decreased to 12.1% at 24 months [18••]. These findings suggest that the symptoms may improve in a subset of patients over time; however, a large percentage may require intervention for the condition.

*Uroclimax* has adverse effects not only on the patients but also their partner. In a 2012 study, Mehta et al. reported a baseline distress level in 14% and 61% of patients and partners, respectively, suffering from *uroclimax* prior to any treatment [19]. This distress level decreased significantly to 2% and 11% in the patients and partners after utilization of penile variable tension loop ( $p < 0.001$ ) [19]. The findings from this study further bolster our previous statement regarding the impact of sexual dysfunction on the overall quality of life. Abouassaly et al. found that 47% of patients with *uroclimax* reported the condition to be a

major problem, even with minimal urinary incontinence [13].

In the last two decades, evaluation of this dysfunction has gained more traction, and the reason for this may be multifactorial [5]. To begin, prostate cancer (PCa) continues to be the second leading cause of cancer related death among men in the USA [20]. Advances in robotic surgery have made robot-assisted laparoscopic prostatectomy (RALP) a mainstream urologic procedure. While the per capita utilization of radical prostatectomy (RP) has remained stable, there has been an increased emphasis on minimizing long-term postoperative complications due to the increased dexterity, and improved vision afforded by the robot [21, 22]. Therefore, while achieving oncologic control remains the priority of the surgical intervention, there is an increased premium on maintaining erectile function and urinary continence [23•]. Secondly, improved diagnostics, and surgical outcomes combined with adjuvant therapy for aggressive disease have significantly decreased cancer-specific mortality from PCa, and many patients are fully cured from their disease with an extended life afterwards [20]. For this reason, it is increasingly important to restore the patient to their baseline physical and sexual function, to ascertain a good quality of life [3].

The goal of this review is to offer a comprehensive understanding of *uroclimax* to the reader, along with a robust overview of the current literature, which we hope may serve as a scaffold for further therapeutic developments.

## Pathophysiology

While postprostatectomy related erectile dysfunction is well documented in literature, the pathophysiology of *uroclimax* is poorly understood. In their 2016 review, Fode et al. propose a multifactorial etiology to postprostatectomy sexual dysfunction [8]. They highlight the disruption of local nerves, blood vessels, and muscular tissue that may lead to the functional problems. Furthermore, they cite various studies reporting the incidence of *uroclimax* to be significantly higher than previously suspected [9, 24, 25].

Early hypotheses suggested that *uroclimax* may be a variation of stress urinary incontinence (SUI). While there is some overlap in symptoms between *uroclimax* and SUI, a survey looking at 412 patients treated for prostate cancer found that one third of patients with the condition had no other forms of urinary incontinence, and one third of patients with SUI did not have *uroclimax* [26]. This data suggests that *uroclimax* has an independent etiology from SUI. Currently, it is hypothesized that the pathophysiology of this condition has both a neuronal and an anatomic basis. Specifically, disruption of the pudendal nerve seems to be the prevailing hypothesis. This disruption leads to a poor communication between the

bladder neck and the external urethral sphincter, both of which are necessary in continence and ejaculation [19].

Anatomic disruption of the bladder neck directly affects the first step of ejaculation, i.e., the emission phase. During this phase, the bladder neck closes to prevent retrograde ejaculation as well as antegrade urine leakage. As the ejaculate is deposited into the prostatic urethra, sympathetic neurons from the pelvic and hypogastric plexuses stimulate the bulbospongiosus and the ischiocavernosus muscles to contract, resulting in the expulsion of the ejaculate [27]. During this phase, the bladder neck remains closed while the external urethral sphincter relaxes, allowing for ejaculation. In the absence of complete bladder neck closure, urine may leak into the ejaculate resulting in uroclimax. Anatomic disruption causing the condition is not isolated to the bladder neck. Manassero et al. performed video-urodynamic evaluations ( $n = 12$ ) and found that postprostatectomy patients with uroclimax had shorter functional urethral lengths ( $p = 0.05$ ) compared to the control group, while the vesicourethral junction remained radiologically similar [5].

Various other studies have implicated pathologic neuronal involvement to be the primary mechanism in uroclimax. The first study surveyed 412 patients treated for prostate cancer either with RP or with external beam radiation therapy (EBRT). The authors reported that 28.3% of the patients who underwent RP experienced uroclimax; however, 5.2% of patients status post EBRT experienced uroclimax [26]. The presence of uroclimax in the radiation-alone group argues against a solely anatomic basis for the condition. Another study performed by Cruz et al. found that female rat models with bilateral neurectomy of the dorsal nerve of the clitoris had a 67% rate of uroclimax, which was statistically significant when compared to the sham surgery group ( $p < 0.05$ ) [28]. These studies support the idea that pudendal nerve impairment, which has been implicated in orgasmic and urinary dysfunction, can also lead to uroclimax [28].

## Work-up

The lack of robust evidence to guide diagnosis and treatment continues to lead to poor identification of the condition and subsequent intervention. Often, the diagnosis of uroclimax is self-reported, and there is little objective measure to define the criteria for diagnosis [29]. The International Index of Erectile Function (IIEF) is commonly utilized to quantify sexual dysfunction. In this questionnaire, only one question pertains to ejaculation [6]. As a result, the current literature on the topic is based on variable definitions of uroclimax. For example, in their study, Manassero et al. arbitrarily defined uroclimax as three or more episodes of urine leakage at the time of ejaculation [5]. Lee et al. classified the severity of uroclimax in terms of frequency (rarely, occasionally, most of the time,

and always) and quantity (only a few drops and more than 1 ounce) [7]. Similarly, Mehta et al. quantified the severity of uroclimax by volume, small (drops), moderate ( $< 30$  mL), or large ( $> 30$  mL), and by frequency, rarely ( $< 50\%$  of orgasms), occasional (about half the time), most of the time ( $> 50\%$  of orgasms), or always [19]. Most studies, however, do not identify specific criteria for the diagnosis and the severity of uroclimax. One of the major areas of improvement may be to design a standardized questionnaire to assess symptoms and severity. Jain et al. have previously utilized a survey tool to assess the effect of surgical intervention for SUI on postprostatectomy urinary incontinence during sexual activity, and a modification of this tool may be useful for the initial evaluation of patients with uroclimax [30].

## Behavioral and Lifestyle Modifications

Management of uroclimax should begin with non-invasive approaches, including behavioral modification, pelvic floor physical therapy (PFPT), compressive variable tension loop device, and medications [17, 31]. Pragmatic measures employed in behavioral modifications are the first line treatment for uroclimax. Patients should be encouraged to void prior to sexual activity, and to restrict fluid and caffeine intake. In a cross-sectional study ( $n = 42$ ), 84% of men had limited accidents when they voided prior to sexual activity. Additionally, 11% of men with uroclimax found condoms to be an effective therapy [7].

PFPT, traditionally used for stress and urge incontinence, is also an option if behavioral therapy is not successful. Geraerts et al. performed a randomized control trial looking at the effects of PFPT on erectile function with uroclimax, as a secondary outcome measure [32]. In this study, 17 patients suffered from uroclimax in addition to erectile dysfunction. Of these 17 patients, 8 were in the control arm, while 9 were in the treatment group. In the treatment group, 6 out of 9 patients showed improvement while none of the 8 patients in the control group saw improvement ( $p = 0.004$ ). Additionally, there was no relationship between the change in erectile function and recovery from uroclimax ( $p = 0.529$ ). Since this study, small case series have begun investigating the potential effectiveness of PFPT, biofeedback, and electrical stimulation for the treatment of uroclimax [31]. Table 1 highlights few of the studies reporting various interventions and their outcomes in this population.

A compressive variable tension loop device, commercialized under the name UroStop®, (UroSciences, Long Island, NY, USA) has gained popularity. This device is a reusable, small sling that offers an economical option (\$25.95) for patients with uroclimax. A man can place the device around the base of his penis to provide additional tension around the urethra, and to prevent urine leak with sexual activity. Mehta

**Table 1** List of major studies on uroclimax. These studies are highlighted to demonstrate the variety of interventions and their associated outcomes

Treatment	Author date	Sample size	Study type	Intervention	Result	Outcome measure	Follow-up
Behavioral modification	Lee et al. 2006	42	Observational	Void prior to sexual activity, limit fluid and caffeine, condom use.	84% men limited to no uroclimax, 11% men found condoms to be effective	Questionnaire about the frequency, quantity, bother and coping mechanisms associated with uroclimax	23.6 months
Pelvic floor physical therapy	Geraerts et al. 2016	17	Randomized control trial	Pelvic floor physical therapy versus no therapy.	6/9 (67%) improvement in pelvic floor physical therapy group/0/8 (0%) improvement in control group	International Index of Erectile Function (IIEF)	15 months
Pelvic floor physical therapy	Sighinolfi et al. 2009	3	Prospective case	4-month rehabilitation program.	Uroclimax subjectively reduced	IIEF	4 months
Compressive variable tension loop	Mehta et al. 2012	124	Prospective	Urethral compression	At baseline, the degree of uroclimax was small, moderate, and large in 16%, 72%, 12% of patients, respectively, and 28%, 26%, and 0%, respectively, at follow-up. 48% of patients experienced no uroclimax with use of the variable tension loop. Additionally, the severity of distress was significantly lower at follow-up for both partners and patients ( $p < 0.01$ ).	Interviewed: small (drops), moderate (estimated by the patient as < 30 mL of urine, or large (> 30 mL of urine). Frequency was defined as: never, rarely (< 50% of orgasms), occasionally (about half the time), most of the time (> 50% of orgasms), or always	6 months
Artificial urinary sphincter & suburethral sling	Jain et al. 2012	11 (4- AUS) 7- sling)	Retrospective	Placement of AUS or sling.	All 11 men reported resolution of uroclimax and improvement in their sexual quality of life. More than half reported marked improvement in sexual quality of life.	Questionnaire	24 months
Suburethral sling	Christine et al. 2016	37	Retrospective	Placement of sling.	All 37 patients reported complete resolution of their uroclimax, and 31 (83.7%) patients reported complete resolution of their SUI	Clinical encounter/interviewed	Unknown
Artificial urinary sphincter	Urkmez et al. 2019	14	Prospective	Placement of AUS.	No statistically significant difference between preoperative and postoperative IIEF scores and intercourse satisfaction scores ( $p > 0.05$ )	IIEF	6 months
Artificial urinary sphincter (transcorporal) with inflatable penile prosthesis	Mendez et al. 2017	3	Prospective case series	Placement of AUS with IPP.	All three patients reported complete resolution of uroclimax	Sexual function parameter queried	10.7 months
Mini-Jupette	Yafi et al. 2018	30	Multicenter prospective	Novel surgical intervention with Mini-Jupette.	19/28 (67.9%) patients reported complete resolution of uroclimax. 3/28 (10.7%) of patients with	ED questionnaire (e.g., 5-item International Index of Erectile Function [IIEF-5])	5.1 months

**Table 1** (continued)

Treatment	Author date	Sample size	Study type	Intervention	Result	Outcome measure	Follow-up
Male urethral mini-sling using Virtue Mesh	Valenzuela et al. 2019	30	Prospective	Placement of Virtue sling.	uroclimax reported improvement in uroclimax symptoms. 28/30 (93%) patients reported complete resolution of uroclimax.	Clinical encounter/interviewed	5.9 months

et al. performed a prospective study evaluating the efficacy of the variable tension loop in uroclimax after a RP [19]. The study included 124 men and classified their condition by volume: small (drops), moderate (< 30 mL), or large (> 30 mL), and by frequency: rarely (< 50% of orgasms), occasional (about half the time), most of the time (> 50% of orgasms), or always [19]. Both volume and frequency of uroclimax were found to be significantly less with the use of the variable tension loop [19]. At baseline, the degree of uroclimax was small, moderate, and large in 16%, 72%, 12% of patients, respectively, and 28%, 26%, and 0%, respectively, at follow-up at 6 months (all  $p < 0.01$ ) [19]. Additionally, 48% of patients had complete resolution of their symptoms with use of the variable tension loops [19]. Moreover, the severity of distress was significantly lower at follow-up for both partners and patients ( $p < 0.01$ ) [19].

Medications, particularly anticholinergics and Mirabegron, are commonly used for the management of overactive bladder, but have not been proven to be effective for uroclimax in men [17].

### Surgical Interventions

If patients do not experience satisfactory results from behavioral therapy and PFPT, then surgical options should be offered [33]. Prior to any surgical intervention, it is imperative for the provider to counsel the patient thoroughly. Many patients who present with uroclimax may be suffering from a concomitant erectile dysfunction. Therefore, it is important to address both issues during the encounter, as it may determine which option may be best for the patient.

### Artificial Urinary Sphincter

AUS has been utilized for successful treatment of postprostatectomy incontinence for several decades with over 80% success rate [34]. However, thus far there is insufficient literature on the isolated effects of AUS on uroclimax. Urkmez et al. recently published a prospective study ( $n = 14$ ) evaluating the effects of AUS implantation on erectile function and sexual satisfaction using the IIEF questionnaire [35]. The results found no statistically significant difference between preoperative and postoperative IIEF and intercourse satisfaction scores ( $p > 0.05$ ) [35]. However, they claim that the impact of uroclimax and urinary incontinence in this population can be taxing on their sexual function and their quality of life. Therefore, while their study does not demonstrate a significant difference in the IIEF scores, they still feel that patients benefit from restoration of continence.

Another concern with AUS is that the prostheses are associated with infection (5–6%), erosion (6–8%), and mechanical failure (6–23%) [34]. This has been an impetus to explore new

modalities for these patients, which has led to the development of slings and other surgical approaches.

### Male Sling

Various types of slings have been designed to treat postprostatectomy incontinence, and subsequently utilized for treatment of uroclimax as well. Transobturator, bone anchored, quadratic, and adjustable slings have all been studied in the incontinence population, with success rate ranging 63–80% [34]. Christine et al. presented an abstract at the 2016 Annual Sexual Medicine Society meeting identifying 37 men with uroclimax concurrent with SUI [36••]. Following placement of a suburethral transobturator sling, all 37 patients reported complete resolution of their uroclimax, and 31 (83.7%) patients reported complete resolution of their SUI [36••]. Transobturator polypropylene slings are placed through the obturator foramen and tensioned appropriately to cause a proximal translocation of the proximal urethra [33]. Bone anchored slings, on the other hand, compress the urethra against the genitourinary diaphragm to improve urethral coaptation. Lastly, a quadratic sling employs the mechanism of both transobturator and bone anchor slings.

In 2011, Jain et al. performed one of the earlier studies looking at the efficacy of surgical interventions for postprostatectomy urinary incontinence during sexual activity [30]. The study utilized a retrospective questionnaire, and included four men who underwent AUS and seven men who underwent sling placement for SUI. All 11 men reported resolution of uroclimax, and experienced improvement in their sexual quality of life. More than half reported marked improvement in sexual quality of life. This study was one of the earliest to suggest that surgical intervention may have a routine role for the management of uroclimax [30].

### Dual Implantation With Inflatable Penile Prosthesis

As mentioned previously, it is not uncommon to see patients with concomitant erectile dysfunction and uroclimax after prostatectomy. Inflatable penile prosthesis (IPP) alone may be beneficial in patients with mild uroclimax due to the compressive effects of the IPP cylinders on the urethra [17]. However, no literature has been published supporting this claim.

### AUS with IPP

A few studies have evaluated the concomitant placement of AUS and IPP. Mancini et al. conducted a retrospective study ( $n = 95$ ) comparing outcomes using satisfaction scores and pad usage rates between patients who received AUS alone and dual implantation, and found no statistical difference in pad usage rate or improvement in continence ( $p > 0.05$ ) [37]. Of note, recurrent incontinence from subcuff atrophy was seen

in 18.2% of the patients ( $n = 6/33$ ) with dual implantation [37]. In this study, uroclimax was not directly addressed. Mendez et al. performed a small case series looking at transcorporal AUS placement in three patients ( $n = 3$ ), all of whom had extensive urethral surgical histories and current IPPs [38]. The novel surgical approach utilized a 6-ply acellular graft, and all three patients reported complete resolution of uroclimax at an average of 10.7 months after surgery [38].

### Mini-Jupette Graft With IPP

First conceived in 2005 by Robert Andrienne, the Mini-Jupette (“mini-skirt” in French) graft is a novel surgical approach used in conjunction with IPP placement to treat uroclimax in patients with erectile dysfunction. As the cylinders of the IPP inflate, the graft, which is sutured onto the medial aspect of each corporotomy, becomes rigid and compresses the bulbar urethra, stopping urine flow in an erect penis. Yafi et al. published the largest study to date looking at the effects of the Mini-Jupette and IPP placement on uroclimax [39••]. They performed a multicenter prospective study looking at 30 post RP patients ( $n = 30$ ) with uroclimax, assessing pre- and postoperative symptoms, and found 19/28 (67.9%) of the patients reported complete resolution of their symptoms. Another 3/28 (10.7%) of patients with uroclimax reported improvement in their symptoms [39••]. Two patients required explantation from complications, including: inadvertent medial suturing of the graft onto the urethra, urethrocorporal fistula, and bleeding [39••].

The ideal graft for a Mini-Jupette is unknown. Graft types include: human pericardium, polypropylene, virtue mesh and bovine pericardium. Yafi et al. utilized human pericardium, however, it is believed that synthetic material rather than cadaver fascia may be appropriate, as it is routinely used, and has been proven to be safe when applied adjacent to the urethra [39••].

Recently, Valenzuela et al. published their preliminary outcomes of a modified technique using Virtue sling mesh called male urethral mini-sling (MUMS) [40••]. In this procedure, the proximal urethral is exposed and the MUMS is sutured on the lateral corpora (as opposed to medial in Mini-Jupette) over the bulbar urethra, proximal to the planned corporotomy. The IPP is subsequently placed in a routine fashion [40••]. With this technique, 28/30 (93%) patients reported complete resolution of uroclimax [40••]. One patient required MUMS explantation for urethral erosion after prolonged postoperative catheterization [40••].

### Conclusion

Uroclimax is an underreported condition in men following radical prostatectomy. This condition has significant effects

on the quality of life for both the patient and his partner, and can lead to sexual avoidance. The lack of a standard criteria for assessing the varying degrees and severity for uroclimax limits the ability to perform high-quality, reproducible research. With growing attention to the condition, new surgical techniques are being evaluated to treat uroclimax. Still, the data is limited, and studies often assess the condition as a secondary outcome. The Mini-Jupette is a promising technique for uroclimax treatment with good multiinstitutional, short-term outcomes. However, studies with larger patient cohorts with longer follow-up are needed to confirm the safety and benefit of all the procedures described above.

### Compliance With Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

**Research Involving Human Participants and/or Animals** This article does not contain any studies with human or animal subjects performed by the author.

### References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Koeman M, van Driel MF, Schultz WC, Mensink HJ. Orgasm after radical prostatectomy. *Br J Urol*. 1996;**77**(6):861–4.
2. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. *Jama*. 1999;**281**(6):537–44.
3. Flynn KE, Lin L, Bruner DW, Cyranowski JM, Hahn EA, Jeffery DD, et al. Sexual satisfaction and the importance of sexual health to quality of life throughout the life course of U.S. adults. *J Sex Med*. 2016;**13**(11):1642–50.
4. Flynn KE, Reese JB, Jeffery DD, Abernethy AP, Lin L, Shelby RA, et al. Patient experiences with communication about sex during and after treatment for cancer. *Psychooncology*. 2012;**21**(6):594–601.
5. Manassero F, Di Paola G, Paperini D, Mogorovich A, Pistolesi D, Valent F, et al. Orgasm-associated incontinence (climacturia) after bladder neck-sparing radical prostatectomy: clinical and video-urodynamic evaluation. *J Sex Med*. 2012;**9**(8):2150–6.
6. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. *Urology*. 1997;**49**(6):822–30.
7. Lee J, Hersey K, Lee CT, Fleshner N. Climacturia following radical prostatectomy: prevalence and risk factors. *J Urol*. 2006;**176**(6 Pt 1):2562–5 discussion 2565.
8. Fode M, Serefoglu EC, Albersen M, Sønksen J. Sexuality following radical prostatectomy: is restoration of erectile function enough? *Sexual Medicine Reviews*. 2017;**5**(1):110–9.
9. Nilsson AE, Carlsson S, Johansson E, Jonsson MN, Adding C, Nyberg T, et al. Orgasm-associated urinary incontinence and sexual life after radical prostatectomy. *J Sex Med*. 2011;**8**(9):2632–9.
10. Martinez-Salamanca Garcia JJ, Jara Rascon J, Moncada Iribarren I, Garcia Burgos J, Hernandez Fernandez C. Orgasm and its impact on quality of life after radical prostatectomy. *Actas Urol Esp*. 2004;**28**(10):756–60.
11. Barnas JL, Pierpaoli S, Ladd P, Valenzuela R, Aviv N, Parker M, et al. The prevalence and nature of orgasmic dysfunction after radical prostatectomy. *BJU Int*. 2004;**94**(4):603–5.
12. Percy R. The prevalence and nature of orgasmic dysfunction after radical prostatectomy. *BJU Int*. 2005;**95**(3):452–3 author reply 453.
13. Abouassaly R, Lane BR, Lakin MM, Klein EA, Gill IS. Ejaculatory urine incontinence after radical prostatectomy. *Urology*. 2006;**68**(6):1248–52.
14. Dindo D, Demartines N, Clavien PA. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. *Ann Surg*. 2004;**240**(2):205–13.
15. Choi JM, Nelson CJ, Stasi J, Mulhall JP. Orgasm associated incontinence (climacturia) following radical pelvic surgery: rates of occurrence and predictors. *J Urol*. 2007;**177**(6):2223–6.
16. Loizaga Iriarte A, Paz Diaz-Romeral JL, Arciniega Garcia JM, Arceo Santiago R, Perez Fernandez A, Unda Urzaiz M. Climacturia, a symptom to take into account after radical prostatectomy. *Actas Urol Esp*. 2007;**31**(4):345–8.
17. El-Khatib FM, Towe M, Choi J, Yafi FA. Management of climacturia during inflatable penile prosthesis surgery. *Curr Urol Rep*. 2019;**20**(4):16.
18. •• Mitchell SA, Jain RK, Laze J, Lepor H. Post-prostatectomy incontinence during sexual activity: a single center prevalence study. *J Urol*. 2011;**186**(3):982–5 **One of the few high level studies performed on patients with uroclimax after radical prostatectomy.**
19. Mehta A, Deveci S, Mulhall JP. Efficacy of a penile variable tension loop for improving climacturia after radical prostatectomy. *BJU Int*. 2013;**111**(3):500–4.
20. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2016. *CA Cancer J Clin*. 2016;**66**(1):7–30.
21. Tyson MD 2nd, Andrews PE, Ferrigni RF, Humphreys MR, Parker AS, Castle EP. Radical Prostatectomy Trends in the United States: 1998 to 2011. *Mayo Clin Proc*. 2016;**91**(1):10–6.
22. Herlemann A, Cowan JE, Carroll PR, Cooperberg MR. Community-based outcomes of open versus robot-assisted radical prostatectomy. *Eur Urol*. 2018;**73**(2):215–23.
23. • Sooriakumaran P, Pini G, Nyberg T, Derogar M, Carlsson S, Stranne J, et al. Erectile function and oncologic outcomes following open retropubic and robot-assisted radical prostatectomy: results from the laparoscopic prostatectomy robot open trial. *Eur Urol*. 2018;**73**(4):618–27 **A review of the incidence of postprostatectomy sexual dysfunction, with an emphasis on the need for postoperative evaluation and counseling for sexual dysfunction.**
24. Capogrosso P, Ventimiglia E, Serino A, Stabile A, Boeri L, Gandaglia G, et al. Orgasmic dysfunction after robot-assisted versus open radical prostatectomy. *Eur Urol*. 2016;**70**(2):223–6.
25. Frey A, Sonksen J, Jakobsen H, Fode M. Prevalence and predicting factors for commonly neglected sexual side effects to radical prostatectomies: results from a cross-sectional questionnaire-based study. *J Sex Med*. 2014;**11**(9):2318–26.
26. O’Neil BB, Presson A, Gannon J, Stephenson RA, Lowrance W, Dechet CB, et al. Climacturia after definitive treatment of prostate cancer. *J Urol*. 2014;**191**(1):159–63.
27. Gerstenberg TC, Levin RJ, Wagner G. Erection and ejaculation in man. Assessment of the electromyographic activity of the bulbocavernosus and ischiocavernosus muscles. *Br J Urol*. 1990;**65**(4):395–402.

28. Cruz Y, Juárez R, Medel A, Corona-Quintanilla DL, Pacheco P, Juárez M. Coital urinary incontinence induced by impairment of the dorsal nerve of the clitoris in rats. *J Urol*. 2016;195(2):507–14.
29. Clavell-Hernandez J, Martin C, Wang R. Orgasmic dysfunction following radical prostatectomy: review of current literature. *Sex Med Rev*. 2018;6(1):124–34.
30. Jain R, Mitchell S, Laze J, Lapor H. The effect of surgical intervention for stress urinary incontinence (UI) on post-prostatectomy UI during sexual activity. *BJU Int*. 2012;109(8):1208–12.
31. Sighinolfi MC, Rivalta M, Mofferdin A, Micali S, De Stefani S, Bianchi G. Potential effectiveness of pelvic floor rehabilitation treatment for postradical prostatectomy incontinence, climacturia, and erectile dysfunction: a case series. *J Sex Med*. 2009;6(12):3496–9.
32. Geraerts I, Van Poppel H, Devoogdt N, De Groef A, Fieuws S, Van Kampen M. Pelvic floor muscle training for erectile dysfunction and climacturia 1 year after nerve sparing radical prostatectomy: a randomized controlled trial. *Int J Impot Res*. 2015;28:9.
33. Chung ASJ, Suarez OA, McCammon KA. AdVance male sling. *Translational Andrology and Urology*. 2017;6(4):674–81.
34. Comiter CV, Dobberfuhr AD. The artificial urinary sphincter and male sling for postprostatectomy incontinence: which patient should get which procedure? *Investig Clin Urol*. 2016;57(1):3–13.
35. Urkmez A, Ozsoy E, Tokuc E, Kutluhan MA, Topaktas R, Artuk I, et al. Effect of artificial urinary sphincter implantation on erectile function and sexual satisfaction. *Andrologia*. 2019;0(0):e13295.
- 36.●● Christine B, Bella AJ. MP48-04 climacturia: an under-addressed sequela of radical prostatectomy, but treatment is only a sling away. *J Urol*. 2016;195(4, Supplement):e636 **One of the largest series reported on uroclimax with a subsequent surgical intervention.**
37. Mancini JG, Kizer WS, Jones LA, Mora RV, Morey AF. Patient satisfaction after dual implantation of inflatable penile and artificial urinary sphincter prostheses. *Urology*. 2008;71(5):893–6.
38. Mendez M, Sexton S, Lentz A. 008 Transcorporal artificial urinary sphincter placement in patients with prior inflatable penile prosthesis utilizing 6-ply acellular graft: a novel technique with resolution of climacturia. *J Sex Med*. 2017;14(2, Supplement):e4.
- 39.●● Yafi FA, Andrienne R, Alzweri L, Brady J, Butcher M, Chevalier D, et al. Andrienne Mini-Jupette graft at the time of inflatable penile prosthesis placement for the management of post-prostatectomy climacturia and minimal urinary incontinence. *J Sex Med*. 2018;15(5):789–96 **One of the largest series looking at postoperative ooutcomes after Mini-Jupette sling for patietns with uroclimax.**
- 40.●● Valenzuela RJ, Ziegelmann MJ, Hillelsohn JH, Farrell MR, Kent MA, Levine LA. Preliminary outcomes of the male urethral “mini-sling”: a modified approach to the Andrienne Mini-Jupette procedure with penile prosthesis placement for climacturia and mild stress urinary incontinence. *J Sex Med*. 2019; **A study highlighting the efficacy of various novel surgical strategies used in uroclimax and their efficacy on symptomatic relief for this patient population.**

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.