

Female Urinary Incontinence During Sexual Intercourse (Coital Incontinence): A Review

Matthew E. Karlovsky, MD

Coital incontinence is a distressing condition with etiologies similar to other female sexual dysfunctions. Will the treatments for other pelvic floor conditions such as stress urinary incontinence and overactive bladder help coital incontinence as well?

Urinary incontinence (UI) is common and occurs in approximately 20% of the general female population, but it approaches 35% in women older than 60 years.¹ The condition adversely affects quality of life (QoL), including social and sexual function.² As American women age, the prevalence of pelvic floor disorders, such as UI, is also expected to increase.³ No less significant, sexual dysfunction is also common among women, with a reported rate of 43% in a study of adult sexual behavior.⁴ The American Foundation for Urological Disease categorizes female sexual dysfunction into 4 types: low libido, difficult arousal, difficulty with orgasm, and dyspareunia.⁵ Not surprisingly, sexual complaints among women seeking treatment for pelvic floor disorders such as UI approach 50%.⁶

Coital incontinence (CI) is urinary leakage that occurs during either penetration or orgasm and can occur with a sexual partner or with masturbation. It has been reported to occur in 10% to 24% of sexually active women with pelvic floor disorders, yet CI may still be an underreported problem since sexual or urinary dysfunction may not be often or readily discussed due to patient or physician embarrassment.⁷ Unfortunately, CI can have a disturbing impact on QoL

and sexuality. Women rarely refer to it spontaneously, with only 3% of women self-reporting sexual disorders including CI; even with direct questioning, only 20% will admit to it.⁸

The impact on QoL from CI is significant. Sexually active women with CI reported a worse QoL than those without it.⁹ More emphasis should be placed on CI as a relevant urinary and sexual complaint.¹⁰

PATHOPHYSIOLOGY

Coital incontinence is divided into 2 subtypes based on when urinary leakage occurs: incontinence with penetration and incontinence with orgasm. Each has different pathophysiologic causes. In the original series of 79 patients with CI, two-thirds experienced CI with penetration, while one-third did so with orgasm.⁷ After urodynamic testing, CI with penetration was strongly correlated to stress urinary incontinence (SUI), while CI from orgasm was strongly correlated with detrusor overactivity (DO). A larger, more recent series of 132 women confirms the findings that the majority of women, 63%, experience CI from penetration, while 37% do so from orgasm.¹¹

In another retrospective study of 228 women with CI, more than 80% of women with CI had SUI, whereas DO was a less common causative factor. The authors concluded that urethral incompetence likely contributes to both types of CI.¹¹⁻¹³ In a small trial, urodynamic studies were performed at baseline and then during orgasm in 3 patients.¹⁴ In 2 of the cases, orgasm triggered urethral relaxation and bladder contraction that led to CI.

FOCUSPOINT

Coital incontinence is urinary leakage that occurs during either penetration or orgasm and can occur with a sexual partner or with masturbation.

Matthew Karlovsky, MD, is Director, Female Pelvic Health, Center for Urological Services, Phoenix, AZ.

FOCUSPOINT

Can tension-free vaginal tape cure coital incontinence from penetration that causes sexual distress and disrupts intercourse?

There has also been debate as to whether some women confuse CI for female ejaculation. This area remains controversial and even less studied than CI. Ejaculate fluid expelled during orgasm may derive from the paired Skene's glands next to the urethra during arousal or orgasm, or may be urine lost from the urethra, or a mixture of both.¹⁵

DIAGNOSIS

Most women who present with UI may have a combination of both stress and urge incontinence. A careful history will help differentiate the predominating type of incontinence, in addition to CI, if present. Straining, exercise, coughing, and sneezing will provoke stress incontinence, which is correlated to leakage with penetration. Urgency, frequency, and leakage with urgency, in the absence of infection or other inciting factors such as food stimulants or diuretics, point to urge incontinence, which is correlated with leakage with orgasm. Sexual history and full pelvic exam for pelvic organ prolapse are necessary. Urodynamic testing may be required if surgery is considered.

TREATMENT

Treating CI should be included in the overall approach when a female presents with any type of pelvic floor disorder, such as stress or urge incontinence, pelvic organ prolapse, or other pelvic floor disorders related to pain or bowel function. As a part of the urinary work-up, urodynamics can help confirm or diagnose the etiology of UI and strengthen the plan of care, whether it is medical, behavioral, or surgical (Figure).

Pharmacology

There are a variety of medications approved for the treatment of overactive bladder (OAB) symptoms of urgency, frequency, and urge incontinence (Table). OAB can result from sensory urgency or DO. On urodynamics, DO is seen as involuntary bladder contractions that occur during bladder filling. A minority of women with OAB will demonstrate DO, yet DO is generally considered a marker for more severe OAB symptoms. OAB medications work by

blocking the muscarinic receptors on the bladder detrusor muscle, thereby curbing the symptoms of OAB. All agents have similar efficacy, and the most common side effects of all the medications are dry mouth, constipation, and blurry vision.

When CI occurs as a result of DO leakage during orgasm, will OAB medications have a therapeutic effect here as well? A study of female patients with CI from orgasm and underlying DO indicated that incontinence with orgasm diminished in response to tolterodine.¹¹ However, women with DO without CI from orgasm responded better to medication in controlling symptoms than did those with CI from orgasm, 83% versus 59%. The authors speculated that CI from orgasm may be a marker for more severe DO.

Behavioral

Pelvic floor muscle (PFM) retraining is the hallmark of behavioral therapy for both main types of incontinence and can also improve some aspects of female sexual dysfunction. In one study, 2 groups of women with SUI were randomized to either PFM treatment or not. In the treatment group, the women who experienced incontinence with sex decreased from 20% to 10.5%.¹⁶ A more recent study revealed that all aspects of female sexual function, ie, desire, arousal, lubrication, orgasm, satisfaction, and pain, were improved after 12 months of PFM training.¹⁷ In addition, the number of CI episodes was also significantly reduced.

Transvaginal electrical stimulation (TES) is another conservative therapy. It is used to stimulate nerve fibers and muscles with varying degrees of frequency. At higher frequencies it can affect the pudendal reflex arc, and at lower frequencies, it can inhibit the detrusor bladder muscle. TES has also been proposed to treat CI and female sexual dysfunction (FSD).¹⁸ TES can improve the efficacy of urethral sphincter function and increase the tone of the PFMs, impacting both stress and urge incontinence. Cure rates are reported between 60% and 80% for incontinence, as well as improvement in FSD parameters.^{19,20}

Surgery

The most common and successful treatment for SUI worldwide is the use of tension-free vaginal tape (TVT). Can TVT cure CI from penetration that causes sexual distress and

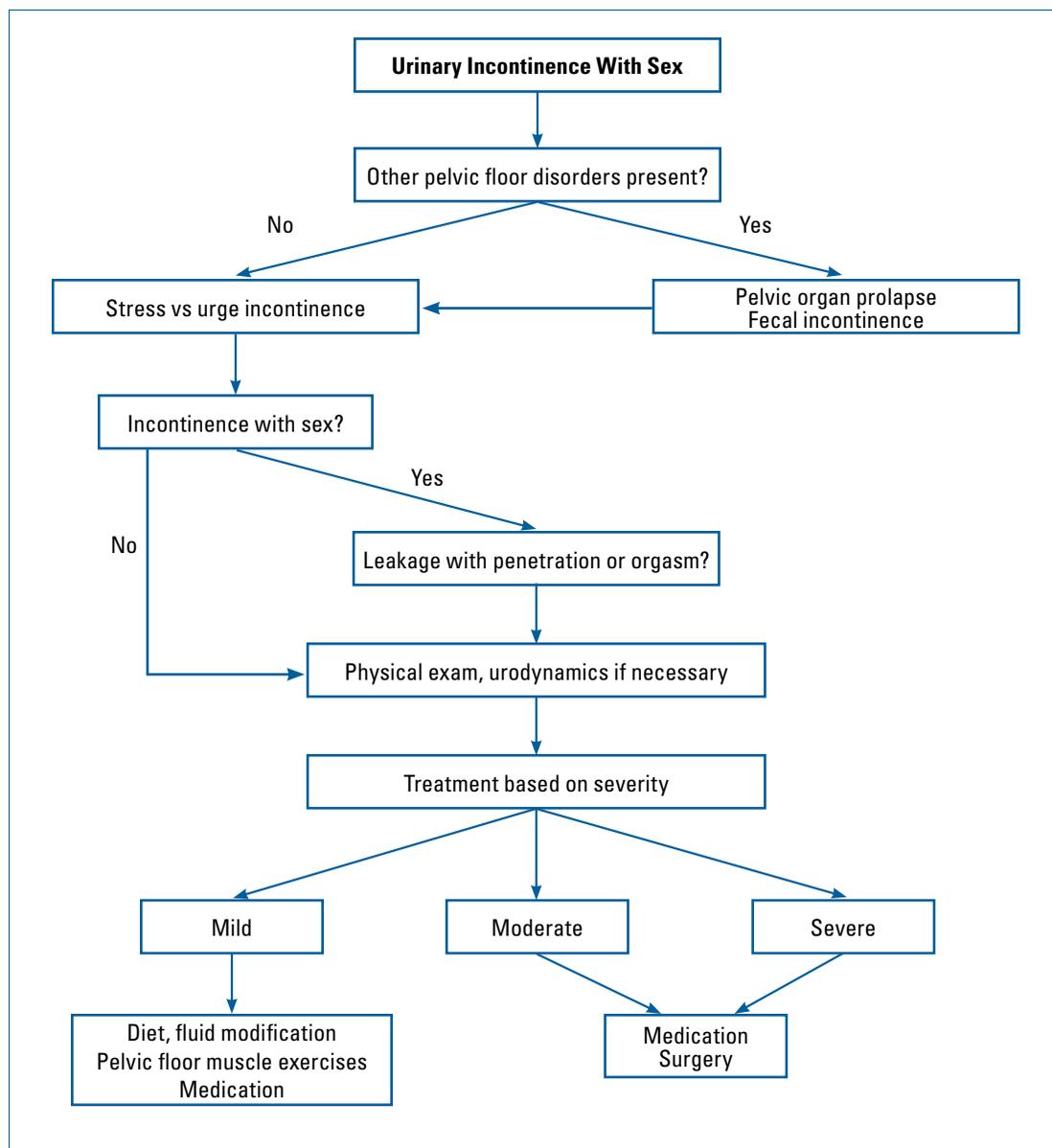


FIGURE. Coital Incontinence Treatment Algorithm.

disrupts intercourse? Concerns had existed about how TVT potentially impacts female sexual function. As a surgical procedure, would there be a negative effect on sensation, scar formation, or pain from a foreign material placed vaginally? The overwhelming consensus in the literature is that TVT does not impart a negative, but rather has a positive, effect on female sexual function, in all measured domains.^{21,22}

A recent study of 100 patients reviewed the impact of TVT on sexual function.²³ Coital

incontinence was reported in this cohort by 68%. Preoperatively, orgasm incontinence was reported by 51%, penetration incontinence by 33%, anxiety by 69%, avoidance by 51%, partner avoidance by 24%, postcoital urinary tract infections by 37%, and incontinence overall negatively impacting on sexual function by 66%. All domains were significantly reduced after TVT surgery. Orgasm incontinence was reduced from 51% to 12%, and penetration incontinence from 33% to 6%. Overall impact on sexual function was reduced from 66% to

TABLE. Overactive Bladder Medications

GENERIC NAME	TRADE NAME
darifenacin	Enablex
fesoterodine	Toviaz
oxybutynin	Ditropan
oxybutynin gel	Gelnique
oxybutynin patch	Oxytrol
solifenacin	VESIcare
tolterodine	Detrol LA
trospium	Sanctura

FOCUSPOINT

PFM training and conservative treatments are always the first line of therapy for either form of CI, with the addition of OAB medication for CI from orgasm.

16%. Data analysis showed greater improvement in SUI was associated with greater improvement in sexual function symptoms. Interestingly, orgasm incontinence, which correlates to DO, was significantly improved with TVT, and as expected, penetration incontinence was improved with TVT. The slightly overall lower cure rates for CI with TVT likely reflects the more severe nature of leakage if it occurs during intercourse.

Tension-free vaginal tape obturator is similar to TVT in regards to the final midurethral position of the sling, despite a different placement technique. A large cohort of 329 patients showed equivalent post-operative improvement in sexual function scores with both sling types.²⁴ Burch colposuspension is another anti-incontinence procedure that is as effective in treating SUI as TVT, but it has fallen somewhat out of favor due to the more invasive nature of suspending the bladder neck and urethra and much longer convalescence.²⁵

CONCLUSION

CI is a result of underlying pelvic floor dysfunction whose etiologies are multifactorial. Well-known risk factors for SUI and OAB include genetic predisposition, race, pregnancy and vaginal birth, age and menopause, hysterectomy, obesity, chronic cough, and constipation. All women should be screened for CI in addition to other aspects of sexual dysfunction.

After a diagnosis of CI is made, whether orgasm- or penetration-related, urodynamics can be performed in the background of a comprehensive work-up to determine an appropriate treatment plan. Review of other sexual dysfunction is also recommended. PFM training and conservative treatments are always the first line of therapy for either form of CI, with the addition of OAB medication for CI from orgasm.

Surgical treatment is available for incontinence with penetration as a cure for SUI in general and has been demonstrated to also help incontinence with orgasm. Unfortunately, no matter the treatment modality, the overall cure rates are slightly lower when compared with women with SUI/OAB but no CI, illustrating the more severe nature of CI. All female sexual domains appear improved after treatment of CI. Questionnaires that address female sexual function, incontinence, and QoL are available and should be employed to help elicit patient symptoms that can be embarrassing. An empathetic and comprehensive pelvic health approach is best to help achieve improved outcomes for incontinence with sex.

The author is a speaker for Proctor & Gamble and Novartis and a proctor for Boston Scientific.

REFERENCES

1. Temml C, Haidinger G, Schmidbauer J, Schatzl G, Madersbacher S. Urinary incontinence in both sexes: prevalence rates and impact on quality of life and sexual life. *Neurourol Urodyn*. 2000;19(3):259-271.
2. Wyman J, Harkins S, Choi S, Taylor JR, Fantl JA. Psychological impact of urinary incontinence in women. *Obstet Gynecol*. 1987;70(3 Pt 1):378-381.
3. Luber KM, Boero S, Choe JY. The demographics of pelvic floor disorders: current observations and future projections. *Am J Obstet Gynecol*. 2001;184(7):1496-1501.
4. McKenzie L, Carson S. Human sexuality and female sexual dysfunction. In: Scott JR, Gibbs RS, Karlan BY, Haney AF, eds. *Danforth's Obstetrics and Gynecology*. 9th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2003.
5. Basson R, Leiblum S, Brotto L, et al. Revised definitions of women's sexual dysfunction. *J Sex Med*. 2004;1(1):40-48.
6. Barber MD, Visco AG, Wyman JF, Fantl JA, Bump RC. Sexual function in women with urinary incontinence and pelvic organ prolapse. *Obstet Gynecol*. 2002;99(2):281-289.
7. Hilton P. Urinary incontinence during sexual intercourse: a common, but rarely volunteered, symptom. *Br J Obstet Gynaecol*. 1988;95(4):377-381.
8. Bachmann GA, Leiblum SR, Grill J. Brief sexual inquiry in gynecologic practice. *Obstet Gynecol*. 1989;73(3 Pt 1):425-427.
9. Espuña Pons M, Puig Clota M. Coital urinary incontinence: impact on quality of life as measured by the King's Health Questionnaire. *Int Urogynecol J Pelvic Floor Dysfunct*. 2008;19(5):621-625.

10. Oh SJ, Choo MS, Kim HS, et al. Generic and disease-specific health-related quality of life in women with coital incontinence: a prospective, multicenter study. *Gynecol Obstet Invest.* 2008;65(1):62-67.
11. Serati M, Salvatore S, Uccella S, et al. Urinary incontinence at orgasm: relation to detrusor overactivity and treatment efficacy. *Eur Urol.* 2008;54(4):911-915.
12. Moran PA, Dwyer PL, Ziccone SP. Urinary leakage during coitus in women. *J Obstet Gynaecol.* 1999;19(3):286-288.
13. Vierhout ME, Gianotten WL. Mechanisms of urine loss during sexual activity. *Eur J Obstet Gynecol Reprod Biol.* 1993;52(1):45-47.
14. Khan Z, Bhola A, Starer P. Urinary incontinence during orgasm. *Urology.* 1988;31(3):279-282.
15. Grafenberg E. The role of urethra in female orgasm. *Int J Sexol.* 1950;3:145-148.
16. Bo K, Talseth T, Vinsnes A. Randomized controlled trial on the effect of pelvic floor muscle training on quality of life and sexual problems in genuine stress incontinent women. *Acta Obstet Gynecol Scand.* 2000;79(7):598-603.
17. Zahariou AG, Karamouti MV, Papaioannou PD. Pelvic floor muscle training improves sexual function of women with stress urinary incontinence. *Int Urogynecol J Pelvic Floor Dysfunct.* 2008;19(3):401-406.
18. Seo JT, Choe JH, Lee WS, Kim KH. Efficacy of function electrical stimulation-biofeedback with sexual cognitive-behavioral therapy as treatment of vaginismus. *Urology.* 2005;66(1):77-81.
19. Berghmans LC, Hendriks HJ, De Bie RA, et al. Conservative treatment of urge urinary incontinence in women: a systematic review of randomized clinical trials. *BJU Int.* 2000;85(3):254-263.
20. Giuseppe PG, Pace G, Vicentini C. Sexual function in women with urinary incontinence treated by pelvic floor transvaginal electrical stimulation. *J Sex Med.* 2007;4(3):702-707.
21. Karlovsy ME, Thakre AA, Rastinehad A, Kushner L, Badlani GH. Biomaterials for pelvic floor reconstruction. *Urology.* 2005;66(3):469-475.
22. Pace G, Vicentini C. Female sexual function evaluation of the tension-free vaginal tape (TVT) and transobturator suburethral tape (TOT) incontinence surgery: results of a prospective study. *J Sex Med.* 2008;5(2):387-393.
23. Jha S, Radley S, Farkas A, Jones G. The impact of TVT on sexual function. *Int Urogynecol J Pelvic Floor Dysfunct.* 2009;20(2):165-169.
24. Murphy M, van Raalte H, Mercurio E, et al. Quality of life and sexual function following tension-free vaginal tape versus the "in-to-out" tension-free vaginal tape obturator. Presented at: International Continence Society annual meeting; August 20-24, 2007; Rotterdam, The Netherlands. Abstract 468.
25. McCracken GR, Henderson NA, Ashe RG. Five year follow-up comparing tension-free vaginal tape and colposuspension. *Ulster Med J.* 2007;76(3):146-149.