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Overactive Bladder After Gender-affirming Vaginoplasty

Patrick Ho^{a,*}, Camille Torres^a, Francisco Andrade^b, Michael Palese^a, Miroslav Djordjevic^c, Rajveer S. Purohit^a^a Department of Urology, Mount Sinai Hospital, New York, NY^b State University of New York Downstate Health Sciences University, Brooklyn, NY^c University of Belgrade Department of Surgery and Urology, Belgrade, Serbia

A B S T R A C T

Objective: To assess overactive bladder symptoms and identify risk factors for worsened symptoms after vaginoplasty in transgender women.**Methods:** This was a retrospective longitudinal study examining changes in overactive bladder (OAB) symptoms of transgender women undergoing vaginoplasty. All participants completed the 19-question Overactive Bladder Questionnaire Short-Form (OAB-q SF) to assess urinary symptoms before and after vaginoplasty. Medians of OAB-q SF scores, including Symptom Bother and Health-Related Quality of Life (HRQL) sub-scores, were measured. Changes in scores were compared using Wilcoxon signed-rank tests. Data were further stratified by factors such as age at the time of surgery and type of vaginoplasty performed.**Results:** Fifty-three transgender women undergoing vaginoplasty were evaluated. Median time from surgery to postoperative questionnaire was 29 weeks. About 53% underwent peritoneal flap vaginoplasty (PFV), 21% penile inversion vaginoplasty (PIV), 15% minimal depth vaginoplasty (MDV), and 11% sigmoid vaginoplasty (SV). For all patients, statistically significant HRQL declines were noted postoperatively (96.9/100 vs 93.8/100, $P = .020$). When stratified by age, the oldest quartile of patients (44 to 71 years old) experienced the largest worsening of Symptom Bother (6.7/100 vs 20/100, $P = .020$) and HRQL (96.9/100 vs 90.8/100, $P = .008$). When stratified by vaginoplasty type, PFV had a significant decrease in HRQL (96.9/100 vs 93.8/100, $P = .023$).**Conclusion:** Patients undergoing vaginoplasty can experience worsening of overactive bladder symptoms affecting their quality of life, which in our series was more pronounced in older individuals and those undergoing PFV. However, the clinical significance of these symptom changes is unclear, suggesting that overall effects of vaginoplasty on OAB symptoms are limited.

Approximately 0.5%–1.3% of the United States population identifies as transgender.¹ An analysis of the Nationwide Ambulatory Surgery Sample and the National Inpatient Sample found an upward trend in gender-affirming surgery (GAS), nearly tripling from 2016 to 2019.² Surgical interventions encompassed by GAS include procedures involving the breast and chest, facial surgeries, and genital reconstructive surgery. In addition to orchiectomy, the other common genital reconstructive surgery for transfeminine individuals is vaginoplasty, which typically involves deconstruction of the male genitalia with penectomy, orchiectomy, partial urethrectomy; and then construction of female genitalia with vulvoplasty, clitoroplasty, and creation of a neovaginal canal. Common options for creating depth in the vaginal canal include augmenting the phallic skin flap with a free graft typically from the scrotum (penile inversion vaginoplasty), phallic skin flap augmented by skin graft and peritoneal flap (peritoneal flap vaginoplasty), and a phallic skin flap augmented with sigmoid (sigmoid vaginoplasty).

Lower urinary tract symptoms (LUTS) and complications reported after vaginoplasty include urinary incontinence, overactive bladder (OAB), urethral stricture, abnormal stream, urinary tract infection, and urethrovaginal or prostatovaginal fistula.³ Overactive bladder symptoms have been documented to occur in up to nearly one-third of postoperative patients and can

occur from a variety of causes.³ There is very little data on changes in urinary symptoms that can occur after vaginoplasty using more detailed instruments such as questionnaires. Typically reports have presented LUTS and OAB as a binary variable, ie, as present or not to describe urinary symptoms and often do not distinguish these 2 sets of symptoms. Overactive bladder is characterized as urinary urgency with or without urge incontinence and is often accompanied by urinary frequency and nocturia.⁴ Lower urinary tract symptoms include OAB, but also include any other bothersome urinary symptoms, such as obstructive urinary symptoms, including slow urinary stream and double voiding as well as dysuria.

There are potentially anatomic issues that may cause LUTS, such as fistulas, urethral strictures, and meatal stenosis. However, there are a variety of non-anatomic variables that may potentially impact urination, both negatively or positively. One variable includes medications, such as spironolactone which is used frequently as an anti-androgen and can also act as a diuretic thereby causing urinary frequency. Patients undergoing vaginoplasty will also have an orchiectomy done also circumventing the need, postoperatively, for spironolactone. In addition, creation of the space for the vaginal canal includes dissection of the space anterior to the anterior rectal fascia and extending up to the inferior and posterior bladder up to the

* Address correspondence to: Patrick Ho, M.D., Mount Sinai Hospital Department of Urology, 1 Gustav Levy Place, New York, NY 10128.
E-mail address: Patrick.ho@mountsinai.org (P. Ho).

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level of the peritoneal reflection. This dissection may potentially injure parasympathetic or sympathetic nerves and affect urinary function. In the colorectal literature, the postoperative rate of bladder dysfunction following low anterior resection was 25%.⁵ Sites associated with autonomic nerve damage in abdominoperineal surgery include the inferior mesenteric artery, sacral promontory, posterolateral rectum, and anterolateral rectum. The loss of parasympathetic innervation, particularly from hypogastric nerves to detrusor muscles, results in ineffective contractions and bladder spasms.⁶ Vaginoplasty may involve similar anatomic spaces. The dissection of the vaginal canal for PIV typically occurs from an inferior to superior plane and for the PFV mostly from a superior to inferior plane which may also alter likelihood of nerve injury. In addition, PFV typically harvests peritoneum that overlies the bladder which may also have an impact on bladder function.

Despite the increasing prevalence of GAS, there is a paucity of data using validated instruments regarding the common urinary complaints following vaginoplasty. These symptoms may be overlooked, yet many times represent increased morbidity to these patients. Patients are often lost to follow-up because many travel to obtain surgery or may experience financial burden. Additionally, data on genital reconstructive surgery is difficult to isolate due to limitations of bioinformatic systems.⁷ Although there is potential for significant changes in urinary symptoms, there is currently no study comparing preoperative and postoperative symptoms using a detailed validated urinary questionnaire. In addition, there are no studies comparing changes in urinary symptoms between PFV and PIV.

Our study specifically looked at OAB symptoms before and after vaginoplasty with respect to different techniques used for the neovaginal canal to identify risk factors for worsened symptoms after surgery.

METHODS

A retrospective longitudinal study was performed of patients who underwent transfeminine gender-affirming surgery from 2022 to 2024 at a single institution, as part of an IRB-approved study (IRB 20–01595).

Patients were included if they underwent vaginoplasty and completed a preoperative and postoperative questionnaire assessing urinary symptoms, namely the Overactive Bladder Questionnaire Short-Form (OAB-q SF). Patients were excluded from analysis if their surgery was not an index surgery or if they did not complete either a preoperative or postoperative questionnaire. Administration of the OAB-q SF was part of a routine intake process during periodic clinic visits.

The OAB-q SF is a validated 19-item questionnaire used to evaluate 2 domains of overactive bladder (OAB): symptom bother and health-related quality of life (HRQL) (Appendix A).⁸ This patient-reported outcome (PRO) questionnaire asks respondents to report the frequency of symptoms related to over 4-week period. The symptom bother domain focuses on items such as urinary urgency and nocturia, whereas the HRQL domain focuses on items such as self-esteem and social impact. A higher symptom bother score and lower HRQL score indicate worse OAB symptoms. For example, a symptom bother score of 32/100 coincided with very minor symptoms and a score of 64/100 with very severe symptoms in a validation study by the authors of the questionnaire.⁹ A minimally important difference of 10 points in each domain was used based on a prior study.¹⁰ The OAB-q SF was validated to discriminate symptoms between patients with OAB and healthy controls. The subscales also showed sensitivity to treatment benefit for patients treated for OAB. This questionnaire was created in an effort to decrease the burden of the original 33-item Overactive Bladder Questionnaire.⁹ One of the major differences between the OAB-q SF and unabridged questionnaire is that individual HRQL domains (Coping, Concern, Sleep, and Social Interaction) were not included in the short form.

Types of vaginoplasty included penile inversion vaginoplasty (PIV), minimal depth vaginoplasty (MDV), peritoneal flap vaginoplasty (PFV), and sigmoid vaginoplasty (SV). In patients who underwent PIV, a neovaginal canal was created using scrotal skin graft sewn to the inverted penile skin.¹¹ MDV was performed in patients who did not desire vaginal depth; as such no scrotal skin was used and no canal was dissected during the surgery. PFV

was performed using a robotic approach with the creation of a neovaginal canal using scrotal skin flaps and anterior and posterior peritoneal flaps.¹² Initial incision is made horizontally along the peritoneal ridge along the rectovesical junction. Dissection is then continued underneath the prostate and seminal vesicles within Denonvillier's fascia toward the pelvic floor where the robotic and perineal surgeons meet. After a series of dilations confirming adequate width of canal, the scrotal skin flap (already sutured to the penile skin flap) is then everted into the vaginal canal, and delivered to the robotic surgeon who will suture the peritoneal flaps already developed. Finally, in patients who underwent SV, a sigmoid colon flap was harvested robotically and adjoined to the inverted penile skin flap in a similar fashion to the PFV.

Once surgery is completed and postoperative recovery is uneventful, the patients are discharged home with indwelling 18Fr Dover foley catheter and vaginal packing in place. Initial postoperative visit is 1 week after the surgery where packing and catheter are removed. During this visit, the anatomy is shown to the patient in detail, explaining location of clitoris, meatus, introitus and showing labia majora and minora. This is an important step to educate patients about adequate dilation through introitus and avoiding meatal injury during dilations due to inadvertent pressure of urethra. Once anatomy is discussed, the staff will do the first dilation together with the patient. Patients return to the office 1 month, 6 months, and 12 months after the surgery for follow-up of urinary symptoms, as well as female sexual symptoms and a physical exam. The frequency of postoperative visits may change depending on each individual case (urinary concerns, wound healing concerns, travel issues). OAB-q SF are provided online during the preoperative period and later on, once the patient has completed surgery. All questionnaires were administered in English, as all patients were English-speaking.

Demographic variables were collected for each patient, including race and age at surgery. The primary outcome of interest was change in OAB-q SF symptom bother and HRQL scores, which were calculated according to Coyne et al (Appendix A).⁸ Statistics were performed using Stata 16 (StataCorp, College Station, TX). Medians of OAB-q SF scores, including Symptom Bother and Health-Related Quality of Life (HRQL) sub-scores, were measured. Changes in OAB-q SF scores were compared within individuals using a paired (repeated-measures) Wilcoxon signed-rank test. Data were further stratified by factors such as age at the time of surgery and type of vaginoplasty performed. Statistical test results were deemed significant for *P*-values less than .05.

RESULTS

Two hundred forty-seven transgender women underwent vaginoplasty during the study period, of whom 53 patients met the inclusion criteria for this study. The prevailing reason for patients to be excluded was incomplete OAB-q SF completion. The median patient age was 31-years-old, and the majority (58%) of patients were white (Table 1). About half of the patients were on spironolactone prior to surgery, and no patient remained on spironolactone after surgery. The median time from surgery to postoperative questionnaire was 29 weeks (IQR 49 weeks). Twenty-eight patients (53%) underwent PFV, 11 patients (21%) underwent PIV, 8 patients (15%) underwent MDV, and 6 patients (11%) underwent SV. The average time from surgery to postoperative OAB-q SF was 37 weeks. The shortest time to postoperative questionnaire was 3 weeks. No patients were noted to develop fistulas postoperatively, 1 patient was documented to have a UTI, and 1 patient was noted to have urethral meatal stenosis postoperatively, requiring cystoscopy and dilation.

Preoperative median Symptom Bother and HRQL scores did not illustrate a high prevalence of baseline OAB symptoms in this population (Table 2). On Wilcoxon signed-rank test, change in Symptom Bother scores after vaginoplasty for all patients was not statistically significant (6.7/100 vs 13.3/100, *P* = .107). However, statistically significant HRQL declines were noted postoperatively (96.9/100 vs 93.8/100, *P* = .020).

In order to determine if certain patient or surgical factors contributed to changes in OAB symptoms, we stratified patients by age,

Table 1
Patient demographics.

Characteristic	All Participants
N (%)	53 (100%)
Age (Median, IQR)	31 +/- 14
Race/Ethnicity	
White	31 (58%)
Black	8 (15%)
Asian	4 (8%)
Other	10 (19%)
Vaginoplasty Type	
PFV	28 (53%)
PIV	11 (21%)
MDV	8 (15%)
SV	6 (11%)
Spironolactone Use Pre-op	27 (51%)

vaginoplasty type, and time after surgery to questionnaire completion. When stratified by age, the oldest quartile of patients (44 to 71 years old) experienced the greatest worsening of Symptom Bother (6.7/100 vs 20/100, $P = .020$) and HRQL (96.9/100 vs 90.8/100, $P = .008$) after vaginoplasty. None of the other age quartiles experienced statistically significant worsening of Symptom Bother or HRQL.

Upon stratification by vaginoplasty type, only patients who underwent PFV experienced a significant decrease in HRQL after surgery (96.9/100 vs 93.8/100, $P = .023$). None of the patients who underwent other types of vaginoplasty experienced worsening of OAB symptoms. Finally, when stratified by time from surgery to OAB-q SF in quartiles, no quartile had a statistically significant change in Symptom Bother or HRQL. Preoperatively, 13% of patients were on a medication for LUTS, such as oxybutynin or tamsulosin. Postoperatively, this proportion was 8%.

DISCUSSION

Given the manipulation of the lower urinary tract that surgery entails, one might consider the potential impact of gender-affirming vaginoplasty to be significant on urinary function. There have been multiple means of describing and assessing urinary function, including subjective questionnaires, bladder diaries, uroflow, and validated questionnaires. The wide prevalence of lower urinary tract symptoms in patients who have undergone GAS has been well documented in the literature. In a review of 10 retrospective studies of patients primarily undergoing PIV, Kreines et al found complaints of urinary frequency after vaginoplasty to be 20%-30% and urinary urgency from 12%-20%.³ Various studies have found that many patients report symptoms of OAB after surgery, such as urgency, frequency, and nocturia, as well as worse or dysfunctional voiding.¹³⁻¹⁶ However, these studies all solely examined patients in the postoperative setting with surveys that were unable to be quantified or compared with preoperative symptoms.

The impact of non-urologic major pelvic surgery on urinary symptoms has been documented in the literature. In a study of men who underwent abdominoperineal resections for cancer or ulcerative colitis, Blaiwas et al performed urodynamic studies demonstrating electromyographic evidence

of parasympathetic and pudendal denervation in 38% and 54% of patients, respectively.¹⁷ In surgical resection of rectal cancer, it has been hypothesized that damage to the superior hypogastric plexus and hypogastric nerves contribute to pathology such as detrusor overactivity leading to urinary dysfunction.¹⁸ This would be consistent with our data showing increased LUTS for PFV patients, as those nerves travel near the peritoneal reflection overlying the posterior bladder. Given the multifactorial etiology of lower urinary tract dysfunction after pelvic surgery, it may be beneficial to routinely monitor urinary symptoms after peritoneal flap vaginoplasty to more appropriately address their symptoms. For other major pelvic surgery, Bosch et al published the results of a debate favoring screening patients for lower urinary tract symptoms because of its high incidence.¹⁹

Although prior studies have examined urinary tract symptoms in patients after vaginoplasty, these reports have significant limitations. To our knowledge, all other studies examined solely cross-sectional postoperative data^{13,20} and many used non-validated questionnaires or subjective interviews^{15,16,20} to describe the frequency of patients who reported urinary symptoms. Two other validated questionnaires have been used to assess urinary symptoms in transgender patients. These include the King's Health Questionnaire,^{13,21} a urinary incontinence-specific HRQL instrument, and the 33-question "Affirming surgery Form and Function Individual Reporting Measure" (AFFIRM),¹⁴ which examines symptoms across appearance, urologic, and gynecologic domains after transfeminine genital affirming surgery. The questionnaire we used in our study, the OABq-SF, is a validated 19-item questionnaire that specifically examines overactive bladder symptoms across domains of symptom bother and HRQL. This questionnaire was chosen for our study, as incontinence is a less commonly reported symptom after vaginoplasty, and our objective was to focus on the impact of surgery on urinary symptoms specifically.

Our study is the first to report effects of vaginoplasty on OAB using a detailed validated questionnaire. We found that there was a statistically significant decline in HRQL score after vaginoplasty for all patients. Median Symptom Bother scores doubled after surgery, but were not found to be statistically significant. We did find that certain subgroups, namely patients who underwent PFV and older patients, experienced worsening of symptoms that affected their quality of life. For PFV patients, a possible explanation for the worsening of storage symptoms is that manipulation of the peritoneum on the posterior aspect of the bladder wall altered sensory signals in the micturition pathway. Dissecting in the rectoprostatic space alone, such as in the PIV approach, would not be expected to affect bladder innervation. Going forward, the MDV patients could be considered a control group given the minimal pelvic dissection that theoretically contributes to urinary symptoms. Older patients may have comorbid conditions such as diabetes or benign prostatic obstruction that place them at higher risk for OAB symptoms. However, many of these patients are hormonally blocked preoperatively with either spironolactone or estrogen, so it is expected that outlet obstruction secondary to enlarged prostates would be lower than normal. It is possible that those older patients who had worsening of their symptoms started hormonal therapy later in life. Interestingly, for patients in the oldest age quartile, preoperative symptom bother score and HRQL was not higher than those of other cohorts. There was no significant difference by age quartile and preoperative usage of LUTS medications on chi-square analysis.

Table 2
Changes in OAB symptom scores after vaginoplasty.

	Pre-op Symptom Bother	Post-op Symptom Bother	P-value*	Pre-op HRQL	Post-op HRQL	P-value*
Total Patients (n = 53)	6.7 (16.7)	13.3 (20)	.107	96.9 (10.8)	93.8 (18.5)	.020
PFV (n = 28)	6.7 (16.7)	13.3 (26.7)	.116	96.9 (11.5)	93.8 (19.2)	.023
Other Vaginoplasty (n = 25)	6.7 (13.3)	13.3 (16.7)	.464	96.9 (10.8)	93.8 (13.8)	.386
Age Quartiles						
1st, 21-27 y.o. (n = 15)	6.7 (20)	10 (26.7)	.31	100 (15.4)	96.9 (10.8)	.41
2nd, 28-31 y.o. (n = 15)	6.7 (13.3)	10 (20)	.65	96.9 (10.8)	95.4 (18.5)	.16
3rd, 33-41 y.o. (n = 10)	15 (36.6)	10 (26.7)	.25	88.5 (9.2)	93.8 (23.1)	.51
4th, 44-71 y.o. (n = 13)	6.7 (13.3)	20 (20)	.02	96.9 (4.6)	90.8 (16.9)	.008

Bold value indicates significant values (P -value < .05)

The evidence of surgical impact on urinary symptoms after vaginoplasty is perhaps the strongest in the literature for Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome, a result of Mullerian agenesis in women. In a 2019 cross-sectional survey of 331 MRKH patients who underwent vaginal lengthening treatment, there was no difference in the impact of urinary symptom on quality of life between patients who had vaginoplasty and those who did not.²² In a separate study of 19 MRKH patients who underwent PFV, participants completed urinary incontinence questionnaires before and after surgery.²³ Two patients experienced urinary incontinence postoperatively which resolved after 3 months postoperatively. While these studies suggest that vaginoplasty may not create significant urinary symptoms after surgery that did not exist previously, they examine an entirely different population who are undergoing vaginoplasty for different reasons.

Approximately half of patients in our study were taking spironolactone prior to vaginoplasty. On Wilcoxon-rank sum test, preoperative spironolactone use was not associated with worse preoperative symptom bother scores. One limitation of our data is that we did not track patients' symptoms over time. For example, in major pelvic surgery, urinary symptoms are cited as resolving over a period of 6-12 months.¹⁹ Our median time from surgery to questionnaire was 29 weeks, which should have a sufficient length of time that inflammation of the urinary tract to have declined and not distort results. Going forward, looking at the data longitudinally is a possible step to examine recovery after worsening of symptoms.

This study has several major strengths. It is the only study to our knowledge to quantitatively assess changes in urinary symptoms before and after gender-affirming vaginoplasty. While it is known that urinary complaints are common in patients who have undergone genital reconstructive surgery, there is little known about how much of an impact is attributable to surgery and to what type of surgery. The results of our subgroup analysis are an important addition to the GAS literature in that it has important implications for preoperative patient counseling. If patients already have baseline urinary storage symptoms and are evaluating options for neovaginal canal creation, they can be counseled that a PFV may carry with it a higher risk of exacerbating those symptoms. A similar conversation can be had to explain the risk for older patients who will undergo vaginoplasty.

One of the major limitations of this paper is the question of clinical significance of the worsened symptoms. While we did find statistically significant differences in Symptom Bother and HRQL, it is possible that the difference was not clinically significant. For example, even though the Symptom Bother scores tripled ($P = .02$) for patients in the oldest age quartile, their median postoperative Symptom Bother score was 20 out of 100 which would still be considered relatively minor among patients with OAB.⁹ A 2006 study by Coyne et al examining patients treated for OAB found that the score difference between no treatment benefit and a little benefit was 4.0 to 16.5.¹⁰ These authors supported a 10-point minimally important difference for patients to report significant treatment benefit, which our score changes did not reach. Another limitation was that there may have been selection bias of patients included in the analysis. It is possible that patients who did not have worsened symptoms were less likely to follow-up and thus less

likely to complete a postoperative questionnaire. Finally, the OAB-q SF was not a questionnaire specifically designed for patients who identify as transgender. Perhaps certain life domains in the questionnaire could be weighted more appropriately for transwomen, such as avoiding activities not in close proximity to restrooms. Other limitations include that our assessment of LUTS was solely through a patient-reported outcome questionnaire, whereas other objective measures, such as Uroflow or bladder diaries could have been used. Going forward with longer-term data, we can also assess the chronicity of these LUTS in our patients.

Conclusion

In our series, patients who underwent gender-affirming vaginoplasty had statistically significant worsening of overactive bladder symptoms with regards to their health-related quality of life. In a subset of patients who underwent PFV, symptoms worsened more than in those who underwent other forms of vaginoplasty. Similarly, older patients experienced worse symptoms postoperatively than younger patients. However, the clinical significance of these symptom changes is unclear. The magnitude of changes in our patients compared to an established minimally important difference suggests that the overall effects of vaginoplasty on OAB symptoms are limited.

IRB number

IRB 20–01595.

Disclosures

The authors declare that they have no relevant financial interests.

CRediT Authorship Contribution Statement

Patrick Ho: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Camille Torres:** Writing – original draft, Data curation, Conceptualization. **Francisco Andrade:** Writing – original draft, Data curation. **Michael Palese:** Project administration, Investigation, Data curation. **Miroslav Djordjevic:** Writing – review & editing, Investigation, Data curation, Conceptualization. **Rajveer S. Purohit:** Writing – review & editing, Project administration, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors have no conflict of interest to declare.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

The authors did not use generative AI or AI-assisted technologies in the development of this manuscript.

Appendix A. OAB-q SF

Coyne KS, Thompson CL, Lai JS, Sexton CC. An overactive bladder symptom and health-related quality of life short-form: validation of the OAB-q SF. *Neurourol Urodyn.* 2015;34(3):255–63.

OAB-q Short-Form

This questionnaire asks about how much you have been bothered by selected bladder symptoms during the past 4 weeks. Please place a ✓ or x in the box that best describes the extent to which you were bothered by each symptom during the past 4 weeks. There are no right or wrong answers. Please be sure to answer every question.

During the past 4 weeks, how bothered were you by . .	Not at all	A little bit	Some-what	Quite a bit	A great deal	A very great deal
1. An uncomfortable urge to urinate?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2. A sudden urge to urinate with little or no warning?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3. Accidental loss of small amounts of urine?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4. Nighttime urination?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5. Waking up at night because you had to urinate?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6. Urine loss associated with a strong desire to urinate?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

During the past 4 weeks, how often have your bladder symptoms	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
1. Caused you to plan "escape routes" to restrooms in public places?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2. Made you feel like there is something wrong with you?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3. Interfered with your ability to get a good night's rest?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4. Made you frustrated or annoyed about the amount of time you spend in the restroom?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5. Made you avoid activities away from restrooms (i.e., walks, running, hiking)?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6. Awakened you during sleep?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
7. Caused you to decrease your physical activities (exercising, sports, etc.)?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
8. Caused you to have problems with your partner or spouse?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
9. Made you uncomfortable while traveling with others because of needing to stop for a restroom?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
10. Affected your relationships with family and friends?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
11. Interfered with getting the amount of sleep you needed?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
12. Caused you embarrassment?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
13. Caused you to locate the closest restroom as soon as you arrive at a place you have never been?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

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References

- Chen ML, Reyblat P, Poh MM, Chi AC. Overview of surgical techniques in gender-affirming genital surgery. *Transl Androl Urol*. 2019;8:191–208.
- Wright JD, Chen L, Suzuki Y, Matsuo K, Hershman DL. National estimates of gender-affirming surgery in the US. *JAMA Netw Open*. 2023;6:e2330348.
- Kreines F.M., Hughes-Hogan L., Cifuentes M. Lower Urinary Tract Symptoms After Vaginoplasty: a Review.
- Abrams P, Cardozo L, Fall M, et al. The standardisation of terminology in lower urinary tract function: report from the standardisation sub-committee of the International Continence Society. *Urology*. 2003;61:37–49.
- Chaudhri S, Maruthachalam K, Kaiser A, Robson W, Pickard RS, Horgan AF. Successful voiding after trial without catheter is not synonymous with recovery of bladder function after colorectal surgery. *Dis Colon Rectum*. 2006;49:1066–1070.
- Giglia MD, Stein SL. Overlooked long-term complications of colorectal surgery. *Clin Colon Rectal Surg*. 2019;32:204–211.
- Blasdel G, Dy GW, Nikolavsky D, Ferrando CA, Bluebond-Langner R, Zhao LC. Urinary reconstruction in genital gender-affirming surgery: checking our surgical complication blind spots. *Plast Reconstr Surg*. 2024;153:792e–803e.
- Coyne KS, Thompson CL, Lai JS, Sexton CC. An overactive bladder symptom and health-related quality of life short-form: validation of the OAB-q SF. *NeuroUrol Urodyn*. 2015;34:255–263.
- Coyne K, Revicki D, Hunt T, et al. Psychometric validation of an overactive bladder symptom and health-related quality of life questionnaire: the OAB-q. *Qual Life Res*. 2002;11:563–574.
- Coyne KS, Matza LS, Thompson CL, Kopp ZS, Khullar V. Determining the importance of change in the overactive bladder questionnaire. *J Urol*. 2006;176:627–632.
- Bowers ML, Purohit RS, Djordjevic ML. Chapter 6 - vaginoplasty: bowers' version. *Atlas of Operative Techniques in Gender Affirmation Surgery*. Academic Press.; 2023:83–106.
- Alford A, Mishra K, Bluebond-Langner R, Zhao LC, Purohit RS, Djordjevic ML. Chapter 10 - robotic peritoneal flap vaginoplasty. *Atlas of Operative Techniques in Gender Affirmation Surgery*. Academic Press.; 2023:157–165.
- Kuhn A, Hildebrand R, Birkhäuser M. Do transsexuals have micturition disorders? *Eur J Obstet Gynecol Reprod Biol*. 2007;131:226–230.
- Huber S, Ferrando C, Safer JD, et al. Development and validation of urological and appearance domains of the post-affirming surgery form and function individual reporting measure (AFFIRM) for transwomen following genital surgery. *J Urol*. 2021;206:1445–1453.

15. Potter E, Sivagurunathan M, Armstrong K, et al. Patient reported symptoms and adverse outcomes seen in Canada's first vaginoplasty postoperative care clinic. *NeuroUrol Urodyn*. 2023;42:523–529.
16. Hoebeke P, Selvaggi G, Ceulemans P, et al. Impact of sex reassignment surgery on lower urinary tract function. *Eur Urol*. 2005;47:398–402.
17. Blaivas JG, Barbalias GA. Characteristics of neural injury after abdominoperineal resection. *J Urol*. 1983;129:84–87.
18. **Cheung F., Sandhu J.S. Voiding Dysfunction After Non-urologic Pelvic Surgery.**
19. Bosch JL, Norton P, Jones JS. Should we screen for and treat lower urinary tract dysfunction after major pelvic surgery? ICI-RS 2011. *NeuroUrol Urodyn*. 2012;31:327–329.
20. Melloni C, Melloni G, Rossi M, et al. Lower urinary tract symptoms in male-to-female transsexuals: short terms results and proposal of a new questionnaire. *Plast Reconstr Surg Glob Open*. 2016;4:e655.
21. Kelleher CJ, Cardozo LD, Khullar V, Salvatore S. A new questionnaire to assess the quality of life of urinary incontinent women. *Br J Obstet Gynaecol*. 1997;104:1374–1379.
22. Pennesi CM, English EM, Bell S, Lossie AC, Quint EH, Swenson CW. Prevalence of urinary, prolapse, and bowel symptoms in Mayer-Rokitansky-Küster-Hauser syndrome. *Am J Obstet Gynecol*. 2021;225:70.e1–70.e12.
23. Baruch Y, Nale R, Parma M, et al. Lower urinary tract symptoms in patients with Mayer-Rokitansky-Küster-Hauser syndrome after neo-vagina creation by Davydov's procedure. *Int Urogynecol J*. 2020;31:2529–2533.