


## CLINICAL ARTICLE

# Patient reported symptoms and adverse outcomes seen in Canada's first vaginoplasty postoperative care clinic

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## Abstract

**Importance:** Vaginoplasty is a relatively common gender-affirming surgery with approximately 200 Ontarians seeking this surgery annually. Although Ontario now offers vaginoplasty in province, the capacity is not meeting demand; the majority of trans and gender-diverse patients continue to seek vaginoplasty out of province. Out-of-province surgery presents a barrier to accessing postsurgical follow-up care leaving most patients to seek support from their primary care providers or providers with little experience in gender-affirming surgery.

**Objective:** To provide an account of the common postoperative care needs and neovaginal concerns of Ontarians who underwent penile inversion vaginoplasty out of province and presented for care at a gender-affirming surgery postoperative care clinic.

**Design, Settings, and Participants:** A retrospective chart review of the first 80 patients presenting to a gender-affirming surgery postoperative care clinic who had undergone vaginoplasty at an outside surgical center was performed. Descriptive analyses were performed for all variables.

**Results:** The sample consisted of 80 individuals with the mean age of 39 years (19–73). Most patients had surgery at another surgical center in Canada (76.3%). Many patients (22.5%) accessed care in the first 3 months after surgery, with the majority (55%) seeking care within the first perioperative year. Most patients (61.3%) were seen for more than one visit and presented with more than two symptoms or concerns.

Common patient-reported symptoms during clinical visit included pain (53.8%), dilation concerns (46.3%), and surgical site/vaginal bleeding (42.5%). Sexual function concerns were also common (33.8%) with anorgasmia (11.3%) and dyspareunia (11.3%) being the most frequent complications. The most common adverse outcomes identified by health care providers included hypergranulation (38.8%), urinary dysfunction (18.8%), and wound healing issues (12.5%).

**Conclusions and Relevance:** Findings from chart review offer valuable insights into the postoperative needs and neovaginal concerns of Ontarians who have had vaginoplasty out of province. This study demonstrates the need for routine postoperative care in patients undergoing vaginoplasty. Patients experience numerous symptoms and concerns that often correlate with clinical findings and require multiple follow-up appointments. Health care providers may benefit from further education on the more common nonsurgical issues identified in this study.

#### KEYWORDS

chart review, gender-affirming surgery, neovagina, outcomes, vaginoplasty

## 1 | INTRODUCTION

Transgender, nonbinary, and gender diverse (TGD) individuals have unique health care needs that may include gender-affirming hormone treatment and/or transition-related surgery (TRS). TRS (also known as gender-affirming surgery) refers to different procedures that help TGD individuals meet their gender-related goals. An Ontario study found that 71.1% of TGD individuals surveyed had or were planning to have TRS in the future.<sup>1</sup> Vaginoplasty is a type of TRS that is performed to create a vulva and vaginal canal. Penile inversion vaginoplasty, in which the vaginal canal is created using penile and scrotal skin, is the most common vaginoplasty procedure and considered the gold standard technique.<sup>2,3</sup> Vaginoplasty is a frequently sought procedure with 15% of transfeminine people in Canada having undergone this surgery.<sup>4</sup>

Up until 2019, Ontario patients had no in-province access to vaginoplasty. Today, the majority of Ontarians continue to have vaginoplasty out of province. A number of issues arise when patients travel long distances from home for surgery such as increased costs and difficulty in accessing postsurgical follow-up care.<sup>5</sup> Traveling long distances for surgery has been associated with higher rates of complications and increased risk of adverse surgical outcomes.<sup>6,7</sup> In an Ontario report, 40% of patients reported inadequate or no follow-up during postsurgical recovery from TRS.<sup>8</sup> The necessity of travel to receive TRS care is not unique to Ontario, however, and is common in many countries, including the United States.<sup>9</sup>

Current research focuses on major postoperative adverse outcomes.<sup>3,10,11</sup> The most recent systematic review found a 1% risk of fistula, 11% risk of stenosis or stricture, 4% risk of tissue necrosis, and 3% risk of prolapse.<sup>2</sup> These are adverse outcomes that occur in small numbers after vaginoplasty. However, there is a

stagnancy of reports on minor adverse outcomes and complications which may be harder to capture but may significantly impact quality of life. Robust outcome data in vaginoplasty such as long-term outcomes and the prevalence of gynecologic concerns is lacking.<sup>5,12</sup> Given this context, the purpose of this study was to provide information regarding the postoperative care needs and neovaginal concerns of patients referred for postsurgical follow-up care from an external facility. In so doing, we aim to fill an important knowledge gap related to postoperative care needs and ongoing vaginal concerns of patients having vaginoplasty. By increasing awareness of these concerns, we hope to be better able to inform and prepare patients before surgery as well as better target education for those health care providers in the community (e.g., primary care providers, gynecologists, urologists) that are providing preoperative education or postoperative care.

## 2 | METHODS

### 2.1 | Setting

Women's College Hospital (WCH) launched the first publicly administered and publicly-funded comprehensive TRS program in Canada with the intention to increase access to high-quality TRSs and postoperative care for TGD patients. The WCH TRS program offers primary upper (breast augmentation and mastectomy/chest masculinization) and lower surgeries (orchiectomy, scrotoectomy, hysterectomy, and penile inversion vaginoplasty). Additionally, WCH also offers a TRS Postoperative Care Clinic to provide postoperative care for patients who have undergone lower surgeries at an external surgical site. In the first 2 years since this clinic opened its doors, it received 114 referrals for vaginoplasty postoperative care.

## 2.2 | Sample and data collection

A retrospective chart review of the first 80 patients seen by WCH's TRS Postoperative Care Clinic, between June 2018 and November 2020, who had undergone vaginoplasty at an outside surgical center was conducted. Ethics approval for the study was obtained from the research ethics board at WCH.

Data were obtained from patient charts and the electronic medical record by the clinic's Nurse Practitioner (E.P). Demographic data (i.e., age and postal code), surgery-related information (i.e., date of surgery, location, and technique), time from surgery to initial visit to the WCH Postoperative Care Clinic, patient-reported symptoms, and adverse outcomes were collected.

## 2.3 | Statistical analysis

Descriptive analyses were conducted using SPSS statistical package version 24.0 (SPSS Inc).

# 3 | RESULTS

## 3.1 | Sample characteristics

Eighty transfeminine patients (mean age = 38.9 years, range = 19–80 years) who had undergone vaginoplasty at an external surgical center were included in our review. While the majority of patients had undergone vaginoplasty within North America (NA) ( $n = 62$ ; 77.5%) a significant number of patients ( $n = 18$ ; 22.5%) reported having had vaginoplasty outside of NA. Referral to the WCH Postoperative Care Clinic from the time of surgery varied from 1 month to 40 years, with most patients ( $n = 66$ ; 82.5%) being referred within 2 years of surgery. Many patients ( $n = 31$ ; 38.7%) visited the WCH Postoperative Care Clinic for vaginoplasty-related care more than twice. Demographic and surgery characteristics are presented in Table 1.

## 3.2 | Complications resolved before presenting at the WCH Postoperative Care Clinic

Some patients ( $n = 11$ ; 13.75%) reported that they had experienced a significant postoperative complication requiring hospitalization ( $n = 5$ ) or a second surgery ( $n = 6$ ) before presenting at the WCH Postoperative Care Clinic. Reasons for hospitalization included bleeding ( $n = 3$ ), infection ( $n = 2$ ), and severe pain

**TABLE 1** Demographic and surgery-related characteristics ( $N = 80$ )

Sociodemographic	N (%)
Age (in years)	
Under 24	6 (7.5)
25–44	50 (62.5)
45–64	20 (25.0)
65+	4 (5.0)
Country of surgical procedure <sup>a</sup>	
Canada	61 (76.3)
Thailand	13 (16.3)
Iran	2 (2.5)
United States	1 (1.3)
Poland	1 (1.3)
India	1 (1.3)
United Kingdom	1 (1.3)
Vaginoplasty technique used	
Penile inversion	67 (83.8)
Sigmoid colon	4 (5.0)
Other	5 (6.3)
Unknown	4 (5.0)
Time from surgery to WCH visit	
0–3 months	18 (22.5)
3–12 months	26 (32.5)
1–2 years	22 (27.5)
2–5 years	5 (6.3)
More than 5 years	9 (11.3)
Number of visits to WCH	
1 visit	28 (35.0)
2 visits	21 (26.3)
>2 visits	31 (38.7)

<sup>a</sup>Some ( $n = 2$ ) patients reported having multiple vaginoplasties in different countries; data from last procedure reported.

( $n = 1$ ). Reasons cited for requiring secondary surgery following primary vaginoplasty included vaginal stenosis ( $n = 3$ ), a postsurgical bleed ( $n = 2$ ), and labiaplasty ( $n = 1$ ).

## 3.3 | Patient-reported symptoms

Patient-reported symptoms were defined as symptoms and concerns identified by the patient during the clinic visit(s) and charted by the HCP.

**TABLE 2** Patient-reported symptoms ( $n = 80$ )

Symptoms	N <sup>a</sup> (%)
Pain	43 (53.8)
Dilation related concern	37 (46.3)
Bleeding	34 (42.5)
Sexual function concerns	27 (33.8)
Vaginal discharge	26 (32.5)
Vaginal tightness	23 (28.7)
Urinary issues	18 (22.5)
Wound healing issue	17 (21.3)
Esthetic dissatisfaction	15 (18.8)
Hair in vagina	10 (12.5)
Anatomic irregularity	10 (12.5)
Mental health concerns	10 (12.5)
Loss of depth	8 (10.0)
Malodour	8 (10.0)
Vaginal canal closure	8 (10.0)
Numbness	3 (3.8)
Vaginal dryness	2 (2.5)

<sup>a</sup>Some ( $n = 67$ ) patients presented with more than 1 complaint.

Table 2 presents the complete list of categories of patient reported symptoms. The three most common patient-reported symptoms were pain, a dilation-related concern, and bleeding, with 23.8% of patients reporting all three symptoms. Reports of pain were common ( $n = 43$ ; 53.8%) and included pain with dilation, pain at a specific site such as the clitoris, incision, scar, introitus, or an anatomic irregularity. There were reports of pain with certain activities such as sex, biking or walking. Many patients reported multiple sources of postsurgical pain. Seven patients reported severe pain (8.8%). Severe pain was identified based on a patient-reported impairment and a score over 7/10 on the numeric pain rating scale.<sup>13</sup>

Concerns related to dilation were also common ( $n = 37$ ; 46.3%), with 83.7% of these concerns being attributable to pain with dilation. Other concerns related to dilation include difficulty with the physical procedure itself, knowledge gaps regarding dilation technique or the inability to adhere to the dilation schedule. Bleeding was the third most common symptom ( $n = 34$ ; 42.5%) with most bleeding originating from the neovagina requiring an internal examination for assessment and diagnosis.

Concerns around sexual function were reported in 33.8% ( $n = 27$ ) of patients. These concerns were variable and included pain during penetrative sex ( $n = 9$ ; 33.3%),

inability to achieve orgasm ( $n = 8$ ; 29.6%), and inability to receive penile penetration due to short/narrow cavity ( $n = 5$ ; 18.5%). Sexual function concerns secondary to esthetic dissatisfaction ( $n = 2$ ; 7.4%) were also included in this category as the primary concern of these patients was an expression of an inability to have sex.

Concerns related to wound healing were reported in 21.3% ( $n = 17$ ) of patients. Notably, 64.7% of these patients ( $n = 11$ ) had surgery less than 3 months before presenting at the WCH Postoperative Care Clinic.

Urinary issues were reported by 18 patients (22.5%) with many presenting with more than one issue. These issues included: urinary spraying, urinary tract infections, anatomic concerns related to the urethral meatus (i.e., scarring, position), and urinary symptoms (i.e., retention, incontinence, and incomplete bladder emptying, frequency, hesitancy).

In total, 18.8% ( $n = 15$ ) of patients presented to the WCH Postoperative Care Clinic with dissatisfaction regarding the cosmetic outcome of their vulva following vaginoplasty. This dissatisfaction ranged from considerable distress and desire for cosmetic revision to minor complaints about symmetry or not meeting expected outcomes. The category of “anatomic irregularity” was created to capture an array of concerns (i.e., lumps/bumps) experienced by 12.5% of patients but did not include any concerns regarding cosmesis.

Mental health concerns were spontaneously reported by 10 patients (12.5%). Concerns were variable and included expressions of psychologic distress and reported exacerbations of pre-existing mood and anxiety disorders. Of these patients, 70% ( $n = 7$ ) also reported having pain, and 60% ( $n = 6$ ) also expressed having a dilation-related concern.

### 3.4 | Occurrence of adverse outcomes

Adverse outcomes were defined as healthcare provider-identified issues or diagnosed conditions written in the patient chart at the time of the clinical encounter. Importantly, not all patients were screened for all adverse outcomes and were only assessed for and identified if the patient reported a concern. Issues identified were only captured once if they presented across multiple visits. Adverse outcomes were divided into major and minor categories. Major adverse outcomes included venous thromboembolism and any complication requiring reoperation to correct and/or hospital readmission during the initial recovery process.<sup>14</sup>

Table 3 presents the complete list of categories of adverse outcomes which were identified by the health care provider in response to a patient-reported symptom.

**TABLE 3** Health care provider identified adverse outcomes ( $n = 80$ )

Clinician diagnosis	N <sup>a</sup> (%)
<b>Major adverse outcomes</b>	
Vaginal stenosis	12 (15.0)
Severe infection and graft loss	2 (2.5)
Mental health hospitalization	2 (2.5)
<b>Minor adverse outcomes</b>	
Hypergranulation	31 (38.8)
Sexual dysfunction	17 (21.3)
Urinary complication	15 (18.8)
Wound healing	10 (12.5)
Vaginosis	9 (11.3)
Anatomic obstruction of urethral meatus	8 (10.0)
Minor	4 (5.0)
Severe	4 (5.0)
Cyst/Nodules	4 (5.0)
Dermatosis	3 (3.8)

<sup>a</sup>Some ( $n = 40$ ) patients were diagnosed with more than 1 adverse outcome.

The most common major adverse outcome was vaginal stenosis ( $n = 12$ ). Vaginal stenosis is a clinically significant narrowing and shortening of the vagina. In this study, patients were considered to have vaginal stenosis if they presented with complete closure of the vaginal canal ( $n = 9$ ) or both a report of loss of depth and a finding of a vaginal canal less than three inches deep ( $n = 3$ ). One patient presented without a vaginal canal but was uncertain if a vaginal canal was surgically created, so was not included in this measure.

Two patients had severe infections (2.5%), one with vulvar cellulitis and another with sepsis and vaginal graft loss. Finally, two patients (2.5%) presented to clinic in significant psychologic distress requiring an in-patient hospital admission.

Minor adverse outcomes were divided into 10 main categories with hypergranulation being the most common ( $n = 31$ ; 38.8%). Sexual dysfunction ( $n = 17$ ; 21.3%) was the second most commonly identified outcome and included the diagnosis of dyspareunia ( $n = 9$ ; 33.3%) and/or anorgasmia ( $n = 9$ ; 99.3%).

Fifteen patients were found to have urinary complications ( $n = 15$ ; 17.5%) with some patients having more than one urinary complication. These complications included: urinary tract infection; incontinence, urethral stenosis, and anatomic obstruction of the urethral meatus. Anatomic obstruction of urethral meatus was experienced by eight patients and was categorized as

either minor ( $n = 4$ ; 5.0%) or severe ( $n = 4$ ; 5.0%). Minor obstruction of the urethral meatus included obstruction with excess skin or hypergranulation that could be easily treated in clinic. Obstruction was considered severe if treatment was not possible in a clinic setting but was not considered a major adverse outcome as all patients were able to pass urine. Severe imparial obstruction was caused by vaginal stenosis inclusive of the urethral meatus ( $n = 2$ ; 2.5%), significant scarring ( $n = 1$ ; 1.3%), and excess corpora ( $n = 1$ ; 1.3%).

Of the 10 patients reporting an anatomic irregularity, diagnoses included cyst/nodule ( $n = 4$ ), dermatosis ( $n = 3$ ), and hypergranulation ( $n = 3$ ). Two patients did not have an associated outcome.

## 4 | DISCUSSION

This is one of the first studies to examine patient-reported symptoms and adverse outcomes in a sample of transfeminine patients in Canada. The findings from the current chart review offer valuable insights into the postoperative needs and vaginal concerns of vaginoplasty patients. The majority of patients were seen for more than one visit, with most having had at least two visits reiterating the importance of ongoing postoperative care after TRS.<sup>15</sup> Many patients (22.5%) accessed care in the first 3 months after surgery, with the majority falling within the 1-year perioperative period (55.0%). This signals to the critical need for accessible postoperative care during this time.

Pain was the most common patient-reported symptom (53.8%) and was commonly associated with an adverse outcome that could be treated by a knowledgeable health care provider such as hypergranulation, cysts or nodules, or a skin condition/dermatosis. These findings highlight the correlation between pain and an often-treatable condition suggesting the importance of prompt and appropriate assessment of pain.

Vaginal stenosis is a major adverse outcome requiring additional surgery to regain depth/a vaginal canal.<sup>2,11</sup> Commonly reported symptoms of people with vaginal stenosis include concerns with dilation and loss of vaginal depth. Interestingly, patient-reported “loss of depth” did not always correlate with the adverse outcome of “vaginal stenosis.” As all surgeries were performed elsewhere, it was not possible to determine if there was true loss of depth or if the patient's perceived loss of depth related to other issues such as postoperative swelling. Better ongoing planned follow-up would help us understand this phenomenon.

Vaginal dilation with surgical dilators is imperative following vaginoplasty with cavity formation; even a few



days of missed dilations can result in shortening of the vagina and lead to vaginal stenosis.<sup>16–19</sup> In our sample, 46.3% of patients reported a dilation-related concern including pain, tightness, and bleeding. Given the critical importance of regular dilation following vaginoplasty and the high frequency of concerns, support, education, and evaluation of dilation practices is imperative. This suggests an area of focus for resource development, and many programs have begun to incorporate pelvic physiotherapy into their postoperative care pathway. This may have a positive effect on the patient experience with dilation increasing adherence to the dilation schedule and decreasing the development of vaginal stenosis.<sup>26</sup> The association of dilation-related concerns and pain with vaginal stenosis in this review raises the distinct possibility that better pain management and postoperative dilation support would minimize stenosis rates. Future prospective studies are needed to explore risk factors, behaviors, and complications associated with vaginal stenosis.

Hypergranulation is an excess of granulation tissue that rises above the surface of the wound bed.<sup>20</sup> It was the most common minor adverse outcome in the current sample and was associated with patient-reported symptoms of vaginal discharge, pain, dilation-related concern, and bleeding. Diagnosis often requires internal examination of the neovagina. This means that surgical programs should have built-in, in-person follow-up for at least 1 year postoperative or build local community capacity and partnerships for ongoing postsurgical care. Hypergranulation is treatable in clinic, commonly with the application of silver nitrate and/or topical steroids.<sup>21</sup> If left untreated, hypergranulation can delay wound healing, produce ongoing clinical symptoms and create susceptibility to secondary infection.<sup>20–22</sup> Considering the frequency of hypergranulation in this review, more education, and resources to support health care providers diagnose and treat this complication is warranted.

## 4.1 | Limitations

This study limitations include recall bias and inability to determine causality.<sup>23</sup> Additionally, all patients in the study had undergone vaginoplasty outside of WCH and were referred to the WCH Postoperative Care Clinic for postoperative care. As such, the sample is likely not representative of all transfeminine patients who have undergone vaginoplasty, but rather a select group of those who were having complications or were seeking support outside the knowledge of their referring providers.

Finally, this study did not look at treatment or treatment response. Unfortunately, there is a lack of standardization of treatment recommendations for even common complications such as hypergranulation or vaginal discharge in this context.<sup>24</sup> Future studies on different treatment strategies and treatment outcomes are necessary to develop a robust evidence-based treatment guide in this realm. Creating evidence-based guidelines and teaching documents for management of common complications would be a crucial step to educate and support the many health care providers from different disciplines who may be seeing patients for their postoperative and ongoing neovaginal care.

## 5 | CONCLUSION

Our study suggests that vaginal symptoms, concerns, and complications are common in patients who have undergone vaginoplasty. The ongoing need for care in the WCH TRS program's Postoperative Care Clinic suggests that ongoing postoperative and neovaginal care are an important aspect of surgical care. The majority of patients seeking care within the first 2 years after surgery suggests that this is a critical time period for patients and that the availability of well-informed postoperative care in this time period is imperative. Most adverse outcomes found in this review were considered minor but have the potential to contribute to morbidity that could be mitigated with prompt intervention. For this reason, surgical centers should be providing ongoing postoperative care, especially in the first year after surgery, and patients with neovaginal symptoms and concerns warrant a comprehensive physical assessment by a knowledgeable health care provider. Primary health care providers, gynecologists, urologists, and other health care providers who see patients who have undergone vaginoplasty may benefit from further education on the common issues identified in this study to be better able to support their patients who are unable to return to the surgical center for follow-up.

## AUTHOR CONTRIBUTIONS

Emery Potter conceptualized the study. Emery Potter and Marudan Sivagurunathan organized and managed the data. Marudan Sivagurunathan conducted the data analysis and wrote the original manuscript. All authors reviewed the manuscript, provided edits, and approved the article before submission.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data for this study are available from the corresponding author, Emery Potter, upon reasonable request.

## ETHICS STATEMENT

Ethics approval for the study was obtained from the research ethics board at Women's College Hospital (REB #2021-0016-E).

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