

Database Tracking in Gender-Affirming Surgery: Are Patients Falling Through the Cracks?

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ABSTRACT

Background: This study sought to examine risk factors for venous thromboembolism in transfeminine vaginoplasty. Secondly, the authors outline reasons why patients are not adequately classified for research purposes despite using relevant queried codes.

Methods: Transgender patients undergoing vaginoplasty were identified with diagnostic and procedure-specific codes using a national surgical database from 2010 through 2019.

Results: There were 457 transgender vaginoplasties performed, with 24 wound dehiscences, 17 unplanned reoperations, and 12 surgical site infections. With zero cases of venous thromboembolism, risk factor analysis was deferred.

Conclusions: Heterogeneity in coding practices for gender-affirming surgery led to an uncharacteristically small cohort of transfeminine vaginoplasty patients captured in the database. Current diagnostic and procedure-specific codes are nonspecific and unbundled, hindering accurate assessment of the incidence of standard surgical complications.

BACKGROUND

As of 2015, the transgender and gender nonconforming (TGNC) community is estimated to include 1.4 million people in the United States.¹ Transgender describes individuals whose gender identity or expression is incongruent with the sex they were assigned at birth.¹ This leads to gender dysphoria manifesting as extreme psychological and emotional distress from living in a body that is not their own.^{2,3} Gender dysphoria contributes to a dispro-

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portionately high rate of mental health and social issues in the lesbian, gay, bisexual, transgender, queer (LGBTQ) population, including suicide, drug abuse, poverty, and homelessness.⁴ National studies have found that LGBTQ disparities were due, in part, to limited access to health insurance, sexual orientation discrimination, and insufficient provider knowledge and research on LGBTQ health.⁵ Surgical care – in coordination with a comprehensive multidisciplinary gender clinic – has been shown to improve these patients' quality of life 1-year postoperatively across metrics, including mental and emotional health and social functioning.² Gender-affirming surgery is categorized as transfeminine (feminizing)

or transmasculine (masculinizing),⁶ as gender identity exists in a spectrum and cannot be simplified to the traditional male/female binary. This is further differentiated into “top” surgery in the form of breast augmentation or mastectomy and “bottom” surgery in form of vaginoplasty or phalloplasty.⁷

Gender-affirming surgery (GAS) is among the fastest growing fields of plastic surgery and, as such, database research to better understand the risk profiles of these increasingly more common operations is needed. Most of these studies include only top surgery. One study utilizing the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database concluded that transmasculine patients undergoing mastectomies were not at an increased risk of 30-day all-cause postoperative complications compared to cisgender women and encouraged surgeons to offer gender mastectomy as a safe and integral aspect of gender-affirming care.⁴ However, there has not been a published risk factor analysis of vaginoplasty utilizing national data. This operation is of special interest given the concern for

increased incidence of thromboembolic events due to estrogen therapy, low lithotomy position with multiple hours under general anesthesia, and the necessary bedrest and activity restriction protocols postoperatively.⁵ Given the complicated nature of these operations, we attempted to utilize the ACS-NSQIP database to examine the risk factors for deep vein thrombosis or pulmonary embolism within 30 days of vaginoplasty, with the goal of contributing to a more comprehensive and informed surgical approach to gender-affirming care.

METHODS

Transgender patients undergoing vaginoplasty were identified by searching the ACS-NSQIP database from 2010 through 2019 for relevant International Classification of Diseases (ICD) and Current Procedural Terminology (CPT) codes. ICD diagnosis codes queried to isolate transgender patients were “gender dysphoria,” “gender identity disorder” (ICD-9 codes 302.5, 302.50, 302.51, 302.52, 302.53, 302.85, 302.3; ICD-10 codes F64.0, F64.1, F64.2, F64.3, F64.4, F64.5, F64.6, F64.7, F64.8, F64.9) and “unspecified endocrine disorder” (ICD-9 code 259.9 and ICD-10 code E34.9). This cohort then underwent CPT code filtration with codes meant to isolate vaginoplasty patients: partial amputation of penis (54120), complete amputation of penis (54125), construction of artificial vagina with graft (57292), construction of artificial vagina without graft (57291), orchiectomy simple scrotal/inguinal approach (54520). If a patient possessed a queried ICD diagnosis code and any of these CPT codes as the “primary,” “concurrent,” or “other” code as part of their surgery, they were included. We then utilized this dataset to determine the incidence of 30-day complications as reported by the ACS-NSQIP database, including deep vein thrombosis.

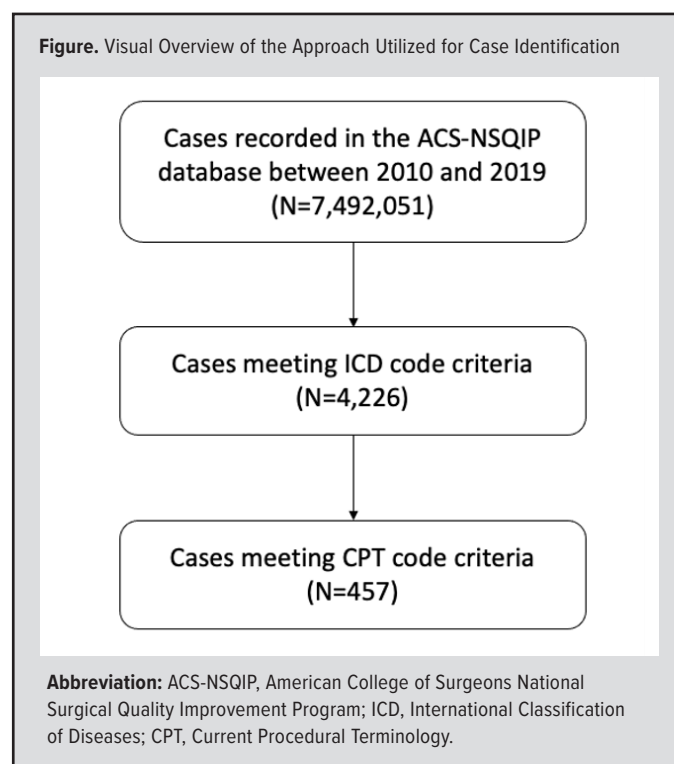
RESULTS

Of the 7,492,051 cases recorded during 2010-2019 in the ACS-NSQIP, 4226 possessed relevant ICD diagnosis codes. After applying CPT code filters, 457 cases were identified as vaginoplasty patients (Figure). Within this cohort, there were zero cases of deep vein thrombosis or pulmonary embolism, 24 cases of wound dehiscence, 17 cases of unplanned reoperation, 7 cases of superficial surgical site infection, 3 cases of deep surgical site infection, and 2 cases of organ space surgical site infection. With no cases of deep vein thrombosis or pulmonary embolism--the primary outcome of interest--risk factor analysis was deferred.

DISCUSSION

Lack of Standardization in Coding Fails to Capture All Patients

The standardized methodology we employed for patient identification yielded an extremely small cohort and undoubtedly did not capture the majority of vaginoplasty patients. Research suggests that roughly 35% of TGNC individuals undergo some form of GAS, with 5% to 13% of transfeminine patients reporting bot-



tom surgery.⁸ With 1.4 million self-identified transgender people in the United States,¹ it is fair to say that the 457 vaginoplasties identified is a small fraction of the number of cases performed in this 10-year span. One study found a total of 1859 gender-affirming top and bottom surgery cases from 2008 to 2017 using ACS-NSQIP.⁷ In contrast, another group found 3200 operations that were performed nationally in 2016 alone, with 395 cases performed at their home institution in 2017, per their billing and electronic health records.⁹ We believe that this highlights a problem in gender-affirming care: there is inconsistent use of ICD codes for gender dysphoria at the time of surgery, and the coding available to specifically describe gender-affirming operations is not specific, making it nearly impossible to accurately determine the incidence of standard surgical complications like deep vein thrombosis, pulmonary embolism, surgical site infections, or death.

There are multiple approaches to transfeminine bottom surgery, including vulvoplasty only, nongenital skin graft, penile inversion, and peritoneal pull-through vaginoplasty.⁶ Penile inversion vaginoplasty is the most prevalent technique,⁶ accomplished in a single operation encapsulating potentially 8 separate unbundled CPT codes (penectomy, orchiectomy, urethroplasty, vaginoplasty, clitoroplasty, labiaplasty, abdominal flap, and penile inversion flap). Additionally, some surgeons use the ICD diagnosis code of “unspecified endocrine disorder” for TGNC patients in lieu of “gender dysphoria,” as “gender dysphoria,” “gender identity disorder,” and the antiquated code “transsexualism” are all psychiatric diagnoses. Also, many TGNC patients do not want these psychiatric diagnoses used in their care. As such, ICD filtration based on psychiatric diagnoses will miss these patients. Subsequent

CPT filtration will further dwindle the cohort, given not all vaginoplasty patients will undergo the same set of procedures as they are currently unbundled. This lack of standardization in coding presents a danger to TGNC patients as it inhibits quality improvement research from taking place, which occurred in our study.

Gender-Affirming Hormone Therapy and Thromboembolic Risk

Heterogeneity in coding practices hindered this study in capturing all patients undergoing transfeminine vaginoplasty. An estimated 75% of TGNC individuals are on some form of hormone therapy in the United States,³ which prompted the authors to assess the incidence of standard surgical complications with special consideration to venous thromboembolism. Given their limited access to care, up to 70% of transgender women attain hormones second-hand through social networks and online markets.⁵ Hormone use without guidance from a licensed provider brings significant concern in medical management, particularly with the increased risk of ischemic stroke, venous thromboembolism, and potential myocardial infarction.⁵ Complicating factors include variable hormone doses, hormonal route of administration (transdermal and parenteral routes are superior to oral estradiol in preventing clots by bypassing first-pass hepatic metabolism), GAS, and comorbidities such as HIV infection, which disproportionately affects TGNC individuals.⁵ Additionally, the impact of initiating hormone therapy on the cardiovascular risk of patients with preexisting comorbidities is unknown,³ and there are concerns regarding estradiol interactions in transgender women undergoing antiretroviral therapy.⁵ As such, most surgeons advise estrogen therapy cessation 2 to 4 weeks prior to vaginoplasty to minimize the theoretical thromboembolic risk.⁵ However, the exact incidence of thromboembolic events in the postoperative period is unknown.

Gender-Affirming Surgery on the Rise

Such gaps in the knowledge of postoperative risks for procedures that are set to rise significantly in the coming years is concerning. With the passage of the Affordable Care Act, which included GAS as a covered benefit under Medicare, transfeminine and transmasculine operations increased by 109% and 392%, respectively, from 2015 to 2018.⁷ For those under the age of 65, insurance coverage of GAS also has been increasing: 124 of 150 major insurance providers have begun offering GAS benefits as of 2019¹ and 25 states are now offering Medicaid coverage for GAS benefits.¹⁰ The American Society of Plastic Surgeons noted this expansion and began offering formal education on TGNC patients in response to increased demand for GAS.⁷ As more states expand coverage and more surgeons are trained to offer GAS as a result, the volume of bottom surgery in the United States is expected to rise. However, it is imperative that more information about the risks of GAS be elucidated through large database research, so we can provide comprehensive informed consent to this growing patient population.

CONCLUSIONS

Without an ICD code for “gender affirmation”—not the pathologic diagnosis of gender dysphoria—and surgery-specific CPT codes for each of the gender-affirming operations, it is difficult to accurately isolate patients for research purposes. The volume of TGNC patients receiving all forms of GAS is rising quickly, both in academic and private practice, yet ACS-NSQIP fails to collect data in the private sector despite its reach as a national academic database. Thus, we strongly suggest the optimization of coding practices for GAS, so surgeons may facilitate accurate use of standardized databases for research that seeks to keep TGNC patients safe.

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