

rate of 21.7%, with an incidence of reoperation of 4.5% for neovaginal stenosis, 15.5% for meatal stenosis, and 0.7% for rectovaginal fistula.⁹ Overall, the complication rates reported in this cohort of patients seem to suggest equivalent, if not better, outcomes. It is uncertain if this represents patient selection bias, surgical technique or volume effects, or heterogeneous reporting standards. Recently, in June 2018 a study involving 117 patients undergoing PIV by Massie et al reported patient complications in accordance with patient satisfaction. Approximately 94% of patients ultimately would do the same operation again even though reported complication rates for their population cohort was approximately 70% (n = 82).¹⁰

HIV status has previously been described as noncontributory to the development of complications.¹¹ Our data correlate with this as our analysis demonstrated that individuals with HIV do not appear to have an increased likelihood of complications postoperatively and should not be a barrier to GAS. Additionally, hormone therapy has been associated with increased risk of cardiac mortality in the transgender population as well as up to 20-fold increase in risk of DVT.^{4,12} While over 98% of the included patients had been treated with hormone therapy, only one patient developed DVT. Considering the increased risk of DVT, it has been recommended to discontinue estrogen supplementation in the perioperative period, 2-4 weeks both pre- and postoperatively.¹² Of the patient cohort examined, 2.5% were revision vaginoplasties, similar to previously reported rates of up to 2.9%.⁷ Prior large series have demonstrated that patients undergoing revision vaginoplasties have significantly increased likelihood of developed rectovaginal fistulas, up to 8.6-fold.¹³ However, in our current series none of the 6 patients undergoing revision vaginoplasties developed rectovaginal fistula. Non-compliance with postoperative care conferred the greatest risk of complications overall when controlling for other risk factors, highlighting the importance of patients to understand the personal commitment such life-altering procedures demand. Considering that GD may be associated with multiple comorbid mental health conditions, integrating a multidisciplinary team to provide support and encouragement to patients is of the utmost necessity.²

LIMITATIONS

Our population cohort is not without limitations including those patients who experience complications and are subsequently loss to follow. Unfortunately, there is no way to accurately quantify patients who present to outside hospitals with complications following surgery. Thus, our reported complication rates and those in the literature may end up falsely low. Finally, as we present short-term complication rates, it is likely such rates will increase as patients have longer follow-up. While rates of stenosis in our population cohort are low, long-term follow-up will help delineate if our population maintains such rates or if as time progresses, they approach stenosis rates similar to those in the literature.

CONCLUSION

The current study supports previously published literature and affirms that MtF-GAS is a relatively safe surgical procedure, particular in terms of short-term complications when performed by an experienced high-volume surgeon. Considering that noncompliance is associated with increased likelihood of complications, a multidisciplinary approach with primary care providers, infectious disease specialists, and gender reassignment surgeons working together may ultimately provide a setting to best reduce complications and encourage compliance with postoperative care.

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EDITORIAL COMMENT

This is a well presented manuscript describing a series of 240 patients undergoing male to female gender affirming surgery with penile inversion vaginoplasty by a single surgeon over an 18 month period of time in the United States. The authors are



to be congratulated for maintaining a prospective database of these patients and beginning to report some of their findings and patient outcomes. The manuscript mainly focuses on short-term outcomes with 30, 60 and 90 day complication rates outlined as well as risk factors among patients who did and did not experience complications, reoperations and revision surgery. Overall, the short-term complications were fairly infrequent and typically minor with no significant differences noted among the 4 quintiles of patients in the surgeon's experience. When looking at various patient related factors, only patient noncompliance with postoperative wound care was significantly associated with an increased likelihood of short-term complications and the need for reoperation and revision surgery. In this series, simultaneous breast augmentation, neoadjuvant hormonal therapy, prior vaginoplasty, HIV status, hypertension, diabetes and usage of tobacco had no significant relationship with reoperation and revision surgery. The follow-up is extremely short for some patients, as stated to be a minimum of 1 week. That being said, the limitations of follow-up in this population of patients is aptly discussed by the authors. It is likely that the short-term complications noted in the series will increase over time. Whether the moderate and longer-term complications of this prospectively maintained patient series become comparable to other series in the published literature remains to be seen. Inclusion of appropriate patient reported measures, as they

become available, will be another necessary facet to the follow-up for these patients.

The authors briefly describe the general surgical technique, postoperative care plan and follow-up regimen. Seven key steps undertaken by the surgeon in order to minimize complication rates are listed. This number of penile inversion vaginoplasties performed over 18 months is undoubtedly high volume for this type of procedure and the fact that they are done by a single surgeon renders consistency with regards to surgical technique compared to some of the other contemporary literature with patient series spanning many years with the inherent possibility of more variability. The manuscript herein adds valuable data to the contemporary literature on penile inversion vaginoplasty for male to female gender reassignment surgery. This information is essential to surgeons as part of the multidisciplinary team taking care of patients considering and undergoing male to female gender affirming surgery.

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