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The transgender and nonbinary (TGNB) population is a significant minority, comprising at least 0.6% of the population. Visibility is growing rapidly, especially in younger generations. Gender affirming health care must adapt to this population's needs. Demographic data regarding TGNB health care are limited, but several disparities are clear, stemming from sociopolitical factors, such as external discrimination and insensitive and/or uninformed care. Most self-identifying TGNB patients receive some type of nonsurgical care, including hormonal and/or mental health. Gender-affirming surgery is highly prevalent as well, with at least one-quarter of TGNB people having had some combination of the procedures in this category.

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Transgender people have a gender identity that differs from their sex assigned at birth. For many transgender individuals accessing gender affirming hormone therapy (GAHT) is an important and medically necessary step in their gender transition. Both feminizing and masculinizing regimens are safe when used within established hormone protocols and are associated with significant improvements in mental health outcomes, including reduction in depression, anxiety and gender dysphoria. Clinicians should be aware of the current best practice guidelines for initiating and maintaining patients on GAHT.

<b>A Systematic Review of the Psychological Benefits of Gender-Affirming Surgery</b>	<b>475</b>
Jeremy A. Wernick, Samantha Busa, Kareen Matouk, Joey Nicholson, and Aron Janssen	

For individuals with gender dysphoria, gender-affirming surgeries (GAS) are one means of reducing the significant distress associated with primary and secondary sex characteristics misaligned with their gender identity. This article uses a systematic review to examine the existing literature on the psychological benefits of GAS. Findings from this review indicate that GAS can lead to multiple, significant improvements in psychological functioning. Methodological differences in the literature demonstrate the need for additional research to draw more definitive conclusions about the psychological benefits of GAS.

<b>Fertility Preservation in Male to Female Transgender Patients</b>	<b>487</b>
Wen Liu, Michael L. Schulster, Joseph P. Alukal, and Bobby B. Najari	

Gender dysphoria, or the incongruence between gender identification and sex assigned at birth with associated discomfort or distress, manifests in transgender

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patients, whose multifaceted care includes puberty suppression, cross-sex hormonal therapy, and gender-affirming surgery. Discussion of fertility preservation (FP) is paramount because many treatments compromise future fertility, and although transgender patients demonstrate desire for children, use of FP remains low for a plethora of reasons. In transgender women, established FP options include ejaculated sperm cryopreservation, electroejaculation, or testicular sperm extraction. Further research is needed regarding reproductive health and FP in transgender patients.

### **A Discussion of Options, Outcomes, and Future Recommendations for Fertility Preservation for Transmasculine Individuals** 495

Jennifer K. Blakemore, Gwendolyn P. Quinn, and M. Elizabeth Fino

The process of gender affirmation may have an impact on fertility. Counseling on the impact of affirmation and opportunities for fertility, future family building, and reproductive health is an important first step in the affirmation process. This article discusses the options for fertility preservation for transmen. The barriers and outcomes in this unique population are also considered. In addition, insights are provided on the future of fertility preservation and suggestions are made for how to build a comprehensive team for male transgender patients.

### **Orchiectomy as Bridge or Alternative to Vaginoplasty** 505

Marah C. Hehemann and Thomas J. Walsh

Simple orchiectomy for gender affirmation is a low-risk, minimally invasive, generalizable procedure that eliminates circulating endogenous testosterone, allowing reduced hormonal supplementation. This article describes a technique that serves as a step in definitive phenotypic transition while maximally preserving healthy tissue for future sex reassignment surgery. Orchiectomy should be offered routinely as a bridge or alternative to vaginoplasty, particularly in the setting of limited access to specialized centers for transgender surgery.

### **Penile Inversion Vaginoplasty Technique** 511

Poone Shoureshi and Daniel Dugi III

Penile inversion vaginoplasty is a technique of gender-affirming genital surgery that uses primarily genital skin to construct the vulva and neovagina for patients assigned male sex at birth. This article presents the authors' techniques and other contemporary techniques for this surgery, with particular attention to neovaginal canal construction, neoclitoral construction, and urethroplasty.

### **Laparoscopic Intestinal Vaginoplasty in Transgender Women: An Update on Surgical Indications, Operative Technique, Perioperative Care, and Short- and Long-Term Postoperative Issues** 527

Wouter B. van der Sluis, Jurriaan B. Tuynman, Wilhelmus J.H.J. Meijerink, and Mark-Bram Bouman

Surgical (re)construction of a vagina (vaginoplasty) is performed in biological women with congenital or postablative vaginal absence and in transgender women. Penile inversion vaginoplasty is the gold surgical standard for genital Gender Affirmation Surgery in transgender women. In absence of sufficient penoscrotal skin, due to penoscrotal hypoplasia, circumcision, penile trauma with loss of penile skin quantity and/or quality, or when primary vaginoplasty has failed, intestinal vaginoplasty can be performed. This article provides an update on surgical indications of intestinal

vaginoplasty, operative technique, perioperative care, and short- and long-term postoperative issues. A review of recent literature is performed.

## **Vaginoplasty Modifications to Improve Vulvar Aesthetics**

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Suporn Watanyusakul

Penile inversion vaginoplasty leaves limited penile tissue to reconstruct a realistic vulvar aesthetic appearance. The author introduces a non-penile inversion modification technique for vulvar aesthetics improvement without compromising sexual sensation or vaginal depth by using dorsal neurovascular whole glans penis preputial island flap for sensate clitoris, clitoral hood and frenulum, and inner surface of labia minora reconstruction. It offers two different techniques (type A using preputial flap and penile skin flap, type B using penile and scrotal skin flap) for the double surface of labia minora reconstruction. Simple full-thickness genital skin-mucosal graft vaginoplasty is used for the neovaginal wall lining.

## **Metoidioplasty**

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Marta R. Bizic, Borko Stojanovic, Ivana Joksic, and Miroslav L. Djordjevic

Gender affirmation surgery for transmale patients is still challenging, as creation of the neophallus is one of the most demanding steps in surgical treatment. Metoidioplasty, as a one-stage procedure, can be considered in patients who desire gender affirmation surgery without undergoing a complex, multistage procedure with creation of an adult-sized neophallus. Metoidioplasty presents one of the variants of phalloplasty for patients in whom the clitoris is large enough under testosterone treatment. Advanced urethral reconstruction provides low complication rates with satisfying results of standing micturition.

## **Single-Stage Phalloplasty**

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Mang L. Chen and Bauback Safa

Single-stage phalloplasty may be accomplished by having both the microsurgical and the reconstructive urology team operate simultaneously. Phalloplasty with pars pendulans urethroplasty is completed by the microsurgeons, and pars fixa urethroplasty, vaginectomy, scrotoplasty, and perineal reconstruction are performed by the reconstructive urologist. Some surgeons prefer separating phalloplasty from the urologic portions of the procedure. The single-staged approach is favored in patients whose ultimate goal is to have an aesthetic, sensate, and functional phallus and scrotum. Complications remain high but are predictably lower in higher-volume centers. Reconstructive urologists manage the urethral complications that develop.

## **"Staging" in Phalloplasty**

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Sara Danker, Nick Esmonde, and Jens Urs Berli

The treatment of gender dysphoria related to genitourinary anatomy can be effectively treated with phalloplasty. A phalloplasty may include some or all of the following: penile shaft, glans, shaft urethra, perineal urethra, scrotoplasty, vaginectomy, testicular implants, and erectile devices. The literature does not currently support a gold standard for how best to stage these procedures. This article reviews current techniques for phalloplasty staging and proposes that a staged urethral reconstruction is a reliable technique that allows for potential complications to be

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managed individually, while minimizing the severity of complications and their impact on the outcome of the final reconstruction.

### **Prosthetic Placement After Phalloplasty**

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Gideon A. Blecher, Nim Christopher, and David J. Ralph

Significant developments have enabled the transformation of phalloplasty to a functional organ. Differences exist in the surgical placement of a prosthesis when within a phallus, such as the lack of corpora, pubic fixation requirement, distal sock placement, and the consideration of a vascular pedicle. Increased complications compared with nonphalloplasty cohorts remain one of the biggest challenges, including rates of infection, erosion, mechanical malfunction, and malposition. Nonetheless, the placement of penile prosthesis within a phalloplasty enables trans men to achieve a once near-impossible goal of penetrative sexual intercourse without an external device.

### **Management of Vaginoplasty and Phalloplasty Complications**

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Jessica N. Sahrdein, Lee C. Zhao, and Dmitriy Nikolavsky

As more transgender patients undergo gender-affirming genital reconstructive surgery, such as vaginoplasty and phalloplasty, it is imperative for health care providers, including urologists, to understand the new anatomy and most common complications to diagnose and treat patients effectively. Although there have been several modifications to prior techniques as well as development of new techniques over the years, complications are still common after vaginoplasty and phalloplasty. This article focuses on the most common complications as well as the evaluation and management of those complications.