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REVIEWS

A Historical Review of Gender-Affirming Medicine: Focus on Genital Reconstruction Surgery

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ABSTRACT

Gender dysphoria (*Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*) is characterized by a marked discrepancy between one's birth-assigned sex and one's gender identity and is sometimes addressed by gender-affirming surgery. As public visibility and institutional support for the transgender and gender non-conforming population continue to increase, the demand for competent multidisciplinary teams of medical professionals equipped to care for this population is expected to rise—including plastic surgeons, urologists, gynecologists, endocrinologists, and breast surgeons, among others. Genital reconstruction procedures for the male-to-female and female-to-male transgender patient present unique surgical challenges that continue to evolve from their respective origins in the 19th and 20th centuries. A historical review of surgical techniques and standards of care attendant to gender-affirming medicine is presented, with foremost emphasis placed on how techniques for genital reconstruction in particular continue to evolve and advance. In addition, the current status of transition-related health care in the United States, including research gaps and contemporary clinical challenges, is reviewed. **Frey JD, Poudrier G, Thomson JE, Hazen A. A Historical Review of Gender-Affirming Medicine: Focus on Genital Reconstruction Surgery. J Sex Med 2017;14:991−1002.**

Key Words: Gender-Affirming Surgery; Transgender Health Care; Surgical History; Gender-Affirming Genital Reconstruction Surgery; Historical Overview

INTRODUCTION

> In traditional medical histories, doctors often stand as pioneers in science. In the history of transsexuality, doctors, with few exceptions, lagged behind, reluctant pioneers at best, pushed and pulled by patients who came to them determined to change their bodies and their lives.
>
> —Joanne J. Meyerowitz[1]

Gender dysphoria (GD; *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*) is characterized by a marked discrepancy between one's birth-assigned sex and one's gender identity and expression and is associated with immense bodily and emotional distress.[2,3] Although many transgender and gender non-conforming (TGNC) individuals do not undergo gender-affirming surgery (GAS), a significant and increasing portion of TGNC patients experiencing GD are pursuing GAS. In such cases, the desired surgeries are medically necessary standard of care (SOC) treatment interventions, capable of ameliorating some or all the distress associated with GD and improving quality of life.

Primary surgical procedures available to the birth-assigned male patient being affirmed as female (MTF) can include feminizing "top surgery" (breast augmentation) and genital reconstruction ("bottom surgery"). These are traditionally paired with hormone therapy and supplemental procedures (if desired) that can include facial feminization surgery, tracheal cartilage shave, penectomy, orchiectomy, clitoroplasty, and labioplasty.[4−7] Primary surgical procedures available to the birth-assigned female patient being affirmed as male (FTM) likewise can include masculinizing "top surgery" (bilateral mastectomy with chest wall reconstruction) and genital reconstruction, also paired with hormone therapy. Supplemental FTM gender-affirming procedures can include total hysterectomy and salpingo-oophorectomy, vaginectomy, urethroplasty for construction of a functional neourethra, scrotoplasty, and the insertion of genital prostheses for erectile rigidity.[4,8]

Despite sharing basic tenets, genital reconstruction for TGNC patients inherently differs from surgeries performed to restore genital form and function to cisgender (non-transgender) patients. In the context of gender affirmation, genital reconstruction procedures present unique technical challenges that

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have undergone significant advancement since their initial applications in the 20th century.

HISTORICAL OVERVIEW OF GAS

The first studies of TGNC people were initiated by European doctors in the mid-to-late 19th century.[9] In 1910, the German sexologist Magnus Hirschfeld published *Transvestites,* the first-ever full-length book to focus exclusively on what is currently referred to as the TGNC population, then termed "transvestite" (derived from the Latin words *trans,* meaning "across," and *vestis,* for "clothing").[9]

Leading up to the 1950s, the publication of medical literature on transgender individuals was confined almost exclusively to Western Europe.[10] Throughout the 1920s and 1930s, most experimentation with GAS was undertaken at Hirschfield's Institute for Sexual Science, founded in 1919 in Berlin, Germany.[10] Hirschfeld worked closely with Eugen Steinach, an Austrian endocrinologist who was the first to identify the morphologic effects of testosterone and estrogen on human development.[9]

In the American medical community, the subject of GAS did not receive widespread attention until 1953, when Christine Jorgensen, an American citizen and World War II veteran, made international headlines for undergoing a successful genital reconstruction procedure in Copenhagen, Denmark.[1,10] Extensive publicity of Jorgensen's surgery introduced the notion of a "sex change" into American conversation and simultaneously brought comfort to many individuals who, like Jorgensen, desired medical transition.

Despite the mass sensationalizing of Jorgenson's success, increased demand for GAS did not result in increased access. In response to the outpouring of requests for treatment submitted to Danish surgeons, the Danish government banned gender affirming procedures for non-citizens.[11] With the exception of Jorgensen, who received treatment at no cost for being part of a Danish physician's research, only markedly wealthy individuals could afford to pursue GAS in the United States.[1] Moreover, few American surgeons were comfortable with or competent in the requisite GAS surgical techniques, and those who were often feared being sued by unsatisfied patients. Other US doctors dismissed the increasing number of patients requesting GAS as mentally ill, or refused to operate for fear of being criminally prosecuted under state "mayhem" statutes, which forbid the defacement of healthy tissue.[1,11]

Throughout the 1950s and 1960s, doctors conceived of transsexualism as a predominantly "male condition," in which MTF transgender individuals were believed to far outnumber FTM counterparts on an international scale.[1] At the time, only MTF genital surgeries (vaginoplasties) were being actively performed and publicized; because the construction or reconstruction of a functional penis was not yet a surgical reality, phalloplasty for transgender indications remained correspondingly rare. In 1966, Dr Harry Benjamin published *The Transsexual Phenomenon,* the first book to take a sympathetic eye toward transsexualism by articulating the concept of gender identity, discrediting efforts to "convert" and/or "cure" transsexual patients through psychotherapy, and advocating for bodily modification to "adjust the body to the mind."[1,12] The MTF patient population was the primary subject of Benjamin's work, a cohort which he estimated outnumbered the FTM patient population by a ratio of at least eight to one.[12] Reflecting this view, FTM transgender patients often encountered more difficulty in their efforts to convince physicians to take their requests for surgery seriously.[1]

Shortly after publication of *The Transsexual Phenomenon,* Johns Hopkins University (JHU) in Baltimore, Maryland announced the opening of the first Gender Identity Clinic to offer GAS in the United States. In its first 2 to 3 years of operation, the clinic received nearly 2,000 applications for surgery, mostly from MTF patients. Inundated with desperate requests, JHU staff exhibited a strong preference for candidates who were the most likely to "pass" as the opposite sex and behave in accordance with traditional gender norms.[1] Ultimately, they turned "almost all of them down, performing [GAS] on only 24 patients."[1]

By the end of the 1960s, select additional centers (ie, the University of Minnesota, the University of Washington, Northwestern University, and Stanford University) had begun performing MTF surgeries, although treatment remained similarly selective.[1,10] Although the JHU clinic shut down amid public controversy in 1979, an estimated 1,000 Americas had undergone GAS at major university hospitals by the end of the decade.[1] Shortly after the JHU clinic closure and throughout the 1980s, the number of physicians in private practice (ie, outside major academic medical centers) who were willing to perform GAS gradually began to increase[1,10] (Table 1).

EVOLVING SOC FOR INDIVIDUALS SEEKING GAS

Before reviewing the evolution of surgical techniques, it is imperative to review the evolution of the SOC for identifying, caring for, and evaluating patients seeking GAS. With regard to terminology in this process, in 1980 "transsexualism" and "gender identity disorder" were introduced as medical categories in the widely used psychiatric manual—the *Diagnostic and Statistical Manual of Mental Disorders*—published by the American Psychiatric Association.[13,14] In the fourth edition of the manual, "transsexualism" was removed in response to criticism that the diagnosis implied a "sexual" (rather than identity-based) disorder.[15] The diagnosis of gender identity disorder was subsequently replaced by "gender dysphoria" in response to criticism that gender identity disorder inherently pathologized diverse gender identities and expressions, which are not mental illnesses. Although GD is the most current diagnostic label in use, its classification as a psychiatric diagnosis remains widely