

REVIEW ARTICLE

Outcome of Vaginoplasty in Male-to-Female Transgenders: A Systematic Review of Surgical Techniques

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ABSTRACT

Introduction. Gender reassignment surgery is the keystone of the treatment of transgender patients. For male-to-female transgenders, this involves the creation of a neovagina. Many surgical methods for vaginoplasty have been opted. The penile skin inversion technique is the method of choice for most gender surgeons. However, the optimal surgical technique for vaginoplasty in transgender women has not yet been identified, as outcomes of the different techniques have never been compared.

Aim. With this systematic review, we aim to give a detailed overview of the published outcomes of all currently available techniques for vaginoplasty in male-to-female transgenders.

Methods. A PubMed and EMBASE search for relevant publications (1995–present), which provided data on the outcome of techniques for vaginoplasty in male-to-female transgender patients.

Main Outcome Measures. Main outcome measures are complications, neovaginal depth and width, sexual function, patient satisfaction, and improvement in quality of life (QoL).

Results. Twenty-six studies satisfied the inclusion criteria. The majority of these studies were retrospective case series of low to intermediate quality. Outcome of the penile skin inversion technique was reported in 1,461 patients, bowel vaginoplasty in 102 patients. Neovaginal stenosis was the most frequent complication in both techniques. Sexual function and patient satisfaction were overall acceptable, but many different outcome measures were used. QoL was only reported in one study. Comparison between techniques was difficult due to the lack of standardization.

Conclusions. The penile skin inversion technique is the most researched surgical procedure. Outcome of bowel vaginoplasty has been reported less frequently but does not seem to be inferior. The available literature is heterogeneous in patient groups, surgical procedure, outcome measurement tools, and follow-up. Standardized protocols and prospective study designs are mandatory for correct interpretation and comparability of data. **Horbach SER, Bouman M-B, Smit JM, Özer M, Buncamper ME, and Mullender MG. Outcome of vaginoplasty in male-to-female transgenders: A systematic review of surgical techniques. J Sex Med 2015;12:1499–1512.**

Key Words. Vaginoplasty; Transsexualism; Gender Identity Disorder; Sex Reassignment Surgery; Penile Inversion Vaginoplasty; Bowel Vaginoplasty

Introduction

The phrases “Gender Identity Disorder” and “Gender Dysphoria” apply to patients with a strong and persistent cross-gender identification, a

persistent discomfort with their anatomical sex, and a sense of inappropriateness in the gender role of that sex, which causes significant distress in social, occupational, and other important areas of functioning. This commonly leads to the belief of

being born in the wrong sex and a preoccupation with losing secondary sexual characteristics of the anatomical sex [1,2].

The importance and potential benefits of genital sex reassignment surgery (SRS) were first advocated by Harry Benjamin, with the release of his book “The Transsexual Phenomenon” [3] in 1966 [2,4]. Since 1979, the Harry Benjamin International Gender Dysphoria Association (now World Professional Association for Transgender Health) has been establishing evidence-based “Standards of Care”: guidelines for diagnostics and treatment of transgender patients. These clinical guidelines provide a stepwise procedure that consists of diagnostic assessment, real-life experience and psychotherapy, hormone therapy, and surgical therapy [5].

The advantages of therapy for gender dysphoric patients have been pointed out by various studies in the past decades. Recently, a large-scale study by de Vries et al. [6] found a significant improvement in psychological functioning and well-being of transgender adolescents after hormonal and surgical therapy. Most transgenders indicate an improvement in sex life and report more sexual excitement after SRS [7]. For male-to-female (MtF) transgenders, a correlation was seen between neovaginal anatomy and satisfaction with the neovagina and sexual functioning [7,8].

Nowadays, treatment of patients with gender dysphoria is becoming more and more accepted by the general public and surgical treatment for especially MtF transgenders is performed worldwide.

For MtF transgenders, the core surgical procedures are orchidectomy, penectomy, clitoroplasty, labiaplasty, and creation of the neovagina, together often referred to as “(neo)vaginoplasty.” Other common surgical procedures for the establishment of a feminine aesthetic appearance are breast augmentation, facial feminization surgery, permanent hair removal, lipoplasty, and thyroid chondroplasty [9,10]. In the fields of gynecology, urology, and reconstructive plastic surgery, many surgical techniques for vaginal (re)construction have been described [2,10–13]. Not only MtF transgenders but also biological women with disorders of sexual development (such as Mayer-Rokitansky-Kustner or intersex disorders) and those who underwent vaginectomy after malignancy or trauma are possible candidates for vaginoplasty.

In transgender vaginoplasty, surgical techniques can be divided in three main categories, based on the origin of the donor tissue [2,14]:

1. Skin grafts.
2. Penile-scrotal skin flaps.
3. Pedicled small or large bowel segments.

Experimental options for creating a neovagina are the use of buccal mucosa, amnion grafts, or decellularized tissue. Most gender surgeons prefer the use of inverted penoscrotal skin flaps. However, it is still unclear what the optimal surgical technique is, as the outcomes of the available surgical techniques have never been compared.

Key Objectives

Our main goal is to give an overview of available surgical techniques for vaginoplasty, and their outcomes in MtF transgender patients, by reviewing all published data in the past 20 years. Ideally, this would make it possible to identify the best available technique for vaginoplasty in MtF transgenders. Our second goal is to reveal gaps in current literature, which can form the basis for further research.

Methods

For this systematic review, data collection and analysis was performed according to the guidelines of the PRISMA statement 2009 [15]. Inclusion criteria and methods of analysis were specified in advance.

Search Strategy

We have performed a broad systematic search in Medline and EMBASE bibliographic databases for studies that report the outcome of vaginoplasty in MtF transgenders. This search strategy was peer reviewed by an information specialist at the VU University medical library.

A search strategy was made using a combination of (MeSH) terms such as *neovagina*, *vaginoplasty*, *transsexualism*, and synonyms (Table 1). The PubMed function “Cited references” and reference lists of all included articles were screened for additional relevant literature. A database of retrieved articles was made using Reference Manager 2012 (Thomson Reuters), and all duplicates were removed from our database.

Study Selection

The first selection was made based on title and abstract without blinding to authorship or journal by one author (S.H.). Remaining articles were analyzed by two independent researchers (S.H. and

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