ORIGINAL RESEARCH—SURGERY

Intestinal Vaginoplasty Revisited: A Review of Surgical Techniques, Complications, and Sexual Function

Mark-Bram Bouman, MD,*†[1] Michiel C.T. van Zeijl, MD,*[1] Marlon E. Buncamper, MD,*† Wilhelmus J.H.J. Meijerink, MD, PhD,‡ Ad A. van Bodegraven, MD, PhD,§ and Margriet G. Mullender, PhD*†

*Department of Plastic, Reconstructive and Hand Surgery, VU University Medical Center, Amsterdam, The Netherlands; †Center of Expertise on Gender Dysphoria, VU University Medical Center, Amsterdam, The Netherlands; ‡Department of Gastro-Intestinal Surgery and Advanced Laparoscopy, VU University Medical Center, Amsterdam, The Netherlands; §Department of Gastroenterology, VU University Medical Center, Amsterdam, The Netherlands

DOI: 10.1111/jsm.12538

ABSTRACT

Introduction. Vaginal (re)construction is essential for the psychological well-being of biological women with a dysfunctional vagina and male-to-female transgender women. However, the preferred method for vagina (re)construction with respect to functional as well as aesthetic outcomes is debated. Regarding intestinal vaginoplasty, despite the asserted advantages, the need for intestinal surgery and subsequent risk of diversion colitis are often-mentioned concerns. The outcomes of vaginal reconstructive surgery need to be appraised in order to improve understanding of pros and cons.

Aims. To review literature on surgical techniques and clinical outcomes of intestinal vaginoplasty.

Methods. Electronic databases and reference lists of published articles were searched for primary studies on intestinal vaginoplasty. Studies were included if these included at least five patients and had a minimal follow-up period of 1 year. No constraints were imposed with regard to patient age, indication for vaginoplasty, or applied surgical technique. Outcome measures were extracted and analyzed.

Main Outcome Measures. Main outcome measures were surgical procedure, clinical outcomes, and outcomes concerning sexual health and quality of life.

Results. Twenty-one studies on intestinal vaginoplasty were included (including 894 patients in total). All studies had a retrospective design and were of low quality. Prevalence and severity of procedure-related complications were low. The main postoperative complication was introital stenosis, necessitating surgical correction in 4.1% of sigmoid-derived and 1.2% of ileum-derived vaginoplasties. Neither diversion colitis nor cancer was reported. Sexual satisfaction rate was high, but standardized questionnaires were rarely used. Quality of life was not reported.

Conclusion. Based on evidence presently available, it seems that intestinal vaginoplasty is associated with low complication rates. To substantiate these findings and to obtain information about functional outcomes and quality of life, prospective studies using standardized measures and questionnaires are warranted. **Bouman M-B, van Zeijl MCT, Buncamper ME, Meijerink WJHJ, van Bodegraven AA, and Mullender MG. Intestinal vaginoplasty revisited: A review of surgical techniques, complications, and sexual function. J Sex Med 2014;11:1835–1847.**

Key Words. Systematic Review; Vagina; Genital; Surgery; Vaginoplasty; Bowel; Intestine; Sigmoid; Ileum; Male-to-Female Transgender

[1]M.B. Bouman and M.C.T. van Zeijl contributed equally to this publication.

Introduction

Quality of life and psychological well-being are strongly reduced in biological women or male-to-female transgenders who do not have a normal functioning vagina [1–3]. For these subjects, it is essential to (re)create a vagina with satisfactory sexual function and appearance. Yet no consensus exists regarding the best surgical method to create a neovagina.

Over time, different techniques to construct a neovagina have been developed. The Frank method is a nonsurgical technique applied in vaginal agenesis, involving prolonged impression of the vaginal dimple [4]. The semisurgical Vecchietti method is based on the same principle of tissue expansion, where an intra-abdominally placed device exerts traction on an olive-shaped bead placed in the vaginal dimple. Surgical techniques can be subdivided by the type of graft used for the (re)construction. Types of grafts used include (inverted penoscrotal) skin grafts, pedicled regional skin flaps, peritoneal tissue, and small or large bowel segments [3,5–8].

Intestinal vaginoplasty has become an accepted part of modern techniques for vaginal (re)construction. In cases where no redundant skin is available for vaginoplasty by skin graft, intestinal grafts provide a good alternative. The use of intestine may even be favorable for good vaginal sexual function, as it provides sufficient tissue for the required vaginal depth, and this tissue is self-lubricating and resembles the vaginal lining in texture and appearance, with little or no tendency to shrink (which eliminates the need for lifelong dilatation) [3,5–10].

However, not all medical professionals view intestinal vaginoplasty favorably [5,8,10–16]. Posing major disadvantages are the need for intestinal surgery and bowel anastomosis with a risk of concomitant morbidity, the potential development of diversion colitis or, anecdotally, ulcerative colitis, and even cancer of the intestinal segment [3,5–10]. Excessive mucus production, introital stenosis, and malodor are additionally mentioned as disadvantages [3,5–8,17]. However, to date, clinical outcomes of intestinal vaginoplasty have never been systematically assessed. We aimed to review the available literature on surgical techniques and clinical outcomes of intestinal vaginoplasty.

Methods

Outcome Measures

Outcome measures were intestinal segment used, surgical procedure and clinical outcomes, long-term complications, sexual health, and quality of life.

Search Strategy

We searched MEDLINE, the University Library of VU University Amsterdam (Directory of Open Access Journals), ERIC (Education Resources Information Center), the OECD (Organisation for Economic Co-Operation and Development) database, PLoS (Public Library of Science), Project Gutenberg, and PubMed for retrospective and prospective cohort studies published between January 1996 and August 2013 that pertained to small- or large-bowel vaginoplasty (i.e., using ileum, jejunum, sigmoid, rectum, or cecum segment), had an average follow-up period of at least 1 year, and included a minimum of five patients who underwent vaginoplasty with an intestinal segment.

No restrictions were imposed with regard to patient age, indication for intestinal vaginoplasty, surgical technique (i.e., laparotomy, laparoscopy-assisted laparotomy, or laparoscopy), or background of the surgeon (i.e., gynaecologist, urologist, or plastic surgeon). The exact search strategy is shown in Table 1. One author (M.Z.) assessed whether articles met the inclusion criteria by screening the title and abstract and, if necessary, the complete article.

Table 1 Search strategies used in the database MEDLINE

Large intestinal segment
(“intestine, large”[MeSH Terms] OR “colon, sigmoid”[MeSH Terms] OR (“colon”[All Fields] AND “sigmoid”[All Fields]) OR “sigmoid colon”[All Fields] OR “sigmoid” [All Fields]) AND vaginoplasty[All Fields])
Small intestinal segment
(“intestine, small”[MeSH Terms] OR (“intestine”[All Fields] AND “small”[All Fields]) OR “small intestine”[All Fields] OR (“small”[All Fields] AND “intestines”[All Fields]) OR “small intestines”[All Fields]) AND vaginoplasty[All Fields])

MeSH = Medical Subject Heading