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Sigmoid vaginoplasty and diversion neovaginitis

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Summary

In this thesis, different aspects of (laparoscopic) intestinal vaginoplasty were elaborated. The first part focused predominantly on surgical and patient-reported outcomes of (laparoscopic) intestinal vaginoplasty in transgender women. The second part focused on endoscopic, histologic and microbial characteristics of the sigmoid-derived neovagina.

The aims of this thesis comprised:

- to provide insight in surgical and patient-reported outcomes, such as quality of life and sexual function after (laparoscopic) intestinal vaginoplasty performed as either primary or revision procedure.
- to assess clinical, microscopic, macroscopic and microbial features of the sigmoid-derived neovaginal mucosa in health and disease.

In **chapter 2**, a group of 31, relatively young, transgender women, who underwent intestinal vaginoplasty as primary procedure, reported satisfactory functional and aesthetical results of the neovagina and a good quality of life, despite low scores on the Female Sexual Function Index. Patients graded their life satisfaction a median of 8.0 on Cantril's Ladder of Life Satisfaction. Patients scored a mean total score of 27.7 ± 5.8 on the Satisfaction With Life Scale, which is consistent with a high satisfaction with life, and a mean total score of 5.55 ± 1.39 on the Subjective Happiness Scale. Both functionality as well as aesthetics were graded a median of 8.0 out of 10. In **chapter 3**, a retrospective chart review of patients who underwent laparoscopic intestinal and Full-Thickness skin Graft (FTG) vaginoplasty as revision procedure at our institution was conducted. Both techniques can be employed as secondary vaginal reconstruction. Intra- and postoperative complications did not differ significantly, but rectal perforation was more prevalent in the FTG vaginoplasty group. Although the operative time of laparoscopic intestinal vaginoplasty was longer, adequate neovaginal depth was more frequently achieved than secondary perineal FTG vaginoplasty. In **chapter 4**, a group of 24 transgender women who underwent intestinal vaginoplasty from 1970 to 2000 as revision procedure was described. Secondary surgical procedures were frequently necessary, but women reported a high satisfaction score with the surgical outcome and with life in general. They were generally satisfied with life and scored a mean of 5.9 of 7 on a subjective happiness scale. Neovaginal functionality was rated 7.3 out of 10. Neovaginal appearance was rated 7.4 out of 10.

In **chapter 5**, endoscopic images of the sigmoid neovagina of 32 transgender women and 2 biological women were compared with the native rectum. Signs of (mild) sigmoid-derived neovaginal inflammation were observed in most subjects and noted endoscopic changes comprised a diminished vascular pattern, edema, granularity, decreased resilience, friability, and erythema. In **chapter 6**, histological features of biopsy specimens taken from the sigmoid-neovagina were assessed. Acute and chronic inflammation of the sigmoid-derived neovagina were commonly observed and consistent with a proposed diagnosis of 'diversion neovaginitis'. Neovaginal discharge correlated with this histopathological entity. In **chapter 7**, a microbial analysis of the sigmoid-derived neovagina was performed by interspacer profiling (IS-pro), a PCR-based bacterial profiling technique. Substantial differences were noted between the bacterial constituents of the sigmoid-neovagina and the native rectum. When compared to the native rectum, abundance and diversity of species belonging to the phylum *Bacteroidetes* were reduced in the sigmoid-derived neovagina. In **chapter 8**, four transgender women were presented with symptomatic bacterial overgrowth of the neovagina. All patients were treated with metronidazole, which induced symptom relief. It illustrated that vaginal commensals and common causative pathogens of bacterial vaginosis in the biological vagina may induce symptomatic bacterial overgrowth in the surgically constructed neovagina. Knowledge of the mucosal appearance and histopathological features of the sigmoid-derived neovagina in health and disease may contribute to a timely and adequate diagnosis of diversion neovaginitis. The case described in **chapter 9** illustrates the potential clinical consequences of the condition.