# Psychosexual and functional outcomes after creation of a neovagina with laparoscopic Davydov in patients with vaginal agenesis

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**Objective:** To describe sexual function and satisfaction after laparoscopic Davydov vaginoplasty in patients with an absent vagina due to Mayer-Rokitansky-Kuster-Hauser syndrome or androgen insensitivity syndrome compared with a control female population.
**Design:** A descriptive study of standardized, validated psychosexual and functional outcomes using a self-report questionnaire.
**Setting:** Two tertiary care hospitals at an academic medical center.
**Patient(s):** Six women with Mayer-Rokitansky-Kuster-Hauser syndrome or androgen insensitivity syndrome who underwent laparoscopic Davydov.
**Intervention(s):** Patients postoperatively completed a self-report survey of their medical, surgical, and sexual history and the standardized, validated Female Sexual Function Index (FSFI) and select questions from the Golombok Rust Inventory of Sexual Satisfaction (GRISS).
**Main Outcome Measure(s):** Total scores and domain scores (desire, arousal, lubrication, orgasm, pain, satisfaction) on the FSFI were compared with a published control population of women. Descriptive results of domain questions on the selected questions of the GRISS were identified.
**Result(s):** Six patients, aged 20–52 years, returned the questionnaires. Responses to the modified GRISS are represented by visual frequency of response bar graphs. Compared with the control population, the patients' scores were lower for arousability, lubrication, orgasm, and comfort on the FSFI.
**Conclusion(s):** Sexual function appears impaired in these six women who underwent laparoscopic Davydov as assessed by the FSFI. This may reflect characteristics of the patient population, as well as the inclusion of all patients' data even if they did not attempt vaginal intercourse in the previous month. (Fertil Steril® 2010;94:2272–6. ©2010 by American Society for Reproductive Medicine.)

**Key Words:** Müllerian agenesis, Mayer-Rokitansky-Kuster-Hauser syndrome, androgen insensitivity syndrome, Davydov, sexual function, vaginoplasty, surgical therapy, neovagina

Vaginal agenesis due to Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome or androgen insensitivity syndrome occurs in approximately 1 in 5,000 and 1 in 20,000 live female births, respectively. The standard technique recommended by experts for creation of a neovagina is by gradual self-dilation with the support of a multidisciplinary team (1). In the rare cases of failed vaginal dilation, various surgical methods have been used for creation of a neovagina. Most surgical methods involve creating a neovaginal space and lining the space with different materials: split-thickness skin graft (McIndoe procedure) (2), buccal mucosa or artificial skin; colovaginoplasty (3); or the Davydov procedure using pelvic peritoneum (4–6). The Vecchietti procedure is an alternative whereby the neovagina is created by dilation with a traction device attached with wires to a Lucite olive placed at the vestibule (7).

Davydov vaginoplasty may be performed by laparotomy (6) or with laparoscopic assistance. At least five case series have described creation of a neovagina by laparoscopic Davydov (4, 8–11). Several studies report patients' sexual function after surgical creation of a neovagina (2, 3, 7, 12–18). At present only one study, however, reports validated psychosexual outcomes after laparoscopic Davydov (5).

The objective of this study is to describe patients' self reported sexual function and satisfaction after laparoscopic Davydov vaginoplasty and compare them to a control (no disorder of sexual development, nonsurgical) female population described in the literature (19).

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**TABLE 1**

**Demographics, sexual activity, and total FSFI per patient.**

| Patient | Age (y) | Diagnosis | Reason for diagnosis | Previous surgery | Ethnicity | Relationship status | Sexual activity (before surgery) | Sexual activity (previous 4 wk) | FSFI (total score) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 24 | AIS | Birth | Vaginoplasty | White | Common law | Attempted | Yes | 13.5 |
| 2 | 23 | Don't Know | Amenorrhea | No | Greek | No partner | No | No | 22.4 |
| 3 | 52 | Hypoplastic vagina, no uterus | Amenorrhea | McIndoe vaginoplasty | White | Single (with sexual partner) | Yes (after first surgery) | Yes | 26.4 |
| 4 | 19 | MURCS | Amenorrhea | No | White | Single (with sexual partner) | None | Yes | 19 |
| 5 | 23 | Vaginal agenesis | Amenorrhea | No | White | No partner | Yes (no IC) | No | 19.4 |
| 6 | 27 | Don't know | Sexual problems | No | Filipino/Asian | Sexual partner | None | Yes | 27.8 |

*Note:* FSFI = Female Sexual Function Index; AIS = androgen insensitivity syndrome; MURCS = Mullerian duct aplasia, renal aplasia, and cervicothoracic somite dysplasia; IC = intercourse.

*Allen. Sexual outcomes after laparoscopic Davydov. Fertil Steril 2010.*

## MATERIALS AND METHODS

With Research Ethics Board approval at Mount Sinai Hospital and St. Michael's Hospital, (REB# 04-0282-E and 04-251C respectively) nine patients with MRKH or androgen insensitivity syndrome who underwent laparoscopic Davydov with the same surgical team in Toronto, Canada, between September 2004 and May 2006 were mailed a study questionnaire after obtaining verbal consent. The study design allowed women to complete a validated survey instrument anonymously, remote from any clinic visits with their surgeons.

The questionnaire contained short answer and multiple choice sections on the patients' diagnosis, medical, surgical, and sexual histories. Nineteen questions were included from the Female Sexual Function Index (FSFI) and 17 questions were included from the Golombok Rust Inventory of Sexual Satisfaction (GRISS) adapted with permission (Copyright Pearson Assessment 2009). The FSFI and GRISS are standardized, validated self-report questionnaires with six domains: desire, arousal, lubrication, orgasm, satisfaction, and pain (19, 20).

Reponses to the modified GRISS are represented by visual frequency of response bar graphs. The FSFI responses were analyzed using Student's *t*-tests with a pooled estimate of the SD. The control population consisted of non-disorder of sexual development (DSD), nonsurgical, North American women published in the literature.

## RESULTS

Of nine patients contacted, all of whom had verbally agreed to receive the study questionnaire, six returned the questionnaire, for a response rate of 67%.

Patients' self-reported diagnoses included androgen insensitivity, hypoplastic vagina, Mullerian-renal-cervicosomite abnormalites (MURCS) association, vaginal agenesis, and "don't know" (2 respondents). The diagnosis was made at birth (1 patient), due to primary amenorrhea (4 patients), and secondary to sexual problems (1 patient). Patients' ages at laparoscopic Davydov were 19, 22, 23, 23, 26, and 52 years, respectively, for a mean age of 27.5 years (SD 12.2 years). The 52 year-old woman had previous colpopoesis with a McIndoe procedure at age 26 years, and another patient with androgen insensitivity syndrome had undergone prior vaginoplasty. The remaining 4 patients had no previous genital surgeries. Self-reported ethnicity for the respondents was white (4 patients), Greek (1 patient), and Filipino/Asian (1 patient) (Table 1).

All six patients wore a stent or used a dilator after surgery. At the time of the questionnaire two patients reported that they were still wearing the mold; the remaining participants reported using the mold for 6–12 months postoperatively.

Self-reported complications after surgery included no problems (1 patient), persistent vaginal discharge (3 patients), narrowing of the vagina (3 patients), recurrent urinary tract infections (1 patient), pain with intercourse (1 patient), difficulty with intercourse due to vagina seeming too small (2 patients), and difficulty with intercourse due to lack of lubrication (2 patients). The average number of complications reported per patient was 2.1 with a range of 0–6.

Patients reported thinking their vaginas were presently "OK/normal" (2 patients), "smaller than average" (2 patients), "narrow" (1 patient), "short" (1 patient), and "small" (2 patients). Three patients indicated that they "would like (their) vaginas longer." Regarding the appearance of their genital area, patients were "generally happy with it" (4 patients), thought "everything seems fine" (2 patients), and thought "a sexual partner would notice that it is different from other women" (1 patient).

With regard to sexual activity before surgery, the most common response was that they were not (3/6 respondents). One respondent had "attempted" to be sexually active, one was sexually active but without penetration, and one woman with a previous McIndoe