

## UROGYNECOLOGY

# Sexual function after vaginal and abdominal fistula repair

Stefan Mohr, MD; Sonja Brandner, MD; Michael D. Mueller, MD; Ekkehard F. Dreher, MD; Annette Kuhn, MD

**OBJECTIVE:** The purpose of this study was to compare clinical outcomes and sexual function between transvaginal and transabdominal repairs of vesicovaginal fistulae (VVF).

**STUDY DESIGN:** Participants (99 women with VVF at a tertiary referral center) were treated with urinary catheterization for 12 weeks and, if the procedure was unsuccessful, underwent repair using either the transvaginal (Latzko) or transabdominal technique. Objective clinical parameters were analyzed; subjective outcomes were recorded prospectively before surgery and at the 6-month follow-up examination with the use of the female sexual function index to evaluate sexual function and the visual analog scale to measure general disturbance by the fistula.

**RESULTS:** After bladder drainage for 12 weeks, 8 patients had spontaneous fistula closure. Demographic variables were similar in the transvaginal (n = 60) and transabdominal (n = 31) repair groups. The

transvaginal procedure showed significantly shorter operation times, less blood loss, and shorter hospital stay. Continence rates 6 months after surgery were 82% (transvaginal) and 90% (transabdominal). Sexual function in the 64 sexually active patients was significantly improved, and overall disturbance by the fistula was reduced with both operative techniques. Neither surgical intervention was superior to the other regarding sexual function or visual analog scale.

**CONCLUSION:** Fistula repair improves sexual function and quality of life with no difference attributable to surgical route. Given this and that operating time, blood loss and length of stay are less with the transvaginal approach, the transvaginal approach is preferred in VVF repair if fistula and patient characteristics are suitable.

**Key words:** Latzko, sexual function, transabdominal repair, transvaginal repair, vesicovaginal fistula

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Although vesicovaginal fistulae (VVF) remain a major problem in the developing world because of insufficient obstetric care,<sup>1,2</sup> they are rather uncommon in industrialized countries and usually of iatrogenic origin (surgery, radiotherapy) or caused by malignancy.<sup>2-4</sup> Detailed prevalence data are not available for industrialized or developing nations.<sup>1</sup> However, VVF occur after 1 in 500-1800 hysterectomies,<sup>4-6</sup> and these account for 49.4-73.9% of gynecologic VVF.<sup>7-9</sup>

Symptoms occur, depending on the cause, with immediate urinary loss after surgical trauma, 7-30 days after hysterectomy or caesarean section, and up to

30 years after irradiation.<sup>4,10</sup> Diagnosis is clinical, and cystoscopy or dye test verify the VVF.<sup>4</sup>

Fistulae result in permanent urinary leakage with a devastating impact on the patient's health, hygiene, psyche, quality of life, and sexuality.<sup>1,11,12</sup> Impairment of sexual life by any urinary incontinence is described in 30% of incontinent women.<sup>13</sup>

Data on fistula management are scarce, based on low level evidence only; comparison of the surgical approaches is insufficient.<sup>3,4,9,14,15</sup> There is no standardized classification for fistulae; hence, there is no standardized definition of success for VVF surgery.<sup>9,14,16</sup> Initially a trial therapy with bladder drainage is advisable, with a spontaneous closure in 7-15.4%.<sup>2,4,6,7,10,17</sup> Nevertheless, most fistulae must be treated surgically. As for surgery, there are basically 2 options at hand: the transvaginal (Latzko, 1942) and transabdominal (O'Connor, 1950) technique, with the latter allowing for an open, laparoscopic, or robotic procedure.<sup>1,3</sup> Urinary diversion is advocated in patients with multiple failed repairs or rarely after irradiation in approximately 0.6% of VVF patients.<sup>10,17</sup>

Studies that deal with fistula repair usually concentrate on anatomic results without acknowledging quality of life or sexual function.<sup>4,14</sup> However, a closed fistula does not necessarily imply the cure of the patient.<sup>11</sup>

Despite the deleterious impact of incontinence on sexual function, no data analyzing sexual function before and after fistula repair are available currently. The aim of this study was to compare clinical outcomes and sexual function between transvaginal and transabdominal repairs of VVF.

## PATIENTS AND METHODS

All women with VVF who were treated between January 2002 and May 2013 and who agreed to participate in this prospective study were included in the analysis. Three patients declined participation: 1 woman declined to complete the questionnaire because she found the questions too personal, and the other 2 women did not state their reasons. Surgical procedures were standardized, and operations were performed or supervised by the same surgeon. The study was conducted in the University Women's Hospital, Department of Urogynecology, Bern, Switzerland, which is a tertiary referral

From the Department of Obstetrics and Gynecology, Inselspital, Bern University Hospital and University of Bern, Switzerland.

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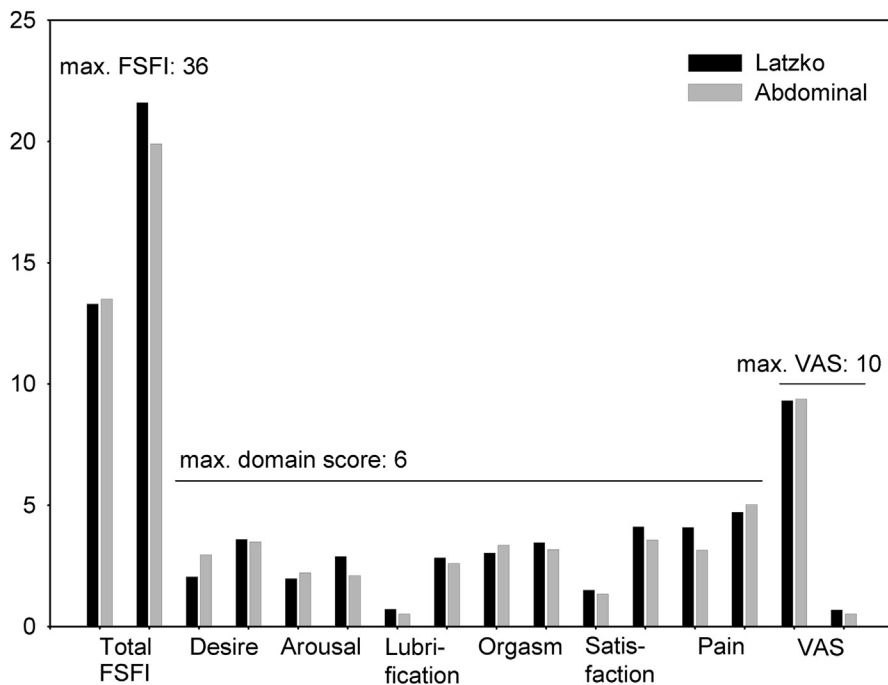
Reprints: Stefan Mohr, MD, Department of Obstetrics and Gynecology, Effingerstr 102, Bern University Hospital, 3010 Bern, Switzerland. [stefan.mohr@insel.ch](mailto:stefan.mohr@insel.ch).

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**FIGURE**  
**Female Sexual Function Index and visual analog scale scores**



each item: left bar pre-operative, right bar post-operative

Total Female Sexual Function Index (FSFI) score is a maximum of 36; single domains have a maximum score of 6, and the maximum visual analog scale (VAS) scores are 10.

Mohr. Comparison of transvaginal and transabdominal fistula repair. *Am J Obstet Gynecol* 2014.

center. Ethical consent was obtained (Cantonal Ethics Committee Bern).

Patients were evaluated by medical history, physical examination (including bladder filling with methylene blue to demonstrate the fistula tract), urinalysis, and 30-degree cystoscopy.

Initially, all patients received a transurethral Foley catheter for 12 weeks. If the VVF did not heal during this period the vaginal approach was the first choice for patients with a small and/or easy-to-access fistula and for patients with reduced fitness. The abdominal route was chosen for fistulae of >1 cm in diameter, difficult vaginal access with the genital hiatus being <2 cm, and no vaginal descent on straining. Additionally, because approximately 5 mm of surrounding fistula tissue was excised, depending on the individual situation, VVF fistulae closer than 1.5 cm to the ureteric orifices were repaired abdominally with the insertion of ureteric catheters before fistula excision and

repair to ensure uninhibited ureteric drainage.

Perioperatively, all patients received broad spectrum antibiotics; in all postmenopausal patients, a local estrogen cream (estriol cream, 0.05%) was applied. An indwelling urethral catheter was maintained for 10 days, and patients underwent a cystogram before catheter removal. Patients were clinically evaluated at 6 and 24 weeks after surgery, then annually.

During the Latzko procedure, the fistulous tract was excised. A Foley catheter was placed through the fistula opening with the balloon for traction on the tissues during dissection. Approximately 5 mm of tissue surrounding the fistulae was excised until the edges were of healthy, well-perfused tissue and until fibrotic tissue was completely removed. The vaginal epithelium around the fistula was sharply denuded and freed from surrounding tissues. The fibromuscular layer was closed with tension-free

interrupted sutures with the use of delayed absorbable material (Vicryl 2-0; Ethicon, Zug, Switzerland). The muscularis layer of the vagina and vaginal epithelium were closed in the same way.

For the abdominal VVF repair, the bladder was mobilized from the vagina, which allowed direct visualization of the defect and resection of the fistulous tract. The vagina and bladder were closed separately, and an interpositional omental or peritoneal flap was placed.

Sexual activity was allowed to resume after medical check-up showed uneventful wound healing 6 weeks after surgery.

The primary outcome of this study was sexual function as determined by the Female Sexual Function Index (FSFI). Secondary outcomes were continence, quality of life, operation time, blood loss, and hospital stay. Outcome was recorded prospectively before surgical repair and at the 6-month postoperative follow-up examination.

Sexual function was evaluated by means of the FSFI, which is a validated instrument consisting of 19 questions. The questions are grouped for domains of desire, arousal, lubrication, orgasm, satisfaction, and pain; higher scores reflect better sexual function (Figure 1). The FSFI has been validated based on Diagnostic and Statistical Manual of Mental Disorders IV (American Psychiatric Association, 2000). The questionnaire defines sexual activity as caressing, foreplay, masturbation, and vaginal intercourse.<sup>18</sup>

Secondary outcomes were assessed with the patients judging their general disturbance by the fistula on a visual analog scale (VAS). The VAS is a validated tool to assess health and satisfaction in patients, to investigate pain, and to measure attitudinal attributes and quality of life.<sup>19</sup> Moreover, clinical (operation time, blood loss, hospital stay, continence status, fistula position and size, total follow-up time) and demographic data (age, body mass index) were determined. Continence was defined as the subjective absence of urinary loss.

For statistical analysis, Graph Pad Prism (version 5.0 for Windows; Graph Pad, La Jolla, CA) was used to calculate

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