Sexual Adjustment of Patients Undergoing *Gracilis Myocutaneous* Flap Vaginal Reconstruction in Conjunction with Pelvic Exenteration

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BACKGROUND. Although the technique for gracilis myocutaneous vaginal reconstruction was first described in the mid-1970s and has been used in conjunction with pelvic exenteration since that time, there is little available information regarding sexual adjustment after such a procedure. The purpose of this study was to assess the sexual adjustment of women who underwent pelvic exenteration and gracilis myocutaneous vaginal reconstruction at the study institution.

METHODS. In a prospective study design, 95 patients were identified who underwent pelvic exenteration and gracilis myocutaneous vaginal reconstruction at the study institution from 1977 through 1989 and a convenience sample was selected of 44 patients who completed a modified version of the Sexual Adjustment Questionnaire (SAQ) when they returned to the gynecologic oncology outpatient clinic for routine follow-up care. A vaginal assessment was also performed by the attending physician.

RESULTS. Twenty-one of 40 patients (52.5%) completing the questionnaire reported not resuming sexual activity after surgery; 19 patients reported resuming sexual activity between 1.5 months to 12 years postoperatively. Of the patients who resumed sexual activity, 84% did so within 1 year of surgery. The most common problems noted by patients in adjusting to sexual activity after surgery were self-consciousness about the urostomy or colostomy and being seen in the nude by their partner, vaginal dryness, and vaginal discharge. The mean rank of preexenteration SAQ scores was 66.4, and the mean rank of postexenteration scores was 48.7 ($P < 0.0001$), demonstrating that sexual adjustment after exenteration was significantly poorer than before the surgery. On the basis of data gathered from a vaginal assessment form, 31 of 44 patients (70.4%) were judged to have a potentially functional neovagina.

CONCLUSIONS. Based on the findings of this questionnaire study, sexual adjustment is often significantly impaired in women after pelvic exenteration and gracilis myocutaneous vaginal reconstruction. Future modifications in surgical technique, more realistic patient counseling, and aggressive postoperative support will hopefully minimize such problems. ***Cancer* 1996; 78:2229–35.** © *1996 American Cancer Society.*

KEYWORDS: sexuality, sexual adjustment, cervical carcinoma, gracilis myocutaneous vaginal reconstruction.

In 1976, McCraw et al.[1] described the technique for gracilis myocutaneous vaginal reconstruction. Several subsequent reports detailed the use of gracilis myocutaneous flap vaginal reconstruction in conjunction with pelvic exenteration for the treatment of recurrent gynecologic malignancies.[2–8] Potential advantages of gracilis myocutaneous vaginal reconstruction included introduction of a new blood supply from tissue that filled the pelvis and improved sexual rehabili-

tation. Early problems encountered in the use of this technique included flap necrosis and flap prolapse. Modification in the initial technique, including reduction in flap size, anchoring of the neovagina to the levator and retropubic fascia, and ligation of the neurovascular pedicle for mobilization, combined with increased experience with the technique have led to a decrease in the incidence of complications and improved cosmetic results.[6,8] However, there is little available information regarding sexual adjustment and patient satisfaction after undergoing such a surgical procedure. Therefore, the purpose of this study was to assess the sexual adjustment of women who underwent pelvic exenteration and gracilis myocutaneous vaginal reconstruction at the University of Texas M. D. Anderson Cancer Center.

MATERIALS AND METHODS

Through review of the databases of the Department of Gynecologic Oncology, 296 patients were retrospectively identified who underwent pelvic exenteration on the authors' service from 1977 through 1989. One hundred and sixty-one patients had died. Ninety-five of the 135 living patients had undergone gracilis myocutaneous vaginal reconstruction at the time of pelvic exenteration. A convenience sample was selected that was comprised of 44 consecutive patients who were entered in the study when they returned to the gynecologic oncology outpatient clinic for routine follow-up examinations.

The instruments used for data collection were a modified version of the Sexual Adjustment Questionnaire (SAQ) developed by Waterhouse and Metcalfe[9] and a vaginal assessment instrument (Fig. 1) that was developed by the authors. The vaginal assessment instrument was developed by the authors because no appropriate tool was found in the literature. Interrater reliability was established by having two physicians use the instrument on the same ten patients.

The SAQ was modified, making the questions consistent with a true Likert type scale so that the items could be totaled. The modified SAQ was comprised of 19 questions regarding sexual adjustment before pelvic exenteration; the same questions were repeated to assess adjustment after pelvic exenteration. Patients were asked to respond to both sections after pelvic exenteration. The responses were measured on a six-point Likert type scale. The numerical values assigned for scoring were 6 (very often), 5 (often), 4 (sometimes), 3 (almost never), 2 (never), and 1 (no partner). The scores were summed to yield a total score for sexual adjustment before and after exenterative surgery.

Prior to the study, institutional review and approval for the use of human subjects were obtained. Patients were asked to complete a questionnaire at the time of their regularly scheduled clinic visit that asked about their general background, their dating or marriage relationship, and their sexual activity. The patients were free to skip any question or to stop filling out the questionnaire at any time. The principal investigator (C.R.R.) recorded information.

The vaginal assessment form was completed by each patient's attending physician and evaluated anatomic features important for function. It was comprised of a ten-item tool that allowed the physician to check items related to the neovagina. The items included health of the epithelial lining of the neovagina, the depth of the neovagina, the condition of the flaps, the appearance of the thigh incisions, and the presence of vulvar or perineal edema. Based on the above assessment, the physician then checked off whether or not the patient had a potentially functional vagina. Interrater reliability of the items was established prior to this study by having two physicians

Code Number _____

VAGINAL RECONSTRUCTION ASSESSMENT FORM

Please check the appropriate response.

1. Flaps
   - Unilateral ____
   - Bilateral ____
2. Flap Loss
   - None ____
   - Partial ____
   - Total ____
3. Prolapse
   - None ____
   - Mild ____
   - Moderate ____
   - Severe ____
4. Granulation Tissue
   - None ____
   - Mild ____
   - Moderate ____
   - Severe ____
5. Revisions of Flap
   - No ____
   - Yes ____
   - If yes, why ____
6. Thigh Incisions Noticeable?
   - No ____
   - Mildly ____
   - Moderately ____
   - Very Noticeable ____
7. Contractures of Thigh Incision Scars
   - No ____
   - Yes ____
   - If yes, Mild ____
   - Moderate ____
   - Severe ____
8. Vulva Edema Present
   - No ____
   - Yes ____
   - If yes, Mild ____
   - Moderate ____
   - Severe ____
9. Position of Flaps on Perineum
   - Posterior ____
   - Positioned Vaginally ____
10. Depth of Neovagina
    - Appropriate ____
    - Too Long ____
    - Too Short ____

Based on above assessment, the vagina is functional

- No ____
- Yes ____

FIGURE 1. Vaginal assessment form.

TABLE 1
Characteristics of 44 Patients Who Underwent Gracilis Myocutaneous Vaginal Reconstruction at the Time of Pelvic Exenteration

Characteristic	No. patients	%
Age		
Mean (yrs)	55.6	
Range (yrs)	30–79	
Race		
White	31	70.4
Hispanic	8	18.1
African American	5	11.3
Primary cancer diagnosis		
Cervix	38	86
Rectum	3	6.8
Vagina	1	2.2
Colon	1	2.2
Cloacogenic carcinoma	1	2.2
Prior radiotherapy		
Yes	43	98
No	1	2
Years since pelvic exenteration		
Mean	6	
Range	1–14	
Type of pelvic exenteration		
Total	34	77.2
Anterior	6	13.6
Posterior	4	9
Postoperative complication		
None	25	56.8
Necrosis	8	18
Prolapse	8	18
Infection	1	2.2
Other	2	5

use the instrument on the same ten patients. A high interrater reliability (correlation coefficient [r] = 1) was found for all the items except two. Scores for these two items were 0.5 for vulvar edema and 0.3 for thigh incisions. These two items (presence of vulvar edema and noticeable thigh incisions) are subjective in nature and were compared with the patient's perceptions during the study. Content validity was also established by the attending physicians.

Descriptive statistics were calculated with the SPSS program.[10] The Wilcoxon signed rank test was used to examine the difference in the mean ranks of the preexenteration and postexenteration scores. The Spearman rho test was performed to examine the influence of time since surgery on sexual adjustment. Cronbach's alpha test was used to measure the internal consistency reliability of the SAQ.

RESULTS

Table 1 presents the clinical characteristics of the 44 patients in this study. At the time of surgery, all patients were either iatrogenically (i.e., related to prior pelvic radiotherapy) or naturally menopausal. Sixteen patients (36%) were receiving estrogen replacement therapy at the time of surgery.

Nineteen of the 44 patients (43%) had flap complications documented in the medical record. Necrosis and prolapse were the most common complications documented, with 8 patients (18%) each experiencing these problems.

Background information from the SAQ was obtained for 40 patients. Four patients did not complete the questionnaire. Marital status is detailed in Table 2. As noted, 26 of the 40 respondents (65%) were married at the time of the surgery, and 19 (47.5%) were married at the time of the questionnaire completion. Twenty-one patients (52.5%) worked outside the home (Table 3). Seventeen patients (42.5%) had less than a

TABLE 2
Marital Status of 40 Patients Completing Questionnaire

Marital status	Preoperative frequency	%	Frequency at time of questionnaire completion	%
Single	1	2.5	1	2.5
Married	26	65	19	47.5
Widowed	4	10	9	22.5
Divorced	8	20	9	22.5
Separated	0	0	1	2.5
Living with partner	1	2.5	1	2.5

TABLE 3
Occupations of 40 Women Undergoing Pelvic Exenteration and Myocutaneous Vaginal Reconstruction

Occupation	Frequency	%
Professional (n = 5)		
Teacher	1	2.5
Civil service	1	2.5
Micrographics	1	2.5
Computer operator	2	5
Clerical, sales, technical (n = 14)		
Store clerk	3	7.5
Bookkeeper	3	7.5
Office worker	3	7.5
Hospital aide	1	2.5
Apartment locator	1	2.5
Elevator operator	1	2.5
Factory worker	1	2.5
Cook	1	2.5
Unskilled, manual labor (n = 2)		
Barmaid	1	2.5
Waitress	1	2.5
Homemaker	14	35
Other	3	7.5
No comment	2	5

TABLE 4
Interval between Surgery and Time Sexual Activity Resumed (n = 40)

Interval (mos)	Frequency	%
≤3	5	12.5
4–6	8	20
7–9	1	2.5
10–12	2	5
24	1	2.5
144	1	2.5
Unspecified	1	2.5
No resumption	21	52.5

TABLE 5
Problems Adjusting to Sexual Activity After Surgery (n = 40)

Complaint	Frequency	%
Vagina too dry	11	27.5
Vagina too dry with lubricant	2	5
Pain	7	17.5
Vaginal discharge	11	27.5
No pleasure when genitals touched	8	20
No pleasure from penetration	7	17.5
Sensations inside vagina as if thighs were touched	3	7.5
Self-conscious about urostomy	16	40
Self-conscious about colostomy	16	40
Self-conscious about partner seeing me nude	12	30
Vagina too small	8	20
Vagina too large	2	5
Self-conscious about thigh incisions	5	12.5

high school diploma, 12 (30%) had completed high school, and 11 (27.5%) had completed 1 or more years of college. Twenty-six patients (65%) had no medical problems other than pelvic carcinoma. Fourteen patients (35%) had other medical conditions, with hypertension being the most common (42.8%). Of the 14 patients (77.5%) did not drink alcohol. Of those 11 patients who did drink alcohol, 6 (54.5%) listed beer as the most common alcoholic beverage. Five patients (45.4%) reported that they drank occasionally, and 4 patients (36.3%) stated that they drank socially. Seven patients (87.5%) had been drinking alcohol for 5 or more years.

Twenty-one of 40 respondents (52.5%) stated that they did not resume sexual intercourse after surgery, whereas 19 patients (47.5%) reported resuming sexual intercourse after a postoperative interval of 1.5 months to 12 years. Of the patients who resumed sexual activity, most (84%) did so within 1 year postoperatively (Table 4). No relationship was found between sexual adjustment and age, health status, education level, or race.

The most common problems that patients reported in adjusting to sexual activity after surgery were feeling self-conscious about the urostomy or colostomy (Table 5). Other common problems included concern at being seen nude by their partner, vaginal dryness, and vaginal discharge. Fifteen patients (37.5%) reported problems with thigh incisions. Of these 15 patients, 9 (60%) had some difficulty ambulating, 5 (33.3%) had difficulty sitting, 3 (20%) had swelling of the thigh incisions, and 1 (6.7%) had tingling of the thigh incisions. Five of 40 patients (12.5%) stated that they were self-conscious about their thigh incisions; 3 (7.5%) reported sensations inside their vaginas as if their thighs were being touched.

When asked, "If you had the chance to do it over again, would you have your vagina reconstructed as part of the surgery?" 27 respondents (67.5%) said yes, 2 (5%) said no, and 11 (27.5%) were not certain. When asked, "Were you satisfied with the amount of information you received about emotional and sexual reactions to the surgery?" 33 patients (82.5%) said yes and 7 (17.5%) said no.

Patients were asked what they thought was the most important information given them by health care team members. Responses included the following: "The health care team members told me they were going to make some holes with bags"; "they told me my body would not be the same but I would be the same person"; "they said I could have sex, just as before"; "they said not to let your stomas rule your life"; they said I should be brave"; and "they said it's time to get used to the idea of exenteration." Some patients also said that meeting a patient who had already undergone the surgery was helpful.

Some respondents expressed dissatisfaction with the information they were given by health care team members. Responses included the following: "I was given too much information too soon"; "I would have liked more information about possible complications"; "my feelings about exenteration weren't discussed"; and "my physician said my vagina was adequate for intercourse but it's never been satisfactory."

Scores in response to the research question, "Is there a difference in the level of sexual adjustment as measured by the SAQ of women before and after pelvic exenteration with vaginal reconstruction?" were analyzed. The mean rank of preexenteration scores was 66.4, and the mean rank of postexenteration scores was 48.7, demonstrating that sexual adjustment after exenteration was significantly poorer than before the surgery ($P < 0.0001$).

Because nine women no longer had a sexual partner at the time of the questionnaire, an analysis was also completed excluding those nine women from the

group. The mean rank pretest score for the remaining women with partners was 72.6 (n = 31) and the posttest mean rank score was 57.3, indicating that women with sexual partners had lower levels of sexual adjustment after pelvic exenteration and vaginal reconstruction ($P < 0.0001$).

Scores in response to the question, "Is there a relationship between sexual adjustment of women and the length of time since pelvic exenteration and vaginal reconstruction?" were also analyzed. Two sets of ranks, by years since exenterative surgery and postexenteration scores, were compared. The Spearman rho coefficient was $r = -0.03$, which demonstrated no significant relationship between length of time since exenteration and sexual adjustment.

An analysis was also completed excluding the nine women without partners at the time of testing. The Spearman rho coefficient was $r = -0.13$, showing no relationship between length of time since exenteration and sexual adjustment for women with sexual partners. The total coefficient alpha level was 0.72, demonstrating the good internal consistency of the SAQ in this sample of women.

To analyze the research question, "Do women have anatomically adequate vaginas?" the data from the vaginal assessment tool were summarized using descriptive statistics. Forty-four vaginal assessments were completed. Thirty-four patients (77.3%) had bilateral flaps, and 10 patients (22.7%) had unilateral flaps. As for flap loss (defined as failure of the myocutaneous gracilis flap to take), 35 patients (79.5%) had no flap loss, 6 (13.6%) had partial flap loss, and 3 (6.8%) had total flap loss. Thirty of the 44 patients (68.2%) had no prolapse of the flaps, 9 (20.4%) had mild prolapse, 5 (11.4%) had moderate prolapse, and no patients had severe prolapse. Thirty-four of the 44 patients (77.3%) had no granulation tissue associated with the flaps. 7 (15.9%) had mild granulation tissue. 2 (4.5%) had moderate granulation tissue, and no patients had severe granulation tissue (for 1 patient, the physician's response was missing). Forty-three patients (97.7%) had not had a flap revision, and 1 patient (2.3%) had a flap revision prior to the study. Eight patients (18.1%) did not have noticeable thigh incisions, 17 (38.6%) had mildly noticeable thigh incisions, 10 (22.7%) had moderately noticeable thigh incisions, and 7 (15.9%) had very noticeable thigh incisions (for 2 patients, the physician's response was missing). Thirty-eight patients (86.4%) had no contractures, 5 (11.4%) had mild contractures, and 1 (2.2%) had severe contractures of the thigh incisions.

Forty patients (90.9%) had no vulvar edema present; 3 (6.8%) did have vulvar edema, but it was judged mild in all 3 (for 1 patient, the physician's response was missing). Thirty-two patients (72.7%) were judged to have the flaps positioned in the normal anatomic location of the vagina, and 8 (18.2%) were judged to have the flaps positioned too posteriorly (for 4 patients, the physician's response was missing). In 30 patients (68.2%), the depth of the neovagina was judged to be adequate, and in 14 patients (31.8%), the depth was judged to be too short. Based on the vaginal assessment tool, physicians reported that 31 patients (70.5%) had adequate vaginas and 13 (29.5%) had inadequate vaginas. However, 5 of the 13 patients judged to have an inadequate vagina reported being sexually active postoperatively.

DISCUSSION

Since the initial description of the surgical technique for gracilis myocutaneous vaginal reconstruction at the time of pelvic exenteration by McCraw et al.,[1] several reports have detailed the acute and short term morbidity associated with this procedure.[2–8] The flap necrosis rate of 20% and flap prolapse rate of 32% (which was mild in 20.4%) in this series of 44 patients is within the range of that reported in the literature. However, as noted in the initial report of 107 patients who underwent this procedure at the study institution,[6] modifications in the technique in the late 1970s, including the use of smaller flaps, ligation of the neurovascular pedicle, and anchoring of the neovagina to the levator and retropubic fascia, have resulted in a marked decrement in the incidence of these complications. As a result of these changes in surgical technique, the frequency of vaginal prolapse decreased from 65% to 16% and the frequency of severe necrosis from 24% to 13%. Other investigators have reported flap necrosis rates of 14–38%, and flap prolapse rates of 0–10%,[4,7,8] as well as other complications, including stenosis of the neovaginal introitus in 5–9% of patients.[4,8] Our sample population included patients who had undergone pelvic exenteration and gracilis myocutaneous vaginal reconstruction before and some who had undergone these procedures after these modifications in surgical technique were instituted.

Other anatomic and functional assessments in the current study included assessments of thigh incisions, neovaginal depth, and position of the neovagina on the perineum. In 82% of patients in the current study, thigh incisions were noticeable; in another 16%, they were very noticeable. In addition, one patient had severe contractures of the thigh incisions. Five patients said they were self-conscious about their thigh incisions, and three reported sensations inside their vaginas as if their thighs were being touched. In comparison, Lacey et al.[5] reported that six of eight patients who responded to a questionnaire said they experi-

enced some pain, tightness, or bothersome sensation in the distribution of the leg scars. Cain et al.[7] noted abnormal thigh appearance and sensation among the problems cited by their patients although no details were provided by the authors. Soper et al.[8] observed that 4 of 46 patients complained of inner thigh discomfort during intercourse or speculum examination.

Eight of the 40 patients (20%) responding to the questionnaire stated that their vaginas were too small, and 2 (5%) stated that their vaginas were too large. Attending physicians judged the depth of the vagina to be adequate in 30 patients (68%) and too short in 14 patients (31.4%). This is in good agreement with Berek et al.,[4] who reported that 5 of 21 patients (24%) had unsatisfactory vaginal dimensions (too large in 4 and too small in 1).

To the authors' knowledge, this is the only study that has assessed positioning of the neovagina on the perineum. In 18% of the study patients, the position of the neovagina was judged to be too posterior to the normal anatomic position of the vagina.

To the authors' knowledge, this is also the first questionnaire study to provide detailed information regarding sexual adjustment in a large number of patients who underwent gracilis myocutaneous vaginal reconstruction at the time of pelvic exenteration. Other investigators have only made brief reference to sexual function after pelvic exenteration and gracilis myocutaneous vaginal reconstruction. Among them, Becker et al.[2] reported that 13 of 20 patients (65%) who underwent gracilis myocutaneous vaginal reconstruction (13 of whom also underwent pelvic exenteration) were sexually active. Berek et al.[4] noted that, among 21 patients who underwent reconstruction with gracilis grafts, 10 (48%) were sexually active, 2 (9%) had intercourse only rarely, and 9 (43%) did not attempt intercourse. Cain et al.[7] observed that only 3 of 16 patients (19%) who underwent reconstruction with gracilis flaps at pelvic exenteration and were alive at the time of analysis were sexually active. In a recent report, Soper et al.[8] noted that only 16 of 46 patients (35%) were sexually active after gracilis flap reconstruction.

Lacey et al.[5] did report sending a questionnaire to 11 surviving patients who underwent gracilis vaginal reconstruction. Eight patients responded. Only 2 of the 8 (25%) were using the neovagina for sexual intercourse. In one of these patients, the experience was reported to be repeatedly satisfactory; in the other, it was only partially satisfactory.

In the current study, 19 patients (47.5%) reported resuming sexual activity between 1.5 months and 2 years postoperatively; 21 patients (52.5%) stated that they did not resume sexual activity. Nine of the 21 patients (42.8%) reported having no sexual partner as the reason for not resuming sexual activity. These results are similar to those of Berek et al.[4]

Of the patients who resumed sexual activity, most (84%) did so within 1 year. This is interesting when one considers that Gloeckner[11] found the first year after surgery to be the major adjustment period for patients with ostomies. Twenty-four of Gloeckner's subjects (60%) showed a decrease in feelings of sexual attractiveness from before surgery through the year after ostomy surgery. Dlin and Perlman[12] also noted that body image disturbance was worst during the first year after ostomy surgery.

The findings of the current study appear to indicate that sexual adjustment of women after pelvic exenteration is poorer than that before surgery. Four other studies besides this one have evaluated psychosexual adjustment after pelvic exenteration.[13–16] Only 1 of these[16] included patients who underwent gracilis myocutaneous vaginal reconstruction (4 of 15 patients). In another, Brown et al.[13] interviewed 15 patients to evaluate sexual adjustment after pelvic exenteration. Approximately 73% indicated that they had no interest in sex after exenteration. However, Brown et al. asked no questions about sexual activity and made no reference to vaginal reconstruction or time since exenterative surgery in their report.[13]

Several studies have touched on the issue of counseling for patients who undergo pelvic exenteration and vaginal reconstruction. Lamont et al.[15] examined the psychosexual rehabilitation of 12 exenteration patients who underwent vaginal reconstruction of several types but not gracilis vaginal reconstruction. Patients in that study were interviewed by a sexual counselor both preoperatively and postoperatively regarding their sexual attitudes and adjustment. Eight women (66.6%) had a good sexual adjustment preoperatively, and 7 of these 8 (87.5%) had a good sexual adjustment postoperatively. Bullard et al.[17] found that 63% of the 26 patients they surveyed would have liked more information about sexual functioning after treatment for cancer and that 64% would participate in a specific counseling program. Capone et al.[18] studied the effectiveness of individual counseling on the psychosocial adjustment of 41 patients with gynecologic malignancies. They found that patients who received brief psychosexual counseling interventions had twice the rate of return to their predisease frequency of intercourse when compared with untreated control patients. Although the patients in the current study received no formal counseling concerning sexual attitudes and adjustments related to the surgical procedure, the findings of these other studies suggest that interventions are desirable and may enhance postoperative sexual adjustment outcomes.

Andersen and Hacker[16] reported on 15 patients who underwent pelvic exenteration (4 of whom had gracilis vaginal reconstruction). Those patients participated in semistructured interviews and were assessed for postoperative psychologic, social, and sexual functioning. This analysis revealed that the only significant difference between patients who were sexually active postoperatively and those who were not was in the area of sexual functioning and not in psychologic or social adjustment. The authors also noted that, as a group, their patients appeared mildly distressed and depressed and resembled severely sexually dysfunctional healthy women.

The most common problems noted by the current study patients in adjusting to sexual activity were self-consciousness about their urinary conduit or colostomy, self-consciousness about their partner seeing them nude, vaginal dryness, and vaginal discharge. Other authors have noted postoperative problems with vaginal discharge in patients who underwent gracilis myocutaneous vaginal reconstruction in conjunction with pelvic exenteration. In the series of Berek et al.,[4] all patients with gracilis grafts noted moderate to heavy vaginal discharge. Lacey et al.[5] reported that four of eight patients complained of a persistent vaginal discharge or odor. However, in many instances, vaginal discharge can be controlled with regular vaginal douching.

In summary, patients undergoing gracilis myocutaneous vaginal reconstruction in conjunction with pelvic exenteration generally have problems with sexual adjustment after surgery. Difficulties with sexual adjustment in such patients can hopefully be minimized by extensive psychosexual counseling both pre- and postoperatively, by careful attention to surgical technique during the procedure to avoid postoperative complications, and, whenever possible, by education of the patient's partner regarding expectations and concerns. In addition, the search for better methods of vaginal reconstruction to minimize disturbances in body image and function must continue.

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