OBJECTIVE: This study's objectives were to describe symptoms related to bowel dysfunction in women with uterovaginal prolapse and to compare these symptoms according to extent of posterior vaginal prolapse.

STUDY DESIGN: One hundred forty-three women completed a questionnaire assessment of bowel function and underwent standardized physical examination according to the International Continence Society's system for grading uterovaginal prolapse.

RESULTS: The mean age was 59.2 years (SD 11.8 years); 78% of the women were postmenopausal. According to the furthest extent of posterior vaginal prolapse at point Bp, 22 (15.5%) were in stage 0, 46 (32.4%) were in stage I, 32 (22.6%) were in stage II, 23 (16.2%) were in stage III, and 1 (0.7%) was in stage IV. Ninety-two percent of women reported having bowel movements at least every other day. When asked whether straining was required for them to have a bowel movement, 38 (26.6%) reported never or rarely, 71 (49.6%) reported sometimes, 20 (14.0%) reported usually, and 14 (9.8%) reported always. When asked whether they ever needed to help stool come out by pushing with a finger in the vagina or rectum, 98 (69.0%) reported never or rarely, 30 (21.1%) reported sometimes, 8 (5.6%) reported usually, and 6 (4.2%) reported always. Twenty-three women (16.1%) had fecal incontinence, with 11 having loss of control of stool less often than once a month and 12 having it more often than once a month. When asked whether to rate how much they were bothered by their bowel function on a scale of 1 to 10, with 1 being not at all and 10 being extremely, 51.7% of women chose 1 to 4, 20.3% chose 5 to 7, and 28% chose ≥8. There were no clinically significant associations between any of the questions related to bowel function and severity of posterior vaginal prolapse.

CONCLUSION: Women with uterovaginal prolapse frequently have symptoms related to bowel dysfunction, but this is not associated with the severity of posterior vaginal prolapse. (Am J Obstet Gynecol 1998;179:1446-50.)

Key words: Constipation, pelvic organ prolapse, posterior vaginal prolapse, rectocele, uterovaginal prolapse

The etiology of rectocele is not completely understood and may encompass different mechanisms in different patients. Damage to vaginal support during childbirth may be a primary event leading to defecatory symptoms caused by stool sequestration, or disordered defecation may result in excessive straining and eventual deterioration in pelvic organ support. A common clinical situation is the coexistence of bowel dysfunction with pelvic organ prolapse, particularly that affecting the posterior vagina. By that point it may be difficult for the clinician to determine whether a causal relationship exists between bowel symptoms and prolapse, and if so which is the cause and which is the effect, or whether they are independent but concurrent problems.

The objectives of this study were to describe symptoms related to bowel dysfunction in women with uterovaginal prolapse and to compare these symptoms according to extent of prolapse. Our goal was to determine whether there is a point at which posterior vaginal prolapse becomes associated with significant symptoms of bowel dysfunction, in which case the patient presumably would require or benefit from surgical correction.

Material and methods

This study was approved by the institutional review board at the Cleveland Clinic Foundation. All subjects provided written informed consent. All patients undergoing surgery for pelvic organ prolapse, urinary incontinence, or both between June 1996 and September 1997 were asked to participate. These women were part of either a randomized trial of anterior colpoprothesis techniques or a prospective cohort study of outcomes after prolapse or incontinence operations. Before the operation all women completed standardized questionnaires regarding urinary, bowel, and sexual function and recorded any episodes of urinary leakage for 1 week. A research nurse experienced in using the prolapse grad-
ing system of the International Continence Society examined all women in the supine lithotomy position in stirrups on a standard gynecologic examination table. Vaginal examinations were performed with Sims speculums; the maximum descent of prolapse was demonstrated by Valsalva maneuver or cough and confirmed by the patient to be the most severe protrusion that occurred. Methods, definitions, and descriptions conformed to the standards recommended by the International Continence Society except where specifically noted.3

Statistical analyses were performed with centimeter measurements of vaginal sites and assessment of severity of bowel symptoms as continuous variables and stages of prolapse as ordinal variables. Numbers do not always equal the total sample because of missing data. For analysis, abnormal frequency of bowel movements was defined as less often than every other day. Other symptoms (straining, use of manual pressure for defecation, or fecal incontinence) were considered present for all responses other than never or rarely. The associations between age, stage of prolapse, and severity of bowel symptoms were assessed with Spearman rank correlation coefficients. P values for these tests refer to a test of the hypothesis that the correlation is zero. For graphical depiction of these relationships, small amounts of random variation were added to the actual values to show all data points (because the actual data points would overlap). P ≤ .05 was considered statistically significant.

Results

One hundred forty-three women completed the questionnaires and underwent standardized physical examination. Their mean (± SD) age was 59.2 ± 11.8 years.

Ninety-six of 123 women (78.0%) were postmenopausal, and 62 were receiving estrogen replacement therapy. Surgical histories were available for 124 women; these included hysterectomy in 61 women (49.2%) and previous operation for prolapse or incontinence in 31 women (25.0%). One hundred five women (73.4%) reported urinary incontinence. According to the furthest extent of posterior vaginal prolapse at point Bp, 22 patients (15.5%) were in stage 0, 46 (32.4%) were in stage I, 50 (35.2%) were in stage II, 23 (16.2%) were in stage III, and 1 (0.7%) was in stage IV. When the maximal extent of prolapse at any site was considered, 6 patients (4.2%) were in stage I, 61 (42.7%) were in stage II, 69 (48.2%) were in stage III, and 7 (4.9%) were in stage IV.

One hundred thirty women (91.5%) reported having bowel movements at least every other day (27.7% more than once a day, 54.6% every day, and 17.7% every other day). Twelve women (8.5%) had bowel movements less frequently than every other day. When asked whether straining was required for them to have a bowel movement, 38 (26.6%) reported never or rarely, 71 (49.6%) reported sometimes, 20 (14.0%) reported usually, and 14 (9.8%) reported always. When asked whether they ever needed to help stool to come out by pushing with a finger in the vagina or rectum, 98 (69.0%) reported never or rarely, 30 (21.1%) reported sometimes, 8 (5.7%) reported usually, and 6 (4.2%) reported always. Twenty-three women (16.1%) had fecal incontinence, with 11 having loss of control of stool less frequently than once a month and 12 having it more frequently than once a month. One or more bowel symptoms were reported by 114 (79.7%) women.

Symptoms related to bowel function were analyzed with respect to the severity of posterior vaginal prolapse.

| Table I. Stage of posterior vaginal prolapse at point Bp and symptoms related to bowel function |
|-----------------------------------------------|-------------|-------------|-------------|-------------|
|                                              | Stage 0     | Stage I     | Stage II    | Stage III*  |
|                                              | No. | %     | No. | %     | No. | %     | No. | %     |
| Bowel movement frequency† (N = 141)          |     |       |     |       |     |       |     |       |
| Normal (n = 129)                             | 21  | 16.3  | 39  | 30.2  | 46  | 35.7  | 23  | 17.8  |
| Abnormal (n = 12)                            | 1   | 8.3   | 6   | 50.0  | 4   | 33.3  | 1   | 8.3   |
| Straining‡ (N = 142)                         |     |       |     |       |     |       |     |       |
| No (n = 38)                                  | 10  | 26.3  | 14  | 36.9  | 7   | 18.4  | 7   | 18.4  |
| Yes (n = 104)                                | 12  | 11.5  | 32  | 30.8  | 43  | 41.4  | 17  | 16.3  |
| Manual evacuation§ (N = 141)                 |     |       |     |       |     |       |     |       |
| No (n = 97)                                  | 20  | 20.6  | 29  | 29.9  | 32  | 33.0  | 16  | 16.5  |
| Yes (n = 44)                                 | 2   | 4.5   | 16  | 36.4  | 18  | 40.9  | 8   | 18.2  |
| Fecal incontinence‖ (N = 142)                |     |       |     |       |     |       |     |       |
| No (n = 119)                                 | 20  | 16.8  | 37  | 31.1  | 43  | 36.1  | 19  | 16.0  |
| Yes (n = 23)                                 | 2   | 8.7   | 9   | 39.1  | 7   | 30.4  | 5   | 21.8  |

*Includes 1 woman with stage IV at point Bp.
†Normal, at least every other day; Abnormal, less often than every other day.
‡Need to strain to accomplish bowel movement: No, Never or rarely; Yes, sometimes, usually, or always.
§Need for vaginal or rectal pressure to accomplish bowel movement: No, Never or rarely; Yes, sometimes, usually, or always.
‖Loss of control of stool: No, never or rarely; Yes, less than once a month, more than once a month but less than once a week, more than once a week but less than daily, or daily.
according to point Bp, other vaginal points of the International Continence Society grading system, and overall stage derived from maximal extent of prolapse at any site. There were no clinically significant associations between any questions related to bowel function and severity of posterior vaginal prolapse (Table I) or any measures of prolapse severity, including overall stage (data not shown). The woman with stage IV prolapse at point Bp was included in stage III in Table I; she had bowel movements more than once a day, never required straining or manual pressure, and did not have fecal incontinence. When the data were analyzed with respect to age, we found that younger women were more likely to require straining ($r = 0.20, P = .018$) and older women had decreased stool frequency ($r = 0.23, P = .006$) and more advanced prolapse ($r = 0.41, P < .001$).

Women were asked to rate the extent to which they were bothered by their bowel function on a scale of 1 to 10, with 1 being not at all and 10 being extremely (Fig 1). Seventy-four women (51.7%) reported 1 to 4, 29 (20.3%) reported 5 to 7, and 40 (28.0%) reported 8. There was a statistically significant correlation between this rating of bowel function and stage of posterior vaginal prolapse at point Bp ($r = 0.23, P = .006$). As shown in the scattergram in Fig 2, however, this correlation has limited clinical significance. It was not possible to determine a stage of posterior vaginal prolapse that was strongly associated with severity of bowel symptoms. Many women with mild prolapse were extremely bothered by their bowel function, and many women with advanced prolapse were not bothered by their bowel function. Women with more advanced stages of prolapse according to the maximal extent of prolapse at any site were not more likely to be bothered by their bowel function than were women with less advanced prolapse ($r = 0.06, P = .44$).

Comment

The most important finding of this study is the absence of a clinically important association between bowel symptoms and extent of posterior vaginal prolapse. We were not able to find a stage of posterior vaginal prolapse determined by physical examination that was consistently associated with bowel symptoms. This supports the conclusion that bowel symptoms and posterior vaginal prolapse frequently coexist but do not necessarily have a causal relationship.

Does a rectocele develop as a result of abnormal bowel function, for example as a consequence of prolonged straining associated with constipation or paradox puborectalis contraction? Or does tissue damage during childbirth result in a weakness or defect in the posterior vagina that leads to trapping of stool and difficulty in evacuating the rectum? Although the answer is yet unknown, it is likely that combinations of these 2 factors and others, such as connective tissue strength, assume greater or lesser degrees of causation in each individual. In our study we found a weak correlation between age and bowel function, with younger women more likely to report excessive straining. It may be that prolapse develops at a younger age in women with intrinsic bowel dysfunction than in women whose prolapse is a delayed result of childbirth injury combined with loss of tissue strength from aging. The ideal study design to resolve these questions would assemble a cohort of nulliparous women with normal bowel function and follow them up through time. Four overlapping groups would eventually be formed of women with and without bowel symptoms
and with and without signs of posterior vaginal prolapse (or other manifestations of pelvic organ prolapse). In this way the relationship between function and anatomy could be clarified. In the absence of longitudinal studies, available data regarding the relationship between bowel symptoms and posterior vaginal prolapse must be interpreted cautiously.

The definition of rectocele in our study was based on physical findings, and the extent of prolapse was graded according to the International Continence Society system. Defecating proctography was not used to define or confirm rectoceles because of the current lack of consensus regarding the definition of rectocele by radiologic imaging. Previous studies have used defecating proctography to define rectoceles by measuring the maximum depth of any bulge beyond the expected course of the anterior rectal wall. Because of the finding of “small” rectoceles (≤2.0 cm) in 76% of healthy nulliparous volunteers,4 many reports use ≥3.0 cm as the definition of a significant rectocele.5 Gynecologists have traditionally relied on physical examination to diagnose rectocele, and recent studies have demonstrated high sensitivities of 91% and 94% for physical findings compared with proctography.5, 6 Nevertheless, some have advocated use of defecating proctography7 or dynamic fluoroscopy8 of the pelvic floor to demonstrate rectoceles and determine when rectocele repair is indicated.

Symptoms commonly attributed to rectocele include the feeling of incomplete rectal emptying, the need for digital pressure to the vagina or perineum to facilitate defecation, and aching or pressure after a bowel movement.3 However, previous studies have not demonstrated a relationship between symptoms considered typical for a rectocele and radiologic findings in patients with symptoms and symptom-free control subjects.9, 10 The criterion used to define a significant rectocele at proctography (≥3.0 cm) does not correlate with symptoms,6 nor does the presence or absence of barium trapping after defecating proctography correlate with symptoms.11 Manual pressure to facilitate rectal emptying has been found more commonly in women with rectoceles,2, 12, 13 As in our study, however, most women with rectoceles do not have that symptom, and some women without rectoceles also use manual pressure to accomplish defecation.2, 12, 13

What then constitutes clinically significant posterior vaginal prolapse for which surgical repair is indicated? We propose that the answer depends on the objective of surgical repair. If the objective is the reduction of posterior vaginal protrusion or bulging, often in conjunction with repair of other aspects of pelvic organ prolapse, then clinical significance would be determined by physical findings. If the objective is improvement in symptoms related to bowel function, it would be advisable to evaluate the patient for other defecatory abnormalities, such as delayed colonic transit and paradoxical puborectalis contraction, before operating. If other abnormalities are found, medical and behavioral treatment should be initiated before surgical repair is performed. Areas for future research include the prospective evaluation of this approach to determine whether postsurgical outcomes are improved with it.

REFERENCES


Discussion

Dr Dee Fenner, Chicago, Illinois. This study is a welldesigned prospective evaluation comparing posterior vaginal prolapse and bowel function. The relationship, association, and etiology of rectoceles and abnormal bowel function remain among the important unanswered questions concerning the pelvic floor. As discussed by Dr Weber, we may be able to agree on an anatomic definition of a rectocele; however, we still cannot agree on a physiologic or functional definition. For the pelvic surgeon this lack of knowledge leads to difficulty in decision making when one takes the patient who has an “asymptomatic” rectocele to the operating room. In attempting to answer that question, Dr Weber and her
colleagues evaluated 143 women and compared bowel function. Specifically, they examined correlations of the need to strain, the need to manually evacuate, bowel movement frequency, and fecal incontinence with the position of the posterior wall according to the International Continence Society system for grading urogenital prolapse. All patients were examined in the supine position by the same examiner.

It is not surprising that Dr Weber and colleagues did not find a correlation between the degree of posterior wall prolapse and abnormal defecation. This study confirms work by Yoshioka et al and by Goei that was cited in Dr Weber and colleagues’ article. These earlier authors found in their studies with proctography that there was no correlation between symptoms and the size of the rectocele.

The pelvic organ prolapse grading system of the International Continence Society evaluates the positions of the anterior vaginal wall, apex, and posterior vaginal wall. It is not organ specific. In other words, a posterior wall defect measured by the pelvic organ prolapse system may be a rectocele, an enterocele, a sigmoidocele, or a combination of organ prolapses. Drs Linda Brubaker and Kim Kenton presented data at the 1997 International Continence Society comparing the pelvic organ prolapse grading system and proctography. They found no correlation between any points of the grading system and the absence or presence of a rectocele or enterocele. The grading system is not organ specific.

For example, compare these 2 patients. One patient’s proctogram shows a rectocele that extends 3 cm beyond the hymen. Her posterior wall measurements by the pelvic organ prolapse system would be +3/+3. The second patient has the same measurement by the pelvic organ prolapse system, +3/+3. But her proctogram shows a large enterocele that comes down and evacuates the rectocele. Functionally and surgically, these are different pelvic floor prolapses. I would not expect these 2 patients to have the same bowel complaints, despite having the same pelvic organ prolapse grade. Dr Weber and colleagues’ study confirmed that the pelvic organ prolapse grade does not correlate with bowel dysfunction as asked about in the questionnaire. But, because all posterior wall prolapses are not rectoceles, we need to continue to longitudinally study the relationship between colorectal symptoms and rectoceles.

I again congratulate Dr Weber and her colleagues on a well-designed prospective study of an important and difficult problem to evaluate. The relationship of rectoceles and bowel dysfunction needs more investigation so that we as clinicians and surgeons can better care for and counsel our patients with respect to both the nonsurgical and surgical management of constipation and rectoceles.

For Dr Weber I have the following questions:

1. What about the relationship of genital hiatus to bowel function? We looked retrospectively at 89 patients with pelvic organ prolapse and found that the hiatus, as a measure of pelvic floor dysfunction and loss of levator tone, significantly correlated with bowel dysfunction.

2. Do you think that all posterior wall descent or prolapse represents rectocele? Could you separate patients with rectoceles only from those with both rectoceles and enteroceles to see whether a pure rectocele alone correlates with bowel dysfunction?

3. Only 1 patient had stage IV prolapse for the posterior wall. Did this affect your results?

4. Your examination was performed with the patient in the supine position. Do you think that standing would affect prolapse stage and results?

5. How has this study altered your management of rectoceles?

REFERENCES


Dr Weber (Closing). To answer Dr Fenner’s questions, the relationship of genital hiatus to bowel function is a very important question. I did not present those data, but for all the variables of vaginal sites that are collected on the Pelvic Organ Prolapse Quantitation examination, including genital hiatus, we looked at each of those variables and there was no correlation.

Do I think that all posterior wall descent represents rectocele? No. That is the point, I think, that the International Continence Society staging system has made; terminology such as posterior vaginal prolapse is preferable to rectocele because by saying rectocele you are implying that you know that it is the rectum behind the vagina, as Dr Fenner so clearly showed is not always the case.

With respect to the patient with stage IV prolapse of the posterior wall, actually she had no symptoms at all related to her bowel function so we do not think that her inclusion influenced the results. The examinations were usually performed with the patient in the supine position, but we did make sure that the patient agreed that the prolapse that was seen on the examination correlated with her own worst perception of the prolapse.

With respect to how the study has altered our management, I think that there is still a lot of work to be done to learn about the best way to evaluate patients before surgical intervention, going on the physical findings or adding some tests of imaging to the surgical management.

A question was asked about the definition of fecal incontinence. What we actually asked of women was “Do you ever lose control of stool?” So we did not separate out the loss of solid stool from fecal staining but asked simply about loss of control. We did not specifically ask “Do you lose control of stool during intercourse?”