

Excellent Outcome Using Selective Criteria for Rectocele Repair

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PURPOSE: The aim of this study was to review our experience with patients with rectoceles using very selective criteria for operative repair and to critically review our surgical results. **METHODS:** This is a review of patients selected for rectocele repair between 1989 and 1994. **RESULTS:** Two hundred seventy-nine patients were evaluated for pelvic outlet symptoms in our clinic. Defecography was performed in 180 patients; rectocele was seen in 143 patients (79 percent; 135 females and 8 males). On physical examination, 132 patients had a palpable rectocele (73 percent). Rectocele repair was recommended for 35 patients (13 percent); 33 (32 females and 1 male) underwent this procedure. Mean age was 55 (range, 16-78) years. Although many patients complained of constipation, incontinence and pelvic pain, in these 33 patients criteria for repair included the sensation of a vaginal mass or bulge that required digital support and/or rectal digitizing for evacuation (58 percent), retention of barium in the rectocele on defecography (55 percent), or a very large rectocele with internal anterior rectal wall prolapse (6 percent). A hysterectomy had been performed previously in 47 percent of women repaired. Rectocele repair was performed by a standard transanal approach in 31 patients and transabdominally in 2 patients. Hospital stay averaged 3.7 (range, 1-8) days. Few postoperative complications occurred; urinary retention was the most common (18 percent). All patients were followed postoperatively, and 26 patients (79 percent) answered a standardized questionnaire. Mean follow-up was 31 (range, 5-64) months. Eighty percent of patients questioned who initially complained of a vaginal mass or bulge reported complete resolution (significant improvement by the sign test, $P < 0.5$). Subjectively, 92 percent of patients questioned reported improvement in their preoperative symptoms and satisfaction with the operation. **CONCLUSION:** Rectoceles are frequently identified during defecography, which is performed for pelvic floor complaints, yet are often asymptomatic. In contrast to other recent reports of rectocele repair, our data indicate that careful selection of patients using specific criteria may result in very good clinical results. [Key words: Rectocele; Constipation; Incontinence; Defecating proctogram; Defecography]

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Although rectoceles are believed to be exceedingly prevalent in women and not unheard of in men,¹ questions remain as to the extent to which rectoceles are symptomatic. Consequently, decisions regarding surgical repair must be considered carefully because of the difficulty in establishing the rectocele as the cause of patient's complaints. Decision to surgically repair a rectocele is difficult for the following additional reasons: 1) 23 to 70 percent of unselected patients with a rectocele on physical examination have symptoms involving difficult evacuation,²⁻⁵ 2) a small anterior bulge of the rectal wall is common among healthy individuals,^{5,6} and 3) results of rectocele repair have varied widely among groups.⁷⁻¹⁰ The aim of this study was to examine our experience with rectocele repair. Our hypothesis was that, by selecting a group of patients most likely to benefit from repair, we could improve the varied outcomes reported. Since 1989, we have used very selective criteria for recommending surgical repair. We now report our findings in these patients.

METHODS

All patients who presented to the Colorectal Clinic at the George Washington University from 1989 to 1994 with functional pelvic complaints were prospectively followed. Patients with rectoceles were identified, and selective criteria were applied for recommending surgical repair. Patients were deemed candidates for repair if they met any of the following conditions: 1) sensation of a vaginal mass or bulge that required digital support and/or rectal digitizing for evacuation that was confirmed to be a rectocele; 2) demonstration on defecography of contrast retention in the rectocele; 3) the presence of a very large rectocele associated with anterior rectal wall prolapse. Preoperative physiologic studies included, but were not limited to, manometry, pudendal nerve terminal motor latency, defecating proctography, and balloon compliance.

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Surgical Treatment

A standardized rectocele repair was used. A formal transanal repair was performed in most patients after a mechanical and antibiotic preparation. Patients were admitted the same day as surgery. After institution of general or regional anesthesia, the patient was placed in the jackknife position with the buttocks taped apart. The rectum was cleansed with povidone-iodine, and exposure was maintained with a Pratt bivalve retractor. Apex of the repair was determined by manual palpation and was usually adjacent to the cervix. This was marked with a 2-0 Vicryl™ (Ethicon, Somerville, NJ) suture, which was left long for later closure of the mucosa. Base of the repair was at the anorectal ring. Submucosal plane was infiltrated with a 1:200,000 epinephrine solution. An ellipse of mucosa was excised with electrocautery, raising an edge on either side. Rectal muscular wall was plicated with between 8 and 12 horizontal mattress sutures of 3-0 polydioxanone suture (Ethicon, Somerville, NJ). Mucosa was then reapproximated with previously placed running 2-0 Vicryl.

In two patients, a transabdominal repair was performed in conjunction with other procedures by dissecting the rectovaginal septum from the cul-de-sac to the perineal floor. Plicating horizontal mattress sutures of 3-0 polydioxanone suture were placed to support the anterior rectal wall, and the vagina was tacked up to the sacral promontory over the repair.

Patients were maintained on intravenous fluids and antibiotics; they received nothing by mouth for two days. During this time, patients received constipating agents including codeine and diphenoxylate with atropine. These medications were discontinued on the afternoon of postoperative day 2, and a fiber supplement and stool softener were started. Most patients were discharged on postoperative day 3.

Data Collection and Statistics

Data were obtained from clinic and hospital charts and operative reports. A telephone questionnaire was used to standardize patients' subjective postoperative results. They were asked to detail any persistent or new-onset symptoms. Degree of symptom improvement was graded as 1 = worse, 2 = no change, 3 = somewhat improved, 4 = markedly improved, or 5 = completely improved. Extent of patient satisfaction was graded as 1 = not satisfied, 2 = somewhat satisfied, or 3 = very satisfied.

The chi-squared test was used when comparing presenting complaints between candidates for repair

and noncandidates. The Wilcoxon's two-sample test was used to compare scintigraphic evacuation efficiency on proctography between candidates and non-candidates, and the sign test was used to analyze symptom improvement and change in laxative use postoperatively.

RESULTS

A total of 279 patients (216 females, 63 males) were evaluated for functional pelvic complaints in our clinic between 1989 and 1994. A rectocele was detected on physical examination in 132 patients, and defecography helped to identify an additional 11 patients with rectoceles (135 females, 8 males) (Figs. 1 and 2). We recommended repair to 35 patients, of whom 33 (32 females, 1 male) have undergone the procedure. Table 1 lists the presenting complaints of all patients; constipation was the most prevalent. Table 1 further breaks down patients' chief complaints into those with and those without a rectocele. More people with rectoceles complained of a symptomatic bulge ($P < 0.05$). Table 2 subdivides the population of patients with rectoceles into those for whom repair was recommended and those who did not qualify for repair. An even stronger association existed between candidates and a symptomatic bulge ($P < 0.01$). Indications for surgical repair of a rectocele in our 35 patients are summarized in Table 3.

Defecating proctography including scintigraphic emptying was performed in all patients who were suspected of having a symptomatic rectocele and in many patients for other reasons, such as constipation. In our laboratory, a scintigraphic evacuation effi-

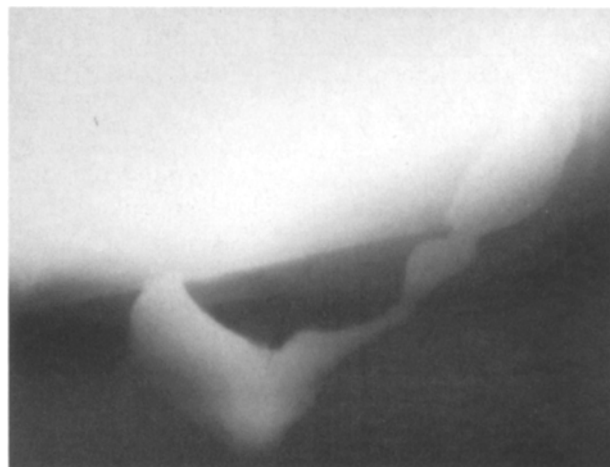


Figure 1. A large rectocele with retained contrast on defecating proctography in a 62-year-old woman. Anterior, left; posterior, right.

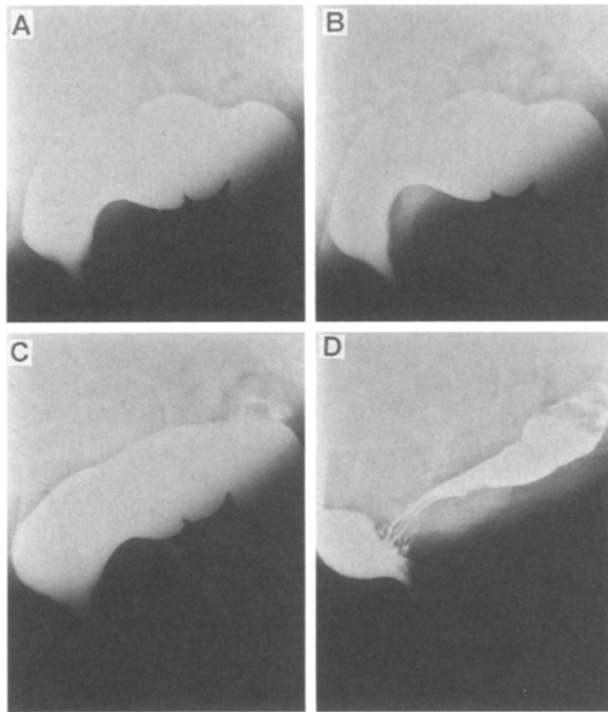


Figure 2. This contrast-retaining rectocele becomes apparent on defecating proctography only on the postevacuation film in this 34-year-old woman. A. Filled at rest. B. Squeezing. C. Straining. D. Postevacuation.

Table 1.
Chief Complaints (No. (%))

Complaint No.	All Patients 279	Patients with Rectoceles 143	Patients Without Rectoceles 136
Constipation	131 (47)	57 (40)	74 (51)
Incontinence	109 (39)	42 (29)	67 (49)
Bulge/mass	54 (19)	36 (25)	18 (13)*
Pain	28 (10)	13 (9)	15 (11)
Bleeding per rectum	21 (8)	13 (9)	8 (6)
Other	34 (12)	15 (10)	19 (14)

* $P < 0.05$; rectocele vs. nonrectocele patients.

ciency of better than 85 percent is considered normal. Eighteen patients who had significant contrast retention in their rectocele on proctography had a mean evacuation efficiency of 63 (range, 25–85) percent. This was significantly less than the mean evacuation efficiency of 92 (range, 15–99) percent in the noncandidate rectocele population ($P < 0.05$) and is noted in Table 4. Manometry, pudendal nerve terminal motor latency, balloon compliance, and other physiologic studies helped to reveal associated anorectal and/or gynecologic pathology in the rectocele population (Table 5). With the exception of defecating proctog-

Table 2.
Chief Complaints—Patients with Rectoceles (No. (%))

Complaint No.	Candidates 35	Noncandidates 108
Constipation	11 (35)	46 (41)
Incontinence	9 (29)	33 (39)
Bulge/mass	19 (61)	17 (15)*
Pain	3 (10)	10 (9)
Bleeding per Rectum	3 (10)	10 (9)
Other	3 (10)	12 (11)

* $P < 0.01$.

Table 3.
Indications for Repair

N = 35	No. (%)
Vaginal mass/bulge—confirmed rectocele	19 (58)
Retention in rectocele on defecography	18 (55)
Large rectocele with anterior rectal wall prolapse	2 (6)

Table 4.
Scintigraphic Emptying (Normal, >85%)

Group	No.	% Evacuation (Range)
Retention	18	63 (25–85)*
Nonretention	17	88 (87–99)
Noncandidates	108	92 (15–99)*

* $P < 0.05$; retention vs. noncandidates.

Table 5.
Associated Anorectal and Gynecologic Findings
(No. (%))

Condition No.	Candidates 35	Noncandidates 108
Hemorrhoids	8 (26)	20 (18)
Rectal prolapse	7 (23)	18 (16)
Sphincter injury	6 (16)	17 (15)
Pudendal neuropathy	2 (6)	11 (10)
Perineal hernia	8 (26)	9 (8)*
Nonrelaxing puborectalis	3 (10)	9 (8)
Cystocele	1 (3)	7 (6)
Enterocele	2 (6)	6 (5)
Megarectum	3 (10)	6 (5)
Redundant sigmoid	1 (3)	6 (5)
Diverticula	2 (6)	5 (4)
Uterine prolapse	—	2 (2)
Other	2 (6)	10 (9)

* $P < 0.05$.

raphy, these studies did not appear to contribute appreciably to our recommendations for repair.

Rectocele repair was performed on 33 of 35 candidates; mean age was 55 (range, 16–78) years. Seventy-three percent of these patients had undergone a pre-

vious anorectal or gynecologic operation, with hysterectomy being the most common (Table 6). Additional procedures performed at the time of rectocele repair are noted in Table 7. Forty-five percent underwent a synchronous operation at time of rectocele repair, with hemorrhoidectomy performed most commonly.

Mean hospital stay was 3.7 (range, 1–8) days. Postoperative complications were quite uncommon. Six patients (18 percent) had transient urinary retention. No infectious complications or operative mortality were noted. The only major complication occurred in a woman who underwent simultaneous rectocele and sphincter repairs. She became impacted after discharge, and rectocele repair broke down, fistulizing into the sphincteroplasty site. She required diversion and debridement but ultimately did well and is now continent and evacuates without difficulty.

Mean follow-up was 31 (range, 5–64) months. Follow-up was obtained in all 33 patients who underwent surgery, and 26 (79 percent) answered a standardized questionnaire. New-onset constipation, incontinence, and pain occurred in one patient each (Table 8). Complaints of constipation decreased from 35 to 16 percent, and incontinence decreased from 29 to 12 percent. Eighty percent of patients who initially complained of a vaginal mass or bulge reported complete resolution ($P < 0.05$). Table 9 notes extent of symptomatic improvement and satisfaction based on the questionnaire. Ninety-two percent felt they were somewhat to completely improved symptomatically, and 92 percent also were somewhat to very satisfied. Fifteen patients repaired had used laxatives and/or enemas preoperatively, but only two continued to use them; no patient initiated laxative/enema use postoperatively ($P < 0.05$).

DISCUSSION

Although rectoceles are commonly found on physical examination,¹ Block reported that less than 25

Table 6.
Prior Operations

N = 33	No. (%)
Hysterectomy	14 (47)
Hemorrhoidectomy	9 (30)
Other gynecologic surgery	5 (16)
Cystocele repair	6 (20)
Appendectomy	7 (23)
Cholecystectomy	5 (17)
Rectocele repair	1 (3)

Table 7.
Additional Procedures Performed at Time of Rectocele Repair

N = 33	No. (%)
Hemorrhoidectomy	7 (23)
Perineal hernia repair	3 (10)
Rectal tapering	2 (6)
Sphincter repair	2 (6)
Rectal prolapse	1 (3)
Hysterectomy	1 (3)
Other	2 (6)

Table 8.
Long-Term Symptomatic Results (No. (%))

Complaint (n = 26)	Persistent	New
Constipation	3 (12)	1 (4)
Incontinence	2 (8)	1 (4)
Bulge/mass	3 (12)*	—
Pain	2 (8)	1 (4)
Bleeding per rectum	2 (8)	—

* $P < 0.05$ vs. preoperative status.

Table 9.
Questionnaire Results—Patients' Subjective Improvement

n = 26	No. (%)
Improvement in symptoms	
Worse	1 (4)
No change	1 (4)
Somewhat	8 (31)
Markedly	14 (54)
Completely	2 (8)
Overall degree of satisfaction	
None	2 (8)
Somewhat	6 (23)
Very	18 (69)

percent of 69 patients with a clinical rectocele were symptomatic.³ Establishing the rectocele as the direct cause of a patient's complaints is a difficult task because frequently these patients present with numerous pelvic symptoms and findings.

Results of surgical repair of rectoceles vary widely in the literature. Arnold *et al.*⁷ adopted a relatively nonselective approach, assuming that when present a large rectocele was the cause of a patient's complaints of difficulty initiating bowel movements. As they themselves noted, this approach was likely to be responsible for their "relatively poor" results. A rectocele may be an incidental finding or may actually be the result of difficult evacuation and not the cause. Patients with nonrelaxing pelvic floor muscles or a significant stenosis may develop a rectocele because

of excessive straining and increased rectal pressures. Rectoceles are also commonly seen in patients with internal or complete rectal prolapse. Khubchandani *et al.*¹⁰ used a similar nonselective approach and also reported disappointing results.

We felt that careful evaluation could identify a subset of patients with symptoms directly attributable to the rectocele that would be likely to benefit from repair. In our physiologic studies, we did not find a significant association between presence of a rectocele and manometric derangements, unlike Siproudhis *et al.*² Defecating proctography has proven to be extremely valuable in our selection process. Although physical examination is very sensitive for rectocele detection,¹¹ it neither quantitates size nor estimates emptying ability accurately.⁸ Majority of rectoceles are small and empty well.^{1, 6, 12, 13} Defecating proctography can identify large rectoceles that retain barium. Our data support the findings of Kelvin *et al.*¹² which correlate the size of the rectocele and degree of symptoms. Although Mellgren *et al.*⁹ report a reluctance to repair a completely emptying rectocele, in our population some patients whose rectocele emptied completely could still derive benefit from repair in the face of other criteria such as a bulge at the introitus. Defecating proctography also helps to detect other causes of pelvic symptoms such as enteroceles, sigmoidoceles, and internal rectal prolapse.¹² Complaint of a mass or bulge obstructing the vaginal introitus may be caused by a number of abnormalities that become evident on proctography, including rectocele, enterocele, or sigmoidocele.

It has been suggested that thinning of the rectovaginal septum and/or pelvic denervation secondary to hysterectomy may contribute to development of a rectocele.² Seventy-four percent of our patients had previously undergone a hysterectomy. Although we have not shown this, we hypothesize that vaginal hysterectomy is more likely to be associated with a rectocele than abdominal hysterectomy because of increased rectovaginal septal trauma and denervation.

Transanal approach to rectocele repair was well tolerated and was associated with short hospital stays and very few complications. Our inquiries about long-term outcomes were also promising. Symptomatic improvement after a mean follow-up of 31 months was very good, with a 92 percent rate of improvement. Clearly, a larger series and longer follow-up will be useful in further assessing usefulness of this approach.

CONCLUSION

We believe these data support our hypothesis that careful selection of patients for rectocele repair leads to a high likelihood of good clinical results. A combination of physical examination, proctography, and physiologic testing ruled out other underlying pathology and helped to link the rectocele with the patient's symptoms.

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