

Rectopexy Is an Ineffective Treatment for Obstructed Defecation

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The symptoms of obstructed defecation have been attributed to rectal intussusception, and thus rectopexy has been advocated in the surgical management. In this study, patients with obstructed defecation underwent manometry and proctography before and after rectopexy. Seventeen patients (16 females and one male, mean age 51.6 years) were studied. Eleven underwent anterior and posterior fixation of the rectum and six had posterior fixation only. Preoperatively five patients demonstrated rectoanal intussusceptions. Fifteen had significant pelvic descent. No significant change in maximum resting pressure, maximum voluntary contraction, pelvic descent, or anorectal angle was seen postoperatively. In the initial follow-up, many patients had significant amelioration of symptoms. However, on longer follow-up (mean 30.8 months) only two had long-term improvement. The remainder had a poor clinical result in spite of complete resolution of rectal intussusception. Many reported a worsening of symptoms as reflected by an increase in tenesmus and stool frequency. In the two cases with a satisfactory result, both could empty the rectum completely and demonstrated rectoanal intussusception on preoperative evacuation proctography. In those with poor results, four had complete emptying and three had rectoanal intussusception. In conclusion rectopexy is an ineffective treatment for obstructive defecation in most patients. [Key words: Obstructed defecation; Rectopexy; Intussusception]

In a small number of cases of constipation, particularly young and middle-aged females,¹⁻³ a surgical option may have to be considered where the symptoms are severe and unresponsive to nonoperative management. Surgical options include total abdominal colectomy and ileorectal anastomosis

for those with a colonic motility disorder,⁴⁻⁹ or an internal sphincterotomy or myectomy for those with outlet obstruction.¹⁰⁻¹² Paradoxical contraction of the puborectalis or anismus has been implicated as a cause of intractable constipation.^{3,13-15} Posterior and lateral division of the puborectalis has been described in such patients demonstrating persistence of the puborectalis impression on straining during defecography, but the results have been disappointing.¹⁶⁻¹⁸ Rectopexy has been used in those patients with symptoms of obstructed defecation and perineal descent syndrome because it is thought that prolapsing anterior rectal wall or rectal intussusception is responsible for obstruction of the anal canal.^{19,20} This is believed to produce the sensation of a fecal bolus, resulting in strenuous efforts to evacuate the rectum. Indeed, such patients may spend several hours a day trying to defecate.²¹ Cycles of straining, discharge of mucus and blood, and often associated pelvic pain make up the classic presentation of this syndrome. In this study manometric and radiologic investigation and clinical evaluation were performed preoperatively and postoperatively to assess the results of rectopexy in the treatment of obstructed defecation.

MATERIALS AND METHODS

Subjects

Seventeen patients (16 females and one male) with long-standing obstructed defecation in whom prolonged medical management had failed underwent abdominal rectopexy. The average age at diagnosis was 52 years, range 31-70. One patient had associated incontinence of solid stool. Two patients had solitary rectal ulcers. All patients had barium enema examinations that showed no evi-

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dence of megacolon or megarectum. A detailed history using a standard questionnaire was obtained from each patient, noting the presence or absence of specific symptoms related to defecation and a previous history of factors that could damage the pelvic floor. A full clinical examination was performed on each patient. This included inspection and digital examination of the anorectum, proctoscopy, and sigmoidoscopy.

Manometric and radiologic investigations were carried out on two separate days without bowel preparation preoperatively and subsequently postoperatively.

Manometry

Mean highest resting and mean highest squeeze pressures in the anal canal were measured by the station pull-through technique using a precalibrated water-filled closed system. This consisted of a detecting probe 4 mm in diameter attached by a nondistensible polyethylene tube to a transducer (Statham 23GB, Gould Medical Ltd., Coventry, U.K.) connected via an amplifier (Hewlett Packard 7888A, Waltham, MA) to an eight-channel recorder (Hewlett Packard). The sphincter length was assessed by the length of the high pressure zone.²² The rectoanal inhibitory reflex was determined as previously described.^{23,24}

Anorectal Sensation

Rectal sensation was measured using a proctometrogram catheter after the design of Preston *et al.*²⁵ The volume at first sensation, the maximum tolerable volume, and the maximum tolerable pressure were recorded. This has been previously described.²⁴

Pelvic Floor Function and Rectal Emptying

Pelvic floor function and rectal emptying was assessed by balloon expulsion test and with standard and evacuation proctography. These have been previously described in detail.^{23,24,26}

Surgical Management

From 1983 to 1986, 17 patients underwent retopexy for obstructed defecation. Two basic methods of fixation of the rectum were employed but complete anterior and posterior mobilization of

the rectum down to the pelvic floor with division of the lateral ligaments was performed in all cases. Eleven patients had both anterior and posterior fixation as described by Nicholls and Simson.²¹ In these patients synthetic material was placed posteriorly and sutured along the curve of the sacrum to the periosteum. The material was then wrapped around the rectum leaving approximately one-half uncovered anteriorly. A second piece of material 2 cm wide was placed between the vagina and rectum anteriorly. Six patients had posterior fixation only. Combined anterior and posterior fixation was initiated after Nicholls and Simson reported improved results with this technique.²¹

Statistical Analysis

Preoperative and postoperative results were compared with Wilcoxon rank-sum test and chi-square.

RESULTS

Manometry

Results are summarized in Table 1. There was little change in anal manometry after surgery. There was no statistical difference between preoperative and postoperative testing.

Sensation

The volume at first sensation decreased from a mean preoperative value of 117 to 93 ml postoperatively. Maximum tolerable volume decreased to 252 from 309 ml preoperatively even though the maximum tolerable pressure increased slightly. A modest decrease in compliance is seen postoperatively. There was no statistical difference between preoperative and postoperative testing in any of these parameters (Table 1).

Balloon Expulsion and Proctography

Fifty-seven percent of patients were able to expel the balloon preoperatively compared with 85 percent postoperatively (not significant). Standard and evacuation proctography was obtained preoperatively in 16 patients. These were carefully reviewed at the time of this study. Only five demonstrated a significant rectoanal intussusception whereas six demonstrated a rectorectal intussusception. Six did not have any significant intussusception. With the

Table 1.
Summary of Physiologic Studies

	Preoperative	Postoperative
<i>Manometry (Mean ± SE)</i>		
Sphincter length (cm)	3.2 ± 0.09	3.4 ± 0.16
Resting anal pressure (cm H ₂ O)	93.0 ± 8.58	98.2 ± 9.87
Maximum squeeze pressure (cm H ₂ O)	186.4 ± 17.61	187.5 ± 21.22
Sphincter inhibition (ml)	83.6 ± 13.41	59.2 ± 7.93
Volume of first sensation (ml)	117.0 ± 34.42	93.3 ± 30.57
Maximum tolerable volume (ml)	308.5 ± 49.28	251.7 ± 85.12
Maximum tolerable pressure (cm H ₂ O)	67.8 ± 5.46	78.0 ± 10.16
Compliance (mls/cm H ₂ O)	5.1 ± 0.72	4.4 ± 0.99
Balloon expulsion (%)	57	85
<i>Radiology</i>		
Anorectal angle-rest (degrees)	92.2 ± 2.99	106.7 ± 7.20
Anorectal angle-squeeze (degrees)	85.2 ± 2.89	97.3 ± 5.49
Anorectal angle-strain (degrees)	112.9 ± 5.00	125.6 ± 6.23
Pelvic descent-rest (cm)	-0.8 ± 0.28	-0.4 ± 0.34
Pelvic descent-squeeze (cm)	-0.8 ± 0.34	-1.0 ± 0.57
Pelvic descent-strain	-5.3 ± 0.55	-4.1 ± 0.53

exception of two patients, proctography demonstrated pelvic descent of 3.5 cm or greater on straining, which was not improved significantly by rectopexy (mean -5.1 cm preoperatively *vs.* -4.1 cm postoperatively). The anorectal angle showed an increase from preoperative to postoperative levels at rest, during squeeze and straining, but not to a statistically significant degree. Six patients were able to completely evacuate the rectum during evacuation proctography. Postoperatively, all patients showed complete resolution of the intussusception with no evidence of anterior wall prolapse. Of two patients with good results, both could empty the rectum completely on evacuation proctography, and both had rectoanal intussusceptions preoperatively. In the remaining 15 patients, four could empty completely and three had rectoanal intussusception (N.S.).

Clinical Results

The mean period of follow-up was 30.8 months (range 18-48 months). Clinically, results were considered poor in 14 (82 percent), mild improvement in one (6 percent), and good in two patients (12 percent) (Table 2). Results were considered good when the patient expressed satisfaction with the result with resolution of obstructive symptoms. In 14 of 17 patients tenesmus and straining continued or worsened postoperatively. Results were almost uniformly good in the early follow-up period but deteriorated with time. Of the two patients with good results, one underwent a posterior fixation

and the other a combined anterior and posterior fixation. Of two patients with solitary rectal ulcers, one was completely cured whereas the other demonstrated some improvement in sigmoidoscopic appearance of the ulcers. Two patients died during follow-up, one from cancer of the lung and the other from a pulmonary embolism after an ileostomy.

The single incontinent patient gained complete control postoperatively. One patient developed incontinence of flatus and occasionally liquid stool postoperatively. Thirty-eight percent of patients had to digitate to evacuate preoperatively. This rose to 54 percent postoperatively (not significant). Mean stool frequency increased from 12 per week to 27 per week postoperatively. Three patients have subsequently undergone total abdominal colectomy and ileorectal anastomosis, and three others are being considered for this procedure. One patient has undergone a lateral sphincterotomy. Two other patients have undergone ileostomy.

DISCUSSION

The symptoms of obstructed defecation have been attributed to anterior rectal wall prolapse, intussusception, solitary ulcer syndrome, anismus, and pelvic floor descent. If anterior wall prolapse and intussusception are the cause of the obstructive symptoms, rectopexy would be expected to resolve them and has been reported to improve symptoms in 50 percent of cases of obstructed defecation.²⁷⁻²⁹

Table 2.
Clinical Details of Patients

	Preoperative	Postoperative
Age in years (mean \pm SE, range)	51.6 \pm 2.43 (31–70)	
Length of history (years)	8.8 \pm 3.51 (2–20)	
Stool frequency (per week)	11.8 \pm 3.15 (0.25–42)	26.8 \pm 6.43 (3–77)
Normal call to stool (%)	53	58
Rectal bleeding (%)	69	33
Hysterectomy (%)	64	—
Perineal tear (%)	27	—
Digitation (%)	38	54
Follow-up (months)	30.8 \pm 2.01 (18–48)	

Nicholls and Simson have reported a combination of anterior and posterior fixation in the treatment of solitary rectal ulcer and internal prolapse in an effort to more effectively anchor the prolapsing anterior rectal wall.²¹ In their series of 14 patients, two were complete failures and two developed severe constipation postoperatively. Ten patients had a good result (71 percent). The average age of patients was 34 years, compared with 56 years in the current group. Moreover, all of their patients had overt solitary rectal ulceration with tenesmus as a predominant symptom.

In this series, only two patients had any significant improvement of obstructive symptoms after either posterior or combined anterior and posterior fixation. This was in spite of resolution of intussusception and anterior prolapse as documented on proctography. Stevenson has described intussusception in almost 50 percent of asymptomatic normal controls,³⁰ drawing doubt over the significance of intussusception seen on proctography. Even the finding of rectoanal intussusception cannot be said to be definitely abnormal since Stevenson found intussusception of a similar degree in nine of 46 normal patients.³⁰ In the two patients with good results in this series, both could empty the rectum completely on evacuation proctography and both had rectoanal intussusception.

Many patients in this series had a worsening of symptoms postoperatively, many feeling more constipated with greater difficulty in emptying the rectum. This resulted in more frequent, less productive visits to the toilet (12/week preoperatively *vs.* 28/week postoperatively). Mann and Hoffman recently reported that constipation increased from 29 percent preoperatively to 47 percent after rectopexy for complete prolapse.³¹ It is not surprising,

therefore, that symptoms worsened postoperatively in the present series.

A follow-up report of Nicholls' experience with anterior/posterior fixation showed good results after rectopexy for solitary rectal ulcer syndrome only when complete emptying of the rectum could be demonstrated on evacuation proctography.³² In the present series, the two patients with a good result could completely empty the rectum whereas only 27 percent of those with poor or fair results could do so.

The obstructive symptoms have been attributed to a primary sphincter disorder with the rectal intussusception developing as a result of outlet obstruction and prolonged straining during defecation. Paradoxical puborectalis contraction has been demonstrated in patients with obstructed defecation implicating the sphincter musculature in the outlet obstruction.^{3,13–15} A recent report of the use of botulinum toxin injections may herald relief for these patients.³³ However, evidence of puborectalis excitation during a straining effort has been demonstrated in 48 percent³⁴ to 80 percent³⁵ of patients without clinical symptoms of obstructed defecation.

Perineal descent is a major component of this disorder and was demonstrated in 14 of 17 patients in this series. Pelvic floor laxity results in a dissipation of expulsive forces to the rectum through ballooning out of the lower rectum and pelvic floor.² Continued straining will lead to further pelvic floor weakness from stretch injury to the pelvic floor.^{36–38} In Nicholls' series of patients with solitary rectal ulcer, poor results were seen after rectopexy when pelvic descent was present.³² The large preponderance of patients with significant pelvic floor descent in this series probably reflects

the older age group (more than 20 years older than the above series). With a longer history of obstructed defecation, there is more time to develop weakness in the pelvic floor from prolonged defecation straining and likely a more significant degree of stretch neuropathy.

Lubowski *et al.* have recently carried out differential electromyography studies of the pubococcygeus and puborectalis in 10 constipated women with anismus who had poor or no rectal emptying on defecography.³⁹ There was no change in pubococcygeus EMG in eight whereas two contracted this muscle. Ten of 12 control subjects strongly contracted this muscle during defecation whereas in two there was no alteration in recruitment pattern. The authors suggest that lack of support for the posterior perineum may be a major factor in pelvic outlet obstruction and moreover, that unobstructed defecation requires lifting of the posterior pelvic floor before puborectalis relaxation. Finlay has used a porcine graft to support the posterior perineum via an intersphincteric approach.⁴⁰ The early results have been encouraging but, like our own early successes, long-term follow-up will be necessary for a true appraisal of this procedure to be made.

The current approach to the management of patients with severe constipation at this institution involves an attempt to identify those patients with slow-transit constipation. In this group, total abdominal colectomy with ileorectal anastomosis is considered. We now adopt a much more cautious and conservative approach to treating obstructed defecation and only consider surgery when intussusceptions are approaching complete rectal prolapse. Under such circumstances, we would advocate a modification of the Frykman-Goldberg operation⁴¹ using a more extensive left colon and sigmoid resection.

In summary, 17 patients with obstructed defecation were treated with abdominal rectopexy, the majority with combined anterior/posterior fixation. The majority had at least small intussusceptions on evacuation proctography, and these intussusceptions were considered to indicate a need for surgical fixation of the rectum. Only two patients had significant improvement with the above diagnostic and therapeutic approach. In our opinion, simple rectopexy is contraindicated in the treatment of obstructed defecation. The results are too poor to justify its use.

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