Evaluation and Treatment of Chronic Intractable Rectal Pain—A Frustrating Endeavor

Gow Ching Ger, M.D., Steven D. Wexner, M.D., J. Marcio N. Jorge, M.D., Eleanor Lee, L.P.N., L. Amar Amaranath, M.D.,* Steve Heymen, M.A., Juan J. Nogueras, M.D., David G. Jagelman, M.D.

*From the Departments of Colorectal Surgery and *Anesthesiology, Cleveland Clinic Florida, Fort Lauderdale, Florida*

A study was undertaken to assess the evaluation and treatment of chronic intractable rectal pain. Sixty consecutive patients, 23 males and 37 females with a mean age of 69 (range, 29–87) years and a mean length of symptoms of 4.5 years, were evaluated by questionnaire, office examination, anal manometry, electromyography, cinedefecography, and pudendal nerve study. In all cases, organic abdominopelvic and anorectal etiologies for the pain were excluded by extensive radiologic and endoscopic evaluation. All patients had failed conservative and medical therapy. Ninety-five percent of patients had one or more associated factors: constipation or dyschezia (57 percent), prior pelvic surgery (43 percent), prior anal surgery (32 percent), prior spinal surgery (8 percent), irritable bowel syndrome (10 percent), or psychiatric disorders (depression or anxiety; 25 percent). Possible etiologies for the pain included levator spasm or anismus in 62 percent, coccygodynia in 8 percent, and pudendal neuropathy in 24 percent of patients. Therapy for pain control included electrogalvanic stimulation (EGS) in 29, biofeedback (BF) in 14, and steroid caudal block (SCB) in 11 patients. Pain control was assessed by an independent observer at a mean of 15 (range, 2–36) months after completion of therapy. Continued successful pain relief was classified by patients as good or excellent after EGS in 38 percent, after BF in 43 percent, and after SCB in 18 percent; overall success was reported by 47 percent of patients. The presence of levator spasm, coccygodynia, or pudendal neuropathy did not influence outcome. The routine use of physiologic investigation of rectal pain may not be justifiable. Moreover, more than half of the patients were refractory to all three therapeutic options used in this study. [Key words: Chronic intractable rectal pain; Anorectal physiologic studies; Electrogalvanic stimulation; Biofeedback; Steroid caudal block]

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Except for that caused by organic lesions, chronic intractable rectal pain is an idiopathic multifactorial vague disorder. Our lack of understanding of the etiology of this pain is attested to by the plethora of synonyms introduced in the literature to describe the problem. These multitudinous monikers include chronic perianal pain,[1,2] essential anorectal pain,[3,4] idiopathic posterior pelvic pain,[5] anorectal neuralgia,[3,6] spastic pelvic floor syndrome,[7,8] levator syndrome,[9–12] spastic piriformis,[13] and spastic levator syndrome.[14] Some authors[1,4,6] have attempted to divide the pain into three overlapping entities: proctalgia fugax, coccygodynia, and chronic idiopathic anal pain. Proctalgia fugax is thought to produce spontaneous nonradiating, severe, crampy pain. Although some episodes may spontaneously resolve, the pain can be constant. Alternatively, positional changes can occasionally help. Coccygodynia refers to point tenderness of the coccyx, often elicitable only upon transanal coccygeal manipulation. However, since neither of these "etiologies" represents anatomically identifiable organic pathologies, the term "chronic idiopathic rectal pain" can be used as a comprehensive diagnosis. This pain is usually described as a high, intermittent, or constant, vague pressure in the rectum with or without radiation and may be relieved following passage of stool or flatus, change of body position, sitz bath, or local massage. There is a strong relationship between rectal pain and abnormalities caused by straining at stool. Surgery has been tried with often disappointing results. Recently, some effective therapeutic options such as electrogalvanic stimulation (EGS)[10–12] and biofeedback (BF)[6,7] were reported. Another therapeutic option, steroid caudal block (SCB), which has been used for lumbosacral radiculopathy due to discogenic disease, has also been tried.[15–17]

In this report, we describe the assessment of chronic intractable rectal pain with anal manometry, cinedefecography, electromyography, and pu-

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Dr. Ger was a visiting clinician from the Section of Colon and Rectal Surgery, Department of Surgery, National Defense Medical Center and Tri-Service General Hospital, Taipei, Taiwan.
Address reprint requests to Dr. Wexner: Department of Colorectal Surgery, Cleveland Clinic Florida, 3000 W. Cypress Creek Road, Fort Lauderdale, Florida 33309.

dendal nerve terminal motor latency and the subsequent correlation of these results with three currently available therapies.

MATERIALS AND METHODS

Patients

The office records of 60 patients treated since September 1988 for chronic intractable rectal pain were reviewed. Each patient had undergone an extensive detailed questionnaire. Twenty-three patients were male, and 37 were female, with a mean age of 69 (range, 29–87) years. A mean length of symptoms of 4.5 years (range, two months to 19 years) was noted. All patients had received a series of physical examinations and extensive radiologic, laboratory, and endoscopic evaluation to exclude possible organic etiologies for the pain. The associated factors were reviewed and are shown in Table 1. It is notable that 95 percent of patients had at least one associated factor. Physical examination was unremarkable except that 62 percent of the patients had levator spasm. The former were diagnosed by the finding of a "violin-string" or "bowstring" with tenderness predominantly over the levator muscle. In addition, 8 percent had coccygodynia: tenderness over the coccyx on digital examination. All patients initially received conservative and medical treatments including analgesics, sitz baths, local anesthetics, massage, muscle relaxants, and antidepressants without satisfactory response. After failure of these measures, patients underwent anorectal physiologic studies included anal manometry, cinedefecography, electromyography, and pudendal nerve terminal motor latency study. The methods of performance of these studies have been previously described.[18–20] Anal manometry was performed in 50 (83.3 percent), cinedefecography in 49 (81.3 percent), electromyography in 40 (66.7 percent), and pudendal nerve study in 45 patients (75 percent). Ultimately, 38 patients (63.3 percent) underwent therapeutic trials with EGS, BF, or epidural SCB. Selection of therapy was done in a nonrandomized, prospective fashion. The other 22 patients (36.7 percent) refused to accept any of those three options and elected to accept continued conservative therapy.

Table 1.
Factors Associated with Chronic Intractable Rectal Pain (N = 60)

Associated Factors*	n	%
Constipation or dyschezia	34	56.7
Prior pelvic surgery	26	43.3
Prior anal surgery	19	31.6
Anxiety and depression	15	25.0
Irritable bowel syndrome	6	10.0
Prior spinal surgery, disc disease, or sciatica	5	8.3
Total (in 57/60 patients)	105	95.0

* Patients may have had multiple associated factors.

Treatments

EGS. Twenty-nine patients (48.3 percent), 11 males and 18 females with a mean age of 70.3 years, were treated with EGS (Model 100; ElectroMed Health Industries, Inc., Miami, FL). The patient was placed in the left lateral position; a probe was connected to a hand-held applicator by a trained nurse (E.L.). The negative pole was used with a pulse frequency of 80 cycles per second. The voltage was started at zero and gradually increased until mild discomfort was experienced by the patient. The voltage was then reduced to a level that the patient found comfortable but that could be progressively increased with the patient's tolerance. Three sessions of one-half to one hour in duration were undertaken over a period of 7 to 10 days.

BF. Fourteen patients (23.3 percent), six males and eight females with a mean age of 71 years, were educated about anorectal anatomy and the physiologic mechanism of defecation. An SRS Orion 8600 (Self Regulation Systems, Redmond, WA) with "movement over time" display and an EMG modality set on a narrow 100 to 200 μV bandwidth were used for feedback display. A PerryMeter™ (Model EPS21; PerryMeter Systems, Inc., Strafford, PA) anal EMG single-user sensor was used as the sensing device. First, the patients were instructed to make the signal vary by contracting and relaxing the anorectal muscles. Next, they were told how to use this reflex to obtain a voluntary relaxation of the anorectal muscles. The outpatient BF sessions were 30 to 60 minutes in duration and were performed weekly for a series of at least six sessions. Between the BF sessions, patients were asked to perform a series of 20 sphincter contractions and relaxations each day by using the technique without any visual feedback. All BF training was undertaken by a certified biofeedback therapist (S.H.).

SCB. Eleven patients (18.3 percent), four males and seven females with a mean age of 71.4 years, were referred for possible pain control by epidural

SCB. All SCBs were administered by an anesthesiologist (L.A.A.). The patient was placed in the prone position, and the sacral hiatus was identified. After skin sterilization, a 22-gauge block needle was placed *via* the hiatus into the caudal canal. Thirty milliliters of a 0.5 percent Xylocaine® (Astra Pharmaceutical Products, Inc., Westboro, MA) solution containing 80 mg of Depo-Medrol® (The Upjohn Co., Kalamazoo, MI) were slowly injected into the caudal epidural space. The patient was usually discharged one hour later after careful post-injection monitoring. Two weeks after the epidural steroid injection, the patient was re-examined. If there was significant improvement in function and subjective pain relief, no further epidural injection was administered. However, if after the first injection the initial improvement was not maintained, another injection could be repeated to a maximum of three injections. If there was no change in the patient's condition after the first injection, the patient was referred for EGS, BF, or conservative methods of pain control.

Evaluation of Pain Relief

Patients who failed one form of therapy were offered the option of referral for one of the other two forms of therapy. Patients who failed two therapeutic options were offered the option of referral for the third remaining therapy. Assessment consisted of one post-treatment office visit to the attending surgeon and one post-treatment questionnaire. If the patient failed to return for scheduled follow-up or treatment, the patient's response was evaluated by telephone. Excellent results were recorded if symptoms were completely relieved without recurrence. Good results consisted of acceptable improvement in frequency and intensity of the pain. Patients with poor results reported no benefit from the therapy.

RESULTS

Anorectal Physiologic Evaluations

Abnormalities observed in the 50 patients who underwent anal manometry were limited to the basal tone in the lower anal canal, the rectoanal inhibitory reflex (RAIR), or the sensitivity and tolerance capacity of the rectum. Twenty percent of patients had anal sphincter hypertonicity (mean resting pressure greater than 60 mmHg), and 10 percent had hypotonicity (mean pressure less than 30 mmHg). Moreover, five patients (10 percent) had either an absent or equivocal RAIR, and 16 patients (32 percent) had increased rectal sensory threshold, meaning that patients needed a greater volume to perceive the sensation. In addition, 17 patients (34 percent) had an increased maximal tolerable rectal capacity.

Results of defecography are summarized in Table 2. Abnormalities were observed in 80 percent of these 50 patients: 40.2 percent had a rectocele, 30 percent had increased perineal descent (>3 cm), 24 percent had either nonrelaxation of the puborectalis or paradoxical puborectalis contraction (PPRC), and 18 percent had an early internal rectoanal intussusception.

Of the 40 patients who underwent EMG study, 18 patients (45 percent) had PPRC and two patients had evidence of prior damage to the external sphincter muscles. Of the 45 patients who received pudendal nerve terminal motor latency study, eleven patients (24.4 percent) had either unilateral or bilateral prolongation (>2.1 milliseconds).

Outcome After Treatment

Thirty-eight patients received at least one of the three therapeutic options. Results of treatment were assessed at a mean of 15 (range, 2–36) months after the completion of therapy. Post-treatment results are shown in Table 3. Twenty-nine patients had received an average of 5.3 (range, 3–10) sessions of EGS. Excellent results were obtained in two (6.9 percent), good results were noted in 9 (31 percent), and poor results were reported by 18 patients (62.1 percent). The overall benefit (excellent or good result) from EGS was only 37.9 percent. Of the 14 patients who received BF therapy, two (14.3 percent) obtained excellent results, four (28.6 percent) had good improvement, and 8 (57.1 percent) had no benefit. Thus, the rate of success was only 42.9 percent. Eleven

Table 2.
Cinedefecographic Findings Associated with Rectal Pain (N = 40)

Findings*	n	%
Rectocele	21	40.2
Increased perineal descent (>3 cm)	15	30.0
Nonrelaxation or PPRC	12	24.0
Early rectoanal intussusception	9	18.0
Total (in 40 patients)	57	80.0

* Patients may have had multiple findings.

Table 3.
Treatment Results

Treatments*	n	Results (N = 38)		
		Excellent (%)	Good (%)	Poor (%)
EGS	29	2 (6.9)	9 (31.0)	18 (62.1)
BF	14	2 (14.3)	4 (28.6)	8 (57.1)
SCB	11	0 (0)	2 (18.2)	9 (81.8)
Total	54 treatments in 38 patients	4 (10.5)	14 (36.8)	20 (52.4)

* Patients may have had multiple treatments.

patients had epidural SCB therapy; nine patients had some initial improvement, but this was not maintained despite second or third injections. Only two patients (18.2 percent) reported any long-term improvement. There were no complications noted with any therapeutic modality.

Sixty patients initially presented with and were evaluated for rectal pain. Twenty-two of these refused all three therapeutic options; 38 patients accepted a nonrandomized treatment allocation. Twenty-seven patients initially underwent EGS, of whom 10 were successfully treated. Seven of the 17 patients with failed therapy refused further treatment. None of the three who went on to SCB had success. Three of the seven patients who went on to BF were successfully treated; of the four patients with failed therapy, two refused further treatment and two failed SCB.

Seven patients initially underwent BF, of whom three were successfully treated. One of the four patients with failed therapy refused further treatment, one failed a course of EGS, one failed SCB, and one was successfully managed with SCB. Only one of the four patients who had SCB as the first-choice treatment had success. Two of the three failures of primary SCB refused further therapy, and one patient failed secondary EGS.

There were no significant differences in the rates of success or failure after any of the three therapeutic options regardless of whether the option was a primary, secondary, or tertiary choice. Specifically, failure of a primary or even of a secondary treatment did not augur failure of a subsequent therapy. The details of the results of treatment in all 38 patients are shown in Figure 1.

The presence of associated historic factors (Table 1) or abnormalities found on anorectal physiologic studies did not influence the results. This is detailed in Table 4. Surprisingly, EGS was successful in only 39 percent of patients with levator spasm. This success rate was no different from that noted in the absence of levator spasm.

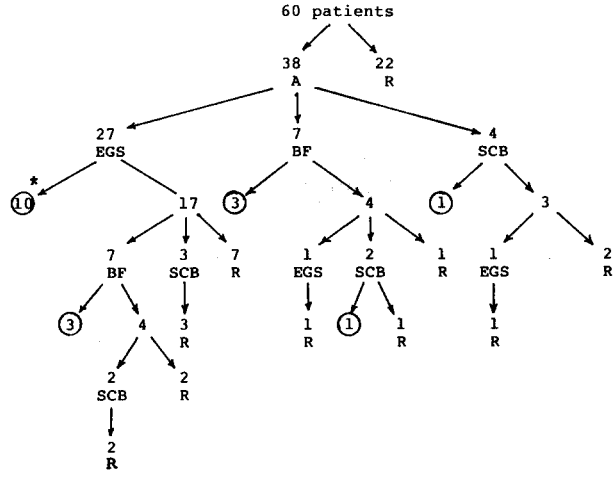

Figure 1. Treatment and outcome of rectal pain. EGS: electrogalvanic stimulation; BF: biofeedback; SCB: steroid caudal block; A: acceptance of current therapies; R: refusal of or conservative therapy. *Number with circle: excellent or good response.

DISCUSSION

The exact cause of chronic intractable rectal pain is unknown; multiple etiologies have been postulated. These include spasm of the pelvic floor or anorectal muscles because of straining.[12, 13] Additional associated abnormalities such as constipation, dyschezia, prior pelvic or anal surgery, spinal disorders, prior spinal surgery, emotional disorders, and irritable bowel syndrome have all been noted.[21-24] Neill and Swash[1] found that 20 of their 35 patients with chronic perianal pain (57 percent) had surgery of the pelvic viscera, lumbar spine, or anal canal prior to the onset of pain. In addition, 13 patients (37 percent) had a history of sciatica. Thompson and Heaton[24] reported a high incidence of irritable bowel syndrome in patients with proctalgia fugax. In our series, 95 percent of the 60

Table 4.
Correlation Between Associated Factors* and Treatment Results

Factors	n	EGS		BF		SCB	
		Excellent or Good (%)	Poor (%)	Excellent or Good (%)	Poor (%)	Excellent or Good (%)	Poor (%)
Constipation or dyschezia	34	46.7	53.3	50.0	50.0	14.3	85.7
Levator spasm	28	38.9	61.1	50.0	50.0	0	100.0
PPRC	24	25.0	75.0	45.4	54.6	14.3	85.7
Pudendal neuropathy	11	40.0	60.0	33.3	66.7	50.0	50.0
Total (in 60 patients)	97	37.9	62.1	42.9	57.1	18.2	81.8

* Patients may have had multiple associated factors.

patients had at least one of the above-cited associated factors. Although tenderness or firmness on palpation of the levator ani mechanism, most often on the left side, has been mentioned as the hallmark of levator syndrome,[5, 14] the absence of this finding does not exclude the diagnosis. In our 60 patients, only 37 (62 percent) had palpable levator spasm on digital examination. The finding of levator spasm, however, did not augur any higher rate of success after EGS treatment. This is contrary to the findings of other authors.[10–12] Nonetheless, more recent reports mirror our results that levator spasm frequently does not respond to EGS and, moreover, that beneficial effects are often transient.[25]

The anorectal physiologic tests performed in this study were uninformative; most of these patients had normal anorectal manometric profiles. The minor changes in sphincter tonicity observed in only 20 percent of the patients in this study were compatible with Swash's report.[2] Manometry, therefore, seems of little value in the assessment of idiopathic rectal pain. Cinedefecography can exclude some significant physiologic abnormalities such as large rectoanal intussusception and rectocele.[26] Grimaud and colleagues[6] found 83.4 percent abnormalities in the defecographic study of 12 patients with chronic idiopathic anal pain: 45 percent had PPRC, 42 percent had abnormal perineal descent, 33 percent had an internal intussusception, and 17 percent had a rectocele. In our 50 cinedefecographic studies, 80 percent of patients had very similar findings. However, the clinical significance of these findings is uncertain. Shorvon *et al.*[27] reviewed 47 normal adult individuals (25 males and 23 females). Nearly half (44 percent male and 45 percent female) had an intussusception, and 77 percent of the women had an anterior rectocele. Respectively, 23 percent and 20 percent had a perineal descent of more than 3 cm. Regardless of the findings on the cinedefecogram, it is difficult to accept with any degree of certainty the fact that these radiographic aberrations are responsible for the reported clinical complaints. The only findings that could potentially cause pain are increased perineal descent (due to nerve traction), rectoanal intussusception (due to tenesmus and rectal vault stretching), PPRC (due to muscle spasm), and rectocele (due to prolonged rectal fullness). However, all of these hypotheses are purely speculative.

Neuropathy and muscular denervation have been implicated as possible causes of chronic rectal pain. Neill and Swash[1] pointed out that about 60 percent of patients with rectal pain had pelvic floor laxity. In our study, 45 percent of patients had PPRC on electromyographic examination, and 24.4 percent of patients showed increased terminal motor latencies in the pudendal nerve study. The attribution of these findings as causes for the pain are supported by Grimaud *et al.*'s explanation: "the involvement of perineal striated muscles in the mechanism at the origin of some anorectal pains is confirmed."[6]

Several therapeutic options have been stated to produce good results for patients with chronic intractable rectal pain. In 1982, Sohn and associates[10] reported their experience with 80 patients treated with EGS. Of 72 patients evaluated, 50 (69 percent) had complete resolution and 15 (21 percent) had marked improvement in their symptoms. Thus, 90 percent had results classified as excellent or good. Similar results (90 percent) were also described by Nicosia and Abcarian[11] in their series of 45 patients. In 1985, Oliver and colleagues[12] reported on a group of 102 patients

who underwent EGS for levator syndrome; the final excellent or good results were 77 percent. More recently, however, Billingham and coworkers[25] reported only a 40 percent response rate in a long-term follow-up study of 12 patients treated with EGS. This is very similar to the 38 percent satisfactory response rate noted in the present study.

In the past decade, a behavioral modification technique, BF, has been developed for gastrointestinal disorders.[28–30] BF has been successful for the treatment of fecal incontinence,[31, 32] chronic constipation,[33–36] and idiopathic anal pain.[6] Although these are different disorders, the functional basis may be the same: learning or relearning how to control the extrinsic striated sphincter muscle upon appropriate signals. Grimaud and coauthors[6] reported on a group of 12 patients who underwent BF training to treat chronic idiopathic anal pain. All patients had high resting pressures on anal manometric studies, and 10 patients (83.4 percent) also had abnormalities on defecographic examination. Of those 12 patients, 11 (91.7 percent) had steady pain relief after a mean BF training period of 8 ± 1 weeks. In the current experience, 14 patients with chronic intractable rectal pain underwent BF therapy. Only five patients (35.7 percent) had high resting pressures on anal manometric studies, and only two of these responded to BF. All 14 patients had abnormal cinedefecography, and seven (50 percent) had either nonrelaxation or PPRC. The success rate of only 42.9 percent was very disappointing, especially in light of the fact that our success rate is 89 percent in patients constipated owing to PPRC and is over 85 percent in fecal incontinence.[36, 37]

Since Lievre *et al.*[38] in 1957 first introduced hydrocortisone into the epidural space, lumbar and caudal epidural injections of local anesthetic steroid mixtures have become popular for the conservative management of lumbosacral radiculopathy due to discogenic disease.[15–17] Some workers believe that the use of local anesthetic in the mixture breaks the vicious pain cycle and produces muscle relaxation.[39, 40] Although the results of SCB for the treatment of idiopathic chronic intractable rectal pain have not been seen in prior literature, we considered and used it in this therapeutic trial. Additionally, the epidural SCB also has a diagnostic role in determining the level or origin of the pain. Nine of the 11 patients who received SCB therapy had initial relief of pain, but all recurred later and received another one or two blocks. Only two (18.2 percent) had long-term improvement. The other two patients had no initial improvement and were considered to have pain of high central, autonomic, or psychogenic origin.

Finally, both EGS and BF therapies had almost the same poor results; more than half of the patients were refractory to these two widely used therapeutic options. A possible reason to explain our poor results includes multifactorial causes for symptoms lumped together as "chronic intractable rectal pain." Thus, underlying organic lesions may have been present despite efforts to uncover them. Moreover, patient selection and compliance to treatments were variable. Finally, all patients had been referred to us only after failure to improve after multiple prior therapeutic measures. Therefore, EGS and BF therapies may serve as valuable adjuncts in the treatment of chronic intractable rectal pain in patients who have not already exhausted the gamut of therapeutic options. Even if SCB fails at its ameliorative intent, it may serve a diagnostic role in identification of the level of the pain.

Overall, this group of patients presents both a diagnostic and a therapeutic challenge.[41] Further work needs to be done to elucidate the causes of chronic intractable rectal pain and to discover appropriate therapeutic options. It is of paramount importance, however, to diligently and thoroughly exclude all organic causes for the pain prior to relegation of the patient into the frustrating group labeled as having "chronic intractable rectal pain."

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