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TRANSPERINEAL WITH OR WITHOUT LEVATORPLASTY VS TRANSANAL REPAIR FOR RECTOCELE IN OBSTRUCTED DEFECATION

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Purpose: this study was undertaken to evaluate the results of transperineal repair with or without levator ani repair and transrectal repair of rectocele as regards both anatomic and symptomatic concerns. Methods: between December 1998 and December 2000, we performed a prospective study of 48 female patients with obstructed defecation due to rectocele. All patients were studied prospectively according to a fixed protocol that included clinical evaluation, defecography, and manometric studies, which were performed preoperatively, and 6 months postoperatively. Transperineal repair was done in 31 patient (15 with levator ani repair) and transrectal repair in 17 patients.

Results: six months postoperatively there was a significant clinical improvement in all patients except those who underwent transrectal repair. Postoperative defecography showed decrease of rectocele size in all patients but significant improvement in rectal - rectocele evacuation occurred only in patients with transperineal repair. Postoperative manometric studies showed a significant decrease in the Urge To Defecate Volume (UTDV) and Maximum Reflex Volume (MRV) in transperineal approaches. There was a significant difference between patients who did or did not feel improved by surgery in the percentage reduction in the volume at which an urge to defecate was elicited (UTDV) and the Maximal inhibitory anal Reflex Volume (MRV) in all surgical approaches.

Conclusion: Rectocele repair improves anorectal function by improving the rectal urge sensitivity. This study displays the efficacy of transperineal approach with levator ani repair. Decrease of UTDV, MRV, reduction of rectocele size and complete evacuation were considered the convenient parameters for the success of surgery.

Keywords: Rectocele, obst

INTRODUCTION

Rectocele is a common finding in patients with defecation disorders, and its role in these disorders remains debated [1,2]. Up to 30 percent of middle aged and elderly adults feel constipated [3]. Seventeen percent of adults, strain excessively at stool and 12 percent use laxative [4]. Difficulty in rectal evacuation is frequently seen in multiparous women. Obstetric damage and increasing laxity of tissues with increasing age are possible pathogenetic factors [5,6]. Rectocele can give rise to a variety of symptoms, such as blood loss, pain, pruritis, fecal incontinence, and digital (rectal or vaginal) assistance to defecate. These symptoms may be caused by damage to the anterior rectal wall, a nonspecific inflammatory reaction as well as anatomic and physiological changes in rectal accommodation [7].

In clinical practice, the relationship between anatomic abnormalities and symptoms is not clear. Rectocele occurs in 20 to 81 percent of both asymptotic females and patients with constipation [8]. Only 23 to 70 percent of unselected patients with rectocele have symptoms related to difficulty in defecation [9,10]. It is important to identify a rectocele when it is the cause of obstructive defecation and proper repair of recto-vaginal septum results in gratifying improvements in constipation problem [11]. Symptoms are not always alleviated by either vaginal, transperineal or transrectal rectocele repairs [1,10,12,13,14]. It is not known whether failure of surgical repair in these patients relates to the failure to correct or there are other factors.

The principal aim of our study is to evaluate the results of transperineal repair with or without levator ani

repair and transrectal repair of rectocele considering the anatomic and symptomatic improvements.

PATIENTS AND METHODS

From December 1998 to December 2000. A prospective randomized study was followed. During this period 60 female patients with obstructed defecation underwent operation for rectocele. Of those screened, 55 patients passed the exclusion criteria (slow- transit constipation using radio opaque markers and abnormal thyroid function) and were fully informed about transrectal and transperineal repair with or without levator repair. Inclusion criteria involved rectocele size more than 2 cm that were associated with one or more of the following symptoms (digital manipulation during defecation, incomplete evacuation, excessive straining or sexual function disturbances mainly dysparaunia). Of the 55 patients meeting the inclusion criteria, 48 patients [median age, 42 (range 26 - 61) years] were agreed to randomization and signed an informed consent. Drawing sealed envelopes containing the transrectal participants, the transperineal participants and transperineal with levator repair participants were blinded the randomization. The sample size was estimated on the basis of the number of patients predicted to present with obstructive defecation due to rectocele over a predefined recruitment period of 2 years. All patients were evaluated preoperatively according to a standardized protocol. This included a detailed questionnaire, with special reference to defecation frequency, use of laxative, excessive straining, digital manipulation during defecation, sensation of incomplete evacuation, frequency of incontinence, stool consistency, blood loss, dysparaunia and past history of pelvic or anorectal surgery. All patients had been studied preoperatively with digital assessment, rigid proctoscope and defecography was performed as described by Ginai (15). Defecographic findings included rectocele size and contrast evacuation of the rectocele (grade 0: no evacuation, grade 1,2,3,4: evacuation was poor, moderate, subtotal and total) [16]. Rectal evacuation was evaluated using the same grading of rectocele. Perineal descent and anorectal angle were also evaluated [17,18]. Anorectal manometry using perfusion catheter systems (Synectics, Stockholm, Sweden) [19,20] was done for all patients with the evaluation of maximum anal resting pressure (MRP), maximum anal squeezing pressure (MSP), rectal sensitivity threshold volume (STV), urge to defecate volume (UTDV), maximum tolerable volume (MTV), anal inhibitory reflex threshold (RTV), maximum reflex volume (MRV) and functional anal canal length (cm). Transperineal repair was done for thirty- one patients (15 with levator ani repair) and transrectal for seventeen patients [2,12,21,22]. Patients were followed up routinely for one to two months after surgery. Functional results were evaluated after six months (by examiners blinded the type of operative treatment for each patient) by anal manometry, defecography and questionnaire reflecting the symptomatic results. Outcome was considered (improved) if the main symptoms disappeared and not improved if it persisted. Statistical analysis was performed using nonparametric tests for comparisons. For qualitative data, chi- square or fisher's exact probability tests (two samples, unpaired) or Mc Nemar test (two samples, paired) was used. For quantitative data Wilcoxon's signed rank test (two samples, paired) with correction for ties was used. To investigate the relationship between change in rectocele size dimension and symptoms or the type of surgery the Mann Whitney test with correction for ties was used. Two-sided values ≤ 0.05 were considered significant.

RESULTS

As shown in (Table 1), 75 percent of patients were complaining of constipation and straining during defecation. 79.2 percent of patients experienced a feeling of incomplete emptying. 75 percent of patients digitally assisted defecation through vagina and 60.4 percent of patient experienced dysparaunia. Postoperatively there was a significant improvement of symptoms in patients with transperineal repair.

As regards the defecographic findings, there was a significant decrease in the rectocele size in all surgical approaches (Table 2) and significant improvement of rectocele evacuation after transperineal repair on the contrary in transrectal repair patients (Table 3). Moreover, there was also a significant improvement in rectal evacuation following transperineal repair (Table 4).

There was significant difference between patients (who did or did not feel improved by surgery) in the percentage reduction in rectocele size and evacuation (Table 5,6) in all surgical approaches. In (Table 7) there were significant changes in the MARP, UTDV and MRV in transperineal approach with or without levator ani repair but not with transrectal repair.

On the other hand, there was significant difference between patients (who did or did not feel improved by surgery) in the percentage reduction in the volume at which an urge to defecate was elicited (UTDV) and the maximal inhibitory anal reflex volume (MRV), in all surgical approaches. It was also noticed that, in the transperineal approach with levator ani repair, there was significant differences between improved and not improved patients in the percentage reduction in the MARP (Table 8).

It is noted from (Table 9) that, there was significant improvement in patients who had transperineal approach with levator ani repair versus the transrectal repair.

Table (1): *Clinical results of rectocele repair.*

		All Patients (48)	*Transperineal repair patients (16)*	*Transperineal with levator repair patients. (15)*	*Transrectal repair patients. (17)*
Constipation	Preoperative	75%	81.3%	73.3%	70.6%
	Postoperative	33.3%	37.5%	13.3%	47.1%
	P-value	.001	.016	.004	.125
Incomplete evacuation	Preoperative	79.2%	75%	86.7%	76.5%
	Postoperative	35.4%	37.5%	13.3%	52.9%
	P-value	.002	.031	.001	.89
Digitation	Preoperative	75%	75%	80%	70.6%
	Postoperative	33.3%	37.5%	13.3%	47.1%
	P-value	.001	.031	.002	.125
Straining During Defecation	Preoperative	75%	75%	80%	70.6%
	Postoperative	29.2%	25%	13.3%	47.1%
	P-value	.002	.008	.002	.125
Sexual Disorders	Preoperative	60.4%	62.5%	66.3%	52.9%
	Postoperative	33.3%	25%	20%	52.9%
	P-value	.001	.031	.016	-

Table (2): *Rectocele size before and after repair.*

	Preoperative			*Postoperative*			*P-value*
	Mean. (cm)	*Minim.*	*Maxim.*	*Mean (cm)*	*Minim.*	*Maxim.*	
All patients. (48)	3.79 ±.819	2.4	5.5	1.23 ±1.259	0	4	.001
Transperineal repair patients. (16)	3.8 ±.983	2.4	5.4	.937 ±.750	0	2	.001
Transperineal with levator repair patients. (15)	4.18 ±.770	3	5.5	.937 ±.736	0	2	.001
Transrectal repair patients. (17)	3.45 ±.536	2.9	5	2.08 ±1.577	0	4	.002

Table (3): *Rectocele evacuation before and after repair.*

	Preoperative				*Postoperative*				*P-value*
	Poor	*Moderate*	*Subtotal*	*Complete*	*Poor*	*Moderate*	*Subtotal*	*Complete*	
All patients. (48)	1 2.1%	15 31.3%	26 54.2%	6 12.5%	0	7 14.6%	10 20.8%	31 64.6%	.001
Transperineal repair patients.(16)	0	4 25%	7 43.8%	5 31.3%	0	1 6.3%	4 25%	11 68.7%	.003
Transperineal with levator repair patients. (15)	1 6.7%	5 33.3%	9 60%	0	0	1 6.7%	1 6.7%	13 86%	.001
Transrectal repair patients.(17)	0	6 35.3%	10 58.8%	1 5.9%	0	5 29.4%	5 29.4%	7 41.2%	.157

Table (4): *Rectum evacuation before and after repair.*

	Preoperative				Postoperative				P-value
	Poor	Moderate	Subtotal	Complete	Poor	Moderate	Subtotal	Complete	
All patients(48)	10 20.8%	18 37.5%	20 41.7%	0 0	9 18.8%	5 10.4%	4 8.3%	30 62.5%	.001
Transperi-neal repair patients.(16)	2 12.5%	6 37.5%	8 50%	0 0	1 6.2%	3 18.8%	2 12.5%	10 62.5%	.005
Transperi-neal with levator repair patients.(15)	4 26.7%	7 46.6%	4 26.7%	0	2 13.3%	0	0	13 86.7%	.001
Transrectal repair patients.(17)	4 23.5%	5 29.4%	8 47.1%	0	6 35.2%	2 11.8%	2 11.8%	7 41.2%	.206

Table (5): *Results of postoperative rectocele size in relation to improvement.*

	Improved				Not improved				P-value
	No	Mean	Minim	Maxim	No	Mean	Minim	Maxim	
All patients(48)	30/48	.423 ±.459	0	1.5	18/48	2.483 ±.761	1	4	.001
Transperineal repair patients.(16)	10/16	.45 ±.371	0	1	6/16	1.75 ±.418	1	2	.001
Transperineal with levator repair patients.(15)	13/15	.23 ±.388	0	1	2/15	2	2	2	.01
Transrectal repair patients.(17)	7/17	.742 ±.565	0	1.5	10/17	3.02 ±.518	2.2	4	.001

Table (6): *Results of postoperative rectocele evacuation in relation to improvement.*

		All patients. (48)	Transperineal repair. (16)	Transperineal with levator repair. (15)	Transrectal repair. (17)
Improved patients	Complete	30 (100 %)	10 (100 %)	13 (100 %)	7 (100 %)
Not improved patients	Poor	0	0	0	0
	Moderate	7 (38.9 %)	1 (16.7 %)	1 (50 %)	5 (50 %)
	Subtotal	10 (55.6 %)	4 (66.7 %)	1 (50 %)	5 (50 %)
	Complete	1 (5.6 %)	1 (16.7 %)	0	0
P-value		.001	.002	.001	.001

Table (7): *anorectal manometric findings before and after rectocele repair.*

		Preoperative Mean	*Postoperative Mean*	*P-value*
All Patients. (48)	MARP (mmHg)	87.12 ± 13	80.64 ± 16.34	.001
	UTDV (ml)	225.41 ± 25.76	199.47 ± 33.5	.001
	MRV (ml)	225.83 ±27.52	194.02 ± 33.2	.001
Transperineal repair patients. (16)	MARP (mmHg)	87.31 ± 13.54	83.12 ± 13.76	.035
	UTDV (ml)	223 ± 30.74	196.56 ± 36.08	.013
	MRV (ml)	220 ± 30.73	176.87 ± 22.72	.002
Transperineal With levator repair patients. (15)	MARP (mmHg)	85 ± 13.75	66. 4 ± 14.59	.002
	UTDV (ml)	228 ± 25.19	176.66 ± 23.11	.001
	MRV (ml)	230.66 ± 30.25	176.33 ± 24.80	.001
Transrectal repair patients. (17)	MARP (mmHg)	88.82 ± 12.31	90.88 ± 10.64	.249
	UTDV (ml)	224.41 ±22.69	222.35 ± 23.59	.350
	MRV (ml)	226 ± 22.14	225.35 ± 25.37	.258

Table (8): ***Results of postoperative anorectal manometric findings in relation to improvement of the three surgical repair patients.***

		Improved Mean	*Not improved Mean*	*P-value*
All patients. (48)	MARP (mmHg)	75.7 ± 15.84	88.88 ± 13.99	.014
	UTDV (ml)	179.16 ±19.96	233.33 ±21.96	.001
	MRV (ml)	178 ±22.99	220 ± 31.34	.001
Transperineal repair patients. (16)	MARP (mmHg)	81.5 ± 10.81	85.83 ± 18.55	.912
	UTDV (ml)	177.5 ± 20.44	228.33 ± 34.88	.006
	MRV (ml)	166 ± 8.43	195 ± 28.1	.025
Transperineal with levator repair patients. (15)	MARP (mmHg)	62.76 ± 11.16	90 ± 14.14	.032
	UTDV (ml)	170 ± 16.2	220	.025
	MRV (ml)	169.61 ± 15.6	220 ± 28.78	.026
Transrectal repair patients. (17)	MARP (mmHg)	91.42 ± 8.99	90.5 ± 12.17	.692
	UTDV (ml)	198.57 ± 12.14	239 ± 11.97	.001
	MRV (ml)	210.71 ± 17.89	235 ± 25.71	.34

Table (9): *Comparison of three surgical procedures in relation to improvement.*

	Improved	*Not improved*	*P-value*
Transperineal with or without levator repair VS Transrectal Repair.	23/31 (74.2%) 7/17 (41.2%)	8/31 (25.8 %) 10/17 (58.8 %)	.024
Transperineal with levator repair VS Transrectal.	13/15 (86.7 %) 7/17 (41.2 %)	2/15 (13.3 %) 10/17 (58.8 %)	.008
Transperineal without levator repair VS Transrectal.	10/16 (62.5 %) 7/17(41.2 %)	6/16 (37.5 %) 10/17 (58.8 %)	.221

DISCUSSION

Normal defecation is a complex neuromuscular process that requires the integration of neuromuscular activity of large bowel, rectum and pelvic floor muscles, together with the absence of anatomical factors that inhibit this process [23]. A rectocele is a herniation of the anterior rectal wall through the rectovaginal septum into the vagina [11]. The most important risk factors are a previous hysterectomy, obstetric injuries and the descending perineum syndrome [5,6]. In some patients the rectocele becomes symptomatic because of defecation disorders [9,10]. The patients have to give manual vaginal or perineal help during defecation [24]. Many authors have recognized that the relationship between impaired defecation and the presence of a rectocele is a complex one [25, 26]. We believe that rectocele repair produces symptomatic benefits through anatomical improvement and mechanisms that alter rectoanal evacuation, as it could be notified from our results that there is significant improvement in evacuation although the rectocele did not disappear completely.

We consider defecography has an impact on the diagnosis and estimation of outcome after surgery. Sarles et al [27] advocated that retention of contrast medium in the rectocele could be used for selection of patients for rectocele repair. The present study shows, significant reduction in size of rectocele in the three surgical approaches, but complete evacuation of rectocele was significant only in the two-transperineal approaches, probably this could be explain the significant improvement in symptoms after transperineal approach specially with levator ani repair rather than patients with transrectal repair. Concerning manometric studies, we think that changes in UTDV are a sensible predictor for improvement after surgery. This concept is reinforced by the idea that continence during the daytime is more dependent on rectal sensation of urge than on the sphincter pressure. Thus on looking to the results and considering this view, we can find that transperineal with levator repair leads to a more significant reduction in UTDV, in comparison with other approaches a finding probably not popularized too much by other investigators. Our findings revealed that postoperative MARP did not differ significantly from preoperative MARP value except in transperineal with levator repair. Moreover, the latter observation suggests that contribution of MARP provided by the external sphincter tonus was decreased substantially by the operation. We suppose that, this could be related to a better awareness of urge and sphincter control without the need for a compensatory protective increase in resting pressure. Another significant finding is that the MRV required to induce maximum anal relaxation is decreased after surgery and is more significantly decreased after transperineal with levator repair rather than transrectal repair. This may suggest that obstructed defecation by a large rectal volume is positively influenced by the repair. This is supported by the finding that outlet - obstructed patients show a significant increase in stool frequency shortly after operation. This could be due to the combined significantly improved rectal sensation (UTDV) with a significantly lowered MRV, and this probably give an impact in patients with obstructed defecation rather than the effect of rectoanal inhibitory reflex alone. In most studies [22,24,28], there is a group of patients who do not benefit from operation. In our study, there is only 13.3% did not improve after transperineal approach with levator ani repair which is less than the reports in published series. The results of rectocele surgery are reported to be satisfactory [1,2, 22]. In our study, 86.7% of rectocele patients were improved after transperineal with levator repair in contrary to 62.5% and 41.2% improvement after transperineal and transrectal repairs respectively. This satisfactory clinical data combined with improvement in anorectal manometry and defecographic findings after transperineal with levator repair could encourage us to perform this kind of surgery in management of rectocele. From our results it is noted that transrectal repair showed a worse outcome. This could be due to its dependence only on plicating the rectum up to 10 cm. on the contrary of transperineal with levator repair which gives a firm rectovaginal septum with better and accurate access to the apex of rectocele

CONCLUSIONS

Rectocele repair improves anorectal function by improving UTDV, MRV, reduction of rectocele size and improvement of rectal – rectocele evacuation. Transperineal with levator repair looks to give a satisfactory outcome rather than transperineal without levator repair or transrectal repair.

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