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ABDOMINAL VERSUS POSTERIOR SAGITTAL MESH RECTOPEXY IN THE TREATMENT OF COMPLETE RECTAL PROLAPSE IN ADULTS

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Background*: Several operations have been proposed to correct rectal prolapse, which can be done either via transabdominal or perineal approach but the best operation for rectal prolapse still remains a controversial subject.*
Patients and methods*: Twenty-four patients with complete rectal prolapse were randomly divided into two groups, group I, comprised 12 patients underwent abdominal posterior mesh rectopexy (APMR) and group II, comprised 12 patients underwent posterior sagittal mesh rectopexy (PSMR). Preoperative assessment of the patients included full history taking, thorough general examination, meticulous perineal examination with digital assessment of the sphincter tone, barium enema and colonoscopy. Patients with fecal incontinence were evaluated by anal manometry and endoanal ultrasonography..*
Results*: Mass protruding through the anus on straining was the commonest complaint in 100%, constipation in 75%, pruritus ani in 62.5% and incontinence to flatus in 25%, to loose stool in 12.5% and to solid stool in 8.3%. The average operative time was 103 minutes in group I (APMR) and 74 minutes in group II (PSMR). There were no technical problems during both procedures. All patients were followed up regularly for a period ranged between 12 - 30 months. Recurrence was reported in 2 patients (16.6 %) of group II (PSMR) and no recurrence in group I (APMR). Among the 9 male patients of both groups no postoperative sexual changes were reported. Four patients (33.3 %) of group I and 3 patients (25 %) of group II had postoperative temporary constipation. The patients presented with preoperative anal incontinence to flatus and to loose stool regained continence within 2 months postoperatively, while 2 patients (one in each group) presented with incontinence to solid stool (8.3%) required surgical correction.*
Conclusions: *In patients who are able to tolerate a major operation without undue risk, the abdominal approach is preferred, because the recurrence rate is low, and the complications rate are acceptable. Posterior sagittal approach may be better for patients with fecal incontinence because of simultaneous post anal repair, however, it is associated with higher incidence of recurrence. Also because of the minimal dissection, short operative time, use of spinal anesthesia, and rapid recovery, this procedure can be used in patients with marked compromised general condition.*

Key words: Rectal, prolapse, abdominal, sagittal, mesh.

INTRODUCTION

Rectal prolapse has been known since antiquity, as a distressing condition that usually occurs at the extreme ends of age, particularly in women and infants. It remains a disorder for which the etiology is not clearly understood [(1).] There is a great controversy as whether rectal prolapse is due to a sliding hernia, an intussusception or a combination of the both[(2,3)] .

The surgical treatment of complete rectal prolapse is variable and more than 50 procedures have been described, none has been shown to be ideal. The results of all these procedures vary greatly and the incidence of recurrence varied between 1.9% to 47% [(4)] .

Although abdominal approach for correction of rectal prolapse provides an access for repair of associated defects, there are significant risks with major abdominal procedures. As many patients with rectal prolapse are poor candidates for abdominal surgery and general anesthesia, and others simply do not want to undergo a major

operation, perineal repairs are an excellent alternative in these situations and, in many cases, can be as effective as the abdominal operations[5].

Penna and Devries[6] described posterior sagittal anorectoplasty for the treatment of anorectal anomalies. Richard et al.,[7] used the posterior sagittal approach for treatment of pediatric recurrent complete rectal prolapse.

The aim of this work was to evaluate the use of abdominal posterior mesh rectopexy(APMR) versus perineal posterior sagittal mesh rectopexy(PSMR) in treatment of complete rectal prolapse in adults.

PATIENTS AND METHODS

This study was conducted on 24 adult patients, 15 females and 9 males. Their ages were ranged between 29 - 68 years with a mean of 52 years. All patients were subjected to full history taking, general examination, thorough anorectal examination that includes internal palpation for evaluation of the anal sphincter strength and examination of the perineum during squeezing and straining. Vaginal examination in females was performed to identify rectocele, cystocele or procidentia.

Colonoscopy was done to rule out concurrent lesions. Preoperative barium enema to exclude redundant sigmoid colon. Patients with fecal incontinence were evaluated by anal manometry and endoanal ultrasonography.

The patients were divided into two equal groups, by random selection. Group I included 12 patients (8 females and 4 males) for whom APMR were done. Group II included 12 patients (7 females and 5 males) for whom PSMR were done.

Operative technique of APMR: Under general endotracheal anesthesia, the patient was placed supine in Trendelenberg position. A lower midline incision was done. With upward retraction of the small bowel, the pelvic peritoneal reflection was divided (rectovaginal in females and rectovesical in males) together with the pararectal peritoneum. The lateral ligaments were divided laterally away from the rectum and the dissection was carried down to the level of the pelvic floor with full mobilization of the rectum from the hollow of the sacrum. With upward retraction, the rectum was wrapped posteriorly and laterally from the pelvic floor to the sacral promontory by a polypropylene mesh about 10X10 cm which was fixed by polypropylene zero sutures to the posterior and lateral rectal walls (Fig.1) and to the anterior surface and the promontory of the sacrum (Fig.2). Pelvic reperitonization was performed to prevent post-operative adhesions between the intestine and the mesh (Fig.3). The wound was closed in layers with a pararectal drain.

Operative technique of PSMR: Under general endotracheal anesthesia(4 patients) or spinal anesthesia(8 patients), the patient was put in the prone Jack nife position, with adhesive plaster strips applied on each side of the gluteal region to keep the patient in position and for better exposure. A midline sagittal incision was made 2 cm above the tip of the coccyx down to just above the posterior margin of the anus. The wound was deepened cutting through the subcutaneous tissues to expose the fusion of the two levator ani muscles above and the external sphincter below. A Hegar dilator of a suitable size was introduced through the anus into the rectum. The two levators were separated from each other in the midline at the anococcygeal ligament to expose the anorectal region. The Waldayer fascia was incised longitudinally to expose the rectum. The rectum was then bluntly dissected from the lateral sides and from the hollow of the sacrum as high as possible (Fig.4). Rectangular polypropylene mesh (6 x 6 cm) was fixed to the posterior and lateral surfaces of the rectum (Fig.5), then the rectal wall with the overlying prolene mesh were fixed to the parasacral fascia using polypropylene zero sutures (Fig.6).The levator ani muscles were repaired in the midline with vicryl zero sutures. The subcutaneous tissue was closed with interrupted vicryl 2/0 sutures, and the skin with interrupted silk 3/0 sutures.

.Postoperatively, all patients received I.V. fluids for 2 days, oral fluids for 2 days, semisolid for 3 days and then returned to normal diet gradually. All patients were followed up for a period ranged between 12- 30 months(mean of 21 months), paying attention to possible complications as recurrence, bleeding ,altered bowel habit and incontinence. Postoperative barium enema to detect the position of the anorectal junction, post-operative stricture and limitation of rectal distention by the position of the mesh.

RESULTS

Twenty four patients were included in this study, 15 females (62.5 %) and 9 males (37.5 %). The age ranged from 29 years to 68 years with a mean of 52 years.

Preoperative clinical data (Table 1): All patients suffered from complete rectal prolapse appeared on straining, constipation in 18 patients(75%), pruritis ani in 15 patients (62.5%), diarrhea in 6 patients (25%) and incontinence to flatus in 6 patients (25%), to loose stool in 3 patients (12.5%), and to solid stool in 2 patients (8.3%). The length of prolapsed rectum varied from 4 to 10 cm (average 6 cm) . Rectal ulcer presenting by rectal bleeding was present in 3 patients (12.5%), out of 15 females, 5 had associated rectocele which disappeared postoperatively in 4 patients while the remaining patients required surgical correction after 6 months. By palpation there was decreased anal tone in 6 patients (25%). The duration of

complaints prior to admission varied from 8 months to 3 years (mean of 19 months)

The operative time ranged from 95 to 115 minutes (a mean of 103 minutes) in APMR and from 65 to 80 minutes (a mean of 74 minutes) in PSMR.

Post- operative results (Table 2): No mortality was encountered in this series. Superficial wound infection occurred in one patient (8.3%) of group I, and in 4 patients (33.3%) of group II and resolved completely within 2 weeks. Four patients (33.3 %) of group I and 3 patients (25%) of group II had post-operative temporary constipation that responded to medical treatment and resolved after 4 weeks. No permanent constipation was experienced in this study. Pre-operative anal incontinence to flatus (3 of group I and 3 of group II) and to loose stool (one of group I and 2 of group II) regained continence within 2 months post- operatively. While 2 patients (incontinent to solid stool) required surgical correction in the form of post- anal repair 6 months postoperatively in group I (one patient) and during operation in group II (one patient). Nine out of the 24 patients were males (4 in group I and 5 patients in group II) with no single case of post-operative sexual changes. Recurrence occurred in 2 patients (16.6 %) of group II(PSMR) after 6 months and managed surgically by APMR, while there was complete cure of the prolapse in all patients of group I(AMR).

Table (1) *: Preoperative clinical data*.

Clinical data	*Group I*		*Group II*	
	No.	%	No.	%
-Prolapse on straining	12	100	12	100
-Incontinence				
To flatus	3	25	3	25
To loose stool	1	8.3	2	16.6
To formed stool	1	8.3	1	8.3
-Constipation	10	83.3	8	66.4
-Pruritis ani	9	75	6	50
-Diarrhea	4	33.3	2	16.6
-Bleeding per rectum	2	16.6	1	8.3
-Rectocele	2/8	-	3/7	
-Decrease anal tone by palpation	2	16.6	4	33.3

Table (2): *Postoperative results*.

Results	*Group I*		*Group II*	
	No.	%	No.	%
-Superficial wound infection	1	8.3	4	33.3
-Constipation				
Temporary	4	33.3	3	25
Permanent	-	-	-	-
-Sexual changes in males	-	-	-	-
-Stricture	-	-	-	-
-Deep venous thrombosis	1	8.3	-	-
-Recurrence	-	-	2	16.6

Fig (1): A polypropylene mesh(10x10 cm) fixation to the lateral and posterior surfaces of the rectum in group I (APMR)

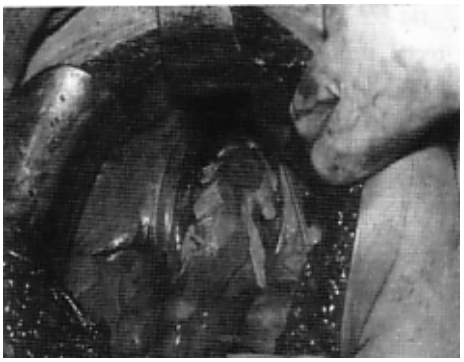

Fig (2): Mesh fixation to the presacral fascia and sacral promontory (APMR)

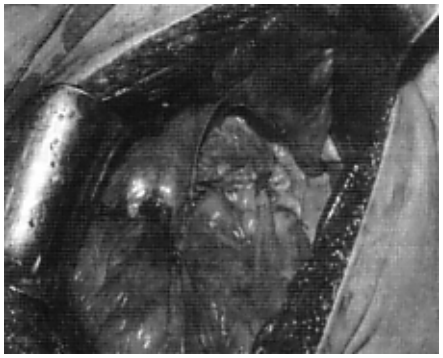

Fig (3): Extrapritonization of the rectum and mesh (APMR)

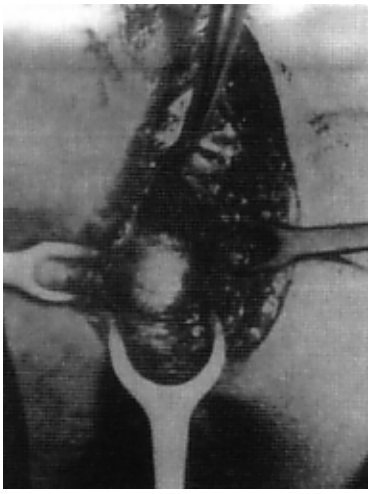

Fig (4): Mobilization of the lateral sides and posterior surfaces of the rectum in group II (PSMR)

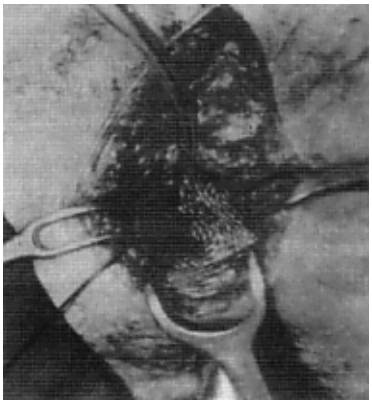

Fig (5): A polypropylene mesh (6x6 cm) fixation to the posterior and lateral surfaces of the rectum (PSMR)

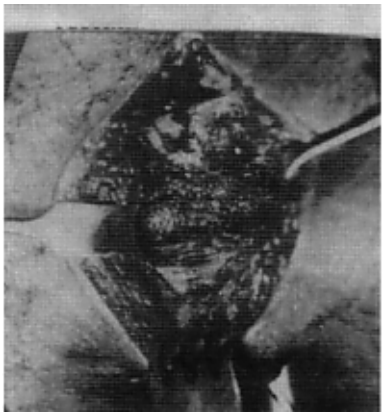

Fig (6): Fixation of the mesh to the presacral fascia (PSMR)

DISCUSSION

Complete rectal prolapse remains a disorder whose actual etiology is not clearly understood. The best method of management is debated and the optional treatment for complete rectal prolapse remains controversial[8] . Abdominal rectopexy, by different techniques, was the preferable procedure by many surgeons for treatment of rectal prolapse. It has a low recurrence and less surgical complications. The incontinence improves considerably after surgery but the reason of this improvement is not clear[9] .

The use of posterior sagittal approach for correction of rectal prolapse demonstrated several advantages as elimination of laparotomy, more direct approach , proper identification of the pelvic floor muscles and adequate exposure of the rectum [6,10] .

In the present work, in both groups, a rectangular polypropylene mesh, wrapping the posterior and lateral surfaces of the rectum, leaving the anterior rectal wall free led to prevention of fecal impaction or postoperative constipation which is similar to that reported by many authors [11,12,13]. Ripstein in 1952[14] , used mesh wrapped around and sutured to the anterior wall of the rectum, followed by severe postoperative constipation.

In our series women (62.5%) outnumbered men and the average age was 52 years which was compatible with the incidence reported by Rose et al., [15] . In other series women represent 75%of the patients presented with complete rectal prolapse and the mean age was 69.3 years[16] .

As regards to symptoms, in our study a large majority of our patients suffered from constipation (75%) and incontinence (45.8%). Less frequent reported symptoms were recurrent diarrhea (25%) and rectal bleeding (12.5%). Rose et al.; [15] reported constipation in (82.7%) of the patients, incontinence in (30.7%), rectal bleeding in (14%) and recurrent diarrhea in (3.3%). Jean et al., [17] reported that, the preoperative constipation was (94%) and (71.5%)of the patients had some degree of fecal incontinence.

In our study the mean operative time was 103 minutes in APMR and 74 minutes in PSMR. Solomon et al., [18] reported a mean operative time of 102 minutes for abdominal mesh rectopexy, while Baza et al., [19] reported a mean operative time of 58 minutes for posterior sagittal rectopexy.

No mortality was encountered in this series, no postoperative permanent constipation, Superficial wound infection occurred in one patient (8.3%) of group I and in 4 patients (33.3%) of group II. Out of the 24 patients in both groups, 9 were males with no cases of postoperative sexual changes. Athanasiadis et al., [20] reported improvement of constipation in 84%of the patients after abdominal rectopexy. Other studies have confirmed these results, reporting improvement of constipation in 41%-83% following rectopexy [21,22,23] .

In our study, all patients who were incontinent to flatus and loose stool regained continence within 2 months after the operation in both groups (4 in group I and 5 in group II). While the 2 incontinent patients to solid stool required surgical correction. The good functional results after correction of the prolapse may be due to retrorectal fixation, improvement of the sphincter tone and repair of the pelvic floor in patients of group II. This occurs when incontinence is not long standing and the sphincter tone is only mildly or moderately decreased. These results are comparable with that reported by Jean et al., [17] who reported a degree of fecal incontinence in association with rectal prolapse in 65% of their patients of whom 62% regained full continence after abdominal rectopexy, no patients remained fully incontinent. The incidence of restored continence after successful abdominal mesh rectopexy in complete rectal prolapse is generally high [24,25,26] , and a proportion of those with persistent incontinence may be helped by postanal repair [27] . Simmang et al., [28] reported that posterior sagittal anorectoplasty can effectively be used to establish continence as a secondary procedure for adult after correction of anorectal malformation in infancy.

In the present work, there were no recurrence in group I(APMR) and 2 recurrences (16.6%) in group II (PSMR), during a mean follow up period of 21 months. Using APMR there were no recurrence reported by Madbouly et al., [29] and by Collopy and Barham [30] . Baza et al., [19] reported recurrence of prolapse in 8% of their patients after posterior sagittal rectopexy and anterior mucosal prolapse in another 8%. Wyatt [31] in his work on 22 patients by perineal rectopexy had recurrence in one patient (4.5%) and 3 patients (13.6%) had minor degree of anterior mucosal prolapse. Boccasanta et al., [32] reported 8% recurrence rate after APMR and 30% recurrence after perineal rectopexy. However, the recurrence rate associated with transabdominal procedures is lower than that seen with the perineal procedures [22,33,34]

Conclusions: In patients who are able to tolerate a major operation without undue risk, the abdominal approach is preferred, because the recurrence rate is low, and the complications rates is acceptable. Patients who have persistent incontinence, post anal repair can be performed later. Posterior sagittal approach may be better for patients with fecal incontinence because of simultaneous post anal repair, however, it is associated with higher incidence of recurrence. Because of the minimal dissection, short

operative time, use of spinal anaesthesia, and rapid recovery, this procedure can be used in patients with marked compromised general condition.

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