Results of the Ripstein Operation in the Treatment of Rectal Prolapse and Internal Rectal Procidentia

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Over 15 years 108 patients with either rectal prolapse or internal rectal procidentia were treated by the Ripstein operation. Postoperative evaluation was possible in 97 patients (mean observation time, 6.9 years). The mortality rate was 2.8 percent, and surgical complications occurred in an additional 3.7 percent. The recurrence rate was 4.1 percent. Preoperative and postoperative functional analysis was possible in 92 patients. The proportion of continent patients increased from 33 percent preoperatively to 72 percent postoperatively. Defecation difficulties increased from 27 percent to 43 percent following surgery, and were a major cause of dissatisfaction. [Key words: Rectopexy; Ripstein operation; Rectal prolapse; Internal rectal procidentia]

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RECTOPEXY BY DIFFERENT TECHNIQUES is the method chosen by many surgeons for treatment of rectal prolapse and internal rectal procidentia.[1-11] It has a well-documented low recurrence rate, and surgical complications are also rare (Table 1). Most authors agree that continence improves considerably following surgery, but the reasons for this are unknown. It is more difficult to predict how rectopexy will affect bowel-regulation problems. Morgan *et al.*[2] reported 65.1 percent constipation prior to the development of rectal prolapse. Following surgery this figure was reduced to 27.2 percent. Penfold and Hawley,[3] however, found that 29 percent of their patients had increased defecation difficulties after surgery, and 59 percent continued to depend on suppositories or laxatives for bowel regulations. In a previous report[12] we found that increased difficulty in rectal evacuation was a major postoperative problem. This study adds new cases with a longer observation time and emphasizes the functional disturbances and how they are affected by surgery.

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Materials and Methods

Patients: Indications for surgery were: complete rectal prolapse or internal rectal procidentia associated with incontinence in an otherwise fit patient. The reason for excluding continent patients with internal rectal procidentia is that their other symptoms, whatever may be, often remain following surgery.[13] Eighty-two patients with rectal prolapse and 26 patients with internal rectal procidentia and incontinence were admitted over a 15-year period (1968 to 1983). The series was begun by the late B. Snellman, M.D. Postoperative evaluation was carried out on two occasions by clinical examination (1978[12] and 1982 to 1983). The mean observation time from surgery to clinical examination in these studies was 6.9 years. Postoperative complications and recurrences were recorded. Two functions were considered preoperatively and postoperatively—continence and defecation. Defecation was defined as the ability to evacuate the rectal ampulla. These functions were classified as: 1 = good, 2 = intermediate, or 3 = poor.

Preoperative Investigation: All patients were referred for cineradiography of the rectum prior to surgery by the method described by Brodén and Snellman in 1968.[14] This investigation is important for the correct diagnosis of internal procidentia and also makes it possible to diagnose a coexistent enterocele.

Surgical Technique: Rectopexy was performed as des-

TABLE 1. *Results of Rectopexy for Procidentia*

Clinic	Authors	Method	Number of Patients Operated	Number of Patients Postop Evaluation	Mean Observation Time (Years)	Recurrence Rate (Percent)	Complication Rate (Percent)	Mortality Rate (Percent)	Continence (Percent)
St. Antoine Hospital, Paris	Loygue et al[1]	Modified Orr	257	233	About 5	4.3	0.8	0.8	Preoperative (47) Postoperative (84) of Incontinent patients gained continence
St. Mark's, Brighton	Morgan et al[2]	Ivalon sponge	150	93	About 4	3.2	2.6	2.6	Preoperative (19.4) Postoperative (61.2)
St. Mark's, London	Penfold and Hawley[3]	Ivalon sponge	101	95	6	3.0	6.0	—	Preoperative (58.0) Postoperative (88.0)
The Gordon Hospital, London	Stewart[4]	Ivalon sponge	41	40	5.5	7.5	29.3	—	Preoperative (12.0) Postoperative (52.0)
Westminster Medical School, London	Boutsis and Ellis[5]	Ivalon sponge	26	26	3.5	11.5	7.7	3.8	Preoperative (30.8) Postoperative (64.0)
St Pauls Hospital, Vancouver	Atkinson and Taylor[6]	Ivalon sponge	40	40	N/A	10	—	—	Inadequate data
Lahey Clinic, Boston	Jurgeleit *et al*[7]	Ripstein	55	54	3.8	7.5	12.7	—	Preoperative (78.2) Postoperative (89.1)
Several clinics, US	Gordon and Hoexter[8]	Ripstein	1111	N/A	N/A	2.3	16.5	—	Not reported
Royal Prince Albert Hospital, Sydney	Morgan[9]	Modified Ripstein	64	46	6	2	6.3	1.6	Postoperative (78.0)
Cleveland Clinic Foundation	Launer *et al*[10]	Ripstein	54	49	5.3	12.2	16.7	—	Preoperative (50.0) Postoperative (75.0)
General Hospital Birmingham	Keighley *et al*[11]	Modified Ripstein	100	100	N/A	—	4	—	Preoperative (33.0) Postoperative (76.0)
Danderyd Hospital, Stockholm	Present study	Ripstein	108	97	6.9	4.1	3.7	2.8	Preoperative (33.0) Postoperative (72.0)

cribed by Ripstein.[15] Marlex® mesh was used and stiched to the rectum and sacrum by Ti-Cron® sutures. An extraperitoneal drain was used for about three days postoperatively.

Results

Of the 108 patients, 100 were women and eight were men. The mean age was 59 years (range, 19 to 79 years). Three patients died (2.8 percent) and another four (3.7 percent) had complications related to surgery. Table 2 shows the causes of death and Table 3 the nature of complications and their management.

TABLE 2. *Mortality*

Sex	Age	Diagnosis	Postoperative Days	Cause of Death
F	75	Prolapse	17	Coronary infarction
F	75	Prolapse	17	Coronary infarction
F	80	Prolapse	6	Pneumonia Schizophrenia

Ninety-seven patients were available for postoperative evaluation with a mean observation time of 6.9 years. Four patients were reoperated for recurrence (4/97 = 4.1 percent) (Table 4). The two patients who had another Ripstein procedure have been followed for seven and eight years, respectively, without another recurrence.

TABLE 3. *Complications*

Sex	Age	Diagnosis*	Nature of Complication	Management
F	67	I + E	Obstruction: net too tight	Reoperation with cleavage
M	50	P + E	Wound dehiscence	Closure
F	74	I	Small intestinal obstruction	Enterolysis
F	69	I + E	Constriction of the left ureter	Temporary left nephrostomy, complete spontaneous recovery

*P = Prolapse; I = internal procidentia; E = enterocele.

TABLE 4. *Recurrence*

Sex	Age	Diagnosis	Interval from Operation to Recurrence (Years)	Second Operation	Followed Second Operation (Years)
F	46	Prolapse	6	Ripstein	7
M	51	Prolapse	6	Delorme	0.5
M	68	Prolapse	4	Colostomy	—
F	38	Prolapse + enterocele	3	Ripstein	8

Three patients had colostomies for different reasons; one has already been mentioned (Table 4). Of the remaining two, one was not cured from severe incontinence following the Ripstein operation, and another developed ulcerative proctitis, which required proctectomy. In two patients the preoperative data on continence and defecation were inadequate for evaluation. This leaves 92 patients for functional evaluation with adequate preoperative and postoperative data. Continence improved significantly following the Ripstein operation (Fig. 1). Defecation disturbances in the sense of impaired evacuation, however, increased, (Fig. 2). In some patients these disturbances were severe. There was no difference in the functional results related to the diagnosis (internal rectal intussusception or rectal prolapse).

Discussion

The mortality, complication, and recurrence rates are within acceptable levels when compared with other studies (Table 1). This study confirms that rectopexy is excellent in preventing recurrent prolapse, probably by preventing intussusception of the rectal wall which is an important step in the pathogenesis of rectal prolapse.[14-16] The Ivalon® sponge technique (originally described by Wells[17]) and the Ripstein operation[15] seem to be equally effective in that respect (Table 1). The most prominent functional change following rectopexy is continence improvement (Fig. 1, Table 1). The mechanisms responsible for this are not understood, although improved internal anal sphincter function might be of some importance.[18] Bowel-management problems are common with rectal prolapse and internal rectal procidentia[1,2,5-7,10,13] The most common complaints are constipation and difficulties in evacuating the rectal ampulla. Rectopexy interferes with these symtoms in a way that is quite unpredictable. Some authors report improvement[2,5] and others, as in this series, deterioration.[3] It seems unlikely, therefore, that symptoms such as constipation and evacuation difficulties are secondary to rectal prolapse or internal rectal procidentia. On the contrary, functional disturbance may appear first, and excessive straining might produce a rectal prolapse as a secondary phenomenon. Such a development has been suggested by Swash *et al*,[19] who studied denervation of the pelvic floor. Because postoperative bowel management problems are less prominent following anterior resection for rectal prolapse[20-21] this theory seems favorable. Perhaps, as suggested by Lescher *et al.*,[22] anterior resection should be preferred in patients suffering from rectal prolapse and severe constipation or severely impaired rectal evacuation. Another possible explanation of postoperative evacuation disturbances are technical errors in sling place-

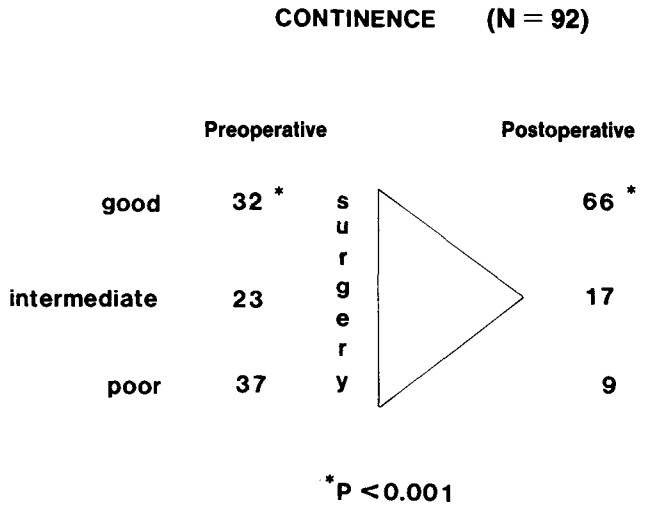

FIG. 1. Development of continence following the Ripstein operation. Statistics: Mc Nemar test.

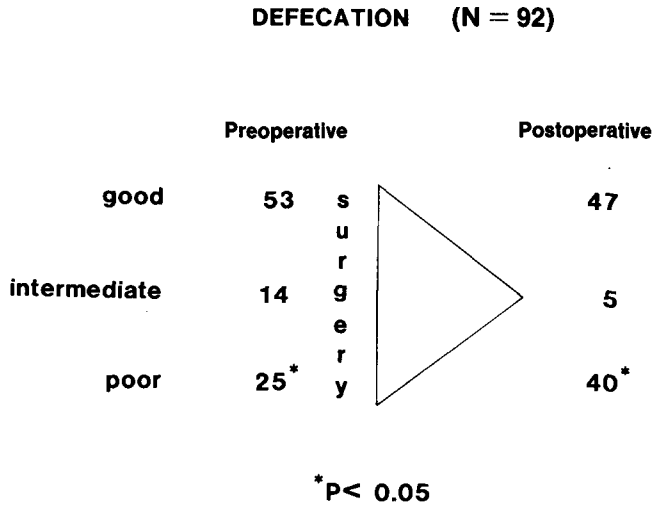

FIG. 2. Development of rectal evacuation following the Ripstein operation. Statistics: Mc Nemar test.

ment. No difference could be demonstrated by cineradiography, however, between patients with or without this problem.[23] To conclude the functional considerations: incontinence is nearly always corrected by rectopexy, but bowel regulation problems are not controlled by this operation. Careful preoperative and postoperative physiologic studies are needed to increase our understanding of the functional disturbances associated with rectal prolapse and internal rectal procidentia.

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Announcement

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