Etiology and Surgical Therapy of Massive Prolapse of the Rectum *

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RECENT REPORTS indicate disagreement among surgeons concerning the etiology and therapy of massive rectal prolapse.[1, 2] This paper discusses our experience with a concept and method of treatment which was first reported in January 1952[3] and which has now been in continuous use for 12 years. The results have been eminently satisfactory (Fig. 1–3.

Etiology

Massive prolapse or procidentia is a sliding hernia of the rectum through an anterior defect in the pelvic floor. It is always associated with loss of the normal posterior curve of the rectal canal so that the rectum and rectosigmoid run vertically in a straight line. This condition may be congenital or acquired. The former patients fall into a younger age group and men are affected as frequently as women. In all cases a mesorectum is present extending forward from the posterior pelvic wall and allowing the rectum to move anteriorly from the hollow of the sacrum. This creates a defect in the pelvic floor but the supporting ligaments and muscles are normally developed. The second group consists entirely of elderly multiparous women in whom the anterior defect is created by stretching and atrophy of the levator ani muscles, the transversalis fascia, and the suspensory ligaments of the rectum. The bowel is displaced anteriorly due to the loss of this

support. There is no true mesentery, the rectum being separated from the sacrum by loose areolar tissue.

The mechanism of prolapse is the same in both groups. With the rectal canal and sigmoid forming a straight tube running in a vertical direction, any increase in intraabdominal pressure acts in the long axis of the bowel and ultimately produces a sliding hernia through the anterior defect in the pelvic floor. Since the anus is relatively fixed in position the bowel tends to intussuscept on itself. As the process continues, a large anterior peritoneal sac is formed and this may contain loops of small intestine or omentum. In some instances an associated uterine prolapse is present. In far advanced cases the sphincter ani becomes stretched and atonic and the patient may be incontinent even when the prolapse is reduced (Fig. 4–7).

Confirmation of this mechanism is furnished by the following observations:

1. The lumen of the prolapsed segment is posterior and most of the prolapse is carried in the anterior wall.

2. When the prolapse has been reduced, pressure on the perineal floor anterior to the rectum prevents its recurrence.

3. Lateral x-ray of the barium filled rectum demonstrates the loss of the normal posterior curve, a constant finding in all our cases.

4. At operation the prolapse may be produced by downward pressure on the anterior wall of the bowel. The forward
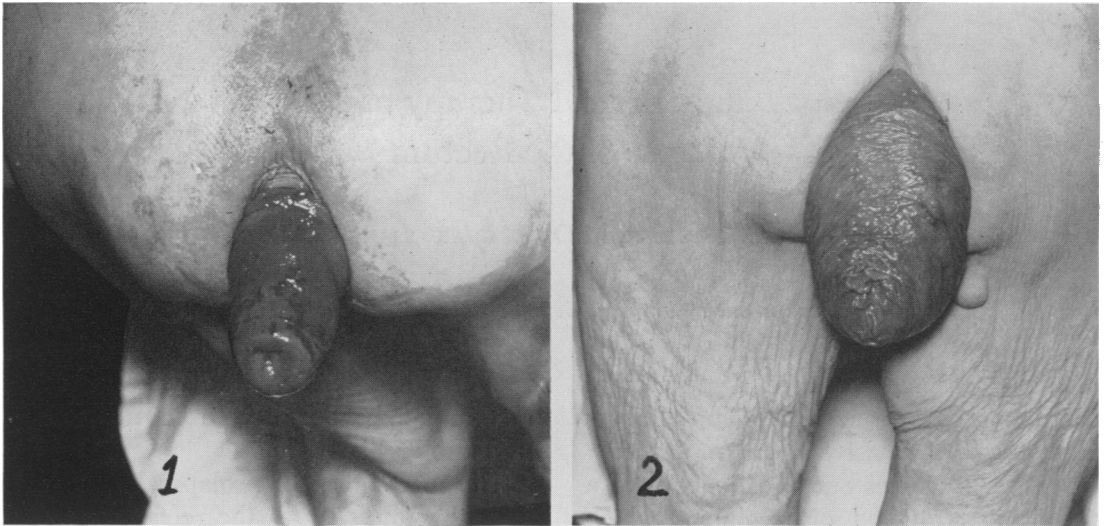
FIG. 1, 2. Typical examples of massive rectal prolapse.

displacement of the rectum is easily dem-
onstrated (Fig. 8–10).

Surgical Repair

The basic requirements for the surgical
correction of rectal prolapse are similar
to those for sliding hernia in the inguinal
region. The displaced rectum and sigmoid
must be reduced; the hernial sac removed
and the defect in the anterior pelvic floor
repaired. In addition the rectum must be
replaced and fixed into the hollow of the
sacrum so that the normal posterior curve
is restored and intra-abdominal pressure
tends to push the rectum backward rather
than caudad. If the sigmoid is markedly
redundant, resection may be indicated.

FIG. 3. Lateral view of rectal prolapse illus-
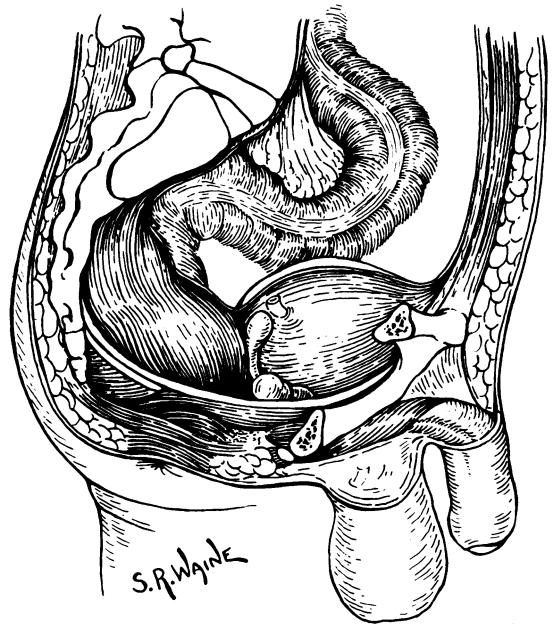trating the backward displacement of the bowel
orifice.

FIG. 4. Sagittal view of normal rectum illus-
trating backward displacement into the hollow of
the sacrum.

This is most safely accomplished as a high anterior resection, not as a pull through procedure.

The operative technic has been described previously,[3] but a few changes have been instituted with increasing experience.

The patient is placed in Trendelenburg position and a left paramedian incision is made. The lateral peritoneal reflections are divided and the rectum is completely mobilized from the hollow of the sacrum and from the lateral peritoneal leaves as in an abdomino-perineal resection. Both ureters are isolated and kept under direct vision. The peritoneum is incised anteriorly along the base of the bladder and the excess peritoneum in the pouch of Douglas (the hernial sac) is excised. At this stage the anterior defect in the pelvic fascia can readily be demonstrated. The bowel is pulled upward and pushed back into the hollow of the sacrum and the levator muscles are approximated in the mid-line anterior to
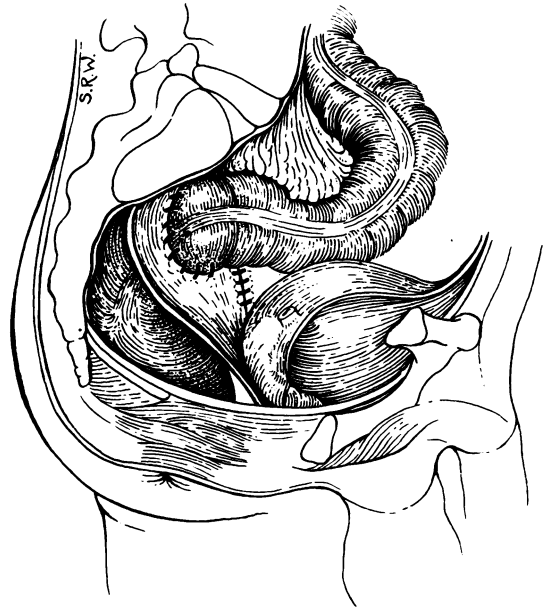

Fig. 6. Sagittal view of the rectum following operative correction of massive prolapse. The rectum is held back into the hollow of the sacrum and supported anteriorly by fascial or teflon graft.

the rectum. In most patients this layer does not give an adequate anterior support and to reinforce it a V-shaped graft of fascia lata is removed from the thigh. The apex if the graft is sutured to the fascia at the base of the bladder and the lateral
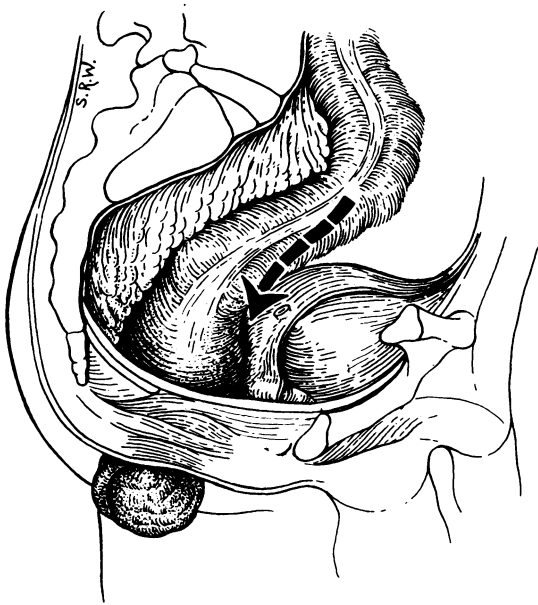

Fig. 5. Typical lesion in massive prolapse following displacement of rectum with a mesorectum extending from the sacrum. Intra-abdominal pressure acts in the long axis of the rectum.
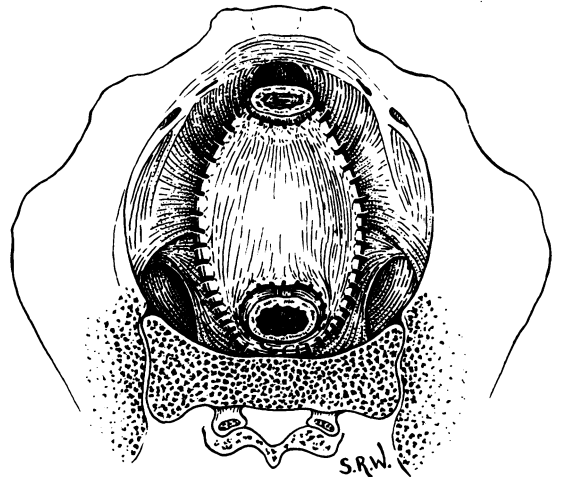

Fig. 7. The relationship of the graft to the pelvic structures.

FIG. 8. Lateral barium enema of normal rectum illustrating the backward curve of rectum into the hollow of the sacrum.

edges to the levator muscles near their origins. The limbs of the fascial V are brought around either side of the rectum, crossed behind it and sutured to the tissue
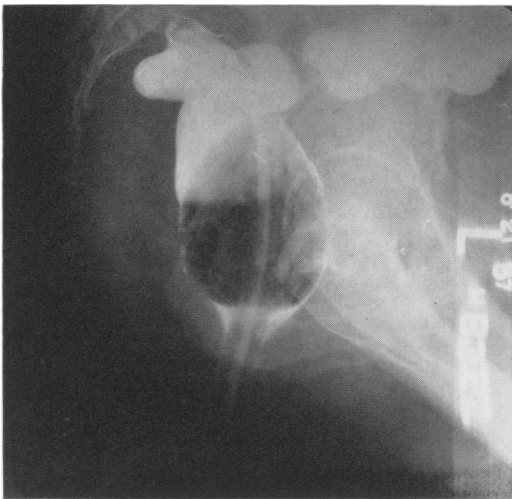

FIG. 9. Lateral barium enema in a patient with prolapse. The straightening of the rectal segment is well demonstrated and its anterior displacement from the sacrum is noted.

overlying the sacrum. The edges of the defect in the graft are sutured to the rectal wall. The rectum is thus encircled by a new pelvic floor which gives it firm anterior support and holds it back into the hollow of the sacrum. The pelvic peritoneum is approximated over the graft, obliterating the pouch of Douglas. In women, the graft may be anchored anteriorly to the cervix.

If a concomitant hysterectomy is indicated we prefer to do a supercervical operation leaving the cervical stump to buttress the repaired pelvic floor in its anterior portion. This has been done in ten patients in this series. In some instances (half of this series) the sigmoid is so redundant and its mesentery so elongated that it presents a hazard from a potential volvulus. In these cases a high anterior resection with end-to-end anastomosis is carried out. We feel that this is a more effective and safer method of removing excess bowel than the pull through operation advocated by Altemeier and his co-workers.[1] A catheter is placed in the hollow of the sacrum and brought out extraperitoneally through a lateral stab wound for suction drainage. The abdomen is closed in the usual manner. In six recent cases, Teflon mesh has been substituted for fascia and has been quite satisfactory.

Results of Repair

This procedure has been carried out in 45 patients in the past 12 years. There has been one operative death from massive pulmonary embolism on the eighth postoperative day, all other patients have recovered and have left hospital. There has been one recurrence of the prolapse three months following operation. This patient has refused re-operation but on rectal examination the fascial graft is not properly placed and the posterior curve of the rectum has not been maintained. This must be considered a technical failure due to an inadequate operation. All the remaining patients

are alive and well or have died without recurrence.

Complications

The mortality of this procedure has been acceptably low but there has been a significant morbidity. Part of this due to wound infection, phlebitis and pulmonary complications is inherent in any major operative procedure in an older age group and is not related specifically to the prolapsed rectum or its surgical repair. The following complications are related directly to the procedure and have required specific measures to keep them under control.

1. Anal incontinence. A patulous sphincter ani is present in all long standing cases. In younger patients continence can be restored by voluntary exercises and electrical stimulation of the sphincter muscle to improve its tone. In older patients the sphincter may remain lax and a secondary procedure is necessary to regain continence. The simplest procedure, the Thiersch operation, consists of a subcutaneous circular wire to tighten the patulous anus. The gracilis sling operation has given better results in our hands and has been necessary in five patients, all in the older age group.

2. Urinary complications have been frequent, cystitis occurring in 10 patients. This probably is due to manipulation of the bladder or prostate and inflammatory reaction around the graft in this area. Prolonged catheter drainage (7 days) has been necessary to avoid stasis and infection especially in men.

3. Proctitis and perirectal inflammatory reaction is usually present for a few weeks after surgery and occasionally persists for several months. The graft can be palpated through the rectum and a good deal of induration and edema is often noted. This always has cleared spontaneously but may produce temporary tenesmus and mucoid rectal discharge. This inflammatory reac-

FIG. 10. The same patient as in figure 9 following operative correction of rectal prolapse. The restoration of the posterior curve into the hollow of the sacrum is well demonstrated. This patient is 4½ years postoperative with no recurrence of prolapse.

tion is important in assuring fixation of the rectum posteriorly and we have occasionally encouraged it by sprinkling talc (magnesium silicate) into the hollow of the sacrum.

TABLE 1. Summary of Patients

	No.	Ages
Congenital mesorectum*		
Men	7	18–45
Women	5	20–55
Anterior pelvic floor defect**		
Women	33	58–78

* Surgical mortality—0; Follow up 1 to 10 years with no recurrences.
** Surgical mortality—1, pulmonary embolism; Follow up 1 to 12 years with one recurrence—inadequate operation.

Summary and Conclusions

1. Massive prolapse of the rectum is a sliding hernia of the anterior wall of the rectum through a defect in the pelvic floor. Two etiological factors operate: a straight rectal tube with loss of the normal posterior curve and a weakness or defect of the anterior supporting structures.

2. The fundamentals of surgical repair involve restoration of the normal posterior curve into the hollow of the sacrum and repair of the anterior pelvic floor defect. This can best be accomplished with a V-shaped fascia lata graft.

3. The results of operation in 45 cases of massive rectal prolapse have been satisfactory in a one to 12 year follow up. There has been one operative mortality and one recurrence of prolapse. All other patients are alive and well or have died of other causes without recurrence.

4. Certain complications inherent in the procedure have been encountered and treated.

References

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2. Palmer, J. A.: Treatment of Massive Rectal Prolapse. Surg., Gynec. & Obst., 112:502, 1961.
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