

Best Approach for Management of Rectal Prolapse

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Introduction

A great number of surgical procedures have been recommended for prolapse rectum. The results of the various operations have not been very successful. A further cause of this disappointment is the poor functional state that often persists, sometimes in aggravated form after the prolapse itself has been successfully cured by operation. This is because many of the questions in the pathophysiology of this condition are unanswered. So, it is difficult to select the best method from many described technique for a given case. The ideal procedure should restore normal anatomy, should have a low risk of perioperative death or morbidity and an acceptable rate of recurrences. It should also correct the functional disturbances such as incontinence and constipation. The surgical treatment is given either through the perineum or through abdominal route.¹

The treatment option is one or more of the followings.

1. Narrowing of the anal orifice.
2. Obliterate the rectovesical or recto uterine pouch.
3. Restore the pelvic floor by apposing the levators.
4. Resection of the prolapsed segment.
5. Suspend or fix the prolapsed rectum.

The aim of treatment is to control the prolapse, restore continence, and prevent constipation or impaired evacuation.^{2,3} This goal can be achieved by (1) resection or

placation of the redundant bowel and/or (2) fixation of the rectum to the sacrum. A strong and functional pelvic floor may be restored by placating the puborectalis anterior to the rectum.

Abdominal Operation

1. Moschcowitz operation
2. Pemberton stalker operation
3. Roscoe graham operation
4. Orr operation
5. Ripstein operation
6. Simple suturing rectopexy.
7. Posterior ivalon sponge
8. Resection rectopexy
9. Abdomino perineal levator ani repair (HUGHES)
10. Anterior Resection.

Many abdominal techniques have been described, differing only in the extent of rectal mobilization, the methods used for rectal fixation, and the inclusion or exclusion of resection.² Various sling operations, rectopexy, rectal plication procedure have been described.

Suture Rectopexy

This operation, first described by Cutait in 1959,⁴ involves a thorough mobilization and upward fixation of the rectum. The mobilization and subsequent healing by fibrosis tends to keep the rectum fixed in an elevated position as adhesions form, attaching the rectum to the presacral fascia.⁵ Recurrence rates ranged from 0% to 27%.^{6, 7-10} With the exception of one series with a

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recurrence rate of 27%,⁹ the majority of reports claimed rates ranging from 0% to 3%, with most of the reports showing an improvement in faecal continence. The influence on constipation was variable, with different studies showing improvement, deterioration, or no effect on constipation. Briel *et al*⁶ in a review of suture rectopexy in 24 patients with rectal prolapse and incontinence noted a better overall clinical outcome in males. They postulated that the low success rate in female patients might be explained by the presence of an occult sphincter defect. These patients should have endoanalultrasound and subsequent sphincter repair.

Prosthetic or Mesh Rectopexy

Insertion of a foreign material during rectopexy is commonly performed with the assumption that this material evokes more fibrous tissue formation than ordinary suture rectopexy.² Materials used include fascia lata; nonabsorbable synthetic meshes such as nylon, polypropylene (Prolene) polyvinyl alcohol (Ivalon) and polytef (Teflon) and absorbable meshes such as polyglactin (Vicryl) and polyglycolic acid (Dexon). There are 2 types of mesh rectopexy: posterior mesh rectopexy and anterior sling rectopexy (Ripstein procedure).

Posterior Mesh Rectopexy

After rectal mobilization, a prosthetic material or mesh is inserted between the sacrum and the rectum, sutured into the rectum, and then sutured into the periostium of the sacral promontory. Although fascia lata was used in the early description of the procedure in general, it is no longer used. The sponge rectopexy, first described by Wells in 1959,¹¹ involves insertion of the polyvinyl alcohol sponge prosthesis in front of the sacrum, between the sacrum and the rectum.

Mortality rates ranged from 0% to 3%,^{8,12,13} and recurrence rates were reported at 3%.^{8,12-14} Improvement in continence occurred in 3% to 40%, but there was a mixed response of constipation to this type of rectopexy.¹⁴⁻¹⁷ Other nonabsorbable synthetic meshes have replaced the sponge, and more recently absorbable meshes have been introduced. A number of authors^{18-20,21} have shown that the use of both absorbable and nonabsorbable meshes achieved similar results. The mortality rate was 0% to 1% and the recurrence rates were 0% to 6% for both absorbable¹⁸⁻²⁰ and nonabsorbable^{3,22,23,16} meshes. There was an overall improvement in continence, with conflicting results in terms of constipation.

Sling operation is indicated when prolapse occurs following an abdomino anal pull through or perineal recto sigmoidectomy. Because there is a risk of devascularization of the lower rectal sigmoid if resection was performed. When the patient has severe diarrhoea, the suspension operation is the better choice.

Because the main predisposing factor for infection of the implant is an infected pelvic haematoma, drainage of the presacral pelvic region during surgery is recommended.^{8,11,24} If this complication does occur, however, removal of the foreign material is advisable, as sepsis does not resolve until all foreign materials are removed.^{18,21} In general, other materials are preferred over the polyvinyl alcohol sponge as this material is highly prone to infection.^{2,5,23} Furthermore, in the presence of an anastomosis in patients having a synchronous resection, the theoretical risk of infection is increased.^{8,24} Simply wrapping the sponge around the rectum, without fixation to the sacrum seems to be an effective technique.²⁵

Ripstein Procedure (Anterior Sling Rectopexy)

This operation was first described by Ripstein in 1952.²⁶ After complete mobilization of the rectum, the rectum is fixed to the sacral promontory with an encircling sling of Teflon, Mersilence or Merlex. Non absorbable sutures are placed from the mesh into the rectal wall. After the mesh has been laid around two third of the bowel, the redundant material is trimmed. Sutures are then anchored in the sacrum and placed into the mesh.

During Mobilization care is taken to avoid damage to the autonomic nerves in this region. Ripstein's original technique used a circumferential wrap around the rectum and a significant number of patients developed obstruction symptoms or impaction of stool probably because of stricture caused by the mesh.^{27,28}

As a result, many surgeons now leave the anterior surface of rectum free by using a partial wrap by shaping the mesh into an inverted T configuration by using nylon strips extending from sacrum to the antero lateral aspect of rectum on each side.²⁹

Disadvantages of sling operation 1. rectal structure.²⁸ 2. Constipation may be exacerbated by the new redundancy of sigmoid colon 3. Sigmoid volvulus³⁰ 4. Fibrotic reaction secondary to mesh may produce obstructive symptoms. Mortality rates ranged between 0% and 2.8% and recurrence rates between 0% and 13%, and there was a trend toward improvement in continence and a mixed response to constipation.^{19,22,24}

In 1988, Roberts *et al*³¹ reviewed their experience with the Ripstein procedure in 135 patients during a 22-year period at the Lahey Clinic, Burlington, Mass; they noted a 52% complication rate, the most serious complication being due to presacral haematoma, which occurred in 8% of cases.

The overall recurrence rate was 10%. However, the recurrence rate in men was 3 times that in women (24% vs 8%, respectively). They postulated that the reason for a high failure rate in men might be difficulty in mobilizing the rectum in the narrow male pelvis. Technical difficulties at the time of the original operation were implicated in 50% of cases of male patients with recurrence.³¹

Resection

The concept of rectosigmoid resection is based on the observation that after low anterior resection, a dense area of fibrosis forms between the anastomotic suture line and the sacrum, securing the rectum to the sacrum.² Other advantages include (1) resection of the redundant rectosigmoid, which avoids torsion or volvulus; (2) achieving a straighter course of the left colon and little mobility from the phrenocolic ligament downward, which acts as yet another fixative device;^{1, 2,5,32-34} and (3) relief of constipation in a selected group of patients.² It is well suited to patients with a long redundant sigmoid and a long history of constipation.³⁵

The addition of sigmoid resection to rectopexy (resection rectopexy; Frykman-Goldberg procedure) combines the advantages of mobilization of the rectum, sigmoid resection, and fixation of the rectum. Most of the series describe resection rectopexy in which resection is combined with suture rectopexy. Few studies have addressed a combination of resection and posterior mesh rectopexy. The mortality rates ranged from 0% to 6.7%^{3,20,36} with an associated recurrence rate of 0% to 5%.^{3,18,37} There was an overall reduction in constipation, which was attributed to resection of the redundant sigmoid colon. Continence was also improved in most patients. Luukkonen *et al*¹⁸ in a comparative study between rectopexy with sigmoidectomy vs rectopexy alone showed

that sigmoid resection did not increase morbidity but tended to diminish postoperative constipation, possibly by causing less outlet obstruction.

In a prospective randomized study of rectopexy with and without sigmoidectomy, McKee *et al*³⁸ in 1992 showed that patients with rectal prolapse who underwent abdominal rectopexy alone had a high incidence of constipation. They also showed that patients having rectopexy alone had a higher pressure in the rectum for a given volume of isotonic sodium chloride solution infused. They postulated that this was due to kinking between the redundant sigmoid colon and the rectum at the rectosigmoid junction, and that the addition of sigmoidectomy appeared to alleviate this possibly by removing the redundant loop of colon that may kink and cause delay in passage of intestinal content.

Anterior Resection

This operation for prolapse has many advantages but also has a number of disadvantages. One major advantage is the removal of the redundant sigmoid colon. This excess bowel can pose a problem with some patients who are to undergo suspension or fixation procedure. It is important that the rectum should be mobilized to the level of the lateral ligament but the anastomosis should be situated at or just below the sacral promontory. Mobilization of the rectum in these patients can be done quite easily due to the broad deep pouch of the Douglas with lack of fixation of the rectum. The major disadvantage is the possibility of an anastomotic leak.

The first successful anterior resection was performed by Stabins in 1947.³⁹ In a retrospective study of 28 patients, Theuerkauf *et al*⁴⁰ in 1970 noticed a 4% mortality rate and 4% recurrence rate after anterior resection

with improvement of continence in 63% of cases. Schlinkert *et al*⁴¹ in 1985 reviewed the Mayo Clinic experience with anterior resection for complete rectal prolapse in 113 patients during a 12-year period. There was a 9% recurrence rate, a 1% mortality rate, and a 50% improvement in continence. Cirocco and Brown⁴² performed anterior resection in 41 patients with complete rectal prolapse. All of these authors claimed that the advantages of this operation was that it was familiar and frequently performed, did not require a foreign body or rectal suspension, and had withstood long-term scrutiny in terms of both recurrence and associated complications.

Laparoscopic Rectopexy

Compared with laparotomy, laparoscopic rectopexy has the advantages of reduced pain, shortened hospital stay, early recovery, and early return to work.⁴³ The procedure involves either suture or posterior mesh rectopexy, with or without resection. It has gained popularity as it is relatively simple and easily accomplished. The mortality for laparoscopic rectopexy ranged between 0% and 3%, with recurrence rates ranging from 0% to 10% in follow-up of between 8 and 30 months.^{15,43-46} These studies have demonstrated that this approach is as effective as the open method in the treatment of rectal prolapse, and the effect on continence and constipation depends on the type of rectopexy performed.

In 1999, Boccasanta *et al*⁴⁷ compared the functional and clinical results of laparoscopic rectopexy with those of the open technique in 2 similar groups of patients with complete rectal prolapse. The laparoscopic approach was associated with a reduction in postoperative hospitalization, but there was a little prolongation of operative time and the higher cost of surgical materials. The shorter postoperative hospital stay determined an

overall reduction in the total cost of laparoscopic rectopexy. In the same year, Xynos *et al*⁴⁸ compared open and laparoscopic resection rectopexy and concluded that resection rectopexy for rectal prolapse can be performed safely via the laparoscopic approach.

In 2002, Solomon *et al*⁴⁹ reported on a randomized controlled study of 39 patients undergoing abdominal rectopexy. Nineteen underwent open procedures and 20 had laparoscopic procedures. They concluded that the laparoscopic technique had short-term benefits in terms of return to normal diet and mobility, earlier discharge from the hospital, and less morbidity. No long-term differences in constipation, recurrent prolapse, or improvement in continence scores between open and laparoscopic approaches were identified. Laparoscopically assisted rectopexy has also been described with good results, equivalent to those of open and laparoscopic rectopexy.^{34,43,46}

Place of Prosthetic Meshes in Rectopexy

The use of prosthetic material in rectopexy has been challenged in recent years. There is evidence that complete encirclement of the rectum (Ripstein procedure) may lead to erosion of the foreign material with subsequent fistula formation and stenosis in approximately 7% of patients.² Furthermore, Kuijpers² reoperated on 4 patients who had had posterior rectopexy with T-shaped polytef mesh several years previously. None of the patients had actual prolapse recurrence, but both of the “horizontal” legs of the mesh had retracted to the promontory and were ineffective as a fixation device. Therefore, Kuijpers believed that the purpose of using an implant to evoke an intense fibrous tissue formation is not always achieved by using prosthetic material. In 1972, Penfold and

Hawley¹² conceded that the polyvinyl alcohol sponge tends to fragment but persists in human tissues for 5 years. Indeed, many authors⁵⁰ now believe that rectal fixation by suture only seems sufficient, with reported recurrence rates of 3% or less.^{5,2,7,51}

Perineal Procedures

1. Thiersch's operation
2. Plication of anal sphincters and levator ani muscle.
3. Narrowing of the anus by fibrosis produced by a circular incision in perineal region left to granulate.
4. Suture of the puborectalis muscle by perineal route
5. Posterior fixation of rectum from below.
6. Approach by sacral route to excise some part of the pelvic peritoneal pouch and to suture the puborectalis with or without resection of part of rectum. (Kraske Approach)
7. Delorme's operation
8. Perineal excision of the rectum (Rectosigmoidectomy)
9. Gant Miwa Procedure.

Among the above mentioned operations some are historical interest, some are done as palliative and some are practiced now as routine operation.

The perineal procedures are becoming more popular even in healthy patients, because laparotomy is avoided and other morbidity is low. There is no risk of presacral nerve injury in these procedures and this factor assumes importance in young adult males. A subsequent abdominal operation for recurrence is not precluded by a prior perineal procedure.

The advantage of perineal procedures is that they avoid laparotomy, which makes them well suited for high-risk patients. There

are two widely used perineal procedures: the Delorme procedure and perineal rectosigmoidectomy (Altemeier operation). The Thiersch procedure, which entails encircling and thereby narrowing the anal canal, does not eradicate prolapse but merely prevents its further descent by providing mechanical support, and hence it is associated with a high recurrence rate (33%-44%).^{2,5,52} Given the safety of modern anaesthetic techniques, there is no role for its use.⁵

Narrowing of the anal orifice

Thiersch's Operation (1891)

Thiersch's operation is aiming in narrowing of the anal orifice by an encircling silver wire. This procedure is designed simply to increase anal pressure by local effect and thus prevent the prolapse through the anus.

Because of complication of breakage and ulceration, silver wires are not used now. Instead, nylon, Dacron, mersilene, polypropylene mesh, Teflon, facialata, silicon rubber, silastic mesh etc have been used. The major advantage of an encircling procedure is its ease and simplicity. The encircling material restricts the relaxation during defaecation and so constipation and faecal impactions are more common.

Complications of encircling operation

The most common complication is breakage or erosion of the encircling material and this next common complication is faecal impaction. The recurrence of prolapse rate is high. There is a feeling of incomplete evacuation and anal stenosis may occur. The patient complains of a sensation of 'Sitting on a lump'. If the prolapse recur, the rectum may become incarcerated and even strangulate. Tenesmus, a feeling of incomplete evacuation and bowel management difficulties are the rule than exception. Recurrent prolapse following

Thiersch's repair requires urgent evaluation and treatment.

Delorme Operation

This procedure was described by Delorme in 1900⁵³ and involves dilation of the anus, separation of the mucosa from the sphincter and the muscularis propria, and the division of the mucosa together with the plication of the muscularis propria. It has an additional advantage of excision of a concomitant rectal ulcer if present.⁵⁴ The Delorme procedure represents a surgical alternative for patients with prolapse who may be unable to tolerate a more extensive operation, such as the elderly, frail patients, and those who are medically unfit for major surgery.⁵³⁻⁵⁵

Oliver *et al*⁵⁶ successfully performed the Delorme procedure in 41 patients with a mean age of 82 years who were deemed unfit for major surgery because of age or comorbidity. They pointed out that important pitfalls in performing the procedure were weak or absent sphincter tone, perineal descent, and previous sphincter injury. There was a general improvement in continence.

Pescatori *et al*⁵⁴ combined the Delorme procedure with sphincteroplasty in 33 patients, with good results achieved in 79% patients. Continence improved in 70%, and in 44% constipation was cured. They concluded that the Delorme procedure combined with sphincteroplasty is indicated when both clinical and physiological findings showed a concomitant severe pelvic floor dysfunction. However, many other series without sphincteroplasty have shown improvement in continence.^{56,57}

Factors associated with failure for the Delorme procedure include proximal procidentia with retrosacral separation on defaecography, faecal incontinence, chronic diarrhoea, and major perineal descent (> 9 cm

on straining). In the absence of these factors, the Delorme procedure provided a satisfactory and durable outcome.⁵⁸

Perineal Rectosigmoidectomy

This procedure was first advocated by Miles⁵⁹ in 1933 and subsequently by Altemeier *et al* in 1971.⁶⁰ It involves a full-thickness excision of the rectum and, if possible, a portion of the sigmoid colon. It has gained general acceptance for use in elderly patients. The reported overall mortality rates ranged from 0% to 5% and recurrence rates from 0% to 16%.^{37,48,61-63}

The potential complications include anastomotic bleeding and pelvic sepsis and, although leakage is uncommon, tension and poor blood supply can cause anastomotic dehiscence.⁶⁴ Since recurrence probably reflects inadequate resection, care must be taken to mobilize the entire redundant rectum and to perform the anastomosis within the pelvis.⁶⁴ Perineal rectosigmoidectomy is well suited for male patients; patients with incarcerated, strangulated, or even gangrenous prolapsed rectal segment; and patients who have had recurrence after another transperineal repair.^{61,63,64}

Perineal rectosigmoidectomy has yielded poor functional results with respect to incontinence, urgency, and soiling, as well as high recurrence rates because of the loss of reservoir capacity due to a rather narrow colon above the anal anastomosis, together with some reduction in anal sphincter function.^{4,65,66}

Reduction in resting anal pressure and compromised compliance make conventional perineal rectosigmoidectomy an unphysiologic procedure that results in increased soiling and frequency of defaecation.⁶⁵ Some authors^{61,64} have therefore suggested the addition of levatorplasty to

perineal rectosigmoidectomy. The advantage of posterior levatorplasty is that it recreates the anorectal angle, which seems to improve anal continence.⁶¹

There is general agreement that perineal rectosigmoidectomy is often the best operation for extremely elderly patients or individuals with profound comorbidity, in whom an abdominal procedure might be contraindicated.^{62,63} It is also suitable for the elderly or high-risk patients with incontinence because a concomitant levatorplasty can be performed.^{64,67}

Since perineal rectosigmoidectomy is difficult to perform in patients with a small prolapse and in those whose prolapse is not full thickness in its entire circumference, Takesue *et al*⁶⁴ suggested that if the prolapsing rectal segment is shorter than 3 to 4 cm, a modification of the Delorme procedure is a better approach than perineal rectosigmoidectomy.

Choice of Operation

It seems reasonable that patients who are fit for surgery without comorbidity should be offered abdominal rectopexy, as it is now associated with very low mortality rates. The abdominal operation with the lowest recurrence rate should be offered to the medically fit patient. Even though abdominal operations have a higher morbidity, the fit patient is presumably capable of withstanding complications and should be given the best chance to cure the prolapse. Suture rectopexy is capable of giving good results, and the addition of the posterior mesh does not offer additional advantage; rather, it has the disadvantage of introducing a foreign body. The polyvinyl alcohol sponge rectopexy is associated with an increased risk of infection and has largely been abandoned. The advantage of adding a resection to the rectopexy seems to be a reduction in

constipation. This procedure therefore seems suited to patients with a redundant sigmoid colon and a history of constipation. The Ripstein procedure has been associated with problems of constipation that either persist or postoperatively worsen.

Laparoscopic surgery has the advantages of less pain, shorter hospital stay, early recovery, and early return to work as compared with laparotomy. Apart from these advantages, the results are similar to those with the open procedures irrespective of the method used available, this approach may be preferred, when laparoscopic surgeons service is available.

Perineal procedures are often useful for frail patients with extensive comorbidity and individuals who are not fit for major abdominal surgery. Mortality rates are acceptable considering the type of patient in whom the procedure is done. Whether to do the Delorme procedure or the perineal rectosigmoidectomy will depend on the preference and experience of the surgeon. However, the Delorme procedure is associated with even higher recurrence rates than is perineal rectosigmoidectomy. When the perineal procedures (Delorme and Altemeier operation) are done as a routine not only in old and frail the mortality, morbidity and recurrence will come down. In addition to reducing the potential risk of injury to the pelvic nerves, a perineal approach may be preferable in young male patients.

Favourable outcome could be achieved after perineal procedures by applying stringent patient-selection criteria. The Delorme procedure may be useful if there is insufficient length of prolapse to perform a perineal rectosigmoidectomy.

Perineal rectosigmoidectomy is well suited for patients with incarcerated, strangulated, and gangrenous rectal prolapse, whereas

abdominal rectopexy cannot be used for these situations.

In recent years, there has been a trend toward offering perineal rectosigmoidectomy and Delorme to healthier patients. Among factors to consider in the selection of a treatment option are the age and health of the patient, functional results, and the benefits vs the advantages and disadvantages of the surgical technique.

Conclusions

Though the prolapse rectum has been known for a very long time, there is no consensus on the best surgical method of repair. The aim of the treatment should be in addition to correction of the prolapse, the functional disturbances also should be corrected. While selecting the operative procedure, the following criteria should be kept in mind 1. Patient's age and co-morbid conditions 2. Associated disorders such as incontinence constipation, cystocele 3. Minimum morbidity, and mortality, 4. Minimum recurrence rate. The operation chosen is often based on the surgeon's familiarity with the procedure. Full preoperative and rectal physiological assessment may ultimately prove useful in planning the operative procedure, particularly in postoperative constipation.

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STEROID AND ANTIVIRAL TREATMENT FOR BELL'S PALSY

PCR usually identifies fragments of DNA of herpes simplex virus in clinical samples from patients with Bell's palsy.

We speculate that reactivation of herpes simplex virus might lead to Bell's palsy: herpes simplex virus is involved in about 31-79% of cases of Bell's palsy.

Ramsay-Hunt syndrome is the second most common acute facial paralysis, and is caused by reactivation of latent varicella zoster virus. It is associated with zoster oticus and is often complicated by vestibulocochlear dysfunction. The diagnosis of acute facial paralysis is sometimes complicated by the presence of so-called zoster without vesicles (zoster sine herpette). In the absence of vestibulocochlear dysfunction or zoster in the auricle, such cases are clinically diagnosed as Bell's palsy. Serological and PCR studies show that the prevalence of zoster sine herpette in Bell's palsy ranges from 8% to 28%. Therefore although herpes simplex virus is a major cause of Bell's palsy, varicella zoster virus and other unknown causes might also be important.

Systematic reviews suggest that oral steroids are safe and effective in the treatment of Bell's palsy.

Because varicella zoster virus is more virulent and causes more severe facial paralysis than herpes simplex virus, differential diagnosis is important to select the appropriate treatment: varicella zoster virus needs higher doses of antiviral than herpes simplex virus. Increasing the dose of antiviral for all patients seems unwise, because higher doses can increase the risk of side-effects, such as acute renal failure and neurological disorders. Higher doses also increase the cost of drug treatment.

There are no established guidelines for the treatment of Bell's palsy. In moderate paralysis, oral administration of prednisolone is sufficient, because such patients usually show excellent prognosis. When treatment starts within 3 days of the onset of paralysis, we prescribe valaciclovir in addition to prednisolone, because of the high incidence of viral infection. In most cases, 1000 mg per day of valaciclovir is given for 5 days, whereas a higher dose of valaciclovir (i.e., 3000 mg per day for 7 days) is needed in patients who have the preceding symptoms of reactivation of varicella zoster virus, such as severe auricular pain, stiff neck, and reddish auricle.

The Lancet, 2008; 371 : 1818-19.