

# Surgical Treatment of Rectal Prolapse - Current Concepts

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**Abstract:** *The "best" surgical technique for management of complete rectal prolapse remains unknown. Due to very low incidence, it is very difficult to achieve a representative number of cases, and there are no large prospective randomized trials to test the superiority of one operation over another. We had experienced 4 cases of complete rectal prolapsed in 2 years. Young adults underwent abdominal rectopexy and elderly one underwent perineal surgery. The post-operative recovery was uneventful and discharged satisfactorily and resumed their routine activities within 2 weeks. Further monthly follow ups didn't reveal any recurrence. Abdominal and perineal procedures are used to manage complete rectal prolapse with safety and good long-term results. Age, associated medical conditions, and symptoms of faecal incontinence or constipation are the main features that one should bear in mind in order to choose the best surgical approach.*

**Keywords:** Rectal Prolapse, Rectopexy

## 1. Introduction

Rectal prolapse is defined as a protrusion of the rectum through the anal canal. It is more commonly found in elderly. Rectal prolapse is classified in three main types:-

- Complete or procidentia – protrusion of all layers of rectal wall through anal canal
- Mucosal or partial – protrusion of only mucosal layer of rectum through anal canal
- Internal rectal prolapse – intussusception of rectum into anal canal without protrusion to exterior.

In adults, rectal prolapse is much more common in women than in men with a ratio of 6:1. The peak incidence in women is in 7<sup>th</sup> decade whereas in men, the incidence drops after 5<sup>th</sup> decade. In children, prolapse is distributed equally between the sexes and most after presents by three years of age. Historically, earliest case of rectal prolapse was identified in a male mummy from antioch, Egypt (400-500 BC). Hippocrates recognized rectal prolapse as a clinical disorder. Morgagni attributed rectal prolapse to a laxity of rectal suspensory ligaments and was first to suggest rectal intussusception (1682-1771). John hunter was first to differentiate intussusception and procidentia. Moschowitz gave sliding hernia theory in prolapse patient. Laparoscopic management of rectal prolapse was first introduced by Baerman in 1992. In the 20<sup>th</sup> century rectal prolapse was studied scientifically nonetheless, surgical treatment of external rectal prolapse, internal intussusception and rectocele is still a challenging problem in colorectal surgery, which was associated with various pelvic floor disorders like motility, morphological/ functional disorders ranging from constipation to fecal incontinence affecting patients quality of life. In this article we will mainly focus on current surgical treatment of rectal prolapse.

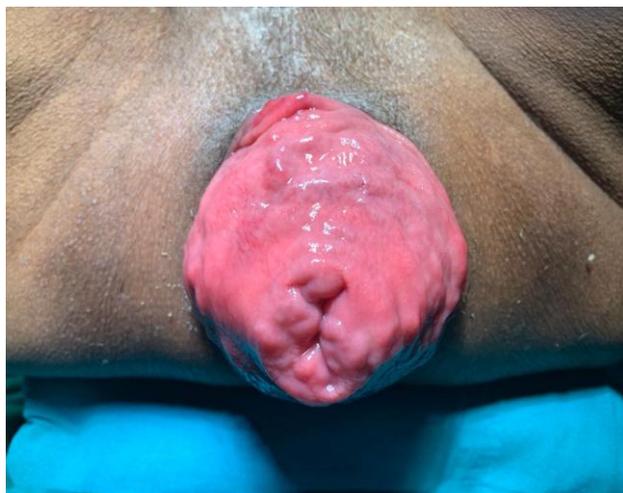
## 2. Aims and Objective

The objective of this analysis is to describe our experience with the management of rectal prolapse over the past two and half years with emphasis on discussing the best surgical approach available for each patient.

## 3. Material and Methods

This prospective study was carried out on patients of Department of general Surgery at Mahatma Gandhi Hospital, Jaipur, and Rajasthan from June 2017 to November 2019. A total 04 adult patients of two different age groups were studied. Our first two patients are of old age group, present with c/o feeling of something coming outside from anal canal for 30 years, increases more since 2 years. Constipation since 5-6 months. No h/o bleeding or discharge per rectum with co-morbidities of hypertension and one with hyperthyroidism and on regular medications. On clinical examination and squatting position and when asked the patient to strain, a bulge of rectum completely comes out which was reduced by manual reduction.

On per rectal examination-anal tone was extremely lax, no active bleeding, no ulcer was present. Routine investigations were normal and diagnosed as complete rectal prolapse and perineal repair (Delormes was done)



**Figure 1:** Pre op image shows complete rectal prolapsed

Post-operative period was uneventful and discharge satisfactory with following advice:- not to strain during defecation, avoid constipation, drink plenty of water, high fiber diet.

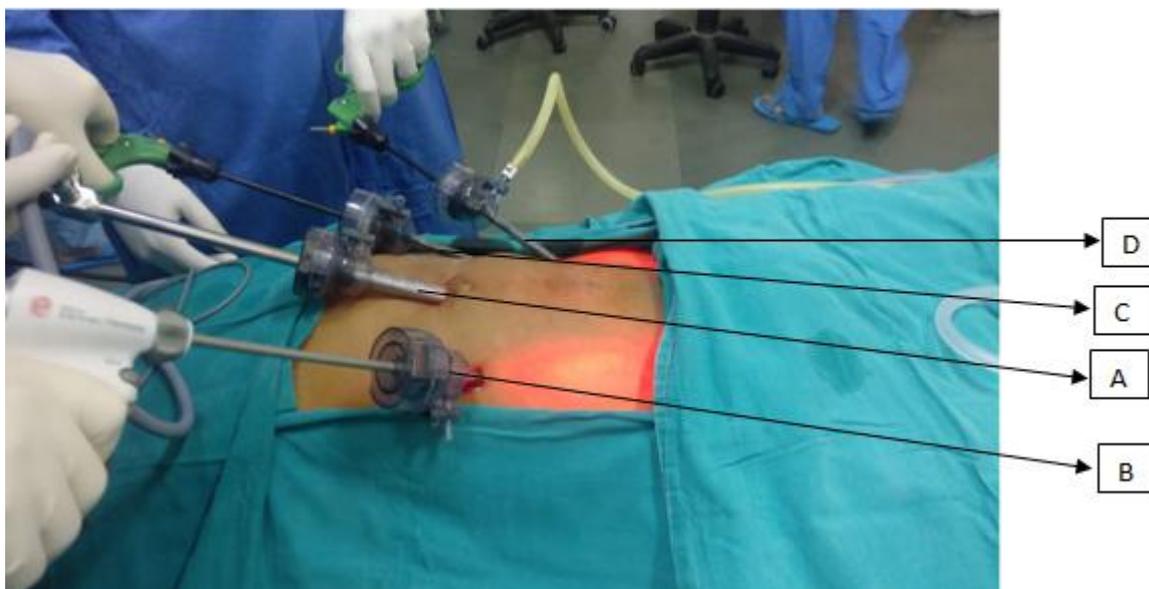
Both cases were followed for one year and is still following with no recurrence and any other complain.

Other group have two patient of young age i.e. 30 and 40 years presented with c/o mass coming outside from anal canal since Childhood, which was increased for last 2 years, h/o chronic Constipation, h/o bleeding per rectum for last 2 months. On clinical examination and squatting position and when asked the patient to strain, a bulge of rectum completely comes out which was reduced by manual reduction.

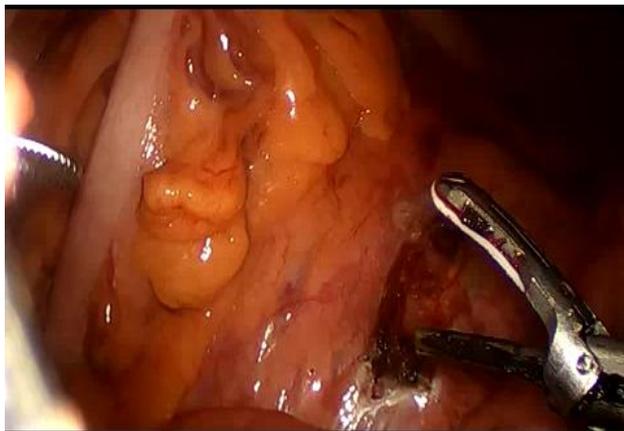
On per rectal examination-anal tone was extremely lax, no active bleeding, no ulcer was present. Routine investigations were normal and diagnosed as complete rectal prolapse and laparoscopic ventral abdominal mesh rectopexy was done.



**Figure 2:** After surgery



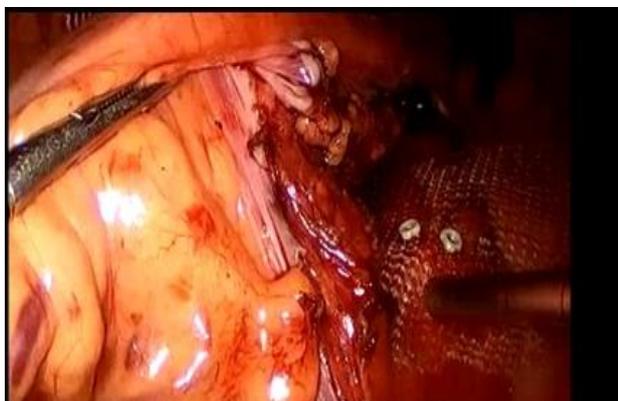
**Figure 3:** A-Camera port, B- Rt hand working port C-Lt hand working port, D-Colon retracting port



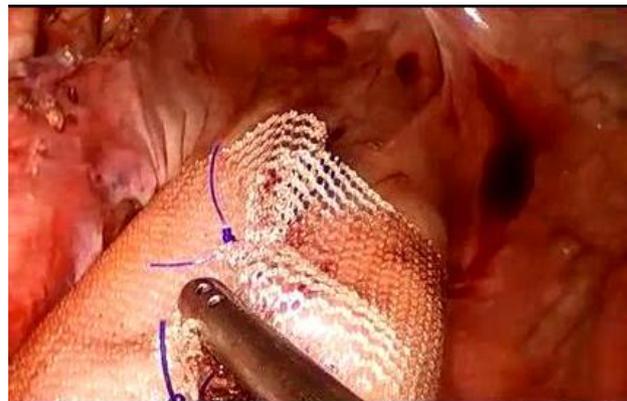
**Figure 4:** Peritoneal incision on right side starting at level of sacral promontory



**Figure 5:** Rectum is dissected laterally and posteriorly



**Figure 6:** Rectum is retracted up and prolene mesh is fix with presacral fascia



**Figure 7:** Complete encircle mesh fixation with rectum

Post-operative period was uneventful and discharge satisfactory. Both cases were followed for one and half year and is still following with no recurrence till date.

#### 4. Discussion

Complete rectal prolapse is a disabling condition that has been reported ever since the Egyptian and Greek civilizations. In the past century management of rectal prolapse has evolved a great deal due to accumulation of knowledge obtained from physiologic investigations and follow up of surgical series. The ideal procedure for surgical repair of complete rectal prolapse remains unknown despite more than 100 different operations described so far. There are no large prospective randomized trials comparing the techniques to attest the superiority of one operation over the other. Indeed the surgeon must be familiar with the most important technique and be able to identify specific patient characteristics to choose the best technique for each patient.

**Predisposing Factors:** Female gender, chronic constipation, multiple pregnancies, previous pelvic surgery, pelvic floor disorders, and neurological disorders.

**Associated Anatomic Findings:-** Deep cul-de-sac pouch, weak lateral rectal attachments, laxity of levator ani, weakness of internal and external anal sphincter, and pudendal nerve dysfunction.

**Evaluation of the Rectal Prolapse:-**Initial evaluation include a complete thorough history and physical examination with focus on prolapse, on anal sphincter structure and function and on concomitant symptoms and underlying conditions. Tests like flourosocopy, MRI defecography, colonoscopy, barium enema, and urodynamics may be used to refine the diagnosis and identify another important coexisting pathology. Anal physiologic tests such as anal manometry, electromyography or colonic transit time measurement may be considered to assess and treat coexisting functional disorders such as chronic constipation or fecal incontinence.

#### MR Defecography

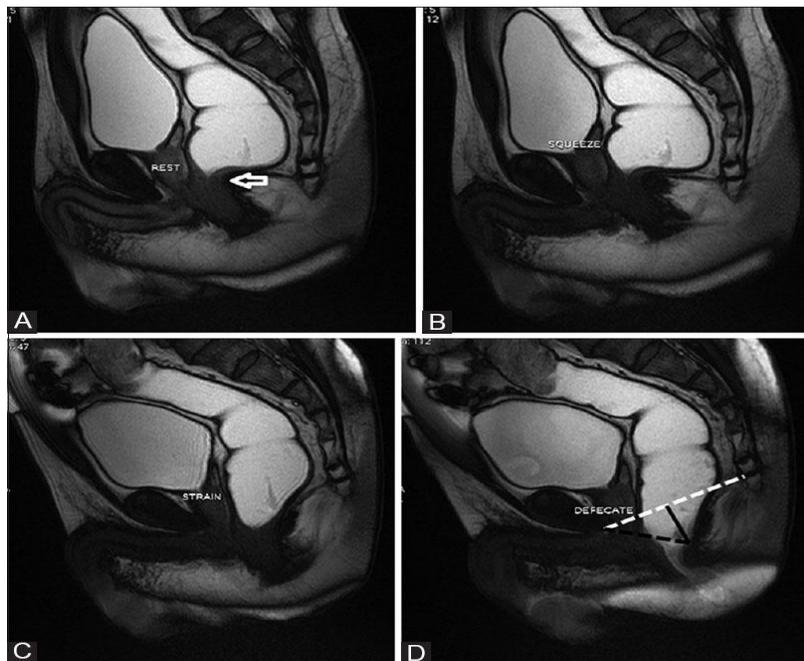


Figure 1 shows (A-D): Normal MR defecogram. Normal position of anorectal junction at rest (arrow in A) with mild pelvic floor lift on squeeze (B) On straining (C) and defecation (D) there is mild descent of anorectal junction, with the rectum and anal canal aligned in almost a straight line. The broken white line in (D) is the pubococcygeal line. The broken black line is the "H line" corresponding to anteroposterior dimension of the hiatus. The solid black line is the "M line" which is perpendicular distance between the pubococcygeal line and the posterior anorectal junction.

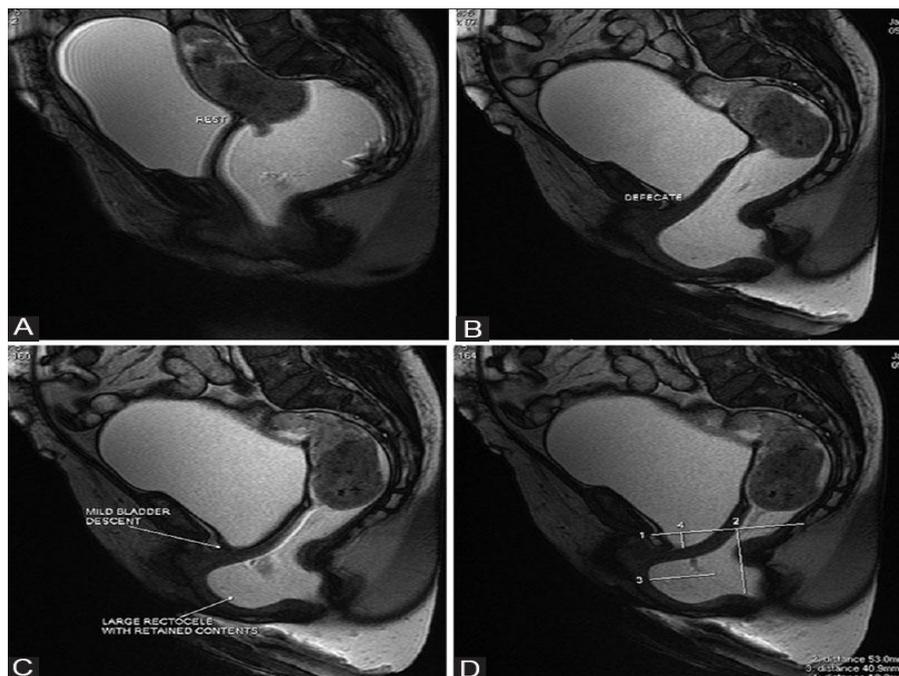


Figure 4 shows (A-D): Retained contents in large anterior rectocele. Normal position at rest (A) On defecation (B-D), there is moderate anorectal descent (5.3 cm) and mild bladder descent (1.2 cm) with a large anterior rectocele (4.1 cm). The rectocele showed retained contents at end of the defecation, (D) shows the measurements with line 1 representing the pubococcygeal line, lines 2 and 4 representing anorectal and bladder descents, respectively, and line 3 representing the length of the rectocele.

**Clinical Features:**-Protrusion – most frequent symptom, haemorrhage, frequent bowel movement, tenesmus, faecal incontinence, mucous discharge via anus. If persists for long time, then, bladder stones and urethral stricture may be associated.

#### Treatment of Rectal Prolapse

Rectal prolapse can be completely corrected by surgical treatment. However, during the acute phase, nonoperative

modalities such as medications reducing edema, correction of constipation, exercises straining at the perineum, electric stimulation, and injection of a sclerosing agent or rubber band ligation are attempted but these are not suitable as primary treatment.

**Goal of Treatment:**-Ultimate goal of treatment are: To eliminate the prolapse through either resection or restoration of normal anatomy. For correct the associated functional

abnormalities of constipation or incontinence. To avoid the creation of de novo bowel dysfunction or to restore defecation function.

**Surgical Approaches:**-largely two approaches:

Abdominal approaches:-Rectopexy, Resection and fixation and Laparoscopic procedure.

Perineal approaches: Thiersch wiring, Delorme procedure, Gracilis procedure, Altemeier procedure, Gant Miwa procedure

### Perineal Approach

**Thiersch Procedure:**-Performed in old age or high risk patients. Simple procedure using a prosthesis that narrows the anus. It is performed selectively in high risk group i.e. extremes of age. Recurrence rates are approximately 30-50%. Recently, it is performed in combination with other perineal approach

**Delorme Procedure:** Delorme procedure peels off the excessively herniated rectal mucosa, plicates the exposed rectal muscular layer and sutures the anorectal mucosa. Since rectum is not fixed with sacrum, a high recurrence rate has been reported. Mortality is 0-4% and recurrence rate is 4-38%. Complications are hemorrhage, hematoma, wound dehiscence and stenosis.

**Altemeier Procedure:** Mostly preferred in United States and Europe. Protruded rectum is resected 2 cm above the dentate line and the mesentery of the sigmoid colon is pulled sufficiently, ligated and resected. Anastomosis is carried out to prevent fecal incontinence and an anterior levatoplasty is performed simultaneously. Complication rate lowered by 10%. Recurrence rate is reported to be 16-30%. Rhyu et al. reported a recurrence rate of 20% in 16 patients.

**GANT- MIWA Procedure:** In 1920s, Gant reported the plication procedure for a herniated rectal mucosa for the first time, but it was not widely accepted and hence, results for this procedure are very much rare in English literature. Kim et al. reported a modified procedure in which levatoplasty was performed for the posterior rectal wall and Gant Miwa procedure was performed simultaneously for the anterior area.

**Abdominal Approaches:**-Traditionally – Open and Now – Laparoscopic/Robotic

Abdominal approach is a more aggressive and radical procedure unlike perineal approach which is a conservative procedure to resect or remove the herniated area. Abdominal approach mainly involves extensive bowel dissection and fixation; thus type of procedure is classified according to method or location of bowel fixation

**Suture Rectopexy:** Reported by Cutait in 1959. Simplest method among abdominal approach procedures. It is a method to pull rectum sufficiently and to fix it to sacrum or fascia by using non absorbable suture. The principle is that after suturing, fibrosis and adhesion occurs thus causing fixation of rectum. Recurrence rate is approx 0-27% .

**Prosthetic Rectopexy:** Mesh and other prosthesis have been used instead of simple sutures. Two types:

- 1) Anterior sling rectopexy (Ripstein operation)
- 2) Posterior prosthetic Rectopexy.

**Ripstein Operation:** Introduced in 1965. This procedure mobilized the redundant rectum and pulled and suture a mesh 4-5 cm in width to the sacral bone and the anterior rectal wall at S2-3 levels. If traction is not sufficient then recurrence is high and if area between sacrum and rectum is narrowed excessively, then developed constipation. So, maintain a 1-2 cm space. Recurrence rate is 0-13% in literature and mortality is 0-2.8%

**Posterior Prosthetic Rectopexy:** In this procedure, after the rectum is sufficiently mobilised, a prosthesis is inserted into the space between sacrum and posterior rectum and sutured to rectum and sacrum. When fibrosis takes place, the normal anorectal angle is restored. Recurrence rate is approx. 3% and mortality is approximately 1-2%.

**Resection and Fixation:**-The sigmoid-colorectal resection removes the redundant sigmoid colon and anastomosis adheres to the sacrum. It prevents bowel strangulation and volvulus as well as correct constipation. Postoperative mortality is 0-6.5% and recurrence rate is 0-5%. Luukkonen et al. reported that the incidence of postoperative constipations was lower in bowel resection in combination with rectopexy group.

**Laparoscopic Approach:** Laparoscopic colectomy has been performed from the early 1990s. Currently, it has gained wide acceptance. Principles of surgical procedure are similar to those of laparotomy such as Fixation and resection. Dissecting the posterior rectum and fixing it by mesh is the commonly performed procedure. Recurrence rate is 0-9%.

### Laparoscopic Procedures:

- Suture rectopexy –by cutait
- Frykmangoldberg procedure
- Mesh rectopexy
- Orr-loygue rectopexy
- Ventral mesh rectopexy by d'hoore
- Ripstein technique
- Well's technique
- Robotic rectopexy

**Advantages of Laparoscopic Surgery:** Early recovery, Shorter hospital stay. Earlier return to work, Superior cosmetic results, less postoperative pain. Yoon et al. compared laparoscopic rectal fixation to a laparotomy and reported equivalent operative outcomes.

**Surgical Decision Making:**-Various factors should be considered in decision making:

- 1) Risk of surgery and anaesthesia
- 2) Functional aspects such as faecal incontinence and constipation should be considered.

In recent literature, laparoscopic abdominal approach is rapidly increasing in acceptance.

## 5. Conclusion

Surgical procedures for rectal prolapse are diverse. Patient's information and surgeon's clinical experience are required for selection of best procedure and to achieve favourable outcomes. Functional aspects such as quality of life and defecation should be considered carefully. Attention should be paid to multidimensional patient care with surgical techniques. Multidisciplinary team approach should be considered as rectal prolapse may also have uterine prolapse or bladder prolapse. For best results, considered plan prior to surgery, optimal surgery by experienced hand and careful patient care are important.

## 6. Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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