

Special Article - Proctosigmoidectomy Surgery

Perineal Proctosigmoidectomy with Covering Ileostomy is an Acceptable and Safe Procedure for Irreducible Rectal Prolapse

Abdelhamid AF^{1*}, Elsheikh M¹, Hablus MA¹
Barakat H¹ and Youssef T²

¹Gastrointestinal and Laparoscopic Surgery Unit, General Surgery Department, Faculty of Medicine, Tanta University, Egypt

²Colorectal Surgery Department, Faculty of Medicine, Ain Shams University, Egypt

*Corresponding author: Abdelhamid AF, Gastrointestinal and Laparoscopic Surgery Unit, General Surgery Department, Faculty of Medicine, Tanta University, Egypt

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Abstract

Irreducible or incarcerated rectal prolapse is a rare complication of rectal prolapse, the management of rectal prolapse is controversial and the guidelines for the treatment of rectal prolapse recommend individual selection of the best proper surgical procedures (which are limited) based on each patient's overall condition. Our study included twenty cases of complicated irreducible complete rectal prolapse. Conservative treatment with the strategy of manual reduction was not tried in ten patients because patches of gangrene and ulceration were developed at their presentation and so, they subjected to urgent perineal proctosigmoidectomy surgery. The remaining ten patients were managed conservatively by trial of manual reduction that failed in five patients who were also subjected to perineal proctosigmoidectomy. In all operated cases, we added a protective covering ileostomy. Time of closure of illoestomy was variable according to each case. The overall results are satisfactory. Early Complications occurred in 2 cases and late complications in 3 cases.

Keywords: Colorectal surgery; Proctosigmoidectomy surgery; Illeostomy

Introduction

Incarcerated complete rectal prolapse is an uncommon surgical emergency. It is usually the outcome of a neglected longstanding reducible prolapse. Early in the course of a rectal prolapse, the anal protrusion may be spontaneously reducible. With time, it requires manual manipulation to achieve reduction. If this condition remains unattended, it could ultimately progress to irreducibility and incarceration. This situation if untreated carries high risk for the prolapsed rectum for ulceration, bleeding, strangulation, gangrene and eventual rupture [1].

In the absence of a formal trial, it is very difficult to be certain which procedure is best in the emergency setting. Is it the safer perineal proctosigmoidectomy with its high recurrence rate, or the more effective but potentially risky transabdominal procedures: either rectopexy or resection and fixation? Surgeons seem to choose or prefer the safety of a perineal approach, although the literature at present is far from conclusive [2,3].

Aim of the Work

The purpose of this study was to report our experience on the management of the irreducible rectal prolapse treated by the Altemeier perineal proctosigmoidectomy technique in 15 patients with addition of transient protective ileostomy.

Patients and Methods

This study included patients with complete irreducible rectal prolapse during a period of 4 years at Tanta University Hospitals and Ain shams university hospitals. All cases data were collected with great attention to established irreducibility, demographic data, management and follow up. Our protocol in management of

irreducible rectal prolapse was conservative treatment unless there were patches of gangrene, ulceration or bleeding, (Figure 1) which was found from the first in 10 cases. The initial management included a trial of manual reduction under cover of good sedation in operating theatre, if this failed sugar was applied (about 25 grams fine powdered sugar diluted with saline) over the prolapsed area with retrial of manual reduction in the next 24hour. If all previously mentioned procedures failed, perineal proctosigmoidectomy procedure with covering ileostomy was done (in 5 cases with failure of conservative measures).

Technique of operation

After placing the patient in lithotomy position, circumferential anal retraction by multiple zero silk sutures were applied. Mucosal dissections (Figure 2) followed transversely 1-2 cm proximal to the dentate line. The submucosal vessels were carefully cauterized while dividing the muscle layer. The peritoneum was opened anteriorly and laterally exposing the sigmoid, this enabled the posterior transection of the rectum and the mesorectum was controlled with division and ligation (Figure 3). The Sigmoid colon was pulled down and the transection site could be determined. Then, the anterior aspect of the sigmoid colon was opened and sutures applied then to the lateral aspect continuing the anastomosis (Figure 4). Now, complete transection of the sigmoid colon could be completed with coloanal anastomosis by circumferential stitches (Figure 5).

Statistical analysis of the data

Data were analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp). Spearman coefficient was used to correlate between quantitative variables. Significance of the obtained results was judged at the 5% level.



Figure 1: Irreducible prolapsed rectum with marked edema and patches of ulceration.

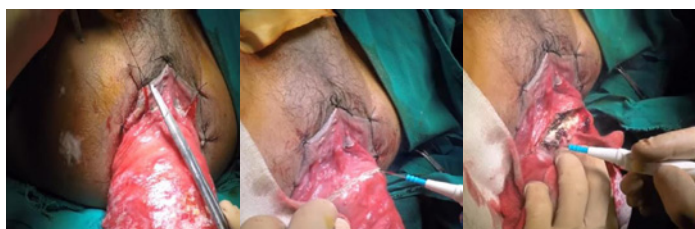


Figure 2: The mucosa was divided transversely 1–2 cm proximal to the dentate line and then deepened.

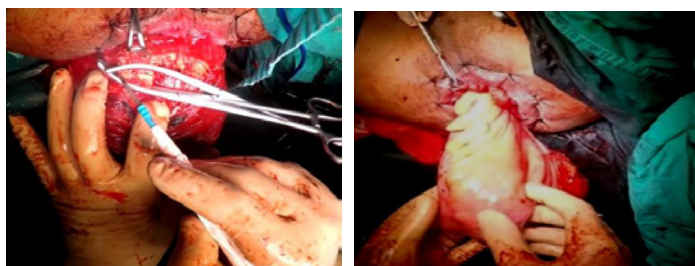


Figure 3: The mesorectum can be controlled with division and ligation there after sigmoid pulled down.



Figure 4: Sigmoid mesentery is divided and ligated then the anterior aspect of the sigmoid colon is opened, now the first (i.e. anterior) anastomotic suture can be placed using absorbable 2/0 vicryl sutures.

Results

We received 20 patients through 4 years with irreducible rectal prolapse in Tanta University hospitals and Ain shams university hospitals. Conservative management was attempted in 10 cases that had no patches of necrosis or gangrene at their presentation. Conservative management succeeded in five patients (two patients with early manual reduction and three patients after sugar application and retrial of manual reduction). The remaining five patients who failed conservative management subjected to Altemeier perineal proctosigmoidectomy with transient covering ileostomy. This also done in 10 patients managed emergently as they presented by patches of gangrene and ulceration necrosis at time of presentation. Ten out of the 15 patients who managed by perineal proctosigmoidectomy were

male (66.7%) and 5 were females (33.3%). Their ages ranged between 20-73 years with a mean of 48.3+ 16. The duration of irreducibility at time of presentation ranged between 6-72 hours with a mean of 27.3+ 18.

The length of prolapsed rectal segment ranged between 7-25 cm with a mean of 12.5+ 4.7, it did not prolong the operative time or hospital stay (Table 1).

It was all about the degree of edema, ulceration, and bleedin that were the main determining factors for the difficulty of operations. All cases were subjected to perineal proctosigmoidectomy (Altemier procedure) with covering ileostomy at the lower right side of the abdomen, with levatorplasty added only in three cases.



Figure 5: Coloanal anastomosis was completed circumferentially with interrupted 2-0 vicryl sutures then after diverting ileostomy was done.

The operative time ranged between 70-140 minutes with a mean time of 100+21.7 minutes with no statistically significant relations to the age, duration of presentation, length of prolapsed segment, combined levatorplasty or hospital stay.

The hospital stay ranged between 3-8 days with a mean stay of 4.5+1.8 days, with no statistically significant relations to operative time, (Table 2).

It was noted that the longest stay was found in cases of post-operative complications (especially the wound dehiscence) with +ve statistically significant relation. $p=0.028$, (Table 3).

Postoperative complications (5 cases, 33.3%) occurred early in 2 cases (13.3%) in which perineal wound infection with partial anastomotic dehiscence occurred, the two cases successfully managed conservatively with delaying the timing of restoration of small bowel continuity (10 weeks). Delayed complications were found in 3 cases (6.6 %). One case (6.6%) suffered from incontinence to fluidly stool after 2 months from closure of covering ileostomy and managed conservatively by dietary modifications. One case (6.6 %) suffered from anal stenosis at the site of coloanal anastomosis 8 months after operation in which bowel continuity was restored 3 weeks after proctosigmoidectomy and was managed by repeated anal dilatations with regular follow up visits. One case (6.6 %) suffered recurrence of prolapse after one and half year from the date of operation. There were no statistically significant relations between occurrence of complications and age of patients, duration of presentation, length of prolapsed segment, or operative time, (Table 3).

Restoration of bowel continuity was done after time period which ranged between 3-20 weeks with mean 8.7+4.2, with no statistically significant relations to the age, duration of presentation, length of prolapsed segment, operative time or hospital stay. We delay the closure of covering ileostomy in cases in which levatorplasty was combined with the Altemeir procedure (3 cases (20 %) and also in cases with early complications (2 cases). This showed a +ve statistically significant differences $p=0.037$, (Table 3).

Discussion

Rectal prolapse is not an uncommon disorder; surgery is the mainstay of the treatment. Many surgical techniques are described for rectal prolapse either abdominal or perineal but actually a few techniques are routinely practiced and advised. Operative treatment includes anal circlage, mucosal resection, perineal proctosigmoidectomy, anterior resection with or without rectopexy, or rectopexy alone. Some operations can be done laparoscopically [4].

Because Irreducible rectal prolapse is rare, surgeons have little

Table 1: Correlation between length of prolapse and different parameters (n=15).

| | Length of prolapsed segment | |
|--------------------|-----------------------------|-------|
| | r | p |
| Operative time | -0.202 | 0.471 |
| Hospital stay days | 0.048 | 0.866 |

r: Pearson coefficient

Table 2: Correlation between operative time and hospital stay days (n=15).

| | Operative time | |
|--------------------|----------------|-------|
| | r | p |
| Hospital stay days | 0.483 | 0.068 |

r: Pearson coefficient

experience and its management is controversial [4-7]. If surgery is obligatory and indispensable, it should be secure and effective. Unfortunately, no surgical procedure fulfills all criteria [8]. Conservative management is the target choice in an emergency. These conservative methods aim to alleviate or diminish the edema and permit reduction of the prolapse, with a later scheduled definitive surgery. Edema may be reduced by the application of sugar, by the injection of hyaluronidase, or by applying an elastic compression wrap [9].

Sugar application, is the most popular method used to reduce the edema. Demirel et al., study [8] stated that 20 grams of sugar applied to the prolapse would quickly dissolve, and lead to reduction of edema and spontaneous reduction [10]. Other studies [11,12] reported similar success. Others reported complications, Hovey and Metcalf [1] reported occurrence of perforation after sugar application and a trial of manual reduction. Seenivasagam et al reported that application of sugar usually fails or help to reduce the prolapse. In our study, manual reduction was tried in ten patients with application of sugar in eight patients with failure of reduction in 5 patients.

In the absence of proper confidential trials, one must conclude that sugar application is usually unhelpful. Surgeons may need to resort to surgery after a failed trial of sugar application [4,13-15].

Surgical options are more challenging in case of incarceration, due to the increased risk of performing surgical anastomosis because of bowel edema. Initially, reduction should be attempted to reduce edema and the consequent risk of surgical complications, as well as to schedule for an elective surgery.

One acceptable and reasonable surgical option in an emergency for incarcerated rectal prolapse is a laparotomy with resection or a laparotomy with a rectopexy [16-18]. It is difficult to definitively determine the safety or the recurrence rates of transabdominal

Table 3: Relation between complication and different parameters (n=15).

| | Complication | | Test of sig. | p |
|-----------------------------------|----------------|----------------|--------------|--------|
| | No (n = 10) | Yes (n = 5) | | |
| Age (years) | | | | |
| Mean ± SD. | 45.7 ± 16.1 | 53.4 ± 16.2 | t=0.873 | 0.399 |
| Median (Min. – Max.) | 43.5(20-70) | 48(34-73) | | |
| Length (cm) | | | | |
| Mean ± SD. | 12.2 ± 5.7 | 12.8 ± 1.9 | t=0.224 | 0.826 |
| Median (Min. – Max.) | 10(7-25) | 13(10-15) | | |
| Operative time | | | | |
| Mean ± SD. | 97.8 ± 20.8 | 106 ± 24.9 | t=0.677 | 0.511 |
| Median (Min. – Max.) | 92.5 (70-130) | 110 (75-140) | | |
| Hospital stay (days) | | | | |
| Mean ± SD. | 3.6 ± 0.7 | 6.4 ± 2.1 | U=7.50* | 0.028* |
| Median (Min. – Max.) | 3.5(3-5) | 7(3-8) | | |
| Covering ileostomy (weeks) | | | | |
| Mean ± SD. | 10.3 ± 3.9 | 5.6 ± 3.2 | t=2.324 | 0.037* |
| Median (Min. – Max.) | 9.5(6-20) | 4(3-10) | | |

U: Mann Whitney test; t: Student t-test; p: p value for comparing between the two categories

*: Statistically significant at $p \leq 0.05$

procedures as, few reported data available. The other surgical option is the perineal rectosigmoidectomy [19].

The treatment guidelines reviewed by the American Society of Colon and Rectal Surgeons mentioned that the perineal approach is more appropriate for patients with poor performance status and high operative risk. Unfortunately, perineal rectosigmoidectomy is associated with high postoperative recurrence rates. Friedman et al., study revealed that over a third of patients would develop a recurrence following this procedure. This is only to be expected, since the procedure allows neither proper resection of redundant large bowel, nor allows a proper fixation to the sacrum [20].

However surgeons seem to somewhat prefer the perineal approach despite the drawbacks. There are no large series reported in the literature. Ramanujam et al., [21] reported the outcome in twelve cases of incarcerated rectal prolapse in elderly women in which two of their patients developed anastomotic leaks requiring colostomy. Aziz and Mbembati [22] reported that the procedure of choice in their experience was a perineal proctosigmoidectomy for irreducible prolapse. Yuzbasioglu et al., [23] also reported on successful treatment by perineal resection using locoregional anesthesia. Voulimeneas et al., [14] have recently reported a case of gangrenous rectal prolapse treated by perineal rectosigmoidectomy.

Perineal rectosigmoidectomy has high recurrence rates, and continence may also be an issue. Despite the high recurrence rates, Seenivasagam et al., recommend perineal proctosigmoidectomy in this difficult setting [1]. The other perineal operation, the Delorme repair, carried out in one of their patients, has even higher recurrence rates [24]. In our study, recurrence of rectal prolapse occurred in one case (6.6%) during the period of follow up.

The rate of anastomotic leak in elective rectosigmoidectomy

is 2-6% in contrast to the 25% in incarcerated prolapse [9]. Stapled methods and the two-stage approach have been tried to decrease the leakage rate, but the most common application is protective ileostomy or colostomy [25]. Perineal rectosigmoidectomy and protective loop ileostomy surgery through one incision is a less invasive surgical option with less risk of contamination as compared to open prolapse surgery. The length of hospital stay is also shorter in perineal approaches in comparison to abdominal procedures [26]. Compared with abdominal rectopexy, perineal rectosigmoidectomy has some disadvantages such as the need for bowel resection and anastomosis, an ileostomy or colostomy, and a second surgery for ostomy closure [27].

In this study, there were two cases of partial anastomotic dehiscence, which were managed successfully through conservative management.

Randriamananjara et al. recommended the perineal approach, the interventions of Delorme (mucosectomy and rectal muscle plication) and that of Altemeier (rectosigmoidectomy with or without colostomy) when the prolapse is not reducible with clear signs of ischemia present [28].

Other studies reported satisfactory results for perineal proctosigmoidectomy by Altemeier for irreducible rectal prolapse [29,30]. Ramanujam et al., operated 8 patients with strangulated rectal prolapse who under went the Altemeier technique where 2 patients developed anastomotic leakage requiring a colostomy reconstruction. It also reported that no recurrence was observed on long term follow up [21]. Tour et al, reported that the attempt of conservative treatment by manual reduction has led to the onset of necrosis, thus justifying the implementation of the Altemeier technique whose results were good after 1 year of follow-up [7].

Conclusion

Despite the fact that it is rare, incarcerated or irreducible rectal prolapse is a proctological emergency and its management should get no delay to reduce the risk of necrosis. Its treatment, although non-consensual, must begin with an external reduction attempt. If this fails, the surgical treatment by the Altemeier technique remains the most appropriate.

Even though its recurrence rate is higher as compared to abdominal rectal prolapse procedures, perineal resection may be the preferred surgical option in incarcerated rectal prolapse, especially those requiring resection, in debilitated, elderly patients with comorbid diseases, and in whom general anesthesia is contraindicated.

We suggest that patients with irreducible rectal prolapse should be taken quickly to the operating theatre for a trial of manual reduction under anaesthesia and if it fails, we have to proceed to perineal proctosigmoidectomy with protective ileostomy as sugar application has low efficacy, causes delay, and does not prevent the need for a subsequent operation.

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