



RESEARCH ARTICLE

CLINICAL STUDY OF LAPAROSCOPIC POSTERIOR MESH RECTOPEXY FOR
COMPLETE RECTAL PROLAPSE

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ABSTRACT

Rectal prolapse was one of the earliest surgical problems recognized by the medical profession, yet many facts of its aetiology and treatment remain controversial. Prolapse of the rectum vexes patients with misery it causes to them. The presenting complaints may be related to the prolapsed itself or to the disturbance of anal incontinence that frequently accompanies. The study comprised of patients admitted for elective surgery for full thickness rectal prolapse. 30 patients were taken for laparoscopic posterior mesh rectopexy after clinical evaluation and ethical clearance. The study was done to assess the outcome of laparoscopic posterior mesh rectopexy with reference to; operative time, post-operative pain, return of bowel function, hospital stay, complications, functional outcome assessed by improvement in constipation, incontinence and straining, conversion to open and mortality. Most common age group in our study was 61-70 years. In a total of 30 patients, 26 were females and 4 were males; ratio of male: female being 1:6. The operative time was calculated from placement of 1st port till the procedure was finished; range of operating time was 91-140 minutes with mean of 118.67±9.82 minutes. Post-operative return of bowel function was calculated on the basis of passage of flatus after surgery. The mean duration of ileus after surgery were 27.4±1.54 hours ranging from 25 to 30 hours. Postoperative pain was quantified using visual analogue scale score (VAS score). From our study, we conclude that laparoscopic posterior mesh rectopexy for complete rectal prolapse has good functional results, low recurrence rates and has proved to be a feasible and safe procedure as supported by the literature.

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INTRODUCTION

Complete rectal prolapse (Rectal procidentia) is defined as the protrusion of the entire thickness of rectal wall through the anal sphincter complex (Brodén and Snellman). Rectal prolapse was one of the earliest surgical problems recognized by the medical profession, yet many facts of its aetiology and treatment remain controversial. Most patients with rectal prolapse have a long history of constipation (Bruce G. Wolff *et al.*, 2007), it is thought that prolonged, excessive and repetitive straining during defecation may predispose to rectal prolapse (Kim and Donald, 2012; Wexner *et al.*, 2010). Since rectal prolapse itself causes functional obstruction, more straining may result from a small prolapse, with increasing damage to the anatomy (Wexner *et al.*, 2010). This excessive straining may be due to predisposing pelvic floor dysfunction (e.g. obstructed defecation) and anatomical factors (Bruce G. Wolff *et al.*, 2007; Tadataka Yamada, 2009). Women predominate

among patients with rectal prolapse with a ratio of 6:1 (Kupfer and Goligher, 1970). Parity apparently is not a significant contributory factor (Boutsis and Ellis, 1974). In women, the incidence of this disorder is maximal in the fifth and subsequent decades, but in men, it is evenly distributed through the age range (Kupfer and Goligher, 1970). The anatomical defects described as occurring with prolapse of the rectum include:

- (a) Defect in the pelvic floor with diastasis of the levator ani muscles and a weakened endopelvic fascia
- (b) An abnormally deep cul-de-sac of Douglas
- (c) Redundant rectosigmoid colon
- (d) Patulous weak anal sphincter,
- (e) Loss of the normal horizontal position of the rectum caused by its loose attachment to the sacrum and pelvic walls.

Prolapse of the rectum vexes patients with misery it causes to them. The presenting complaints may be related to the prolapsed itself or to the disturbance of anal incontinence that frequently accompanies. Initially the mass may extrude only

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with defecation, but in a more advanced form, extrusion occurs with any slight exertion such as coughing or sneezing. Approximately 75% of patients with rectal prolapsed experience anal incontinence and upto 50% suffer from significant degrees of constipation (Madhulika and Varma, 2012; Keighley *et al.*, 1983; Madden *et al.*, 1995). In the early stage, symptoms of prolapse may include difficulty in bowel regulation, discomfort, sensation of incomplete evacuation, and tenesmus. In its florid form this very disabling condition, characterised by a permanently extruded rectum that is excoriated and ulcerated, leading to mucus discharge and bleeding. In some individuals, associated urinary incontinence may occur. The perianal skin may be macerated and show excoriation (Bruce G. Wolff *et al.*, 2007). The psychological trauma is formidable, and because of embarrassment many patients with rectal prolapsed avoid all social contact.

Investigations

Proctoscopy/Sigmoidoscopy/Colonoscopy- may reveal congestion and oedema of the distal rectal mucosa⁽⁵⁾ and in 10-15% of cases there may be a solitary rectal ulcer on the anterior rectal wall (Metcalf *et al.*, 1988).

Video-Defecography- is used to diagnose internal intussusceptions, or demonstrate a suspected external prolapse that could not be produced during examination. Defecography may demonstrate associated conditions like cystocele, vaginal vault prolapse or enterocele.

Colonic Transit Studies- may be used to rule out colonic inertia if there is a history of severe constipation.

Anorectal Manometry- objectively documents the functional status of the sphincters.

Treatment

The only potentially curative treatment for complete rectal prolapsed is surgery; however in patients with medical problems that makes them unfit for surgery, and patients who have minimal symptoms, conservative measures may benefit. Rectal prolapse vexes surgeons because of the proliferation of operative techniques that can be used for treatment. More recently, laparoscopic surgery has emerged as a tool for the treatment of full thickness rectal prolapse. Laparoscopic posterior mesh rectopexy has been found a safe and well tolerated procedure in older patients and can be done with acceptable recurrences rates and complications and has been found to improve bowel function in many patients.

MATERIALS AND METHODS

This study was a prospective hospital based study undertaken in the department of surgery, Government Medical College, Srinagar. The study comprised of patients admitted for elective surgery for full thickness rectal prolapsed in surgery department of government medical college hospital between 2013 to 2015.30 patients were taken for laparoscopic posterior mesh rectopexy after clinical evaluation and ethical clearance. The patients were initially evaluated in outpatient department and then admitted for surgery. The study was done to assess the outcome of laparoscopic posterior mesh rectopexy with reference to; operative time, post-operative pain, return of bowel function, hospital stay, complications, functional

outcome assessed by improvement in constipation, incontinence and straining, conversion to open and mortality. Indication of surgery was full thickness rectal prolapsed confirmed by physical examination and investigations. Patients were judged to be constipated if they had two or fewer bowel movements a week or strained for 25% of their defecation times (Drossman *et al.*, 1982). Symptoms attributed to impaired bowel action included infrequent defecation (<2/week), use of laxatives and/or enemas, presence of hard stools, and absence of normal urge to defecate (Mc Cue and Thomson, 1991). Symptoms attributed to difficult evacuation included excessive straining at defecation, a feel of blockage, incompleteness of evacuation, and need for digital evacuation (Scaglia *et al.*, 1994). Assessment of anal incontinence was based on a scale similar to that described by Browning and Parks (Browning and Parks, 1983).

Pre-operative assessment of patients included:-

- Detailed history and physical examination
- Assessment of functional status of bowel
- Complete blood count
- Kidney function test/serum electrolytes
- Liver function tests
- ECG/x-ray chest/x-ray abdomen standing/ultrasound abdomen
- Digital rectal examination/proctoscopy/sigmoidoscopy/colonoscopy/anal manometry.
- Evacuation habits were studied preoperatively as follows:

Incontinence Degree

Anal soiling=1
Loss of liquid matter=2
Loss of solid matter=3

Frequency of Incontinence

Less than once a week=1
More than once a week=2
Daily=3

Adding (A+B) yielded a score of 0 to 6. The same score was used in the post-operative period to evaluate the results. All patients were examined at one week, 4 weeks, 3 months, 6 months and after one year and whenever necessary.

Exclusion Criteria: Patients having contraindications to general anaesthesia or laparoscopic surgery, Age below 18 years, previous abdominal or pelvic surgery, with associated neoplastic diseases of colon and, Patients with associated sigmoid diverticulitis or redundant sigmoid colon were excluded from this study.

RESULTS

This hospital based prospective study was done to assess the benefits and functional outcome of laparoscopic posterior mesh rectopexy. 30 patients were included in our study who underwent posterior mesh rectopexy. Most common age group in our study was 61-70 years, showing the rectal prolapsed more common in elderly group. Minimum age in our study was 36 years and maximum age was 76 years. The mean age being 59.3±10.54 years. Majority of cases in our study were females.

In a total of 30 patients, 26 were females and 4 were males; ratio of male: female being 1:6. The operative time was calculated from placement of 1st port till the procedure was finished; range of operating time was 91-140 minutes with mean of 118.67±9.82 minutes. Post-operative return of bowel function was calculated on the basis of passage of flatus after surgery. The mean duration of ileus after surgery were 27.4±1.54 hours ranging from 25 to 30 hours. Postoperative pain was quantified using visual analogue scale score (VAS score).

Table 1. VAS score at 3 and 12 months duration postoperatively

VAS score	Range	Mean	SD	p-value
At 3 months	2-6	3.97	1.33	0.007
At 12 months	0-3	1.2	0.85	

Hospital stay was 4.33±0.80 days ranging between 3 to 5 days, and 2 patients were converted to open surgery on table. The most common complication was found to be pelvic pain in 3 patients (10%), followed by urinary retention in 2 patients out from 30 (6.6%). Port site infection was noted in 1 patient (3.3%).

Table 2. Post-operative complications

Complications	No. Of patients	Percentage
Pelvic pain	3	10%
Urinary retention	2	6.6%
Port site infection	1	3.3%
Impotence	0	0%
Retrograde ejaculation	0	0%
Sacral hematoma	0	0%
Visceral injuries	0	0%

Functional outcome was assessed by improvement in constipation, incontinence and straining, using Wexner questionnaire.

Table 3. Functional Outcome in our study

Pre-operative status and post-operative outcome		
Incontinent before operation		14
Unchanged	1	7.1%
Worse	0	-
Improved	13	92%
Constipation before operation		10
Unchanged	5	50%
Worse	1	10%
Improved	4	40%
Excessive straining before operation		8
Unchanged	3	37%
Worse	0	-
Improved	5	62.5%
Development of new postoperative constipation	5	16.6%
Recurrence	0	-

DISCUSSION

Rectal prolapse vexes surgeons because of the proliferation of operative techniques used for the treatment. To achieve success in the treatment of rectal prolapsed, surgery should recreate near-normal anatomy to alleviate bowel dysfunction, while avoiding harmful sequelae and recurrences. Over 200 different techniques have been described to treat rectal prolapse and allied disorders (Kuijpers, 1992). A typical procedure should include rectal mobilization and fixation. Laparotomy represents a potential source of mortality and morbidity, which minimizes

the role of this method in older, debilitated patients. Previous reported studies (Darzi *et al.*, 1995; Benoist *et al.*, 2001) suggested that transabdominal procedures for full thickness rectal prolapsed can be performed safely by a laparoscopic approach even in elderly patients. Three laparoscopic approaches are commonly used;

- (i) Orr-Loygue-type rectopexy,
- (ii) anterior resection with or without fixation and
- (iii) laparoscopic procedure. Laparoscopic posterior mesh rectopexy has been our procedure of choice for the surgical treatment of most patients with complete rectal prolapse as it does not necessitate bowel resection with its concomitant morbidity, and offers good functional outcome.

The present study was done to assess the benefits and functional outcome of laparoscopic posterior mesh rectopexy. 30 patients were included in our study who underwent posterior mesh rectopexy. The male: female ratio was 1:6; and most common age group in our study was 61-70 years, showing rectal prolapsed predominates in elderly age group, mean age of presentation being 59.3±10.54 years. Magruder *et al.* (2013), also noted a mean age of 61.4 years in their study on laparoscopic rectopexy. Assessment of return of bowel function in the postoperative function was done on the basis of passage of flatus after surgery. The mean duration of ileus after surgery was 27.4±1.54 hours ranging from 25 to 30 hours. MR Sahoo (Manash Ranjan Sahoo *et al.*, 2014) in his study the mean time for return of bowel function to be 38 hours as assessed by the first movement of bowels after surgery. In our study, we quantified postoperative pain associated with bowel movements using visual analogue score and we observed significant relief of pain associated with bowel movements at 3 and 12 months interval. Patients were early mobilised following laparoscopic mesh rectopexy that helped in minimizing duration of hospital stay and mean hospital stay was between 3 -5 days. We didn't encounter any major life threatening complication in our study; pelvic pain was found in 3 patients which resolved spontaneously in 3 weeks duration, followed by urinary retention in 2 of our patients and port site infection in one case; Oded Zmora *et al.* (2011) in their study also noted pelvic pain in 10% of their patients. In our study, we assessed functional outcome by improvement in constipation, incontinence and straining using Wexner questionnaire. We observed 92% improvement in incontinence after surgery, 40% improvement in constipation and 62.5% improvement in excessive straining following surgery. There was no recurrence in our study; however, 5 patients (16.6%) in our study developed new constipation. An important functional problem frequently encountered after rectopexy procedures is postoperative constipation.

The precise mechanism of constipation after rectopexy remains unclear. Several reasons are suggested to contribute to this phenomenon; a redundant or kinking sigmoid colon may cause a delay in transit and functional obstruction (McKee *et al.*, 1992). Increase in rectal wall thickness related to rectal mobilization or foreign material used for rectopexy (Allen-Mersh *et al.*, 1990) is another explanation. Full mobilization of the rectum may cause autonomic nerve damage and result in disturbed rectosigmoid motility (Dolk *et al.*, 1990; Bruch *et al.*, 1999). We believe, like many authors (Benoist *et al.*, 2001; Boulos *et al.*, 1984), that the onset of post rectopexy constipation might be due to division of the lateral ligaments while dissecting the anterolateral portion of the rectum, which

damages the extrinsic sympathetic innervations and directly leads to evacuation difficulties. To avoid this technical problem we divide only the superior part of the lateral ligaments while preserving the sympathetic innervations and the middle rectal vessels.

Conclusion

From our study, we conclude that laparoscopic posterior mesh rectopexy for complete rectal prolapse has good functional results, low recurrence rates and has proved to be a feasible and safe procedure as supported by the literature. Yet, postoperative constipation remains an obstacle that should be solved.

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