

LAPAROSCOPIC MANAGEMENT OF RECTAL PROLAPSE

DR. S. JEGADESH CHANDRA BOSE, M.S, D.MAS.

Member of world association of laparoscopic surgeons

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Abstract :

Rectal prolapse is a condition which can occur both in adult & childrens due to various predisposing factors. This article is review of studies & case reports comparing laparoscopic management of rectal prolapse with open abdominal & perineal procedures. This review compares 20 studies & case report available from various countries. The consensus favoured that the complete rectal prolapse had a better outcome when managed with laparoscopic approach.

Keywords :

Rectal prolapse, pelvic prolapse, laparoscopic rectal prolapse, laparoscopic rectopexy, laparoscopic resection rectopexy, laparoscopic management rectal prolapse.

Introduction :

Rectal prolapse as a disease process targets mainly the quality of life of patient . pemberton & stalker were the first one to surgically suspend & fix the rectum for rectal prolapse on 1939 [5].

Although more than hundred ' s of surgical procedures have been described & practiced throughout the world for rectal prolapse only few are universally accepted [1], [2].

Surgical procedure is broadly classified into abdominal & perineal procedures & the laparoscopic approach have gained acceptance & practiced through out the world for past one decade.

Here the review of literature has been done to have a conclusion about laparoscopic management of rectal prolapse comparing it with open abdominal & perineal approach.

Rectal prolapse occur both in children & adult population.

The treatment depends on only the degree of rectal prolapse that is weather it is medical/surgical.

Etiology :

- Exact Etiology – Unknown .

Predisposing Factor [1] , [2]

- Diarrhoea 15%(Both Children & Adult)
- Constipation 52%(Both Group)
- Neuromuscular Disorders (Both Group)
- Pelvic Nerve Disorders (Both Group)

- Myelomeningocele
- Bladder & Cloacal Exstrophy
- Hirschsprung Disease.
- High Ano Rectal Malformations
- Cystic Fibrosis.
- Chronic Coughing.
- Lymphoid Hyperplasia
- Rectal Polyps
- Shigellosis

Female sex (adult)

Post menopausal status (adult)

Previous anorectal surgical procedures (pudendal neuropathy) (adult)

Symptoms [2]

Patient may have significant pain & difficulty in passing stools. Digital/Perineal maneuvers would be necessary to relieve the the functional obstruction.

Incontinence is one of the major symptom.

Diagnosis [2]

It is easily made by examining the patient in squatting position & ask the patient to strain. If it can not be reproduced , phosphate enema administration is advised to reveal it. During examination haemorrhoids ,rectal tumours & prolapsing rectal polyp are to be considered as differential diagnosis[1].

Investigations :

- In children sweat chloride test & genetic test are done to rule out cystic fibrosis [1].
- To rule out any pathology in colon water soluble contrast enema is used instead of barium enema [2].

Pre Operative & Post Operative Assesment :

- Video defecography to determine if rectum intussuscepts on defecation [1].
- Anal rectal manometry to evaluate anal sphincter muscles.
- Sitz marker study used to measure colonic transit.

For patients with faecal incontinence ultrasonography , manometry , electromyography & pudendal nerve terminal motor latency test are to be done to know the choice of procedure.

Rigid proctosigmoidoscopy to rule out additional lesion like solitary rectal ulcers . If present biopsy taken to exclude other pathology.

Materials & Methods :

Literature search was performed using search engine google , yahoo, high wire press , Springer link, Indian journal of gastroenterology to find related articles. Following search words were used: rectal prolapse , pelvic prolapse, laparoscopic rectal prolapse, laparoscopic rectopexy , laparoscopic resection rectopexy.

Procedure : (laparoscopic approach)

Laparoscopic Assisted Resection Rectopexy & Laparoscopic Mesh Rectopexy :

Preoperative preparation of the patient include mechanical bowel preparative & both oral & parenteral antibiotic preparation . At the start of operation heparin 5000 units given subcutaneously.

After induction of general anaesthesia patient is put on modified lithotomy position with legs in pneumatic compression stockings & padded stirrups. Rectum is irrigated & drained with saline & povidone iodine using mushroom catheter. Ureteral catheter are placed if needed .

Co 2 is inflated using verress needle technique to attain an intra abdominal pressure of 12 mm Hg. Then a 10mm trocar placed infraumbilically & this is used as a camera port.

Then two additional working port each 10mm are placed according to base ball diamond concept. If necessary additional ports can be placed laterally on the left of abdomen to assist with sigmoid retraction.

The sigmoid colon & upper rectum dissected and mobilised. During mobilisation the ureter , gonadal & iliac vessels are preserved & splenic flexure is not mobilized in order to prevent redundancy . On both sides the upper lateral attachments of rectum are divided in female but In case of male one side attachment alone is divided in order to preserve parasympathetic nerves there by preserving ejaculatory function .

Circumferential division of mesorectum to the level of coccyx is carried out. Mesenteric vessel is secured with either intracorporeal suturing or using 30mm linear vascular cutting stapler. In old aged patients using of endoscopic haemostatic clips are discouraged in order to prevent slippage. Then the bowel is divided at rectosigmoid junction using linear stapler.

Then the sigmoid colon is delivered through an 5 cm pfannenstiel incision. Transection of proximal bowel is performed in an area of the colon such that it easily reaches the sacral promontory without redundancy . Then the colorectal anastomosis is done using circular stapler. Before performing anastomosis placement of rectopexy sutures is done by passing through the peritoneum & fascia on the lateral rectum through the presacral fascia just lateral to the midline & 1 cm below the sacral promontory & back through the lateral tissue . One or two sutures are placed on each side but not secured until the anastomosis has been created .

Intra operative proctosigmoidoscopy is done with water filled over the anastomotic site intra-abdominally to assesses the anastomotic leak & the constriction site if the mesh is placed.

In case of non resectional mesh rectopexy it is done wholly as a laparoscopic procedure. Here only the presacral dissection & division of lateral ligaments are done . circumferential dissection not necessary here. Mesh rolled & pushed intra abdominally through one port. Mesh is placed posterior to the rectum & fixed to the

Sacrum 5cm below sacral promontory & the two limbs of mesh are fixed to the lateral walls of rectum after pulling it up. Never the mesh should come to the anterior aspect of rectum. Peritoneum is closed over the mesh to avoid adhesions. Post operatively the clear liquid diet is started & advanced to a regular diet on the morning of first operative day. Patient is also mobilised on the 1 st post operative day. In case of resection solid diet is started as soon as bowel function returns.

Management of Rectal Prolapse Laparoscopically :

(A LITERATURE REVIEW)

- M. Carpelan – **Holmstrom** et al [3] presented his experience in the management of 75 patients in which 65 patients were treated laparoscopically. The study concluded that laparoscopic approach leads to a shortened hospital stay & it was well tolerated by elderly patients. They also reported excellent outcome to be 84% & 92 % for rectopexy & resection rectopexy respectively. They also reported that laparoscopic resection rectopexy was more time consuming than the open procedure.

During follow up 2 recurrences were noted.

- Paolo **boccasanta A** et al [5] studied two groups (A & B) of patients which contained 23 patients totally. Procedures used were open rectopexy & laparoscopic rectopexy. Patient underwent all investigation pre operatively & post operatively.

In both the groups faecal incontinence & dyschezia improved significantly. The basal pressure of anal sphincter, squeezing pressure & recto anal reflex improves without significance.

Laparoscopic rectopexy had same clinical & function result as open but with a short post operative hospital stay & lower cost.

- Thandenkosi E. Madiba et al [6] did a review article on the present status of the surgical treatment of rectal prolapse. They concluded that laparoscopic suture rectopexy is preferred because it is simple & easy to perform & they also preferred perineal procedures to the patients who are not fit for abdominal procedures & for the elderly with comorbid condition. They also concluded that resection of sigmoid alone to be absolute.

- Baker R et al [7] did a retrospective study which concluded that laparoscopic assisted resection / rectopexy were found to be effective without the morbidity of laparotomy wound & significantly shortened hospital stay. In this study estimated blood loss was lesser & operative time was greater for laparoscopic group compared to open group.

- Hiroomi Okuyama et al [10] presented 3 case reports & concluded that laparoscopic suture rectopexy is feasible & less invasive in children & they had one recurrence after 5 months in their follow up, resection rectopexy done for it.

- Kaiwa Yoshihiro et al [11] underwent a study on 14 patients (9 were 70 years or older & 5 were aged under 70 years) & concluded that outcome were similar to that in younger patients so, they reported that advanced age alone should not be a contraindication to laparoscopic rectopexy.

- Xynos E et al [12] performed laparoscopic resection rectopexy in 10 multiparous women & open resection rectopexy in 8 women. They concluded laparoscopic resection rectopexy to be safe & has short recovery than open approach. But similar functional results were obtained on both the procedures.

- Zentralbl chir et al [13] did a study on outcome of 25 patients with III & IV degree rectal prolapse who underwent posterior rectopexy & resection rectopexy partly open & partly laparoscopically.

They concluded that the choice of procedure should be based on individual criteria & the patient who are fit should be given the option of laparoscopic procedure.

- Ashari LH et al [14] conducted a prospective study on 117 patients who underwent laparoscopic resection rectopexy for rectal prolapse, which showed that with increasing experience of the surgeon in the technique decreased the operating time. Overall morbidity was 9% & mortality was <1%. So, they concluded that laparoscopic assisted resection rectopexy provided favourable functional outcome & low recurrence rate.

- M.J. Solomon et al [15] performed a randomized clinical trial on 40 patients with full thickness rectal prolapse to compare clinical outcomes & stress response. They concluded that there was a significant subjective & objective differences in favour of laparoscopic abdominal rectopexy, both short term & long term outcomes were good.

- Kariv Y et al [17] conducted prospective study on 111 patients & reported that laparoscopic repair is potentially associated with earlier recovery & lower perioperative morbidity compared to open surgery.

- Brown AJ et al [18] examined the effect of rectal prolapse surgery on colonic motility & other functional outcome. They concluded that hospital stay was shorter in laparoscopic approach. But both functional results & recurrence were similar on laparoscopic & open repair.
- Purkayastha S et al [20] performed a meta analysis consisting of 195 patients (98 open & 97 laparoscopic). They concluded that rectopexy is a safe & feasible procedure. The recurrence rate & the morbidity were comparably equal & the length of stay was lesser in laparoscopic approach than open repair.
- Demirbas S et al [21] performed a comparison study over laparoscopic & open surgery for total rectal prolapse & concluded that laparoscopic resection rectopexy were associated with lower morbidity & less postoperative pain & also reported that they had no recurrence & incontinence after surgery.
- Lechaux D et al [22] performed a retrospective study & the laparoscopic technique used was either a mesh rectopexy without resection or a suture rectopexy with sigmoid resection. They advised resection rectopexy in patients with history of intractable constipation. They also concluded that both procedures mentioned above were safe & effective. The laparoscopic approach had low morbidity, improved cosmesis, repaid return of intestinal function, early discharge from hospital & low recurrence rate. Although fecal continence score is improved constipation was frequently worsened.

Discussion :

Though many procedure are claimed by the surgeon to be superior, the choice of procedure should be individualized to the patients condition (both adult & childrens). The **Thiersch wire procedure** can be preferred for the young children & old debilitated individual.

Delorme ' s procedure is preferred for small prolapses but it is also being used for long prolapses, it only depends upon the surgeon ' s experience.

Altemeier perineal rectosigmoidectomy is preferred for old patients & who are not fit for general anaesthesia & have comorbid disease condition . The advantage of this procedure is it can be done multiple times if recurrence occurs [2] . This procedure has less chance of producing impotence by literature. But chance of prolapse rupture is present. The another advantage of this procedure is there is no chance of adhesion formation unless you rupture the prolapse.

The disadvantage of this procedure is a small bleeder unnoticed can cause pooling of blood in presecral area and chance of infection is high & the bleeding can not be visualized many times so securing pedicel is the important point to be noticed here.

Intra operative proctosigmoidoscopy can not be performed here to rule out any anastomotic leak. But it is possible in open & laparoscopic approach The chance of recurrence rate is high (5% to 21%) compared to open or laparoscopic approach.

Open approach has morbidity higher than perineal approach but it is drastically decreased by laparoscopic approach. Although there is long operative time present in laparoscopic approach it decreases when the surgeon gets experienced in laparoscopic approach & more over the return of bowel function is less compared to open & the hospital stay is shortened. When ever the patient is fit for general anaesthesia & if the choice was abdominal, patient should be advised to have laparoscopic approach as the first modality of surgical treatment for complete rectal prolapse . Injury to the pelvic nerves & following impotence can be prevented by keeping the dissection close to the bowel wall . When ever the resection rectopexy is performed suture rectopexy is preferred than mesh placement. And for patient with intractable constipation resection anastomosis of sigmoid is advised. Placement of Seprafilm beneath the fascial closure helps to reduce adhesions. If mesh is preferred then posterior mesh placement is advised to avoid constipation (Modified Ripstein Procedure).

Conclusion :

Surgical treatment remain the final treatment of choice for complete rectal prolapse . The choice of procedure should be individualised to the patient ' s condition . After reviewing the literature laparoscopic repair for rectal prolapse found to have better outcome than open & other procedures in case of short hospital stay, low morbidity, low

recurrence & it should be preferred to the patients who don't have any co-morbid conditions. It is strict to say that age alone is not the criteria to omit laparoscopic approach.

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