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Original Research Article

Clinical features, pathological outcomes and management of internal rectal prolapse-combined retro-prospective observational study

Basharat Majeed Lone[1], Manzoor Ali[2], Humayoon Rasool[3]*, Aliya Shah[4], Muzzafar Zaman[3], Akif Mutahar Shah[5]

[1]Department of General and Minimally Invasive Surgery, [2]Department of Surgery and Minimally Invasive Surgery, Jaipur National University Hospital, Institute of Medical Sciences and Research Centre, Jaipur, Rajasthan, India
[3]Department of Surgery, SKIMS Medical College, Srinagar, Jammu and Kashmir, India
[4]Department of Microbiology, GB Pant Hospital, Srinagar, Jammu and Kashmir, India
[5]Department of Anaesthesia, GMC Srinagar, Jammu and Kashmir, India

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***Correspondence:**
Dr. Humayoon Rasool,
E-mail: muzzafarzaman@yahoo.com

ABSTRACT

Background: Internal rectal prolapse probably represents the first stage of a progressive anomaly that eventually leads to full thickness external prolapse. Non-surgical treatment modalities like dietary advice and feedback therapy should be used before doing any surgical intervention in such cases. This study focuses on clinical features, pathological outcomes and treatment modalities of internal rectal prolapse.
Methods: The study is a combined prospective (from Aug. 2018 to Aug. 2020) and retrospective (from Aug. 2015 to Aug. 2018) conducted at Sher-I-Kashmir institute of medical sciences, Soura, Srinagar
Results: A total of 79 patients were studied out of which 39 were retrospective and 40 were prospective. Internal rectal prolapse is usually missed by surgeons as a cause of obstructed defecation syndrome. So, it was worthwhile to study this entity in our patients.
Conclusions: Before choosing any treatment strategy for internal rectal prolapse, conservative trial with dietary modification and feedback therapy should be attempted.

Keywords: Rectal, Prolapse, Defecation, Rectopexy

INTRODUCTION

Internal rectal prolapse also referred to as rectal intussusceptions or occult prolapse is defined as funnel shaped in folding or telescoping of bowel on itself that occur during the act of defecation without protruding through anal verge and is not true rectal prolapse.[1,2] What results is three layer of rectal wall overlaid from lumen outward, first layer is proximal wall of intussusceptions, the middle is wall of intussuscepted folded back on itself and outer is the distal rectal wall, the intussuscipiens.[3] This in folding of internal rectal prolapse can be best understood by imagining or visualizing as infolding a sock inside out creating a tube within a tube.[3] Internal rectal prolapse was first described in late 1960 when defecography was first developed.[4]

Etiology

The exact etiological factors of internal rectal prolapse are not defined, but number of abnormalities have been identified to be associated with rectal prolapse. Etiologic factors may be congenital or acquired. More than one half patients are associated with chronic straining with defecation and

constipation. Various anatomic and physiologic abnormalities are proposed to cause internal rectal prolapse.

Anatomic abnormalities

Deep cul-de-sac, redundant sigmoid colon poor sacral fixation

Physiologic abnormalities

Atonic levator ani muscles and external anal sphincter weakness non relaxing pubo-rectalis pudendal nerve injury.

Other predisposing conditions

Pregnancy (history of vaginal delivery) and previous surgery (hysterectomy in women) pelvic muscle dysfunction, old age, disorder defecation (e.g., stool withholding). However, many patients are affected without any oblivious risk factors.[5]

Pathophysiology of internal rectal prolapse

Several authors have suggested that internal rectal prolapse probably represents the first stage of a progressive anomaly that eventually leads to full thickness external prolapse.[6] In 1970, Theuerkauf et al proved this by using x-ray taken using radioisotope which are applied over the rectal mucosa.[7] Shorven et al tried to disprove the theory by showing that more than 50% of normal individuals have telescoping of rectum on cinedefecography.[8] Also, observational studies of rectal prolapse showed that progression of internal rectal prolapse to external rectal prolapse was rarely observed at long term follow-up.[9]

Internal rectal prolapse can occur independently or can be associated with descent and dysfunction of other pelvic organs e.g., rectocele, uterine or vaginal vault prolapse, cystocele or enterocele.[10] Another condition of descending perineum syndrome, term first coined by Park include three demonstrable patho-anatomic

entities-internal rectal prolapse, rectocele and descending pelvic floor. In oxford pelvic floor centre, internal rectal prolapse is regarded as the central component of this co-existing triad.[11] Straining in internal rectal prolapse cause repeated trauma to the mucosa and can cause solitary rectal ulcer syndrome.[3] However patient with SRUS combined with intussusceptions (as 94% of SRUS have intussusception) were shown to have altered rectal wall biomechanics compared with patients having intussusceptions alone.[12]

Incidence

Internal rectal prolapse usually affects men and women alike. Internal rectal prolapse is common and therefore rectal dysfunction is common. It is often unrecognized and possibly to certain extent unavoidable consequence of aging that affects men and women alike. Rectal prolapse can be seen in any age group but the most common presentation is 4th to 6th decade of life. Allingham described the first case of recto anal intussusceptions in 1873.[13] Rectal intussusceptions is a common finding on defecography when evaluating patients for evacuator disorder.[14] Interestingly, rectal intussusception is present in upto 50% of asymptomatic subjects. The incidence of rectal intussusceptions as the cause of obstructed evacuation is unknown. In individuals referred for defecography to investigate symptoms of obstructed defecation, one researcher reported an incidence of 40%.[15] Conversely, rectal intussusception has been diagnosed in only 10% of patients referred for defecography to investigate fecal incontinence.[16]

Surgical anatomy

The rectum is situated in the posterior part of lesser pelvis in front of lower three sacral vertebrae and coccyx. It begins as continuation of sigmoid colon at level of S3 vertebrae and ends by becoming with anal canal at the anorectal junction.

It is about 12 cm long, in upper part has same diameter as sigmoid colon (4 cm), but in the lower part it is dilated to form rectal ampulla. Rectum runs downwards and backwards first, then downwards and then downwards and forwards.[16-20] It shows two types of curvatures. A. Two anterio-posterior curves: 1. Sacral flexure, follows concavity of sacrum and coccyx. 2. Perineal flexure, backward bend at the ano-rectal junction. B. Three lateral curves: 1. Upper lateral, convex to right, 2. Middle lateral, convex to left (most prominent), 3. lower lateral, convex to right.

METHODS

Study type

The study was a combined prospective and retrospective type.

Study place

The study was conducted at Sher-I-Kashmir institute of medical sciences, Soura, Jammu and Kashmir, Srinagar.

Period of study

It was conducted from August 2018 to August 2020 and from August 2015 to August 2018.

Inclusion criteria

All patients and both sexes presenting to OPD and admitted in ward for treatment of internal rectal prolapse were studied.

Exclusion criteria

Full thickness rectal prolapse, patients with associated malignancy, patients' unwillingness and paediatric age group were excluded from the study.

Procedure

Prospectively, all the patients who were present with internal rectal prolapse in colorectal surgery OPD were evaluated with detailed history and clinical examination as per proforma. The patients were subjected to proctoscopic or sigmoidoscopic examination and were followed with MR defecography, wherever needed to grade the degree of internal rectal prolapse and to find associated pelvic floor disorders like rectocele, cystocele, enterocele, animus etc. On proctoscopic examination we noted the degree of internal rectal prolapse, level of prolapse, associated ulcers and bleeding, haemorrhoids and fissures. We excluded the patients with obvious external rectal prolapse, patients with associated malignancy and paediatric age group. Retrospectively, we studied all the cases that were treated for internal rectal prolapse. The record of these patients was studied from case files from medical records department of SKIMS.

After confirming the diagnosis, we put the patients on conservative treatment in the form of increased fluid intake, increased fiber intake, toilet training, laxatives, psychotherapy and bio-feedback. We continued the conservative treatment for almost 8-10 weeks and check for the response. In case of nonresponding patient, surgical options were considered. Postoperatively, we again followed these patients for any postoperative complications and outcome of surgical treatment. The data was collected and analyzed with suitable statistical analytical test and draw the results there from. From these results, we gave some concluding remarks with respect to clinicopathological profile and management of internal rectal prolapse.

Ethical approval

Proper ethical approval was taken from institutional ethical committee.

RESULTS

A total of 79 patients were studied out of which 39 were retrospective and 40 were prospective.

Age interval

We excluded paediatric age group. The patients under 30 years were 15 out of total 79 of which 8 were females and 7 were males representing total of 19%. Age group between 31-43 years were 16 patients of which 10 were females and 6 were males representing total of 20.3%. Age group between 44-56 were 34 patients of which 22 were females and 12 were males representing total of 43%. Age group between 57-69 were 11 patients of which 6 patients were females and 5 were males representing total of 13.9%. Age >70 were 3 patients. All were females representing total of 3.8% as shown in Table 1.

Table 1: Gender wise distribution of the studied patients.

Age interval (Years)	Male	Female	Total, n (%)
<30	7	8	15 (19)
31-43	6	10	16 (20.3)
44-56	12	22	34 (43)
57-69	5	6	11 (13.9)
>70	0	3	3 (3.8)

Symptoms/clinical features

Bleeding as symptom was present in 24 patients and absent in 55 patients. Out of 24, 10 (41.7%) were males and 14 (58.3%) were females.

Table 2: Number of patients having bleeding in both genders.

Bleeding	Males	Females	Total
Present	10	14	24
Absent	20	35	55

Straining

Straining was present in 67 patients (representing 84.8% out of total 100%) and was absent in 12 patients (representing 15.2% out of total 100%).

Table 3: Number of patients having straining as per gender distribution.

Straining	Male	Female	Total
Present	26	41	67
Absent	4	8	12
Total	30	49	79

Fecal incontinence

Fecal incontinence was present in 60 patients representing 75.9% out of 100%. It was absent in 19 patients representing 24.1% out of total 100%.

Table 4: Fecal incontinence with the gender distribution.

Incontinence	Males	Females	Total
Present	23	37	60
Absent	7	12	19
Total	30	49	79

Constipation

Constipation was present in 52 patients representing 65.8% out of total 100%. It was absent in 27 patients representing 34.2% out of total 100%.

Table 5: Constipation as a symptom in both the genders.

Constipation	Males	Females	Total
Present	18	34	52
Absent	12	15	27
Total	30	49	79

Digital assistance

Digital assistance was present in 38 patients representing 48.1% out of total 100%. It was absent in 41 patients representing 51.9% out of total 100%.

Table 6: Digital assistance in patients as per gender distribution.

Digital assistance	Males	Females	Total
Present	17	21	38
Absent	13	28	41
Total	30	49	79

Urgency

Urgency was present in 38 patients representing 48.1% out of total 100%. It was absent in 41 patients representing 51.9% out of total 100%.

Table 7: Urgency of patients.

Urgency	Males	Females	Total
Present	15	23	38
Absent	15	26	41
Total	30	49	79

Pathology/histo-pathological examination

Pathologic features are as: a. Crypt hyperplasia-was present in 26 patients representing 32.9% out of total 100%. b. Fibromuscular obliteration-present in 16 patients representing 13.9% out of total 100%. c. Crypt distortion-present in 11 patients representing 13.9% out of total 100%. d. Surface ulceration-present in 10 patients representing 12.7% of patients out of total 100%. e. Mucosal ulceration-present in 8 patients representing 10.1% of patients out of total 100%. f. Mucosal gland distortion-Present in 6 patients representing 7.6% out of total 100%. g. ulcerated mucosa-Present in 2 patients representing 2.5% out of total 100%.

Table 8: Various pathological outcomes in patients subjected to this study.

Pathological outcome	Number of patients
Crypt hyperplasia	26
Fibromuscular obliteration	16
Crypt distortion	11
Surface ulceration	10
Mucosal ulceration	8
Mucosal gland distortion	6
Ulcerated mucosa	2

Management of gender

Various surgical managements with percentage in decreasing order are as: a. VMR-done in 49 patients representing 62.0% out of total 100%. b. STARR-done in 28 patients representing 35.4% out of total 100%. c. Excision of ulcer-done in 2 patients representing 2.6% out of total 100%.

Table 9: Various management options for the disease under study.

Procedure	Males	Females	Total
Excision of ulcer	1	0	1
STARR (Stappled trans-anal excision of ulcer)	15	13	28
TAE (Trans anal excision of ulcer)	1	0	1
VMR (Ventral mesh recopexy)	13	36	49

DISCUSSION

In our study, majority of patients were in age group 31-55 years. Paediatric age group was excluded from the study. The sex ratio with respect to study was that, there is female predominance in the in our study [F:M ratio was 2:1] which is on par studies from western world and other Asian countries.

There has been few studies on symptoms (clinical presentation) and there frequency in internal rectal prolapse. Dvorkin et al studied a large group of patients with obstructed defecation syndrome by proctography and tried to figure out symptoms of internal rectal prolapse.[21] The most frequent symptom in decreasing order of occurrence was incomplete evacuation followed by difficulty of evacuation, straining, fecal incontinence and laxative use.

Despite some similarities in our study with Devorkins, straining was most frequent symptom in our study present in 67 patients representing 84.8% of patients, followed by fecal incontinence which was present in 60

patients. The other symptoms were constipation present in 38 patients, urgency present in 38 patients and bleeding present in 24 patients.

Chronic constipation with straining to pass bowel motions is important risk factor for prolapse to develop. As far as incontinence is concerned, is considered and studied as most frequent symptom in high grade internal rectal prolapse but in our study was second most common symptom. Passive fecal incontinence suggests dysfunction of internal anal sphincter (IAS). In a study, Harmston et al have shown that in internal rectal prolapse there is significant reduction in resting pressure with increasing grade of prolapse. It is possible that high grade internal rectal prolapse may trigger recto-anal inhibitory reflex leading to passive leakage as previously suggested by Farouk et al. The authors found an improvement of internal anal sphincter physiologic function after rectopexy suggesting that repair of prolapse allows the internal anal sphincter to recover possibly by removing the source of internal sphincter inhibition. Other explanation might include reduction in rectal wall compliance due to chronic irritation of prolapsing rectal wall. This is thought to underlie the urge fecal incontinence after STARR.

Although straining and fecal incontinence were commonest symptoms, other symptoms include constipation, digital assistance, urgency, laxative use and unsuccessful attempt to defecate.

The pathologic abnormalities in the surgically resected rectal wall were studied in all 79 patients. The histopathology in decreasing order of occurrence were crypt hyperplasia, fibromuscular obliteration, crypt distortion, surface ulceration, mucosal ulceration, mucosal gland distortion and ulcerated mucosa.

In general, thickness of submucosal layer, inner circular layer, outer longitudinal layer and muscularis propria in solitary rectal ulcer associated with internal rectal prolapse was significantly thicker. In addition, collagen content in both submucosal layer and muscularis layer were considerably increased. Thus, thickening of the rectal wall and particularly muscularis propria is a feature of solitary rectal ulcer associated with internal rectal prolapse with less prominent thickening of the submucosal layer.

Van outryve et al have observed thickening of rectal wall and hypertrophy of muscularis propria using rectal USG. The specific thickening of each layer and these unique features in SRUS with internal rectal prolapse add further to it as different pathology compared to complete rectal prolapse.

Van outrye and collegues studied that chronic mechanical overload on the rectal wall is the cause of muscle hypertrophy. They postulated that chronologically exaggerated muscular effort of pushing against the barrier of a tense puborectalis could be reason for enlargement of muscularis propria. They also suggested that symptoms of constant urge, which is peculiar with internal rectal prolapse induces secondary hypertrophy of the muscularis propria of the rectal wall by encouraging active contraction of the rectum.

Surgical intervention for internal rectal prolapse or rectal intussusceptions have been reported over 50 years. During 1990 several publications criticized the surgical solution of internal rectal prolapse. Treatment with traditional posterior rectopexy, patients with internal rectal prolapse had poor results. More recently there has been re-evalution of surgery for IRP. Laproscopic ventral rectopexy (VMR) has proven safe and effective for rectal prolapse. This procedure is durable, minimally invasive, autonomic nerve sparing and do not require colonic resection. At the same time, the stappled trans anal resection (STARR) procedure has been developed in Italy.

Regarding LVR, data from all patients who had been operated [from Aug. 2015 to Aug. 2018] was collected from medical records department and new patients to undergo same procedure was collected prospectively. Diagnosis of internal rectal prolapse was suggested on history of symptoms of obstructed defecation or fecal incontinence and confirmed radiologically. Presence of colonic slow transit was considered as contraindication for surgery. Operative technique of LVR is that described by Hoore and Penninckx.[24] Dissection was conducted exclusively anterior to rectum, preserving lateral ligaments and polypropylene mesh was used for rectal fixation. Out of total 79 patients, 49 underwent LVR representing 62% of total number of patient. There was no mesh related complication. No sexual dysfunction was noted in female of male patients. There was a significant trend to better improvement of obstructed defecation in patients with ODS and fecal incontinence.

Stappled trans anal rectal resection (STARR) was other common procedure for patients with internal rectal prolapse with ODS. The STARR procedure has been evolved from stappled anopexy and attempts to correct some of these anatomical defects, in particular distal intarectal intussusceptions and rectocele. A national audit was set by David Jayne in Leeds concluding that STARR is safe procedure with few complications. Appropriately selected patients with ODS and in particular, distal intra-rectsal intussusceptions are likely to benefit from STARR procedure. STARR is preferred for patients with ODS characterized by straining at stools. On more than 25% of occasions, the need to self-digitate, a sense of incomplete evacuation, laxative abuse or the use of enemas to achieve bowel movements more than once per week. Patients to be considered for STARR should be investigated to rule out proximal ca, slow transit constipation, irritable bowel

syndrome or anismus. The presence of coexisting rectocele detected clinically or observed at proctography would be relative contraindication to STARR procedure.

The STARR procedure is based on stapled haemorrhoidectomy technique.

Two PPH o1 circular stapler are used to perform an anterior and posterior full thickness rectal wall resection ultimately producing circumferential trans anal resection of rectum. This in effect eliminates the structural abnormalities associated with obstructed defecation. The first peer reviewed publication on outcome after STARR was in 2004.

In our study 28 patients under went STARR representing 35.4% of total. The study concluded STARR achieved acceptable results. The STARR offers novel surgical approach to the patients with ODS. However, treatment of patients with ODS should include dietary manipulation and pelvic floor retraining prior to consideration of STARR.

In our study, two patients with grade 1 rectal prolapse with solitary rectal ulcer syndrome representing 2.6% of total underwent excision of ulcer. The results were good, the site healed and are being followed and monitored for grade 1 prolapse and are on dietary manipulation and pelvic floor retraining

CONCLUSION

Internal rectal prolapse is usually missed by surgeons as a cause of obstructed defecation syndrome. So, it was worthwhile to study this entity in our patients. Most common presenting symptom in our study was straining followed by fecal incontince. Careful consideration of the patients information and surgeons experience is required before choosing the appropriate procedure. In general, LVMR is most common procedure as surgical management of internal rectal prolapse as this procedure has shorter duration of hospital stay, less morbidity and return to normal activity as early as possible. Before choosing any treatment strategy for internal rectal prolapse, conservative trial with dietary modification and feedback therapy should be attempted.

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REFERENCES

1. Wexner A. edited by Zbar AP, Steven D. Internal rectal intussusceptions. Coloproctology. New York: springer. 2010;143.
2. Collinson R, Cunningham C, Lindsey I. Rectal intussusceptions: results of surgical repair. Dis Colon Rectum. 1992;35:1026.
3. Wolffet BG. The ASCRA text book of colon and rectal surgery. Newyork: Springer. 2007;647.
4. Kohlim SI. Rectal prolapsein pregnancy, a case report. Int J Reprod Contracept Obset Gynecol. 2017;6:5648-9.
5. Burgel RE, Carrington EV, Lunnisspj O. Assessment of rectal afferent neuronal function and brain activityin patientswith constipation and rectal hyposensitivity. Neuro Gastro Entrol. 2013;25:260-7.
6. Broden B, Snellman B. Procidentia of rectum studied with cine radiography. A contribution to the discussion of causative mechanism. Dis Colon Rectum. 1968;11(5):330-47.
7. Theuerkauf FJ, Iraj K Jr, Hoffman MJ, Fry RD. Rectal prolapse and internal intussusceptions of the rectum: Diagnosis and surgical treatment. Colon, Rectum Anal Surg. 1970;76-90.
8. Shorvon PJ, Mc Hugh S, Diamant NE, Somers S, Stevenson GW. Defecography in normal volunteers: results and implications. Gut. 1989;30:1737-49.
9. Mellgren A, Schultz, Johanson C, Dolk A. Internal rectal intussusceptions seldom develops into total rectal prolapse. Dis Colon Rectum. 1997;40(7):817-20.
10. Nygard I, Barber MD, Burgio KL, Kenton K, Meikle S, Schaffer J et al. Prevelance of symptomatic pelvic disorders in US women. JAMA. 2008;300:11.
11. Park AG, Porter NH, Hard CJ. The syndrome of the descending perineum. Proc R Soc Med. 1996;59(6):477-82.
12. Devorkin LS, Gladman MA, William NS, Lunniss PJ. Rectal intussusceptions: a study of biomechanics and viscera perception. Am J Gastroenterol. 2005;100(7):1578-85.
13. Fleshman JW, Kodner IJ, Fry RD. Internal intussusceptions of the rectum: achanging peresceptive. Neth J Surg. 1989;41:1245-148.
14. Hwangh YH, Person B, Choi JS. Biofeed back therapy for rectal intussusceptions. Tech Colo Proctol. 2006;10:11-6.
15. Broden B, Snellman B. Procidentia of rectum studied with cineradiography. Acontribution to the discussion of causative mechanisim. Dis Colon Rectum. 1968;11(5):330-47.
16. Shorvon PJ, Mchughs, Diamant NE, Somers S, Stevenson AGW. Defecography in normal volunteers: Results and implications. Gut. 1989;30(12):1737-49.
17. Christiansen J, Zhu BW, Rasmussen OO, Sorensen M. Internal rectal intussusceptions: Results of surgical repair. Dis Colon Rectum. 1992;35:1026-9.
18. Hwang YH, Person B, Choi JS. Biofeed back for rectal intussusceptions. Tech Coloproctol. 2006;10:11-6.
19. Corson JD, Williamson RCN. Anal canal, Surgical anatomy, Rectal prolapse in surgery. Mos by 2001;17:12-7.

20. William NS. The Rectum. In Bailey and Love. Short practice of surgery. Russel RCG, Williams NS, Bulstrode CJK, London: Arnold. 2000: 1097-1101.
21. Dvorkin LS, Glandman MA, Epstein J, Scott SM, Williams NS, Lunniss PJ. Rectal intussusceptions in symptomatic patients is different from that in asymptomatic volunteers. Br J Surg. 2005;92(7):866-72.
22. Mercer-Jones MA, Hoore DA, Dixon AR. Consensus on ventral recto-pexy: report of panel of experts. Color Dis. 2014;16:82-8.

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