

Outcomes of Internal Delorme's Procedure in the Treatment for Obstructed Defecation Syndrome Caused by Rectal Intussusception

*Yesmin F,¹ Sheikh MSH,² Islam MS,³ Siddique MA,⁴ Siddique AB⁵

Abstract

Background: Obstructed defecation syndrome (ODS) is a complex functional & anatomical disorder compelling patient to exhausting ineffective attempts to defecate and Rectal Intussusception is one of the most common causes of ODS—which needs surgical intervention with different procedures after conservative treatment fail. Internal Delorme's procedure would be a good alternative for treating ODS due to its less postoperative complications with excellent functional results and patient's satisfaction and better than any other more expensive and invasive techniques used for this condition.

Objectives: To evaluate the effectiveness and safety of the endorectal proctopexy (internal delorme's) in the treatment of ODS secondary to Rectal Intussusception.

Methods: This Observational study was conducted in the Department of Colorectal Surgery, Bangladesh Medical University, Dhaka from January 2024 to December, 2024. All patients with ODS refractory to non-operative treatment were included in this study following the inclusion and exclusion criteria. Informed written consent was obtained after explaining the details of the procedure. Then, the patient's preoperative status, perioperative complications and postoperative outcomes were recorded to evaluate constipation by Modified Longo ODS score. All parameters and variables were analyzed in a pre-designed SPSS data sheet.

Results: The study included 25 participants (mean age 34.88 ± 16.18 years; 48% ≤ 30 years), with a female predominance (64%) and mean BMI of 24.13 ± 3.21 kg/m². Major symptoms included incomplete evacuation and straining (96%), assisted evacuation (80%), per-rectal bleeding (76%), and repeated toilet visits (72%). Mean symptom duration was 13.24 ± 4.11 months ranging from 2 to 20 months. Grade III rectal prolapse was most frequent in 21 (84%), followed by Grade IV in 4(16%). Rectocele was associated with rectal intussusception in 14 (56%) with moderate rectocele observed in 7(50%), mild in 5 (35.7%), and severe in 2 (14.3%). Partial utero-vaginal prolapse occurred in 8(50%), Cystocele and pelvic floor descent were present in minor group of patients 2 (12.5%) of each. Only 3(12%) received Bio-feedback therapy preoperatively but there was no success in symptoms improvement without surgery. Urinary retention (24%) was the most common post-operative complication. Recurrence occurred in 2(8%). Mean operative time was 111.92 ± 16.40 minutes, and hospital stay averaged 2.80 ± 0.58 days. The mean ODS score improved significantly from 14.72 ± 3.13 pre-operatively to 4.44 ± 1.00 at 3 months and 3.56 ± 0.82 at 6 months ($p < 0.001$), demonstrating substantial and sustained symptom relief.

Conclusion: IDP showing considerable obstructive symptoms reduction about 75.8% with short hospital stay, low recurrence (8%) and some manageable perioperative complications. So, it appeared to be safe and effective with a successful outcome in most of the ODS patients.

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1. *Dr. Farhana Yesmin, Assistant Professor, Department of Oncosurgery, National Institute of Cancer Research & Hospital (NICRH), Mohakhali, Dhaka. rehanasfiya152@gmail.com. ORCID: <https://orcid.org/0009-0000-7342-0338>
2. Dr. Md. Shahadot Hossain Sheikh, Professor, Department of Colorectal Surgery, Bangladesh Medical University (BMU). ORCID: <https://orcid.org/0009-0009-1422-3321>
3. Dr. Md. Shahidul Islam, Associate Professor, Department of Colorectal Surgery, Bangladesh Medical University (BMU). ORCID: <https://orcid.org/0009-0008-0554-4636>
4. Dr. Muhammad Ali Siddique, Associate Professor, Department of Colorectal Surgery, Bangladesh Medical University (BMU). ORCID: <http://orcid.org/0009-0000-2355-4156>
5. Dr. Abu Bakar Siddique, Associate Professor, Department of Urology, Dhaka Medical College Hospital, Dhaka. ORCID: <http://orcid.org/0009-0007-7940-0304>

*For correspondence

Introduction

Obstructed defecation syndrome (ODS) is a multifactorial functional and anatomical condition of the pelvic floor characterized by impaired evacuation of stools from the rectum, typically needing manual assistance or intravaginal digitation while straining. It is more common in middle-aged women.¹ Rectocele and internal rectal prolapse (IRP) are frequently seen in ODS and play a crucial role in its etiology. Rectoanal intussusception (RI) has also been described as internal intussusception, occult rectal prolapse, intrarectal prolapse or internal procidentia and is defined as the telescoping of the rectal wall during defecation. RI may be asymptomatic or patients may present with constipation, incomplete evacuation and faecal incontinence.²

Recently, ODS has been called a “iceberg syndrome” with rectal mucosal prolapse and rectocele being the obvious signs in over 90% of the patients, but concealed underlying lesions can contribute to surgical failure if not recognized.³ Hence, surgical therapy of ODS is still problematic. Several operational procedures have been used for ODS due to rectal intussusception including transvaginal, transanal, transabdominal and combination treatments, each with its own advantages and drawbacks. In none of the procedures were good outcomes achieved in all patients uniformly. Thus, careful patient selection is critical to obtain optimal functional results.⁴

The Internal Delorme’s Procedure (IDP) is one of the most acknowledged surgical methods for ODS due to RI. Originally described in 1900 for overt rectal prolapse, it has since been widely used both in full rectal prolapse and ODS secondary to IRP.⁵ Several publications see IDP as the gold standard technique for patients with external prolapse and RI-associated ODS refractory to conservative care.⁶ Surgical correction is

typically reserved for patients who are severely symptomatic with high-grade rectal intussusception and can be approached either perineally or abdominally, although the effectiveness of surgical correction for functional disorders has not been fully established.⁷

The comprehensive assessment of ODS entails evaluation of defecatory dysfunction and other pelvic floor symptoms such as faecal incontinence and urinary problems. Diagnostic evaluation is multimodal and includes comprehensive history taking, physical examination, proctoscopy, colonoscopy, colonic transit studies, anorectal manometry, rectal balloon expulsion testing, defecography, electromyography and three dimensional transanal ultrasonography.⁸ IRP is very difficult to detect, as it can only be identified by digital rectal examination in around 40% of patients.⁹ Clinical assessment of constipation and incontinence generally follows the Rome III criteria. Validated scoring systems, such as Altomare ODS score,¹⁰ Modified Longo ODS score,¹¹ Faecal Incontinence Severity Index (FISI),¹² Patient Assessment of Constipation Quality of Life (PAC-QOL), and Faecal Incontinence Quality of Life Scale (FIQLS) are used. They are helpful in rating severity of disease and assessing results of treatment.

The conduction of this research was based on the fact that it will benefit patients, as it will help to find an effective surgical option that can improve bowel function, reduce symptoms and improve quality of life. Physicians will benefit from evidence-based data on the safety, efficacy and clinical outcomes of Internal Delorme’s procedure to make better surgical decisions and patient management.

Methods

This observational study was conducted in the Department of Colorectal Surgery, Bangladesh Medical University (BMU) over a period of one year from January, 2024 - December, 2024). A total of 25 patients of either sex with obstructed defecation syndrome due to Grade III–IV internal rectal prolapse, with or without rectocele or fecal incontinence, who had failed conservative management with laxatives, fiber supplements, and biofeedback therapy were included. Patients with genital prolapse requiring transvaginal surgery, obstructed defecation syndrome due to anismus or pelvic floor dyssynergia, neoplasia or anorectal stenosis, slow transit constipation, mental disorders, or solid stool incontinence were excluded.

A detailed history was obtained using a standardized questionnaire, followed by clinical examination. The Modified Longo ODS score was assessed, and all preoperative data were systematically recorded in a pretested data collection sheet. Pre-procedural evaluation included digital rectal examination, per vaginal examination, colonoscopy, and MR defecography to ensure comprehensive assessment. The procedure was carried out in the major operating theater in accordance with standard protocols and precautions. Depending on associated comorbidities, patients received either general or spinal anesthesia. A PPH proctoscope (30 mm in length and 29 mm in width) was utilized. After placing four anchoring sutures in the perineum, diluted adrenaline was injected into the submucosal plane. A circular incision was then made approximately 2 cm above the dentate line, followed by circumferential mucosal dissection extending 8–15 cm in a cranio-caudal direction. The exposed muscularis layer was plicated, and the mucosa was subsequently repaired using interrupted absorbable sutures. Demographic details,

relevant clinical history, examination findings, and investigation results of all participants were carefully documented in the data collection sheet. Any intraoperative or postoperative complications were also meticulously recorded. All data were checked and edited after collection. All data were recorded systematically in a preformed data collection form and were presented in the form of tables and figures as necessary. Statistical analysis of the results was done using computer-based software SPSS version 25.0. Nominal/categorical variables were summarized as percentages (%). A p value <0.05 was considered statistically significant.

Results

A total of 25 participants were included in the study. The majority of the participants (48%) were aged 30 years or below, with a mean age of 34.88 ± 16.18 years. Females were predominant (64%) compared to males (36%). The mean Body Mass Index (BMI) of the participants was 24.13 ± 3.21 kg/m².

The most commonly reported symptoms were a feeling of incomplete evacuation and straining during defecation, both present in 96% of participants. Assisted evacuation was reported by 80%, followed by per-rectal bleeding (76%) and repeated toilet visits (72%). Tenesmus was experienced by 68% of participants, while 48% reported pain during defecation. Abdominal distension was rare (4%) and there was no fecal incontinence issue. The duration of symptoms ranged from 2 to 20 months, with a mean duration of 13.24 ± 4.11 months.

Rectocele was associated with rectal intussusception in 14 (56%) cases which was most commonly moderate in severity, observed in 7(50%) of involved participants. Mild rectocele was present in 5(35.7%), while severe rectocele was identified in only 2(14.3%) of cases.

The majority of participants 21 (84%) were diagnosed with Grade III internal rectal prolapse. Grade IV was observed in 4(16%) of cases.

Among the total cases, acute urinary retention was the most commonly reported complication, occurring in 6 patients (24.0%) followed by fecal urgency and per rectal bleeding, each affecting 5 patients (20.0%). Proctalgia and sense of incomplete evacuation were reported in 4 patients each (16.0%), while anastomotic dehiscence, anastomotic stenosis, and dyspareunia were each found in 3 patients (12.0%). The least frequent complication was recurrence, observed in 2 patients (8.0%).

Eight participants (50.0%) were diagnosed with partial utero-vaginal prolapse. Pelvic floor descent was present in 2(12.5%) of cases, while cystocele was observed in 2(12.5%).

ODS score significantly decrease from a pre-operative mean score of 14.72 ± 3.13 to 4.44 ± 1.00 at three months post-operatively ($p < 0.001$), indicating a marked improvement in obstructive symptoms reduction about 69.8%. The mean ODS score significantly decreased from 14.72 ± 3.13 pre-operatively to 3.56 ± 0.82 at six months post-operatively ($p < 0.001$), demonstrating substantial improvement in obstructive symptoms reduction about 75.8%.

Table I: Demographic profile of the study subjects (N=25)

	Frequency (n)	Percentage (%)
Age (years)		
≤30	12	48.0
31 - 40	3	12.0
41 - 50	3	12.0
>50	7	28.0
Mean ± SD	34.88 ± 16.18	
Gender		
Male	9	36.0
Female	16	64.0
BMI (kg/m^2) [Mean ± SD]	24.13 ± 3.21	

Table II: Presenting symptoms of the study subjects (N=25)

Presenting symptoms	Frequency (n)	Percentage (%)
Feeling of incomplete evacuation	24	96.0
Straining	24	96.0
Tenesmus	17	68.0
Assisted evacuation	20	80.0
Pain at defecation	12	48.0
Repeated toilet visit	18	72.0
Fecal incontinence	0	0.0
Abdominal Distension	1	4.0
Per-Rectal Bleeding	19	76.0
Duration of symptoms	13.24 ± 4.11	2 - 20 months

Table III: Bio-feedback therapy received by the study subjects (N=25)

Bio-feedback therapy	Frequency (n)	Percentage (%)
Received	3	12.0
Not received	22	88.0
Duration	6.67 ± 1.15	6.00 - 8.00

Only a small proportion of participants (12%) had received biofeedback therapy but failed to achieve any fruitful outcome.

Table IV: Internal rectal prolapse of the study subjects (N=25)

Grading of internal rectal prolapse	Frequency (n)	Percentage (%)
Grade III	21	84.0
Grade IV	4	16.0

Table V: Rectocele of the study subjects (N=14)

Rectocele	Frequency (n)	Percentage (%)
Mild	5	35.7
Moderate	7	50.0
Severe	2	14.3

Table VI: Other disease according to MRD diagnosis of the female study subjects (N=16)

	Frequency (n)	Percentage (%)
Utero-vaginal prolapse (Partial)	8	50.0
Cystocele	2	12.5
Pelvic floor descent	2	12.5

Table VII: Distribution of post-operative complications in the study subjects (N=25)

Post-operative complications	Frequency (n)	Percentage (%)
Fecal urgency	5	20.0
Acute urinary retention	6	24.0
Proctalgia	4	16.0
Anastomotic dehiscence	3	12.0
Anastomotic stenosis	3	12.0
Recurrence	2	8.0
Dyspareunia	3	12.0
Per rectal bleeding	5	20.0
Sense of incomplete evacuation	4	16.0

Table VIII: Duration of operation and hospital stay of the study subjects (N=25)

	Mean $\pm$ SD	Min - max
Duration of operation (minutes)	111.92 $\pm$ 16.40	90.00 - 150.00
Hospital stay (days)	2.80 $\pm$ 0.58	2.00 - 4.00

The mean duration of the surgical procedure was 111.92 ± 16.40 minutes, ranging from 90 to 150 minutes. The average hospital stay post-surgery was 2.80 ± 0.58 days, with a range of 2 to 4 days.

Table IX: Comparison of pre and post-operative ODS after 3 months & 6 months of the study subjects (N=25)

ODS score	Mean $\pm$ SD	Improvement	p-value
Pre-operative	14.72 $\pm$ 3.13		
Post-operative after 3 months	4.44 $\pm$ 1.00	69.8%	<0.001
Post-operative after 6 months	3.56 $\pm$ 0.82	75.8%	<0.001

Paired t test was done.

Discussion

Pathophysiology of obstructed defecation syndrome (ODS) is still poorly understood and the most appropriate surgical management is still debated. The optimal surgical treatment should be minimally invasive, with low morbidity, low mortality, the best functional results, minimal recurrence, better continence and prevention of postoperative constipation.

The mean age of the participants of the present study was 34.88 ± 16.18 years and almost half of the participants (48%) were aged 30 years and below. This finding indicates that ODS could also significantly impact younger subjects, contrary to the prior findings reporting the disorder as being more common in the middle-aged and elderly populations.^{13,14} The female predominance (64%) in the present study is in agreement with previous literature showing a higher incidence of ODS among women, probably due to pelvic floor dysfunction, trauma related to childbirth and hormonal influences.^{13,14}

The mean body mass index (BMI) was 24.13 ± 3.21 kg/m², which suggested most participants were in the normal to overweight range.

Incomplete evacuation and excessive straining at defecation were the most frequently reported symptoms (both 96% of participants). 80% assisted evacuation, 76% per-rectal bleeding and 72% repeated toilet visits. Tenesmus was present in 68% of the participants and pain on defecation was reported by 48%. Abdominal distension was uncommon (4%). Manual assistance during defecation has been reported in 20-75% of patients,^{15,16} rectal bleeding in 20-60%^{17,18} and tenesmus in about 50% of the cases.⁶

In the present study, the postoperative complications were acute urinary retention (24%), faecal urgency and per-rectal bleeding (20% each) and proctalgia (16%). Anastomotic stenosis and dehiscence (12%) and recurrence (8%) were less frequent, but were clinically important complications. All postoperative complications were managed conservatively with reassurance, urinary catheterisation, adequate analgesia and appropriate antibiotic therapy. Per-rectal bleeding subsided gradually with healing of internal wound. Cases of anastomotic dehiscence were also managed conservatively without reoperation. Likewise, all of the patients with anastomotic stenosis (12%) had good response to serial anal dilatation with anal dilators, sparing the need for further surgical intervention. Similar results were reported by Leo et al. (2018)⁶, in which anastomotic stenosis was the most common complication seen in 11% of patients, only 2 patients requiring reoperation, and the rest treated successfully with anal dilatation. The same study reported per-rectal bleeding in 16.7% and one case of anastomotic dehiscence treated conservatively. The overall complication rate was 10%, mainly fissure in

ano (7.2%) and proctalgia (2.4%).¹³ In a similar study, Ohazuru et al. (2014) found stenosis in 8% of cases, 16% of patients having flatus and liquid incontinence, and 1 case of faecal urgency.¹⁹

The mean operative time in the present study was 111.92 ± 16.40 minutes which was slightly longer than that reported by Gentile et al. for the ERPP procedure where the mean operative duration was 65 minutes.²⁰ The operative time, however, was similar to that reported by Leo et al. who described a mean duration of 106 ± 30 min.⁶

The mean ODS score preoperatively was 14.72 ± 3.13 , which significantly decreased to 4.44 ± 1.00 at 3 months and to 3.56 ± 0.82 at 6 months postoperatively ($p < 0.001$). This translated to a 69.8% reduction in obstructive symptoms at 3 months and a 75.8% reduction at 6 months post-surgery. These results are in line with previous studies. Leo et al. reported a mean preoperative ODS score of 15.09 ± 3.13 that significantly improved to 2.08 ± 2.17 at one-year follow-up representing more than 75% reduction in symptom severity.⁶

In the present study, only 12% of patients had been previously treated with biofeedback therapy, suggesting that most of the patients were directly managed surgically. Biofeedback therapy has been widely described for the treatment of ODS, but there is no international consensus on the optimal rehabilitation strategy and the assessment of symptomatic improvement is not standardized.¹⁹

The results of this study suggest that internal Delorme's procedure could be an effective alternative for the treatment of ODS, especially in patients with low sphincter pressure and in the elderly, because it may help to restore continence after surgery.¹³ The procedure may also be particularly beneficial

in young adult males who are at risk of sexual dysfunction after abdominal rectopexy due to injury to the pelvic or hypogastric nerves.²¹

Conclusion

The internal Delorme's procedure may be a good choice for treating patients affected by ODS due to rectal intussusception with or without rectocele showing substantial improvement in MODS Longo's scores and obstructive symptoms relief. An adequate preoperative patient history and good patients' selection are the first 2 steps for achieving it's a well-balanced result instead of the troublesome but manageable spectrum of postoperative complication.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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