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RESEARCH PAPER

# Clinical Outcome of Stapled Transanal Rectal Resection Procedure in Obstructed Defecation Syndrome due to Rectal Intussusception: A Self Control Clinical Trial

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## Abstract

**Background:** Obstructed Defecation Syndrome (ODS) is a prevalent clinical condition. Stapled transanal rectal resection (STARR) is a relatively novel technique for treating this disorder. There is a paucity of evidence to support it's safety and efficacy.

**Objective:** To evaluate the clinical efficacy and safety of STARR procedure in ODS due to rectal intussusception.

**Methods:** This self control clinical trial was performed in the department of colorectal Surgery at Shaheed Suhrawardy Medical College Hospital in Dhaka over the course of one year from February 2023 to January 2024. This study involved 34 adult ODS patients due to rectal intussusception. These patients were pre operatively and post operatively evaluated for their bowel habit by Modified Longo Score. Patients with recurrent ODS or other anorectal conditions were excluded from this study. Upon obtaining consent from the participants, a standardized questionnaire was used to collect demographic and other information. Data were analyzed utilizing SPSS version 23.

**Results:** The average age of the patients was 46.79 ± 6.66 years. Males (67.6%) were more prevalent than females (32.4%). All patients experienced constipation. Nine patients (26.5%) experienced stomach pain, three patients (8.8%) exhibited per rectal hemorrhage, and most of the patients (83.8%) had a history of prior abdominal surgery. The average duration of hospital stay was 4.35 ± 1.53 days, with a range of 3 to 7 days. The median (range) Modified Longo Score was 14 (7 - 18) preoperatively, which was decreased to 7 (4 - 10) after 15 days, 5 (3 - 9) after 1 month, and 4 (3 - 7) after 3 months of operattion. The Modified Longo Score significantly($p<0.001$) decreased after-operation. Postoperative bleeding was noted in six patients (17.6%) but were non-fatal and was managed conservatively

**Conclusion:** Stapled transanal rectal resection (STARR) is a safe and effective surgical intervention for Obstructed Defecation Syndrome (ODS)resulting from rectal intussusception.

**Keywords:** Stapled transanal rectal resection (STARR), obstructed defecation syndrome, rectal Intussusception.

## Introduction

Obstructed defecation syndrome (ODS) is a type of constipation marked by dysfunctional defecation, which includes fragmented stool, straining during defecation, a sensation of incomplete evacuation, tenesmus, urgency, pelvic heaviness, reliance on self-digitation, utilization of digital assistance or enemas, as well as bleeding and pain.[1,2] ODS predominantly occurs in middle-aged women.[3] This disorder affects the quality of life for the majority of patients and constitutes a significant healthcare concern. From an etiological perspective, ODS may be attributed to functional or mechanical abnormalities.[1] At times, they coexist or may be a result of one another. Functional problems are challenging to identify and often require a multifaceted therapy strategy comprising psychologists, neurologists, physiatrists, and occasionally surgeons.[3] Isolated surgical interventions is insufficient for these patients.[2] Conversely, there exist mechanical abnormalities such as rectocele and rectal intussusception. Two disorders occur in almost 90% of people with ODS. Various therapy modalities have been delineated for these organic illnesses, encompassing transanal, transvaginal, trans-perineal,

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and abdominal techniques. In 2004, Longo invented a minimally invasive transanal technique called Stapled Transanal Rectal Resection (STARR). The STARR procedure involves an endorectal resection of the distal rectum utilizing a stapler.[4-6]

In 2006, the European STARR registry was established to assess the STARR process, aiming to document all STARR procedures and outcomes through collaboration with surgical societies from Italy, Germany, the UK, Northern European countries, and France.[7] The initial results were reported in 2009, demonstrating favorable outcomes regarding quality of life and complication rates.[8] Conversely, certain studies have indicated significant problems including pelvic infections, fistulas, faecal urgency, and post-operative haemorrhage.[9] The aforementioned study demonstrates favorable results in the care of ODS patients. It is a minimally invasive procedure, allowing the patient to be discharged promptly. So,this study was conducted to see the clinical outcome of stapled transanal rectal resection procedure in obstructed defecation syndrome due to rectal intussusception

## Material and Methods

This self control clinical trial was performed in the Department of Colorectal Surgery at Shaheed Suhrawardy Medical College Hospital in Dhaka over the course of one year from February 2023 - January 2024. This study involved 34 adult ODS patients due to rectal intussusception. These patients were pre operatively and post operatively evaluated for their bowel habit by Modified Longo Score. . Patients with recurrent ODS or other anorectal conditions were excluded from this study. After getting the ethical clearance from IRB (Institutional Review Board), Shaheed Suhrawardy Medical College and obtaining consent from the participants, a standardized questionnaire was employed to gather demographic and other information. The participants were selected by non- probability sampling. All participants were interviewed in person for data collection. The patients were assessed for specific indicators, which were documented in the checklist. Investigations were conducted to substantiate the diagnosis.

STARR procedure was performed in all patients under spinal anesthesia in accordance with the guidelines for STARR implementation. Patients were preoperatively evaluated for their bowel habit by Modified Longo Score. Post operative follow up was done at 15$^{th}$ days, 1 month and 3 months following operation. In every follow up, bowel functions were assessed by Longo Score (table I).

All data were compiled and edited meticulously. Quantitative data were expressed as mean and standard deviation and qualitative data were expressed as frequency distribution and percentage. Statistical analysis was performed by using SPSS-22. A p value <0.05 was considered statistically significant.

**Table I:** Modified Longo Score for Obstructed Defecation Syndrome.[19]

| Serial no. | QUESTIONS | SCORES+ | | | |
|---|---|---|---|---|---|
| 1 | Medication to evacuate (enemas or suppositories) | 0 | 1 | 2 | 3 |
| 2 | Difficulties to evacuate | 0 | 1 | 2 | 3 |
| 3 | Digitation to evacuate | 0 | 1 | 2 | 3 |
| 4 | Return to toilet to evacuate | 0 | 1 | 2 | 3 |
| 5 | Feeling of incomplete evacuation | 0 | 1 | 2 | 3 |
| 6 | Straining to evacuate | 0 | 1 | 2 | 3 |
| 7 | Time needed to evacuate | 0 | 1 | 2 | 3 |
| 8 | Lifestyle Alteration | 0 | 1 | 2 | 3 |

†Each point is scored according to frequency of the symptom. Questions 1-6: 0 = never, 1 = less than once weekly, 2 = 1-6 times weekly, 3 = every day; question 7: 0 = less than 5 min, 16-10 min, 2 = 11-20 min, 3 = more than 20 min; question 8: 0 = no alteration of lifestyle, 1 = mild alteration, 2 = moderate alteration, and 3 = significant alteration of lifestyle. The total score is in the range of 0 (best) to 24.

## Results

A total of 34 adult patients admitted with ODS resulting from rectal intussusception were enrolled in this study. The average age of the patients was 46.79 ± 6.66 years, with 50% of the patients falling within the age group of 41 to 50 years. Males comprised a larger proportion at 67.6%, while females accounted for 32.4%. A significant majority of the patients resided in rural areas, accounting for 64.7% of the total population studied (table-II).

**Table II:** Demographic profile of the study subjects (N=34)

| | Frequency (n) | Percentage (%) |
|---|---|---|
| Age (years) | | |
| 32 – 40 | 9 | 26.5 |
| 41 – 50 | 17 | 50.0 |
| 51 – 60 | 8 | 23.5 |
| Mean±SD (min-max) | 46.79 ± 6.66 (32-60) | |
| Gender | | |
| Male | 23 | 67.6 |
| Female | 11 | 32.4 |
| Residence | | |
| Urban | 12 | 35.3 |
| Rural | 22 | 64.7 |

Every patient experienced constipation. A total of nine patients, representing 26.5%, experienced abdominal pain. Additionally, three patients, accounting for 8.8%, reported per rectal bleeding, with the same percentage of patients having a history of previous abdominal surgery (table-III).

**Table III:** History of the clinical features of study subjects (N=34)

| | Frequency (n) | Percentage (%) |
|---|---|---|
| Constipation | 34 | 100.0 |
| Abdominal pain | 9 | 26.5 |
| Per rectal bleeding | 3 | 8.8 |
| Previous abdominal surgery | 3 | 8.8 |

The nutritional status was assessed as good in eleven patients (32.4%), normal in seven (20.6%), average in twelve (35.3%), and poor in three (8.8%). Oedema and anaemia were observed in one patient, representing 2.9% of the cases. The pulse was about 73 beats per minute, with a temperature of 94.38 degrees Fahrenheit. Systolic blood pressure measured 116.18 mm of Hg, diastolic blood pressure was 72.94 mm of Hg, and the respiratory rate was about 12 breaths per minute (table-IV).

The median of the Modified Longo Score was 14 (7 - 18) prior to surgery, decreased to 7 (4 - 10) after 15 days post-operation, further reduced to 5 (3 - 9) after 1 month, and reached 4 (3 - 7) after 3 months post-operation. The Modified Longo Score was significantly reduced following the operation (table-V).

**Table IV:** Findings of General examination of the study subjects (N=34)

| | Frequency (n) | Percentage (%) |
|---|---|---|
| Nutrition | | |
| Poor | 3 | 8.8 |
| Average | 12 | 35.3 |
| Normal | 7 | 20.6 |
| Good | 11 | 32.4 |
| Oedema | 1 | 2.9 |
| Anaemia | 1 | 2.9 |
| | (Mean ± SD) | (Min – max) |
| Pulse (b/min) | 73.15 ± 3.12 | 65.00 - 82.00 |
| Temperature (ÚF) | 94.38 ± 2.47 | 90.00 - 98.00 |
| Systolic BP (mmHg) | 116.18 ± 6.52 | 100.00 - 130.00 |
| Diastolic BP (mmHg) | 72.94 ± 5.09 | 65.00 - 85.00 |
| Respiratory rate (breath/min) | 12.18 ± 0.76 | 12.00 - 16.00 |

**Table V:** Assessment of obstructed defecation syndrome due to rectal intussusception according to Modified Longo Score of the study subjects (N=34)

| Parameter | Before operation Median | After 15 days of Operation Median | After 1 month of Operation Median | After 3 months of Operation Median | p-value |
|---|---|---|---|---|---|
| Modified Longo Score | 14(7-18) | 7(4-10) | 5(3-9) | 4(3-7) | <0.001 |

Friedman test was done

Six patients (17.6%) experienced postoperative complications as bleeding. None of the patient developed any serious adverse event and bleeding was managemed covservatively (table-VI).

**Table VI:** Post-operative complication of the study subjects (N=34)

| | Frequency (n) | Percentage (%) |
|---|---|---|
| Bleeding | 6 | 17.6 |
| Sepsis | 0 | 0 |
| Persistent pain | 0 | 0 |
| Incontinence | 0 | 0 |
| Recurrence | 0 | 0 |

## Discussion

ODS is a prevalent multifactorial disease that denotes the condition of patients who experience constipation and defecatory dysfunction.[10] The surgical technique that is most effective in the treatment of ODS associated with anatomical alteration (rectocele, rectal intussusception, and enterocele) has not yet been clearly established due to the lack of a complete comprehension of the pathogenesis of ODS. Nevertheless, it has been shown that the criteria for patient selection should be extremely stringent, as surgical treatment is necessary only for symptomatic intussusceptions or rectoceles.[11,12] The surgical options for treating ODS that correct the internal rectal prolapse and concurrently repair the rectocele have been demonstrated to restore normal rectal anatomy, flow, and function. These options are known as STARR. In this study, we evaluated the efficacy of STARR in the management of ODS associated with anatomical alteration (rectocele and/or rectal intussusception) in terms of the safety of the procedure, correction of the anatomical alteration, and improvement in the ODS score.

The study revealed that the mean age of the participants was 46.79 ± 6.66 years, with 50% of them falling within the age range of 41 to 50 years. The age of the patients varied from 22 to 74 years, with a mean age of 46.4±3.4.[13] The study conducted by Elshazly and Saed reported a mean age of patients at 54 ± 9 years.[14] The average age of disease presentation in our study aligns with findings from other studies. The study revealed a higher prevalence of males at 67.6%, compared to females at 32.4%.[14,15] A higher incidence of female patients was observed in the other studies where they included rectocele, cystocele, and related conditions.[14,15] These diseases frequently occur in females. Consequently, there is a higher representation of female patients in their studies.

In this study, all patients presented with constipation. Among the 34 patients, 9 (26.5%) reported experiencing abdominal pain, whereas 3 (8.8%) exhibited per rectal bleeding. A comparable percentage of patients (8.8%) had a history of prior abdominal surgery. Furthermore, 68% of the patients had previously undergone anorectal or gynecologic surgeries, as noted by Abdwahed et al. in 2019.[16] In this study, patients with ODS who had undergone previous anorectal or gynecologic surgeries were excluded. Furthermore, the study carried out by Elshazly and Saed in 2016 reported a prevalence of rectal bleeding at 36.7%.[14] In a study, rectal bleeding was noted in 64.0% of patients, while abdominal pain was reported in 40.0% of patients.[17] Due to the presence of ODS alongside other anorectal conditions in those patients.

The median score for Obstructed Defecation Syndrome, evaluated using the Modified Longo Score, was determined to be 14 (ranging from 7 to 18) prior to the surgical intervention in this study. Nonetheless, it decreased to 7 (4-10) following 15 days post-operation, 5 (3 - 9) after 1 month, and 4 (3 - 7) after 3 months post-operation. The data shows a significant reduction in the Modified Longo Score following the operation. The treatment led to a notable improvement in patients' symptoms. In a separate investigation, the average ODS score showed a significant

enhancement, moving from 14.7±0.9 before the operation to 4.3±0.7 after the operation.[13] A different study indicated that the preoperative ODS was 16.3±2.1, which showed improvement to 6.8 ± 4.2 after three months post-operation.[14]

In this investigation, postoperative complications were noted in six patients (17.6%). The study conducted by Hasan and Hasan reported a post-operative bleeding rate of 10.0%.[18] Our study revealed an increase in postoperative bleeding attributed to a sudden rise in blood pressure. Our findings indicate an absence of sepsis, persistent pain, incontinence, or recurrence in the subjects studied.

## Conclusion

STARR presents a promising approach in the surgical management of ODS resulting from rectal intussusception, demonstrating both safety and efficacy.

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