

Stapled Transanal Resection of Rectum (STARR) Procedure for Obstructed Defecation Syndrome Caused by Rectocele and Rectal Intussusception: An Initial Experience

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Abstract

Background:

Obstructed defecation syndrome (ODS) is a troublesome condition for the patient which affect the quality of life. It is difficult to determine the single effective modality of treatment of ODS. Though ODS is more common in the women than men, rate of diagnosis of ODS in female is lower due to shyness of patient to visit to doctor.

Objective:

Study was conducted to see the effectiveness of stapled transanal resection of rectum (STARR) procedure for obstructed defecation syndrome caused by internal rectal prolapse and anorectocele.

Methods:

This prospective study was done including 37 patients (female 35 and male 02). These patients had undergone STARR procedure from January 2015 to September 2023 in Rangpur medical college and two private hospitals. Only those patients had undergone STARR procedure who suffered from ODS due to internal rectal prolapse or rectocele and failed to response to adequate first line medical therapeutics. Patients were diagnosed by careful evaluation of history, Longo's ODS score, DRE, proctoscopy, colonoscopy, cindefecography and MR defecography. Patients were followed up at 1, 3 and 6 months after surgery. During follow up patients satisfaction was evaluated by comparing preoperative and postoperative score.

Results:

Average time needed for each procedure was 45 ± 10 minutes and average hospital stay was 4 days. No patient needed readmission for any complication, but 3 patients came back for minor bleeding, 3 patients for increasing frequency of defecation and 1 patient for persistent anal pain where no definite cause was detected. At 6 months follow up significant improvement in Longo's ODS score, constipation score and quality of life was observed. Mean Longo's ODS score was 15.75 ± 1.98 and 7.05 ± 5.70 at preoperative and six months post operative followup respectively ($p < 0.001$).

Conclusion:

STARR may be a safe and effective treatment modality for ODS due to internal rectal prolapse or rectocele, if done with appropriate indication and adequate skill. Patient selection is crucial point in achieving better postoperative outcome. Long term postoperative follow up is needed to make clear cut comment on STARR procedure for internal rectal prolapse or rectocele associated ODS.

Key words: Obstructed defecation syndrome (ODS), Stapled transanal rectal resection (STARR), Rectal intussusception (RI), Rectocele (RE).

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Introduction:

Obstructed defecation syndrome (ODS) is a troublesome defecatory problem for the patient which affects the quality of life, usually occurs in

middle-aged female.¹ ODS is a pelvic type of constipation usually presents with difficult or prolong attempts to defecate with straining, incomplete or fragmented evacuation, need for

perineal support ordigitationto initiate defecation, tenesmus, urgency and pelvic heaviness.² Pathogenesis of ODS is complex, multifactorial and not completely understood.³ It may be recognised as either functional disorder secondary to spastic pelvic floorsyndromesor anatomical rectal alteration as rectalintussusception and rectocele.⁴ Etiological components of ODS include paradoxical construction of puborectalis, rectal intussusception or internal rectal prolapse, rectocele, enterocele, sigmoidocele, rectal prolapse, genital prolapse and perineal descent. Rectocele, internal rectal prolapse and perineal descent are frequently associated anatomic disorders identified in ODS patients.⁵ In case of functional disorders, puborectalis and anal sphincter muscles fail to relax or undergo paradoxical contraction and cause symptoms of ODS.⁶ Functional components (paradoxical contraction of puborectalis) of ODS are more difficult to diagnose and frequently need a complex therapeutic approach including psychologist, neurologist, psychiatrist and sometimes surgeon.⁷

By using anal 3-dimensional ultrasonography (3-DAUS), Regadaset al⁸ demonstrated that the anal canal sphincter is shorter in women. Anterior upper anal canal and anorectal junction is weak due to devoid of striated muscle or any other anatomical support structure.⁹ Thus herniation starts in the anterior upper anal canal and anorectal junction wall as demonstrated by echodefecography and anal 3- dimensional ultrasonography (3-DAUS) technique suggesting that these patients have anorectocelerather than rectocele.¹⁰

Approximately 20% of adult female population suffer from this syndrome.¹¹ But all patients do not require surgical treatment. Conservative therapy is considered the first line of treatment in ODS and diet and biofeedback therapy improve symptoms in more than 30% of these patients.¹ Surgical procedures only should be done in selected patients with structural abnormalities who fails to response to conservative treatment.¹² Usually multiparous female patients affected by a combination of rectal intussusception & rectocele do not response to conservative therapy. In these group of patients correction of rectocele with vaginal or perineal levatorplastyis often ineffective.^{13,14}

A variety of surgical procedures have been described for treatment of ODS including transvaginal, transperineal, transanal and combined abdominal and vaginal approaches. But no single method has achieve overall superiority than others because of different patterns of complications and high rate of recurrence.¹⁵ Stapled mucosectomy and stapled haemorrhoidopexy for partial rectal prolapse and prolapse haemorrhoids respectively were first described by Antonio Longo in 1997.¹⁶⁻¹⁸ Base on this procedure Antonio Longo has introduced Stapled transanal resection of rectal in 2003 as a minimally invasive procedure for ODS associated with rectal intussusception and rectocele.¹⁹ Many publications demonstrated the safety and efficacy of STARR procedure for the treatment of ODS and reported symptomatic improvement among those patient.^{19,20}

In this study, we aimed to observe the effectiveness of STARR operation for obstructed defecation syndrome due to rectal intussusception and rectocele.

Methods:

From January 2015 to September 2023, total 37 patients (31 female and 6male)with ODS caused by rectal intussusception and or rectocele were included in this study. This prospective study was carried out in Department of surgery, Rangpur Medical College Hospital and two private hospitals in Rangpur. All patients included in this study had given informed written consent. Preoperative defecogramwas done in all patients to detect structural abnormalities (rectal intussusception and rectocele) as a cause of ODS and to exclude dyssynergic defecation. Patients with ODS due to rectal intussusception and or rectocele with Longo's ODS score ≥ 12 that had failed to response to adequate conservative treatment (diet therapy, laxatives, local lubricant, enema, good defecation practice and physiotherapy) for more than 6 months were included. Patients with good response to conservative management, severe faecal incontinence, moderate to severe rectocele, complete rectal prolapse or genital prolapse were excluded. Preoperative evaluation of patients included details history (presenting symptoms, number of pregnancies, episiotomy, previous pelvic or anal surgery), DRE, PV examination, proctoscopy, sigmoidoscopy, TSH level,

analdefecogram.

Low residual diet for 24 hours, two enema at 6 hours interval and broad spectrum antibiotics were main elements of preoperative preparation. Spinal anaesthesia was used in all cases. Every patient was placed in lithotomy position. Two circular PPH-01 staplers were used. Always anterior and posterior rectal wall were protected by tongue depressor during posterior and anterior rectal wall resection respectively. Every resected specimen was examined to see the full thickness of rectum and extrarectal fat. 2-0 vicryl were used to give full thickness stitch at anastomotic lines if bleeding (Figure-1 & 2) Patients were kept nil by mouth for 48 hours. Patients were discharged from hospital usually on 3rd postoperative day after checking anastomotic line. Postoperative follow up was done at 1,3&6 months after surgery using Longo's ODS score (Table-I). During follow up, patients satisfaction was evaluated by comparing preoperative & postoperative score. Preoperative and postoperative followup Longo's ODS scores were compared using SPSS-23, p-value <0.05 was considered as significant.



Figure-1: During insertion of PPH-1



Figure-2: After Resection

Table-I: Longo's ODS score

Symptoms	Never	Rarely	Sometimes	Usually	Always
Excessive staining	0	1	2	3	4
Incomplete rectal evacuation	0	1	2	3	4
Use of enemas/ laxative	0	1	2	3	4
Vaginal/ perineal digital pressure	0	1	2	3	4
Constipation	0	1	2	3	4

Results:

During the study period (January 2015 to September 2023) 37 patients had undergone STARR where 35(94.59%) were female and 02(05.40%) were male. Mean age was 42.7± 10.2 years (Table-II).

Table-II: Basic characteristics of the percipient (N=37)

Basic characteristics	no. (%)
Age group (Years)	
25-30	2(5.4)
31-35	5(13.5)
36-40	9(24.3)
41-45	11(29.8)
46-50	3(8.1)
51-55	2(5.4)
56-60	2(5.4)
61-65	2(5.4)
66-70	1(2.7)
Mean age	42.7±9.35
Sex	
Male	2(5.4)
Female	53 (94.6)

17(45.94%) patients had only rectocele, 08(21.62%) patients had only rectal intussusception and 12(32.43%) patients had both rectocele & rectal intussusception. No rectocele were present in male patients. Among the female patients 30(85.71%) patients had vaginal delivery, 08(22.85%) had undergone gynaecological surgery, 02(5.71%) had episiotomy. Preoperative mean Longo's ODS score was 15.75± 1.98 and postoperative mean ODS score was 7.05± 5.70 at 6 months follow up (Table-III).

Table-III: Preoperative and postoperative Longo's ODS score (N=37)

Longo's ODS score	Preoperative no. (%)	Postoperative follow up no. (%)			p-value
		At 1st month	At 3rd month	At 6th month	
1-5	0(00)	20(54)	20(54)	18(48.64)	
6-8	0(00)	3(08)	3(08)	2(5.40)	
9-11	0(00)	3(08)	3(08)	3(08)	
12-14	7(19)	10(27)	8(21.62)	9(24.32)	
15-17	25(68)	1(2.7)	3(08)	4(10.81)	
18-20	5(13)	0(00)	0(00)	1(2.7)	
Mean	15.75±1.98	6.76±4.76	7.11±4.72	7.05±5.70	<0.001
Range	12-20	01-17	01-17	01-20	

The average time for each procedure was 45±10 minutes, with an average hospital stay of 4 days (range 3-6 days). There were no readmissions or referrals to higher centers, but 4 patients required extra follow-up visits for minor complications. 3 patients reported increased defecation frequency, while 1 patient had persistent anal canal pain with no identifiable cause. 2 patients with increased defecation showed gradual improvement. A total of 7 patients experienced postoperative complications, including minor bleeding, increased defecation frequency, and persistent pain (Figure-3).

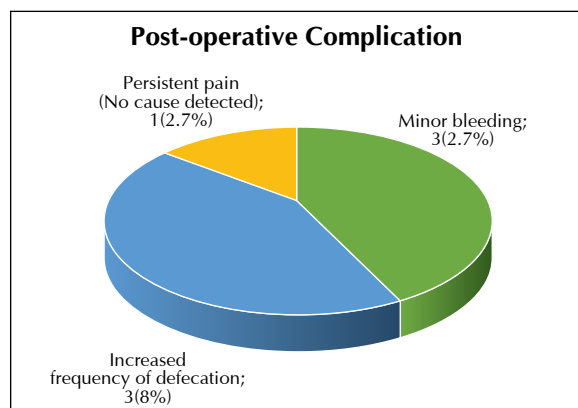


Figure-3: Post-operative complication (N=37)

Discussion:

ODS has multiple causes, and no single treatment is clearly superior. Various surgical procedures have been tried, but most are not effective or safe for ODS patients with RE and RI.²¹ The STARR procedure was developed as a suitable surgical option, prior to which patients were mostly treated

conservatively.¹ In our study among 37 patients 35 (94.59%) were female and 02 (05.41%) were male. This is very much similar to another study done in Bangladesh.¹⁹ But study done in developed countries showed almost all patients are female. In our socio-economic context, female patients hesitate to consult doctors for anal canal issues. The actual rate of female involvement is higher than diagnosed cases. Patients' mean age was 42.71±10.2 years, which is younger compared to developed countries. Early marriages, childbirth, and obstructed labor may contribute to early presentation of ODS.

Preoperative mean ODS score was 16.43±0.23 and all patients had almost all the components. Various studies demonstrate the safety and effectiveness of the STARR procedure in managing obstructive defecation syndrome (ODS).^{1,19,22} Over 81% of patients experienced improved ODS symptoms with few complications, including minimal bleeding during surgery and minor postoperative bleeding in 8% of patients, which was effectively managed. Proper evaluation and preoperative optimization may have contributed to lower bleeding rates compared to other studies. Overall, the STARR procedure appears to be safe with minimal risk of hemorrhage in most patients. Postoperative increased frequency of defecation occurred in only 3 cases (8%). Other published studies have shown that increased frequency of defecation was the most common worldwide accepted complaints in the immediate and intermediate recovery period after STARR,^{1,7,19,23} potentially due to the inflammatory response related to the stapled line and reduced rectal capacity. Normalizing bowel habits post-surgery is essential and preoperative counselling should address this issue. Only 2.7% of patients reported persistent postoperative pain, potentially caused by presacral nerve involvement. Effective pain management and close follow-up are important for improving patient outcomes and overall success of the procedure. Further research is necessary to better understand persistent pain causes and prevention strategies. Patient expectations should be managed to alleviate concerns about altered bowel movements post-surgery.

Conclusion:

Obstructed defecation syndrome (ODS) is one of the most distressing health problem that frequently affects middle-aged female. STARR is a simple,

less invasive, safe and effective procedure of treatment for patients with ODS caused by rectocele and rectal intussusception. Early experiences indicate that STARR can effectively relieve symptoms, improve bowel function and quality of life though further long-term follow up needed to assess its long term functional outcome and sustained efficacy and safety.

Limitation:

The small sample size is a notable limitation of the study.

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