Randomized controlled study to compare between the outcome after STARR and after trans-anal Delorme's for surgical treatment of obstructed defecation

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Obstructed defecation

- Obstructed defecation (OD)is a broad term of the multifactorial pathophysiologic condition describing
  - the inability to evacuate contents from the rectum
  - leading to difficulty with defecation
  - that impairs the quality of life.

"Feces reach the rectum, but rectal emptying is extremely difficult. The patients have a feeling that defecation is blocked"

Incidence

- Chronic constipation affects 2-30% of in the Western World
- 30-50% suffer from obstructed defecation syndrome
- 7% of the adult population
- Age of 65
- Female predominance
- Affect 15% to 20% of the adult female

Clinical picture

- Difficult evacuation
- Excessive straining during defecation
- Sensation of incomplete evacuation
- Prolonged time to defecate
- External assistance to aid defecation
  - Perineal support
  - Odd posture
  - Insertion of fingers into the vagina and/or anal canal
  - Enema
- Anal pain

Obstructed defecation

- **Mechanical causes.**
- **Functional disorders.**

Mechanical causes

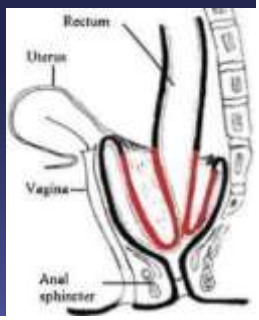
- Rectoanal intussusception
- Rectocele
- Sigmoidocele
- Enterocele

Rectoanal intussusceptiois

Circumferential infolding of the rectal mucosa more than 3 mm during evacuation

Pescatori classification

- First degree when below the anorectal ring on straining
- Second degree when it reached the dentate line
- Third degree when it reached the anal verge

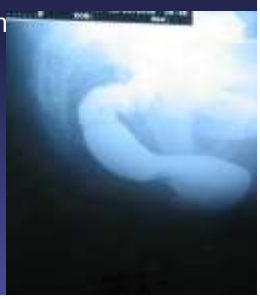


Rectocele

Any anterior or posterior bulge outside the line of the rectal wall that is greater than 2 cm and that occurred during rest and at attempted defecation

Marti classification:

- Type 1: digitiform rectocele
- Type 2: big sacculation with anterior rectal mucosal prolapse
- Type 3: rectocele associated with intussusception (rectal prolapse)



Enterocoele

Prolapse of the small bowel into the rectogenital space

- The etiological classification of enterocele
- Primary
  - Multiparity
  - Advanced age
  - General lack of elasticity
  - Obesity
  - Increased abdominal pressure
- Secondary
  - After gynecological surgical procedures, especially hysterectomy.

Functional disorders

Anismus	increased anal resting tone
pelvic floor dyssynergia	failure of relaxation or paradoxical contraction of the puborectalis and/or external anal sphincter during defecation
descending perineum syndrome	The is a sequel of long-standing, excessive straining, which weakens the pelvic floor causing excessive perineal descent

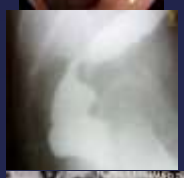
Diagnosis

Clinical assessment:

- History
- Examination
- Obstructed-defecation syndrome Scoring System

- Sigmoidoscopy

- Dynamic defecography



- Dynamic MRI

- Anorectal manometry

- EMG

Pathogenesis

- Radiological investigations have shown that subclinical obstructed defecation can be compensated by three basic mechanisms:

(1) transverse extension of the rectum forming a rectocele

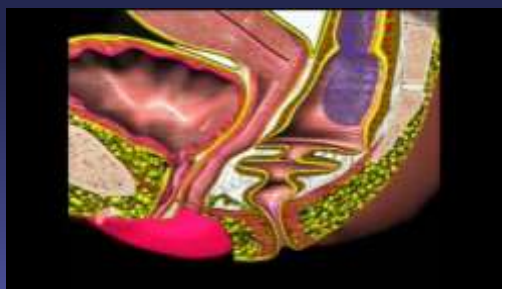
(2) longitudinal extension forming a perineal descent

(3) pelvic expulsion forming prolapsed piles.

However, these mechanisms work only if the rectum is capable of creating an endoluminal pressure gradient greater than the residual closure pressure of the anal sphincter

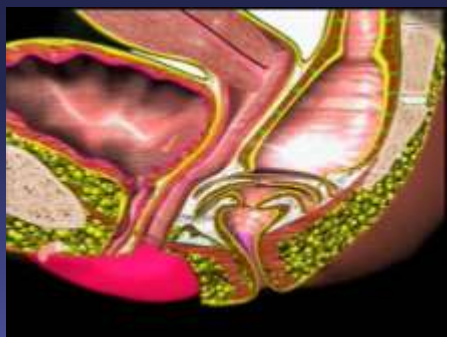
Pathogenesis

With prolonged obstruction the previously described anatomical alteration will occur leading to extreme thinning and laxity of the muscular coat of the rectum with loss of the normal rectal compliance, which leads to the inability of the rectum to support pressure for defecation and the development of rectal invagination that gradually increases until it obstructs the normal passage of the stool



Aim of treatment

- Restoration of rectal flow
- Restoration of normal rectal wall thickness and compliance,
- Correction of rectocele, and correction of rectal intussusceptions



Treatment

- Medical
- Biofeedback
- Surgery

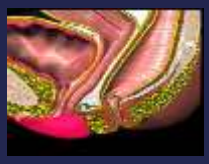
Treatment

Surgical treatment :

PERINEAL PROCEDURES:

- **STARR**





- **Modified Delorme's Procedure**

Aims

- To assess the safety and efficiency of STARR compared to modified Delorme's procedure in treatment of obstructed defecation syndrome

METHODS

- Prospective randomized control trail
- 60 patients with obstructed defecation associated with rectocele and /or rectal Intussusception
- Patients were randomly allocated into two groups
- Group I 30 patients modified Delorme's procedure
- Group II 30 patients subjected to STARR
- Informed consent was obtained from each patient

Preoperative evaluation included:

- Clinical assessment
- Obstructed defecation syndrome score
- Proctoscopy
- Colon transit time
- Anorectal manometry
- Dynamic MRI

Inclusion criteria

- Patients with an ODS-S ≥12
- recto anal intussusception >10 mm and/or rectocele extending ≥ 2 cm
- Failure of 6 months medical therapy
- Failure biofeedback-performed for 8 weeks

Exclusion criteria

- Below 18 years, and above 70 year
- Previous anorectal surgery
- Intestinal inertia
- Anismus
- II/III degree genital prolapse
- Symptomatic cystocele
- Contributing abnormality (stricture, tumor or polyp)
- Absent rectoanal inhibitory reflex

Follow up

Follow up for all patients was done for at least a year:

Follow up

- Clinical assessment
- Constipation scoring system at 3, 6 months', one, and two years post operatively.
- Anorectal Manometry at one year
- Dynamic MRI at one year

Results

- 167 patients with chronic constipation.
- 35 patients showed normal colon transit time
- 56 patients showed slow colonic transit time
- 76 patients had functional outlet obstruction
- 15 patients absent recto anal inhibitory reflex
- one patient lost in early follow up

Results

- 60 patients were included in the current study
- 22 patients (36.67%) were men
- 38 were women (63.33%)
- Mean age was 49.8 years for group I and 54 ± 9 for group II

Results

Table I Clinical presentations of the two study groups n (%)

	Group I N =30	Group II N= 30	P value
Mean age (mean ± SD) year	52 ± 11	54 ± 9	0.4440
Duration of constipation > 10 years	22 (73.3)	21 (70)	1
Straining	29 (96.7)	28 (93.3)	1
Hard stools	27 (90)	29 (96.7)	0.8550
Incomplete evacuation	29 (96.7)	28 (93.3)	1
Anal blockage	27 (90)	29 (96.7)	0.8550
Digital facilitation	12 (40)	11 (36.7)	1
Laxatives	30 (100)	29 (96.6)	1
Rectal bleeding	9 (30)	11 (36.7)	0.7984
Rectocele > 3 cm	22 (73.3)	25 (83.3)	0.8459
Rectal intussusception	21 (70)	19 (63.3)	0.8405
Both rectocele and intussusception	17 (56.7)	14 (46.7)	0.8251

SD = standard deviation

Results

- Pretreatment distribution of patients according to obstructed defecation syndrome score

Obstructed defecation syndrome score	*Group I n=30*		*Group II n=30*		P value
	n	%	n	%	
12–14	6	20	5	16.7	1.0000
15–17	14	46.7	13	43.3	1.0000
18–20	10	33.3	12	40	0.8053

Results

- Preoperative and postoperative obstructed defecation scoring

Signs and symptoms		ODD score	P value
	Group		
Preoperative	I	16.3 ± 2.3	1.000
	II	16.3 ± 2.1	
3 months Follow up	I	6.3 ± 3.9	0.6346
	II	6.8 ± 4.2	
6 months Follow up	I	6.1 ± 2.9	0.0365*
	II	7.8 ± 4.5	
One year Follow up	I	6.0 ± 2.9	0.0655*
	II	7.9 ± 4.4	
Two years Follow up	I	5.9 ± 3.0	0.0298*
	II	8.1 ± 4.3	

Values are expressed as means, with standard deviations in parentheses, * statistically significant difference

Results

- Preoperative and postoperative constipation scoring system according to Agachan–Wexner Constipation Scoring System

Signs and symptoms		Frequency	Difficulty	Completeness	Pain	Time	Assistance	Failure	History	Grand total
Preoperative	Group I	0.6 ± 0.4	3.1 ± 0.4	3.3 ± 0.4	2.3 ± 0.5	2.6 ± 0.7	0.9 ± 0.3	2.0 ± 0.2	1.8 ± 0.4	16.8 ± 0.3
	Group II	0.5 ± 0.1	3.2 ± 0.3	3.4 ± 0.3	2.3 ± 0.9	2.8 ± 0.3	1.0 ± 0.4	1.9 ± 0.3	1.7 ± 0.2	17.0 ± 0.6
	P value	0.189 2	0.2256	0.2778	0.2917	0.1057	0.2778	0.3133	0.2256	0.1879
3 months Follow up	Group I	0.5 ± 0.2	1.2 ± 0.4	1.2 ± 0.3	0.9 ± 0.3	0.5 ± 0.2	0.6 ±0.4	0.5 ± 0.4	1.5 ± 0.7	7.3 ± 0.7
	Group II	0.4 ± 0.2	1.3 ± 0.2	1.7 ± 0.4	1.0 ± 0.4	0.5 ± 0.1	0.5 ± 0.1	0.4 ± 0.1	1.7 ±0.2	7.5 ± 0.5
	P value	0.134 2	0.2256	< 0.0001*	0.2778	1.0000	0.1892	0.1892	0.1378	0.2879
6 months Follow up	Group I	0.6 ±0.4	1.3 ± 0.4	1.6 ± 0.2	1.1 ± 0.4	0.8 ± 0.3	0.8 ± 0.3	0.5 ± 0.2	1.6 ± 0.3	7.4 ± 0.6
	Group II	0.5 ± 0.1	1.2 ± 0.2	1.6 ± 0.3	1.0 ± 0.1	0.7 ± 0.2	0.7 ± 0.1	0.5 ± 0.1	1.7 ± 0.2	7.5 ± 0.7
	P value	0.189 2	0.2256	0.0030*	0.1892	0.1342	0.2672	1.0000	0.3133	0.5540
One year Follow up	Group I	0.7 ± 0.3	0.9 ± 0.2	1.6 ± 0.4	0.9 ± 0.3	0.8 ±0.2	0.7 ± 0.3	0.6 ± 0.2	1.5 ± 0.6	7.6 ± 0.4
	Group II	0.6 ± 0.2	1.4 ± 0.3	1.9 ± 0.5	0.9 ± 0.2	0.9 ± 0.3	0.8 ± 0.4	0.7 ± 0.1	1.6 ± 0.5	8.2 ± 0.6
	P value	0.134 2	< 0.0001*	< 0.0001*	1.0000	0.1342	0.2778	0.0173	0.4055	< 0.0001*
Two years Follow up	Group I	0.6 ± 0.3	0.9 ± 0.4	1.5 ± 0.5	1.0 ± 0.3	1.0 ± 0.4	0.6 ± 0.3	0.7 ±0.3	1.7 ± 0.5	7.7 ± 0.8
	Group II	0.6 ± 0.2	1.6 ± 0.3	2.1 ± 0.4	1.1 ± 0.2	1.1 ± 0.3	0.9 ± 0.4	0.8 ± 0.4	1.7 ±0.3	8.7 ± 0.7
	P value	1.000 0	< 0.0001*	< 0.0001*	0.1342	0.2778	0.2778	0.2778	1.0000	< 0.0001*

Results

- Preoperative and postoperative Dynamic MRI data

Dynamic MRI findings	Group I			Group II		
	Preoperative	Postoperative	P value	Preoperative	Postoperative	P value
Puborectal muscle length (mm)				Mean ± SD	Mean ± SD	
resting	140.3 ± 19.8	141.7 ± 21.7	0.7950	135.3 ± 24.6	139.6 ± 23.2	0.4889
squeezing	119.5 ± 21.1	122.6 ± 19.8	0.5596	118.4 ± 20.4	128.4 ± 23.4	0.0829
pushing	171.3 ± 44.2	169.6 ± 41.3	0.8782	163.4 ± 47.1	164.3 ± 42.1	0.9381
Anorectal angle						
resting	111.3 ± 16.5	109.4 ± 15.9	0.6514	107.4 ± 14.5	110.2 ± 16.9	0.4937
squeezing	82.6 ± 14.3	81.2 ± 12.9	0.6920	79.7 ± 10.4	80.2 ± 12.1	0.8643
pushing	141.2 ± 25.7	137.7 ± 22.6	0.5775	138.1 ± 26.3	139.4 ± 25.7	0.8471
	Number (%)	Number (%)		Number (%)	Number (%)	
Rectocele						
Mild (< 2cm)	8 (26.7)	4 (13.3)	0.3540	5 (16.7)	6 (20)	1.0000
Moderate (2-4 cm)	13 (43.3)	2 (6.7)	0.0175*	12 (40)	4 (13.3)	0.0938
Sever (> 4cm)	9 (30)	0 (0)	0.0040*	13 (43.3)	0 (0)	0.0017*
Intussusceptions						
Rectorectal intussusception	18 (60)	1 (3.3)	0.0003*	19 (63.3)	6 (20)	0.0320*
Rectoanal intussusception	8 (26.7)	0 (0)	0.0074*	9 (30)	0 (0)	0.0040*

Results

- Anal manometry in the studied patients

	Group I			Group II		
	Pre treatment (mean± SD)	After treatment (mean± SD)	P value	Pretreatment (mean ± SD)	After treatment (mean ± SD)	P value
Anal canal length (mm)	27.9 ± 7.1	28.7 ± 6.2	0.6438	29.2 ± 5.6	28.5 ± 4.1	0.5828
Anal pressures						
Mean resting anal pressure (mm Hg)	65.7 ± 23.8	67.8 ± 19.6	0.7105	68.1 ± 24.0	66.9 ± 17.0	0.8239
Mean squeeze anal pressure (mmHg)	167.46 ± 22.6	174.34 ± 18.9	0.2060	175.63 ± 18.5	168.63 ± 20.7	0.1726
Recto-anal inhibitory reflex (present at ml)	25.2 ± 4.2	23.9 ± 3.9	0.2191	23.7 ± 3.2	24. 6 ± 4.1	0.3472
Rectal sensations						
First initial sensation volume (ml)	23. 9 ± 7.2	26.3 ± 7.6	0.2143	25.7 ± 6.7	24.6 ± 5.9	0.5024

Complications

- No mortality or major complications

	Modified Delorme's	STARR
Acute urinary retention	3	1
Bleeding	1	2
Mild perineal hematoma	4	2

Conclusion

According to the present study, STARR and modified Delorme's procedure seemed to be a safe and effective treatment for ODS but after one year the improvement in the symptoms became significantly better after modified Delorme's procedure than after STARR

THANK YOU

Unit of Colon & Rectal Surgery
AUCRS
University of Alexandria