Original Article

Pelvic Organ Prolapse Suspension (POPS) for Obstructive Defecation Syndrome (ODS) : Functional Outcome

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ABSTRACT:

Background: *Genital apparatus represents the anatomical support for the bladder and rectum, therefore, inevitably the genital prolapse implies serious anatomical and functional alterations of these organs. Pelvic organ prolapse is one of the most common pathological conditions in postmenopausal women.Pelvic organ prolapse suspensions (POPS) is a recent surgical procedure for one-stage treatment of multiorgan female pelvic prolapse.*

Methods: *This observational study evaluated the preliminary results of POPS of 42 women with a mean age of 50 within 4 years of period. Patients underwent posterior colpoperineorrhaphy to correct residual rectocele and hiatal enlargement at the same time.*

Results: *We had no relapses and the preliminary results were excellent. We evaluated the patients after 6 months follow-up and confirmed the validity of our treatment. The technique is simpler than traditional treatments with an important reduction or completely disappearance of the pre-operative symptoms.*

Conclusion: *Uterus-preserving pops operation was found to be safe and effective with high patient satisfaction rates and simultaneous correction of anterior prolapse. Significant improvements in patients quality of life.*

Key Words:
POPS (Pelvic Organ Prolapse Suspension); ODS (Obstructive defecation syndrome); colpoperineorrhaphy, QOL(Quality of life)

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Introduction

Obstructive defecation syndrome (ODS) is one type of primary functional constipation. About 50 percent of patients of constipation suffer from this syndrome.[1] The term "Obstructive defecation syndrome" includes difficult evacuation, feeling of incomplete evacuation, excessive straining during defecation, use of mechanical aids such as enemas, digitation of the vaginal vault / perineum, manual evacuation of stool. Prolonged time needed to defecate. This syndrome may result from a rectocele, rectoanal or rectorectal intussusception, paradoxical puborectalis contraction, pelvic organ prolapse, sigmoidocele, or enterocele. ODS patients who are having pelvic organ prolapse, 11% of women need pelvic organ prolapse surgery.[2] Now-a-days many options for pelvic organ prolapse surgery are available such as Sacro-colpopexy, uterosacral ligament suspension and rectocolposacropexy, but none of them has excellent result on terms of long term follow up and

treating urinary and fecal incontinence. Rather the percentage of ODS following all these procedures is not acceptable and the persistend ODS causing more pressure on the pelvic organ and associated ligaments resulting in higher recurrence rate.[3] In order to cure ODS and improve the QOL, POPS surgery is a recent one-stage treatment for multi-compartmental female pelvic organ prolapse. POPS improve tri-compartmental descent without obliterating pouch of Douglas. But there is the presence of redundant rectocele and intussusception. For this correction, both transanal STARR and transvaginal posrerior colpoperineorrhaphy are being performed. The transvaginal rectocele repair (TVR) has been the technique performed by the Colon and Rectal Clinic of Orlando for 15 years for the treatment of ODS. Results with the transvaginal technique have been very good, but there is concern about the rate of dyspareunia, wound complications, and recurrence.[4] In 2004 Longo described a new technique for treatment of ODS caused by rectocele and rectal intussusception called stapled transanal rectal resection (STARR). He proposed the use of two circular staplers to correct the anterior rectal wall muscle defect by reducing the bulging rectocele and/or intussusception anteriorly in addition to the posterior intussusception and posterior rectocele, when present. Overall the results for the STARR procedure have been promising; however, recurrence and the complications profile have been a concern [5,6].

Gynecologists have treated rectocele with Transvaginal posterior colpoperineorrhaphy for over a century whereas coloproctologists use transanal route. Colorectal surgeons have focused on improvement of bowel functions and gynecologists to restoration of anatomy when assessing results of rectocele repair [7,8].

Methods

This was a observational study conducted at three different hospitals in Dhaka city in Bangladesh operated by single surgeon. Female patients with pelvic organ prolapse were included in this study and study period was four years (February' 2018- January' 2022).

Our goal was to obtain the simultaneous correction of prolapse of all three compartments and resolution of the related symptoms. We set out to obtain the most anatomical, physiological, and minimal invasive surgical correction.

Prior to data collection, both verbal and written consent were taken from the patients.

Data would expresssed as mean ± SD and frequency percentages. Statistical analyses of the results have done by using computer based statistical software SPSS version 26.

Paired "t" test used to compare data between before and after intervention and Chi squared ($\chi 2$) test or Fisher's exact test for qualitative variable. Statistical significance would be set at p

≤ 0.05 and confidence interval at 95% level.

Procedure

All patients were subjected to proper history taking and full general and local examination. ODS was evaluated with Longo ODS score. Detailed continence history and assessment was done according to wexner incontinence score (0-20). The Quality of life was investigated with EQ-5D questionnaire. MR defecography has performed to evaluate the pelvic organ prolapse in all patients preoperatively. Colonoscopy was done for women over 45 years.

Laparoscopic Pelvic Organ Prolapse Suspension (POPS) with Posterior Colpoperineorrhaphy:

Under general anaesthesia, patient was positioned in modified Lloyd Davis position. The skin was prepped and drapped.

1. The pneumoperitoneum was established via supra-umbilical open technique, and a 30º

laparoscope was introduced. One 10-mm trocar was inserted under vision through right iliac fossa and another 5-mm trocar was inserted symmetrically in the left side.

2. A vaginal valve pushed up the anterior fornix for adequate exposure into the pelvic peritoneum.

3. A 30× 30 cm prolene mesh, a V-shaped 25 cm length strips and 2 cm wide were prepared. The mesh was introduced into the abdominal cavity through 10-mm trocar.

4. Small incision was made at the apex of the anterior vaginal fornix and the mesh was fixed on the anterior vaginal vault or on the vaginal apex if the patient had hysterectomy by 1-0 polypropylene.

5. On both sides, two cutaneous incisions were made 2 cm above and 2 cm posterior to antero-superior iliac spine. The aponeurosis of the external oblique muscle was incised and dissecting the fibers of the internal oblique and transversus abdominis muscles, the sub-peritoneal tunnel was created. Through this incision, a laparoscopic forcep was introduced.

6. Under laparoscopic vision, a subperitoneal tunnel, in both sides, was created until the anterior fornix of the vagina reached. The tunnel passed through 2–3 cm below the insertion of the round ligament. Reaching the vaginal fornix, the two ends of V-mesh were taken outside through the sub-peritoneal tunnel.

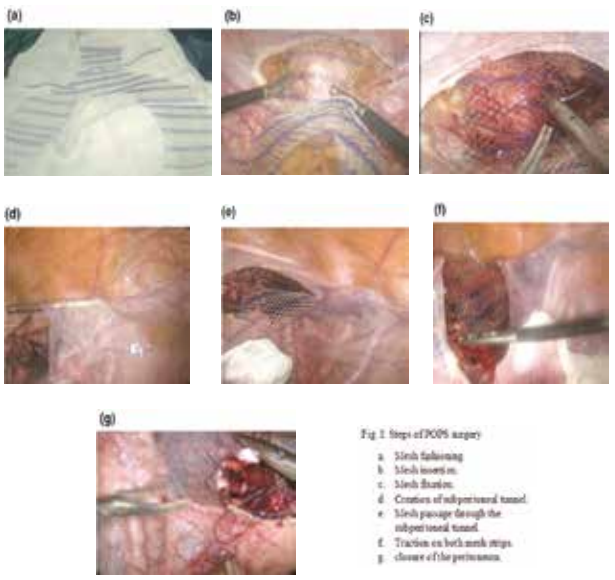
7. Mesh was fixed to both the lateral vaginal fornices by two stitches with no 1-0

8. Prolene. Pelvic organs suspension is achieved by making symmetrical tractions on both mesh strips.

9. 5 cm of excess mesh strip was positioned within the muscle's fascia, above the incision, and fixed by vicryl 2/0. Skin was sutured by 3-0 Polypropylene.

10. The POPS corrects the rectal prolapses but not the rectocele. For correcting the rectocele, we did posterior colpoperineorrhaphy through vaginal incision in lithoto-my position.

Picture shows steps of POPS procedure (Figure-I):



Results

Table 1: Distribution of the participants according to age (n=42)

Age (year)	Number	Percentage
	n	%
30-40	8	17.6
41-50	22	52.9
51-60	10	23.5
61-70	2	5.9
Total	42	100.0

From this study it was found that 52.9% patients are under POPS group who are in between the age group 41-50 year(Table-1).

Table 2: Distribution of the participants according to clinical presentation(n=42)

Clinical presentation	Total participants	
	n	%
Rectal prolapse	**42**	**100**
Recto-rectal intussusception	2	5.9
Recto-anal intussusception	35	82.4
External prolapse	5	11.7
Rectocele	42	**100**
Mild	2	5.9
Moderate	20	47.1
Severe	20	47.1
Genital Prolapse(POP-Q)	42	**100**
Stage III	25	58.8
Stage IV	17	41.2

From the clinical findings among 42 patient it was found that 82.45% have rectal prolapse , more than 80% have the Rectocele and near about 59% have genital prolapse-stage-III(Table- 2).

Table 3: Distribution of the participants according to ODS score

ODS score	ODS score
	Mean ± SD
Pre-operative	33.5±2.3
Postoperative	3.8±0.9

In aspect of ODS score of POPS group, mean value was found 33.5±2.3(Table-3).

Table 4: Distribution of the participant according to Wexner incontinence score

Wexner incontinence score	Wexner incontinence score
	Mean ± SD
Pre-operative	3.5 ± 2.1
Postoperative	0.0 ± 0.0

It was observed that mean value of pre-operative Wexner incontinence score in POPS group 3.5 ± 2.1(Table-4).

Table 5: Distribution of the participant according to MR defecographic measurement(n- 42)

MR defecographic measurement	MR defecographic measurement		Inference
	Pre-operative	Post-operative	P value
Rectocele	35 (83.54%)	3 (5.34%)	
Rectal prolapse	39 (92.23%)	2 (4.30%)	P<.05
Fecal incontinence	10(23.96%)	0 (0.00%)	
Enterocele	32 (75.32%)	5 (11.66%)	

It was observed from MR defecographic measurements(cm.) Pre-operative rectocele was about 84% wheres post operative only 5%. Another findings like retal prolapse, fecal incontinence and enterocele also found accordingly 92%,24%, & 75% in preoperative patients(Table-5).

Table 6: distribution of the participants according to operative time, pain score & hospital stay(n=42)

Variables	Variables
	Mean ± SD
Operative time(in minutes)	122.9 ± 3.3
Post operative pain	3.2 ± 0.9
Hospital stay(in days)	3.2 ± 0.4

Among POPS group it was found mean time of operation (in minute)122.9 ± 3.3. post operative pain mean value 3.2 ± 0.9 and Hospital stay(in days) 3.2 ± 0.4(Table-6).

Table 7: Distribution of the participant according to postoperative complications(n=42)

Postoperative complications	Postoperative complications	
	n	%
Chronic pelvic pain	5	11.90
Dragging pain and pain at anterior superior iliac spine	1	5.9
Dyspareunia	2	04.77
Mesh erosion	0	0.0
Mesh infection	0	0.0
Sepsis	0	0.0
Fistula	0	0.0
Obstruction	0	0.0
Recurrence	0	0.0

It was found that only about 11.9% patients have chronic pelvic pain and 5.9% patients have post operative dragging pain at anterior superior iliac spine. Two patient (4.77%) complaints of dyspareunia (Table-7).

Table 8: Distribution of the participants according to follow-up clinical presentation(n=42)

Follow-up clinical presentation	POPS group	
	n	%
Residual rectal prolapse	0	0.0
Correction of rectocele	42	100.0
Correction of Genital Prolapse	42	100.0

From follow-up observation it was found 100% corrected rectocele & genital prolapse(Table- 8).

Discussion

Though several studies have been done regarding pelvic organ prolapse surgery throughout the world, there is no such study like outcome of laparoscopic POPS with posterior colpoperineorrhaphy for the treatment of middle and posterior pelvic compartment prolapse. Thus, this study will generate more detailed novel knowledge regarding the outcome of laparoscopic POPS with posterior colpoperineorrhaphy in the management of ODS patient.

We notice that in our study 52.9% patients under POPS group are in between the age group 41- 50 year. Among 42 patients having rectal prolapse , more than 80% have the Rectocele and near about 59% have genital prolapse.In aspect of ODS score of POPS group mean value was found 33.5±2.3. That finding is in line with the findings carried out by Ceci F. in which they found rectocele and rectal prolapse respectively 90.74% & 83.33% patients.[3]

It was observed from MR defecographic measurements(cm.) Pre-operative rectocele was about 84% wheres post operative only 5%. Another findings like retal prolapse, fecal incontinence and enterocele also found accordingly 92%,24%, & 75% in preoperative patients. The findings are nearly similar the findings of the study carried out by Ceci F. where they were using preoperative X-ray cinedefecography where they found rectocele and rectal prolapse respectively in 90.74% and in 83.33% patients. Enterocele was detected in 70.37%, but it is likely in some cases, the occlusion of the pelvis by the uterus may hampered the visibility of these alterations.1 Mattsson NK. Et al. reported on their study that total of 84% were satisfied with POPS outcome and 90% reported an improvement in comparison with the preoperative state.[8]

In our stydy group it was found the mean time of operation 123 minute and the mean Hospital stay 3 day. The

finding also in line the result of another study where mean operative time in patients with POPS without additional procedures was 85 minutes.[1]

Ceci F. et al. Reported on their study all patients who have preoperative affliction reported cure or significant improvement. The anatomical results evaluated clinically by "Half way system" were excellent, in particular enterocele was well corrected in 100% of cases. POPS confirmed the excellent anatomical results at 6th month, one patient found with residual recto- anal intussusception and a residual rectocele after postoperation.[1] That findings are near

similar to my study result. We found that 05 patients(11.9%) have chronic pelvic pain and about 6% patients have post operative dragging pain at anterior superior iliac spine. Maximum have no post operative complications.At follow-up observation it was found 100% correction of rectocele & genital prolapse. Another study finding was not in line of my result where 0.45% were admitted to an intensive care unit; 4.4% of the patients underwent surgery for the recurrence of prolapse & 4.6% of the patients required secondary surgery for urinary incontinence; obesity was a risk factor.[7]

Conclusion

There is reasonably good evidence in favor of Laparoscopic Pelvic Organ Prolapse Suspension (POPS) with Posterior Colpoperineorrhaphy for ODS score, QOL improvement, operative time, length of hospital stay, post-operative pain.

Thus, POPS with Posterior Colpoperineorrhaphy can be used as an easier, faster option to treat middle and posterior compartment prolapse with ODS symptoms.

Limitations

Short period of study was a limitation of the study.The study conducted in three different hospitals in Dhaka city though all the operations were performed by single surgeon. Long- term effects could not be assessed.

Recommendation

A Large scale, multicenter study should be undertaken to draw a more precise conclusion.

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