

# Correlation of Obstructed Defecation Syndrome with Pelvic Organ Prolapse and Anorectal Manometry

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## ABSTRACT

**Background & Objective:** Defecatory dysfunction is a common problem among women who are referred for urogynecological care. Pelvic organs prolapse (POP) which is a downward displacement of pelvic organs is one of the common conditions among patients with defecatory problems. This study was planned to evaluate the correlation of obstructive defecatory symptoms with the site and severity of pelvic organ prolapse and the anorectal manometry results.

**Materials & Methods:** This cross-sectional study was performed between Dec 2018 and Nov 2019. A total of 150 women with symptoms of defecatory problems were enrolled. Patients were classified in two groups according to each compartment prolapse staging and severity: stage  $\leq 2$  and stage  $> 2$ . The correlation between defecatory symptoms and pelvic organ prolapse examination, anorectal examination and anal manometry were evaluated.

**Results:** A total of 150 women were evaluated. There was a significant correlation between higher stage of anterior compartment prolapse (cystocele stage  $> 2$ ) and constipation ( $P=0.035$ ). Although all the defecatory symptoms were more frequent in anterior prolapse stage  $> 2$ , but the difference was not significant ( $P>0.05$ ). There was no significant correlation between defecatory symptoms and severity of posterior compartment prolapse. There was a significant correlation between stage  $> 2$  of apical prolapse and all the defecatory symptoms ( $P\leq 0.05$ ). The abnormal anal resting and squeeze pressure and abnormal balloon expulsion test were more frequent in stage  $> 2$  of all compartments prolapse, but the difference was not significant ( $P>0.05$ ).

**Conclusion:** Obstructed defecation syndrome was more frequent in patients with higher stages of anterior and apical prolapse. Abnormal manometry results were more frequent in patients with defecatory dysfunction with advanced vaginal prolapse.

**Keywords:** Pelvic Organ Prolapse, Defecation, Constipation, Cystocele, Rectocele, Perineum



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## Introduction

Obstructed defecation syndrome (ODS) is a heterogeneous disorder in which patients complain of difficult defecation symptoms like incomplete defecation, digital manipulation, and splinting (1). These symptoms are very common among women who are presented for urogynecological care; more than 80% had at least one defecatory problem that incomplete evacuation and straining are the most common symptoms (2).

Pelvic organ prolapse (POP) which is a downward displacement of pelvic organs including uterus,

bladder, rectum or bowel through the vaginal walls is one of the common conditions affecting as many as 38-50% of women older than 40 years of age that can lead to decreased quality of life and withdrawal from social activity (3). However, POP is often associated with symptoms of defecatory problems, the relationship between pelvic organ prolapses and obstructed defecation syndrome remains unclear (4-8). Some previous studies suggested that the severity of posterior vaginal wall prolapse was correlated with imaging studies or POP symptoms like defecatory problems, but the other study didn't confirm this correlation (9-13).

Data indicating a relationship between pelvic organ prolapse and defecatory symptoms are controversial (14-16). To the best of our knowledge, there isn't any similar study on Iranian women population in this field, so this study was planned to evaluate the correlation of obstructed defecation syndrome with the site and severity of pelvic organ prolapse and the anorectal manometry results.

## Methods

This cross-sectional study was performed between Dec 2018 and Nov 2019. A total of 150 women with symptoms of obstructed defecation syndrome who were referred to the urogynecology clinic of Emam Khomeini hospital, Tehran University of Medical Sciences, Tehran, Iran, were enrolled in this study.

A detailed medical and urogynecological history were obtained from each woman. Inclusion criteria were non-pregnant married women who complained of constipation, straining during defecation, incomplete defecation, perineal splinting (perineal support) and digital evacuation (due to incomplete defecation). Diagnosis of constipation was based on the standard functional constipation criteria (17). Patients were excluded if they were within the 6 months of postpartum, patients who had cognitive disorders (dementia), neurological disease, and history of previous gynecological surgeries for pelvic prolapse repair, hysterectomy and the history of anorectal surgeries or cancer, rectal prolapse and bowel intussusception were also excluded.

The clinical protocol was approved by the research Ethics Committee of the hospital and all patients signed written informed consent.

Basic characteristics included the patient's age, body mass index (BMI), parity, mode of delivery and menopausal status were recorded as a checklist.

Pelvic examination was performed by a single urogynecologist fellowship for assessment of pelvic organ prolapse (by using POP-Q system). Also, perineal defect, descent and levator muscle strength were evaluated by rectovaginal examination. Perineal descent is defined as a descent of the perineum to the level of the anal verge, beyond the ischial tuberosities during Valsalva. Anorectal examination was performed by the same physician to evaluate the anal sphincter tonicity at the resting, squeeze and pushing positions. The physician also evaluated the patients in terms of abnormal anorectal mass including internal rectal prolapse or other internal masses, so colorectal counselling and recto sigmoidoscopy was performed if indicated.

Anal manometry is used to quantify the function of the anal sphincter mechanism. It can provide indirect evidence of sphincter injury; low resting tone indicates internal anal sphincter injury and decreased maximum squeeze pressure indicates external anal sphincter

injury (18); so, the patients were evaluated by anorectal manometry (MMS.G3-6-Laborie.Netherlands).

Patients were classified into two groups according to each compartment prolapse staging (anterior, posterior, apical); stage  $\leq 2$  and stage  $> 2$ . The correlation between defecatory symptoms and pelvic organ prolapse examination, anorectal examination and anal manometry were evaluated.

The student t-test was used for comparison of continuous parametric data and the Chi-square test was used for nominal data. The level of statistical significance was set at  $P < 0.05$ . Statistical analysis was performed using SPSS version 23 (SPSS Inc, Chicago, IL, USA).

## Results

A total number of 150 women were evaluated, of whom 114 were included. Of 150 women, 6 who had neurologic disease and 30 who had previous gynecological or anorectal surgery (repair of pelvic organ prolapse, hysterectomy, rectal prolapse, hemorrhoidectomy or sphincterotomy) were excluded.

The patients' median age was 50.6 years (between 25-80 years). They were overweight (BMI  $27.35 \pm 4.7$  kg/m<sup>2</sup>), multiparous (median number of births: 3.5) and 52.6% were menopause. There was no difference in terms of demographic characteristics between the two groups.

Defecatory problems were shown in [Table 1](#).

**Table 1. Defecatory symptoms in the participants**

	N (%)
Constipation	88 (77.2)
Straining	68 (59.6)
Digitation	75 (65.8)
Splinting	77 (67.5)
Incomplete defecation	79 (69.3)
Flatus incontinence	28 (24.6)
Fecal incontinence	14 (12.3)

Pelvic examination showed 14 patients (12.3%) had stage  $> 2$  and 100 patients (87.7%) had stage  $\leq 2$  of posterior vaginal compartment prolapses. 25 patients (21.9%) had stage  $> 2$  of anterior compartment prolapse and 26 (22.8%) had stage  $> 2$  of apical prolapse (uterine or cervical prolapse or enterocele). 72 patients (63.2%) had perineal defect and 76 (66.7%) had perineal descent. About 65 patients (57%) had weak levator muscle strength.

In anorectal examination, the anal sphincter tonicity at the time of rest, squeeze and push were evaluated; about 96 patients (84.2%) had normal resting sphincter

tonicity, 84 (73.7%) had normal anal sphincter tonicity at the time of squeeze and 102 (89.5%) had normal anal sphincter tonicity at push position. Results of anorectal manometry were shown in [Table 2](#).

**Table 2. Results of the anorectal manometry**

	N (%)
Normal Anal resting pressure	64 (56.1)
Normal Anal squeeze pressure	86 (75.4)
Normal first sense	97 (85.1)
Normal Strong urge	92 (80.7)
Normal RAIRE	106 (93.0)
Normal BET	49 (43.0)

There was a significant correlation between the higher stage of anterior compartment prolapse (cystocele stage>2) and constipation (P=0.035). In terms of the correlation between other anorectal symptoms and anterior compartment prolapse, although all symptoms were more frequent in anterior prolapse stage>2, but the difference was not significant (P=0.09).

Although the anorectal symptoms were more frequent in stage>2 posterior compartment prolapse, but there was no significant correlation between these symptoms and the severity of posterior prolapse ([Table 3](#)).

**Table 3. Correlation between anorectal symptoms and posterior compartment prolapse**

Anorectal Symptoms	Posterior compartment prolapse		P-value*
	N (%)		
	Stage ≤2	Stage >2	
Straining Yes	59 (59.0)	9 (64.3)	0.471
NO	41 (41.0)	5 (35.7)	
Digitation Yes	59 (59.0)	10 (71.4)	0.441
NO	41 (41.0)	4 (28.6)	
Splinting Yes	65 (65.0)	12 (85.7)	0.103
NO	35 (35.0)	2 (14.3)	
Hard stool Yes	49 (49.0)	8 (57.1)	0.388
NO	51 (51.0)	6 (42.9)	
Incomplete Yes	69 (69.0)	10 (71.4)	0.561
NO	31 (31.0)	4 (28.6)	
defecation			
Flatus incontinence Yes	26 (26.0)	2 (14.3)	0.277
NO	No 74 (74.0)	12 (85.7)	
Fecal incontinence Yes	12 (12.0)	2 (14.3)	0.412
NO	No 88 (88.0)	12 (85.7)	
Constipation Yes	77 (77.0)	11 (78.6)	0.60
NO	No 22 (22.0)	3 (21.4)	

**Fisher-Exact test**

There was a significant correlation between all anorectal symptoms and stage>2 apical prolapse (uterine prolapse, cervical elongation, enterocele) (P=0.01).

Although straining, anal digitation, perineal splinting, and incomplete defecation were more frequent in patients who had perineal descent and

defect, but there was no significant correlation in this issue (P=0.1).

There was no correlation between levator muscle strength (according to vaginal examination) and anorectal symptoms (P=0.3).

Anorectal examination showed no correlation between anorectal symptoms and anal sphincter tonicity in rest, push and squeeze positions (P>0.05).

Results of anorectal manometry showed that abnormal anal resting and squeeze pressure and also abnormal balloon expulsion test were more frequent in stage >2 anterior, posterior and apical compartment prolapse, but the difference was not significant (P=0.09).

## Discussion

Although the results of the current study showed that the defecatory symptoms had a positive correlation with higher stage of anterior, posterior and apical compartment prolapse, but the significant correlation was observed only between defecatory symptoms and stage >2 anterior and apical prolapse. This may be due to the small number of patients with stage >2 posterior prolapse. These findings are like the results of some previous studies, which evaluated the correlation only for posterior prolapse (12, 19). But some other studies have shown a weak or no association in this issue (9, 10). This difference may be due to the elimination of cases with anterior and apical prolapse, which might only show the absence of correlation for posterior prolapse. In fact, enterocele as an apical compartment prolapse may have more significant correlation with defecatory symptoms compared with posterior compartment prolapse (rectocele) alone. These studies concluded that stool quality may have greater importance in the presence of obstructed defecatory symptoms than the rectocele. In fact, they emphasized posterior compartment prolapse probably doesn't cause the obstructive symptoms and different lifestyle, diet, collagen disease, weak pelvic floor muscles and pudendal neuropathy may play more significant roles (20-22).

We found perineal defect and descent were significantly correlated with constipation (hard stool) and flatus incontinence that is like the results of the previous studies (9, 23). Perineal descent occurs because of inferior detachment of rectovaginal septum from perineal body; as the condition progress, the patient might develop pudendal neuropathy from stretch injury, so defecatory disorders including constipation, obstructed defecation and fecal incontinence may occur.

Anal manometry is useful to evaluate obstructed defecation, through determination of maximum resting pressure, maximum squeeze pressure, rectal sensation, and compliance. A rectal balloon expulsion test can assist in the evaluation of rectal emptying and diagnosis of dyssynergic defecation.

In terms of anorectal manometry, the results of current study showed that abnormal anal resting and squeeze pressure and abnormal balloon expulsion test

were more frequent in stage >2 anterior, posterior and apical compartment prolapse, but the difference was not significant; these results were similar to the results of a previous study (24-26).

In fact, lower rest and squeeze pressure in patients with advanced pelvic organ prolapse could be due to anal sphincter trauma from vaginal deliveries or perineal descent that would lead to pudendal neuropathy.

Results of this study supported the relationship between the anatomical defects in apical and anterior vaginal wall and obstructive defecatory symptoms, but not for posterior compartment prolapse. This discrepancy may show the accompanying of apical and anterior vaginal wall defect with posterior vaginal wall prolapse is more important to provoke defecatory dysfunction than the posterior prolapse alone.

There are some limitations that should be considered in the assessment of the results of this study. The relatively small sample size may result in false negative findings and correlations. Furthermore, all participants were patients who were referred to an academic pelvic floor clinic, which could limit the generalization. One of the strengths of this study was detailed pelvic floor examination (vaginal and anorectal) by just one pelvic floor specialist. Another strength was the evaluation of all three vaginal compartment defect and levator muscle tonicity and their correlation with different defecatory symptoms that showed the new findings in this issue. To the best of our knowledge, this is the first study in this field on Iranian women population, so further investigations regarding the clinical impact of defecatory symptoms according to the severity of pelvic organ prolapse are needed.

## Conclusion

Obstructed defecation syndrome was more frequent in patients with higher stages of anterior and apical compartment prolapse. Anorectal manometry findings also showed abnormal results were more frequent in patients with defecatory dysfunction who have more advanced vaginal prolapse.

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## Conflict of Interest

The authors declare no conflict of interest.

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