

ORIGINAL ARTICLE

Defecographic Findings in Patients with Severe Idiopathic Chronic Constipation

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Background/Aims: Chronic constipation is a common gastrointestinal disorder diagnosed using Rome III criteria. Defecography is a radiographic method used to identify anatomic abnormalities of anorectum. The present study aimed to evaluate the defecographic findings in patients with severe idiopathic chronic constipation.

Methods: One hundred patients, who complained of severe idiopathic chronic constipation with abnormal balloon expulsion test, underwent defecography after injection of barium. An analysis of radiographs was performed by an expert radiologist for the diagnosis of descending perineum syndrome, rectocele, enterocele, rectal ulcer, rectal prolapse, fecal residue of post defecation, and etc. Then, they were compared between the two sexes.

Results: Normal defecography was only observed in two participants. Descending perineum syndrome was the most common abnormality (73.3%). The results showed that rectocele (80.8%) and descending perineum syndrome (69.2%) were most frequent in women. In males, descending perineum syndrome and rectal prolapse were more prevalent (87% and 43.5%, respectively). Compared with men, rectocele and rectal ulcer were more frequently observed in women ($p < 0.001$, and $p = 0.04$, respectively), while men were more affected by descending perineum syndrome ($p = 0.04$). In total, women had a greater incidence of abnormal defecographic findings compared with men ($p = 0.02$).

Conclusions: Defecography can be performed to detect anatomic abnormalities in patients with severe idiopathic chronic constipation and abnormal balloon expulsion test. This technique can assist physicians in making the most suitable decision for surgical procedure. (Korean J Gastroenterol 2017;70:39-43)

Key Words: Constipation; Defecography; Rectocele; Rectal prolapse

INTRODUCTION

Constipation is a multifactorial disease that affects 2% to 34% of the population.^{1,2} A systematic review of 10 articles reported a similar prevalence of constipation in Iran, ranging from 1.4% to 37%.³ Physicians traditionally defined constipation as three or fewer bowel movements per week; however, other symptoms like hard stools, a feeling of incomplete evacuation, abdominal discomfort, bloating, and distention are also broadly considered to be associated with constipation.⁴

Functional constipation (primary or idiopathic) is a chronic disease without any obvious reason, whereas the causes of secondary constipation may be related to drugs or medical conditions.⁵ However, constipation risk factors include the female sex, older age, unhealthy lifestyle (inactivity, low caloric intake, and low-fiber diet), low socioeconomic status, dysmotility disorders, neuromuscular disorders, chronic use of opiates, pelvic floor disorders, diseases of the large bowel, irritable bowel syndrome, anal fissure, hemorrhoid, and so on.⁶⁻⁹ Health-related quality of life in patients suffering from chronic

Received December 6, 2016. Revised February 16, 2017. Accepted March 21, 2017.

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Financial support: This study was funded by Islamic Azad University. Conflict of interest: None.

constipation is negatively affected with its adverse physical and mental consequences.¹⁰ When constipation does not respond to lifestyle modifications, fiber intake, and mild laxatives, other diagnostic or treatment approaches including anorectal manometry, balloon expulsion test, colon transit testing, and defecography may be required.¹¹

Defecography (evacuation proctography or voiding proctography) is a radiological technique used to evaluate defecation difficulties in a physiologic setting.¹² In this examination method, barium is instilled into the rectum, followed by fluoroscopy of the anorectal activity. Defecography is highly valuable when the following problems are suspected as the cause of constipation: Inappropriate contraction of the puborectalis muscle, enterocele, rectocele, and etc.¹³ Rao et al. concluded that defecography should be considered in addition to the clinical and manometric assessment of anorectal function.¹⁴ Magnetic resonance defecography or dynamic imaging of defecation has also been developed to assess the underlying anatomic and pathophysiologic reasons of pelvic floor disorders, including rectal intussusception and rectal prolapse. Although this test provides more valuable information without radiation, it is more costly.¹⁵

The aim of this study was to determine the most significant defecographic findings in patients with severe idiopathic chronic constipation and abnormal balloon expulsion test.

SUBJECTS AND METHODS

The medical records of 330 patients, who met the Rome III criteria for constipation¹⁶ with a referral to Shariati Hospital, Isfahan, between March 2013 and August 2014, were reviewed. If there were no evidence of organic diseases or drug history and patients did not respond to fiber and mild laxatives, severe idiopathic chronic constipation was diagnosed. Balloon expulsion test was then performed on these patients, and if the results were determined to be abnormal, defecography was performed. Balloon expulsion test was conducted using a latex balloon (SILKOLATEX® RUSCH GOLD®; RUSCH, Kamunting, Malaysia, size 7.3 mm, 30-50 mL) attached to a catheter with a water-filled syringe for balloon inflation. If patients were not able to expel the balloon within 2 minutes, the test result was considered abnormal. A total of 100 patients were recruited, and after obtaining informed consent, defecography was conducted. At first, about 150 mL of thickened barium was

administered into the rectum. Then, patients were asked to sit on a radiolucent commode to have the radiographic films taken during a fluoroscopy while resting, deferring defecation, and straining to defecate. Defecographic findings of interest were descending perineum syndrome, rectocele, enterocele, rectal ulcer, rectal prolapse, and fecal residue of post-defecation. This study was approved by the Ethics Committee of the Isfahan University of Medical Sciences.

Statistical analysis was completed using SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). The values were expressed as the means with their standard deviations, or as number (percent). Chi square and independent sample t tests were used to compare the quantitative and qualitative variables, respectively. A p-value of less than 0.05 was regarded as statistically significant.

RESULTS

Of the patient population, 23 patients (23%) were male and

Table 1. Demographic Characteristics of Patients

	Males (n=23)	Females (n=77)
Age, year	39.0±17.1	41.4±14.7
Constipation duration, year	5.6±5.5	5.8±4.4

Values are presented as mean±standard deviation.

Table 2. Frequency of the ROME III Criteria in Participants

Straining	94
Lumpy or hard stools	83
Sensation of incomplete evacuation	85
Sensation of anorectal obstruction/blockage	64
Manual maneuvers to facilitate defecation	42
Fewer than three defecations per week	56

Values are presented as n (%).

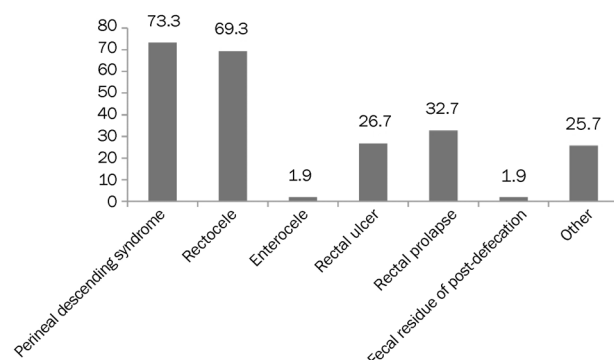


Fig. 1. Frequency of abnormal defecographic findings in all patients.

Table 3. Frequency of the Abnormal Defecographic Findings in Patients according to Sex

	Women (n=77)	Men (n=23)	p-value
Perineal descending syndrome	54 (69.2)	20 (87)	0.04
Rectocele	63 (80.8)	7 (30.4)	<0.001
Enterocele	2 (2.6)	0 (0)	>0.05
Rectal ulcer	24 (30.8)	3 (13)	0.04
Rectal prolapse	23 (29.5)	10 (43.5)	>0.05
Fecal residue of post defecation	1 (1.3)	1 (4.3)	>0.05
Other	23 (29.5)	3 (13)	0.046

Values are presented as n (%).

77 patients (77%) were female. The mean age was 39 ± 17.1 years for males, and 41.4 ± 14.7 years for females (Table 1). The frequency of the ROME III criteria in participants is shown in Table 2.

Normal defecography was observed in only 2 participants. The most common abnormality was descending perineum syndrome (73.3%) (Fig. 1). According to defecography in women participants, descending perineum syndrome was observed in 54 patients (69.2%), rectocele in 63 patients (80.8%), enterocele in 2 patients (2.6%), rectal ulcer in 24 patients (30.8%), rectal prolapse in 23 patients (29.5%), and fecal residue of post-defecation in 1 patient (1.3%) (Table 3).

The frequency of abnormal defecographic findings in men were as follows: descending perineum syndrome in 20 patients (87%), rectocele in 7 patients (30.4%), rectal ulcer in 3 patients (13%), rectal prolapse in 10 patients (43.5%), and residue post defecation in 1 patient (4.3%) (Table 3).

There were statistically significant differences by gender with respect to the prevalence of descending perineum syndrome, rectocele, and rectal ulcer ($p=0.04$, <0.001 , and 0.04 , respectively). Rectocele and rectal ulcer were more frequent in women, while descending perineum syndrome was more prevalent in men. Fig. 1 shows the frequency of abnormal defecographic findings in all patients. In general, women had a greater incidence of abnormal defecographic findings compared with men ($p=0.02$).

DISCUSSION

Choice of treatment in patients with severe constipation is challenging. Diagnostic imaging has been well established to better assist physicians manage those with constipation more accurately. Defecographic findings could be regarded as one of these diagnostic imaging approaches.

The present study showed that the most common defecographic finding among patients with constipation was descending perineum syndrome. Excessive straining upon defecation is known to be the main cause of this syndrome;¹⁷ however, it can itself exacerbate constipation and result in fecal incontinences, anal pain, in addition to the development of other symptoms.^{18,19} Reiner et al. demonstrated that descending of rectum was the most frequent magnetic resonance defecographic finding among patients with suspicion of dyssynergic defecation.²⁰ Nevertheless, the results of the present study appears to contradict the findings of studies carried out by Nielsen and Mellgren, who showed rectal intussusception as the most common abnormal defecographic finding.^{21,22} This may be related to excessive straining during defecation from using Iranian toilets (an unraised, ground-level style). Intussusception has been demonstrated in healthy volunteers and some degree of this disorder might be a normal finding.²³ We found that descending perineum syndrome was more frequently observed in males, contrary to previous studies.^{24,25} Although we lack an explanation, we hypothesize that it could be due to the fewer numbers of men in our study.

Rectocele was the most prevalent disorder in women. This is in agreement with previous studies.^{23,26} The following risk factors were most commonly seen in women: Abnormal descend of the fetal head, the performance of instrumental deliveries, obesity, and chronic obstructive pulmonary disease.²⁷ Arnold et al. published a case-series in which constipation did not disappear in most patients after rectocele repair.²⁸ Rectocele in females has been associated with a high incidence of perineal descend confirmed by the present report.^{29,30} Again, excessive and repeated straining increases the probability of perineal descend and the formation of rectocele.

Enterocoele has been defined as a herniating peritoneal sac in the sigmoid colon or small bowel, between the vagina and the rectum.³¹ Both constipation and incontinence has been associated with enterocoele.³² A deep enterocoele might compress the distal rectum mechanically, thereby causing difficulties with emptying.³³ The present study found enterocoele in two women out of 100 patients. In a study by Bozkurt and his colleagues, anterior rectocoele was observed in 78.6% of 585 females, out of the total 630 patients.³⁴ Our finding is not surprising because it has been reported that the main reason of this abnormality is the loss of vaginal support to the endopelvic fascia.³⁵

Severe constipation is a common, yet difficult problem. Its examination and management are often puzzling and complicated. Defecography can be considered as an important diagnostic tool providing useful information regarding the anatomy of anorectum. Mugie et al. investigated the importance of defecography in directing diagnostic and therapeutic management of defecation disorders in 18 children.³⁶ In 9 children (75%), the change in treatment improved the symptoms.

This study has several limitations. First, we did not evaluate the nutritional habits of these participants. Second, a small sample size and a lack of follow-up may confound our results. Third, we did not perform a manometry. Proving the value of defecography in the diagnosis of gastrointestinal abnormalities requires a larger future study.

In conclusion, defecography can be performed to evaluate abnormalities in patients with severe idiopathic chronic constipation that is not responding to usual treatments. This method can aid in better medical management, including a more suitable decision on particular surgical procedure.

ACKNOWLEDGMENTS

The authors would like to thank the volunteers who participated in the study.

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