Published in final edited form as:
Neurourol Urodyn. 2011 September ; 30(7): 1305–1308. doi:10.1002/nau.21059.

Is Pelvic Pain Associated with Defecatory Symptoms in Women with Pelvic Organ Prolapse?

Tirsit Asfaw
University of Pennsylvania, 5th Floor Penn Tower, 34th Street and Civic Center Blvd, Philadelphia, PA 19104, Work: 215-662-6035, Fax: 215-662-7929, Cell 212-518-3194

Tirsit Asfaw: tirsit@yahoo.com

Introduction

Pelvic organ prolapse is a common condition with a reported prevalence of 41% in women.[1] Common symptoms associated with pelvic organ prolapse include exteriorized tissue, urinary, bowel or sexual symptoms.[2] Some studies report that women with pelvic organ prolapse may also complain of pelvic pain. In a cohort of women with rectocele, Hausamman et al reported a prevalence of 17% of pelvic pain.[3] The American College of Obstetrician and Gynecologists technical bulletin (No, 223) includes pelvic support defects as a gynecologic cause of pelvic pain.[4] However, Ellerkman et al did not find a relationship between the severity of prolapse and pelvic pain.[5] Thus the underlying cause of pelvic pain in women with pelvic organ prolapse is not clear.

Pelvic pain is a common symptom of defecatory disorders such as irritable bowel syndrome and chronic constipation.[6,7] Three categories of symptoms of defecatory dysfunction i.e. anal incontinence, obstructive bowel symptoms, and rectal prolapse, have been widely reported in women with pelvic organ prolapse.[8–11] and the Colorectal Distress Inventory-8 was specifically developed for measuring symptoms of defecatory dysfunction in women with pelvic organ prolapse.[12–13] Thompson[14] and Sloots[15] did report an association between symptoms of defecatory dysfunction and pelvic pain, however, their studies were limited to women with rectoceles. Jelovsek et al used validated questionnaires to measure defecatory disorders in women with pelvic organ prolapse but did not examine the relationship of defecatory symptoms with pelvic pain.[16] Thus, the clinical significance of pelvic pain in women with pelvic organ prolapse remains unclear.

The aim of the present study is to determine if symptoms of defecatory dysfunction are associated with the presence of pelvic pain in women with pelvic organ prolapse.

Materials and Methods

This is a cross-sectional study of women with pelvic organ prolapse who presented for initial evaluation with the chief complaint of pelvic organ prolapse to a urogynecology office between August 1, 2007 and December 1, 2008.

Women were eligible for inclusion if they were noted to have Grade II prolapse or greater in any compartment, anterior, posterior or apical (based on the Baden-Walker half-way system). Exclusion criteria included incomplete questionnaires, history of inflammatory bowel disease, significant neurologic disorders such as stroke, multiple sclerosis or Parkinson's disease.

All women completed the Pelvic Floor Distress Inventory short form (PFDI-20). The question "Do you usually experience pain or discomfort in the lower abdomen or genital

region?" on the PFDI-20 was used to identify women with pelvic pain. For women who responded yes to this question, severity of bother was further categorized at 4 levels: 'not at all', 'sometimes', moderately', 'quite a bit'. For the purpose of this study, pelvic pain was defined as a response of "moderately" or "quite a bit". Women who responded 'no' to the initial question or 'yes' with level of bother as 'not at all' or 'sometimes' were placed in the 'no pelvic pain' group. This definition of symptoms reported on the PFDI follows those previously used in the literature using this instrument.[7]

Symptoms of defecatory dysfunction were measured using the Colorectal Anal Distress Inventory (CRADI-8)[13] subscale of the PFDI-20. The CRADI-8 is validated to specifically evaluate bowel symptoms in women with pelvic organ prolapse. The CRADI-8 subscale consists of 5 questions on symptoms of defecatory dysfunction and 3 questions on fecal incontinence.

All women underwent a complete pelvic examination including pelvic organ prolapse evaluation using the Baden-Walker half-way grading system.[17] The leading edge of the most severely affected compartment was used to assign the grade of prolapse in a given patient. A single examiner performed all the examinations (senior author). The examiner was blinded to the responses of the Pelvic Floor distress Inventory-20.

STATA for Windows version 10.1 (Stata Corp., College Station, TX) was used for statistical analysis. The primary outcome was pelvic pain and the primary exposure was the CRADI-8 subscale score. We compared demographic data,, stage and site of prolapse between women with and without pelvic pain using chi-square test and t-test. The CRADI-8 score were treated as a continuous variable and was not normally distributed. Median and interquartile range of CRADI-8 scores for women with and without pelvic pain were calculated. The association between pelvic pain (primary outcome) and CRADI-8 subscale score (primary exposure) was examined using multivariable regression analysis. For multivariable regression analysis, all potential confounders (age, site of prolapse, maximum grade of prolapse) of the association between CRADI-8 subscale score and pelvic pain were initially placed in the model. Each site of prolapse was treated as a dichotomous variable (presence vs. absence of anterior prolapse, presence vs. absence of posterior prolapse, presence vs. absence of apical prolapse). Maximum grade of prolapse was also treated as a dichotomous variable (Grade II vs Grades III and IV) because the number of women with Grade IV prolapse was small. For regression analysis, previously described statistical techniques were used to determine if a variable was retained in the final model.[18] A variable was retained in the final model if it was associated with the primary outcome (pelvic pain) with $p<0.2$ or if the variable was found to be a confounder of the relationship between CRADI-8 subscale scores and pelvic pain as determined by a change in the estimated odds ratio by 15% or more.[18]

In addition to the total CRADI-8 subscale score, we calculated the age-adjusted odds ratios for the association of each individual bowel symptom with pelvic pain. Individual bowel symptoms were not placed together in a logistic regression model because individual bowel symptoms were highly correlated with each other.

Given that the rate of missing responses for individual items was low (<3%), missing data were assumed missing at random and not associated with the outcomes of the study. STATA for Windows version 10.1 (Stata Corp., College Station, TX) was used for statistical analysis. All reported p-values were two-sided and p-values of <0.05 were considered statistically significant.

Symptoms of defecatory dysfunction have been reported to be present in up to 25% of women with pelvic organ prolpase.[16] Power analysis showed that based on an alpha of 0.05

and beta of 80%, 61 women in each group would allow us to detect an odds ratio of 3 or greater for defecatory symptoms for women with pelvic pain as compared to women without pelvic pain.

Results

187 women (75.4%) were placed in the “no pain” group and 61 women (24.6%) were placed in the “pain” group. Women who reported pelvic pain were significantly younger and less likely to be menopausal as compared to the no pain group, but there were no differences in parity, average body mass index (BMI) or prior pelvic surgery between the two groups (Table I). There was no significant difference in the rate of urinary incontinence between the two groups (Table I). The rate of narcotic use in this population was low (4%) and was not significantly different in the ‘pain’ and ‘no pain’ groups.

The overall number of women with grade IV prolapse was small (n = 10). Majority of women had prolapse affecting more than one compartment. The severity of prolapse, as determined by the grade of the leading edge of the most severely affected compartment, was similar between the two groups. The prevalence of anterior and apical prolapse was similar between the two groups. The prevalence of posterior vaginal wall prolapse was higher in the pain group compared to the no pain group, but this difference did not reach significant levels (Table I). There was no association between the severity of posterior vaginal wall prolapse and pelvic pain in the two groups (Table I).

The relationship between bowel symptoms and pelvic pain is presented in Table II. As noted in Table I, potential confounders for the relationship between bowel symptoms and pelvic pain were age and the site of prolapse (presence of posterior vaginal wall prolapse). On multivariate logistic regression, after adjusting for age, the site and grade of maximum prolapse, we noted an increase in the odds of pelvic pain of 1.6 (95%CI 1.3, 1.9) for every 10 point increase in CRADI-8 subscale scores (Table II).

Age adjusted analysis of individual bowel symptoms showed that pain with bowel movements, fecal urgency, sense of incomplete evacuation and splinting with bowel movements were significantly associated with the presence of pelvic pain (Table II). Additional bowel symptoms significantly associated with pelvic pain were straining with bowel movements, and the sensation of tissue bulging through the rectum. Incontinence of both liquid stool and flatus were weakly associated with pelvic pain, and, no association was noted between incontinence of solid stool and pelvic pain. Thus all symptoms of defecatory dysfunction, except incontinence of solid stool, were associated with the presence of pelvic pain.

Comment

The most interesting finding of our study is that presence of symptoms of defecatory dysfunction are associated with the presence of pelvic pain in women with pelvic organ prolapse. Prior studies have shown a change of 8–12 points in the CRADI-8 score with increasing severity of prolapse[8], or treatment.[9,19] In our study, in women with pelvic organ prolapse, there is an increased odds of 1.6 of pelvic pain for every 10-point increase in the CRADI-8 score Individual bowel symptoms such as pain with bowel movements, fecal urgency, sense of incomplete evacuation, and splinting with bowel movements were significantly associated with the presence of pelvic pain. Women with pelvic pain and pelvic organ prolapse were also significantly more likely to complain of straining with bowel movements and the sensation of tissue bulging through the rectum. This association between high bowel symptom scores and pelvic pain persisted even after controlling for age,

maximum grade of prolapse and site of prolapse. Women with pelvic organ prolapse and pain are thus more likely to suffer from at least three of the six bowel symptoms used to define functional constipation based on the Rome III Criteria[20] including straining, sense of incomplete evacuation and manual maneuvers to facilitate defecation. These findings suggest that women with pelvic organ prolapse and pelvic pain may be at higher risk of defecatory disorders such as chronic constipation.

Most prior studies that have investigated the relationship between pelvic pain and defecatory symptoms have been limited to women with rectoceles.[14,15] An important and clinically useful finding of our study is that the significant relationship between symptoms of defecatory dysfunction and pelvic pain was present even after controlling for the site of prolapse (anterior, apical, posterior). Thus, symptoms of defecatory dysfunction were associated with the presence of pelvic pain not only in women with posterior vaginal wall prolapse but also in women with anterior vaginal wall and apical prolapse.

The rate of pelvic pain in women with pelvic organ prolapse in our study (23%) is consistent with prior reports.[3,5,21] Similar to other studies, we found no association between pelvic pain and the severity of posterior vaginal wall prolapse.[5,22]

We also found a significant association between pelvic pain and the complaint of bulging of tissue through the rectum, suggestive of hemorrhoids or rectal prolapse. This is not surprising since in our study, straining with defecation was also significantly associated with pelvic pain. The clinical significance of the association of fecal urgency and incontinence of liquid stool with pelvic pain in women with pelvic organ prolapse is less clear. It is possible that women with pelvic pain may be more likely to use laxatives to manage their constipation symptoms and thus be more likely to report fecal urgency and incontinence of liquid stool. Alternatively, it is possible that the constipation noted in women with pelvic pain is a part of a broader condition such as irritable bowel syndrome with associated loose stools and fecal urgency rather than a more classic constipation.[23,24] It is important to note that even though we excluded patients with history of inflammatory bowel diseases, we may have included patients with irritable bowel syndrome in our cohort. The precise underlying functional bowel disorder in women with pelvic organ prolapse will need to be determined in additional studies with the administration of detailed bowel questionnaires specific to irritable bowel syndrome. Since our study is cross-sectional in design, we cannot determine if the constipation symptoms observed in our study are the cause or the result of prolapse. Straining with bowel movements has been postulated to cause pelvic organ prolapse.[25] Alternatively it is possible that women with posterior vaginal wall prolapse may suffer from ‘trapping’ of stool in the rectocele pouch and subsequent straining. Prospective studies will be required to clarify the cause-effect relationship between constipation and posterior vaginal wall prolapse.

Strengths of our study include the use of validated questionnaires, inclusion of women with prolapse at all sites and adequate sample size. Our study has several limitations as well. We did not perform a detailed colorectal evaluation, or administer a stool diary or questionnaire to determine stool consistency and frequency, so our ability to comment on coexisting hemorrhoids or rectal prolapse is limited. The single pain question on the PFDI-20 has not been validated to measure pelvic pain. Our study is cross-sectional in design, and we cannot draw conclusions about causation. Nevertheless, our findings suggest that the presence of symptoms of defecatory dysfunction is associated with the presence of pelvic pain in women with pelvic organ prolapse even after controlling for the potential confounding effect of the site and severity of prolapse. Thus women with pelvic organ prolapse who complain of pelvic pain should be evaluated not only for their prolapse symptoms but also undergo colorectal evaluation. Our findings also provide direction for future research. Further

prospective studies that include detailed bowel symptom questionnaires, pelvic pain scales, and radiologic imaging studies to identify the underlying cause of defecatory dysfunction are required.

References

1. Hendrix SL, Clark a, Nygaard I, et al. Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity. Am J Obstet Gynecol. 2002; 186(6):1160–6. [PubMed: 12066091]
2. Bradley CS, Nygaard IE. Vaginal wall descensus and pelvic floor symptoms in older women. Obstet Gynecol. 2005; 106(4):759–66. [PubMed: 16199633]
3. Ellerkmann RM, Cundiff GW, Melick CF, et al. Correlation of symptoms with location and severity of pelvic organ prolapse. Am J Obstet Gynecol. 2001; 185:1332–37. [PubMed: 11744905]
4. Hausammann R, Steffen T, Weishaupt D, et al. Rectocele and intussusception: is there any coherence in symptoms or additional pelvic floor disorders? Tech Coloproctol. 2009; 13:17–25. [PubMed: 19288249]
5. ACOG technical bulletin. Chronic pelvic pain. Number 223--May 1996 (replaces no. 129, June 1989). American College of Obstetricians and Gynecologists. Int J Gynaecol Obstet. 1996; 54:59–68. [PubMed: 8842820]
6. Riedl A, Schmidtmann M, Stengel A, et al. Somatic comorbidities of irritable bowel syndrome: A systematic analysis. J Psychosom Res. 2008; 64(6):573–82. [PubMed: 18501257]
7. Lima de Souza Montenegro ML, Lemes EC, Vasconcelos M, et al. Importance of pelvic floor muscle tenderness evaluation in women with chronic pelvic pain. Pain Medicine. 2010; 11:224–228. [PubMed: 20002593]
8. Bradley CS, Brown MB, Cundiff GS, et al. Bowel symptoms in women planning surgery for pelvic organ prolapse. Am J Obstet Gynecol. 2006; 195(6):1814–9. [PubMed: 16996465]
9. Kim MR, Kim JH, Cho HH. Infracoccygeal sacropexy improves the quality of life in women with uterine prolapse. Maturitas. 2008; 2059(2):158–62. [PubMed: 18242893]
10. Raza Khan F, Cunkelman J, Lowenstein L, et al. Prevalence of bowel symptoms in women with pelvic floor disorders. Int Urogynecol J Pelvic Floor Dysfunct. 2010; 21(8):933–8. [PubMed: 20449569]
11. Ha K, Dancz C, Nelken R, et al. Colorectal and anal symptoms in women with urinary incontinence and pelvic organ prolapse. Int Urogyencol J Pelvic Floor Dysfunct. 2010; 21(2):187–91.
12. Barber MD, Kuchibhtla MN, Pieper CF, et al. Psychometric evaluation of 2 comprehensive condition-specific quality of life instruments for women with pelvic floor disorders. Am J Obstet Gynecol. 2001; 185:1388–1395. [PubMed: 11744914]
13. Barber MD, Walters MD, Bump RC. Short forms of two condition-specific quality-of-life questionnaires for women with pelvic floor disorders (PFDI-20 and PFIQ-7). Am J Obstet Gynecol. 2005; 193:103–13. [PubMed: 16021067]
14. Thompson JR, Chen AH, Pettit PD, et al. Incidence of occult rectal prolapse in patients with clinical rectoceles and defecatory dysfunction. Am J Obstet Gynecol. 2002; 187:1494–99. [PubMed: 12501052]
15. Sloots CE, Meulen AJ, Felt-Bersma RJ. Rectocele repair improves evacuation and prolapse complaints independent of anorectal function and colonic transit time. Int J Colorectal Dis. 2003; 18:342–48. [PubMed: 12774250]
16. Jelovsek JE, Barber MD, Paraiso MF, et al. Functional bowel and anorectal disorders in patients with pelvic organ prolapse and incontinence. Am J Obstet Gynecol. 2005; 193:2105–11. [PubMed: 16325624]
17. Baden WF, Walker TA, Lindsey JG. The Vaginal Profile. Tex Med. 1968; 64:56–8. [PubMed: 5653447]
18. Maldonado G, Greenland S. Simulation study of confounder-selection strategies. Am J Epidemiol. 1993; 138(11):923–36. [PubMed: 8256780]
19. Bradley CS, Nygaard IE, Brown MB, et al. Bowel symptoms in women 1 year after sacrocolpopexy. Am J Obstet Gynecol. 2007; 197(6):642.e1–8. [PubMed: 18060963]

20. Drossman DA. Rome III: the new criteria. Chin J Dig Dis. 2006; 4:181–185. [PubMed: 17054578]
21. Slieker-ten Hove MC, Pool-Goudzwaard AL, Eijkemans MJ, et al. The prevalence of pelvic organ prolapse symptoms and signs and their relation with bladder and bowel disorders in a general female population. Int Urogynecol J Pelvic Floor Dysfunct. 2009; 20(9):1037–45. [PubMed: 19444368]
22. Beverly CM, Walters MD, Weber AM, et al. Prevalence of hydronephrosis in patients undergoing surgery for pelvic organ prolapse. Obstet Gynecol. 1997; 90:37–41. [PubMed: 9207809]
23. Mearin F, Baro E, Roset M, et al. Clinical patterns over time in irritable bowel syndrome: symptom instability and severity variability. Am J Gastroenterol. 2004; 99:113–21. [PubMed: 14687152]
24. Bodemar G, Ragnarsson G. Irritable bowel syndrome. Survey of definitions, differential diagnosis and pathogenesis. Lakartidningen. 2001; 98:666–71. [PubMed: 11475255]
25. Spence-Jones C, Kamm MA, Henry MM, et al. Bowel dysfunction: a pathogenic factor in uterovaginal prolapse and urinary stress incontinence. BJOG. 1994; 101:147–52.

Table I

Association of pelvic pain with clinical and demographic variables

Demographic	Pain n=61 (25%)	No Pain n=187 (75%)	P value
Age (years)*	**56.7±12.96**	**61.7±12.05**	**0.006**
BMI (kg/m^2)*	27.5±6.12	26.8±5.23	0.388
Race White	129(76.8)	40(70.2)	0.319
Non White	39(23.2)	17(29.8)	0.319
Mean parity	2.6±1.28	2.6±1.22	0.793
Menopausal state	**41(68.3)**	**153(84.3)**	**0.006**
Prior Hysterectomy	15(24.6)	43(23.1)	0.814
Prior pelvic surgery	17(9.3)	5(8.3)	0.814
Urinary incontinence	32(55.2)	96(52.5)	0.718
Prolapse:			
Apical	53(86.9)	160(85.6)	0.797
Anterior	44(72.1)	144(77.1)	0.440
Posterior	**19(31.2)**	**37(19.8)**	**0.065**
Grade II Prolapse	9(14.8)	36(19.3)	0.429
Grade III & IV Prolapse	52(85.3)	151(80.6)	0.429
Grade II Posterior Prolapse	8 (42)	19(51)	0.512
Grade III & IV Posterior Prolapse	11 (58)	18(49)	0.512

*Mean±Standard Deviation

Table II

Association of CRADI-8 symptom score and individual bowel symptoms with pelvic pain

Symptom	Pain n=61 (25%)	No Pain n=187 (75%)	OR 95% CI*
Median CRADI-8 ┼ score (interquartile range)	28 (9, 47)	13 (3, 25)	1.5 (1.3, 1.8)**
Pain with bowel movement	5(8.20)	3(1.65)	5.4(1.23–24.0)*
Fecal urgency	19(31.2)	16(8.8)	4.8(2.24–10.3)*
Incomplete evacuation of bowel movement	30(50.0)	33(18.6)	4.7(2.4–8.9)*
Splinting with bowel movement	22(36.1)	24(12.8)	4.3(2.1–8.7)*
Tissue passing or bulging through rectum during or after a bowel movement	11(18.0)	10(5.43)	3.5(1.37–8.8)*
Fecal incontinence (liquid)	11(18.03)	16(8.79)	2.8(1.2–6.7)*
Strain for bowel movement	22(36.1)	35(18.8)	2.3 (1.2–4.4)*
Fecal incontinence (solid)	6(9.84)	12(6.56)	1.9(0.7–5.4)*
Flatal incontinence	25(41.0)	45(24.6)	2.2(1.16–4.0)*

* adjusted for age

** for every 10 point increase in CRADI-8 subscale score after adjusting for age, site and maximum grade of prolapse

┼ Colorectal Anal Distress Inventcy-8 subscale of the Pelvic Floor Distress Inventory-20