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Prevalence of vulvar and vaginal symptoms during pregnancy and the puerperium*

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Abstract

Objective—To identify the prevalence of vulvar and vaginal symptoms during pregnancy and at 3 months post partum.

Methods—A prospective, longitudinal, descriptive study of 103 pregnant women was undertaken in which a self-administered questionnaire was completed at each trimester and 3 months post partum. Retrospective data was collected from 122 women, queried using similar tools, who comprised a nonpregnant control group. Descriptive and comparative statistics were employed.

Results—The prevalence of vulvar burning, itching, pain, and vaginal discharge generally increased during pregnancy, and improved postpartum. Dyspareunia increased during pregnancy, but remained elevated post partum. Compared with the historical nonpregnant group (adjusted for age, marital status, education, and smoking), dyspareunia was reported less often in the first trimester ($P=0.03$) and more often post partum ($P<0.01$). Furthermore, reports of vulvar pain and vaginal discharge were significantly greater during the second and third trimesters.

Conclusions—Vulvar and vaginal symptoms are common during pregnancy, and the prevalence of some, but not all, increase during gestation and decrease post partum.

Keywords

Pregnancy; Puerperium; Vulvar symptoms

1. Introduction

Urogynecological symptoms have been identified as the most common reason for gynecologic care and account for more than 10 million office visits each year [1]. In a community-based sample of 303 US women, nearly 1 in 5 reported a history of lower genital tract discomfort that persisted for more than 3 months [2]. Despite the frequency of these symptoms and their likely association with physiological changes during gestation, little has been reported in the literature regarding the presence of symptoms during pregnancy.

Some urogenital symptoms have been better studied during pregnancy. Urinary frequency and incontinence symptoms are known to increase during pregnancy [3–5]. Similarly, dyspareunia

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was found to be the most common urogenital problem in the postpartum period; and not surprisingly was found to be associated with vaginal delivery and previous experience of dyspareunia [6,7]. Goetsch [8] followed 62 women from between 2 and 8 weeks post partum and found that 45% developed entry dyspareunia with tenderness lasting up to 1 year. However, longitudinal studies of dyspareunia during pregnancy are lacking.

We undertook this longitudinal descriptive study to: (1) identify the prevalence of vulvar and vaginal symptoms, including burning, itching, pain, dyspareunia, and discharge during pregnancy and 3 months post partum; and (2) to compare rates of vulvar and vaginal symptoms in pregnant and postpartum women to those in a nonpregnant historical cohort of women presenting for annual gynecological care at the same tertiary center.

2. Materials and methods

We conducted a prospective, longitudinal study of pregnant women, in which a self-administered questionnaire was collected each trimester and at 3 months post partum. The primary study objective was to prospectively estimate constipation prevalence and risk factors in pregnancy and has been published previously [9]; thus, complete methods details (and results) from the primary study objective are not repeated. The present study comprises a secondary analysis to describe the rate of vulvar and vaginal symptoms in the same cohort. The University of Iowa Internal Review Board approved the study. Each woman signed an informed consent prior to participation.

Participants were recruited from the Obstetrics Clinics at the University of Iowa between November 2004 and March 2005. Prenatal patients who presented for new obstetrical appointments were screened for eligibility and invited to participate during the clinic visit if eligible. Women eligible for participation were in the first trimester of pregnancy (6–14 weeks), 18 years and older, English speaking, and planning to continue prenatal care and delivery at the University of Iowa.

Participants completed a self-administered questionnaire, which included nonvalidated items designed to identify vulvar and vaginal symptoms, including vulvar burning, vulvar itching, vulvar pain, vulvar dyspareunia (“pain in the vulva during intercourse”), and vaginal discharge. Participants were asked to rate the severity of each symptom using an ordinal scale from “0” indicating none to “10” indicating “most severe”. These vulvar and vaginal symptom items have been used successfully in previous studies [10–12]. Demographic characteristics, history (obstetrical and medical), and previously validated urinary incontinence questions were also included in the questionnaire [13].

The first trimester (6–14 weeks) questionnaires were completed immediately after enrollment. Packets including questionnaires were then mailed to participants during their second trimester (14 1/7 – 23 1/7 weeks), third trimester (≥ 24 weeks), and at 3 months after delivery. Participants completed the questionnaire and returned them in a provided stamped return envelope. Reminder telephone calls were made to participants who did not respond at each data collection time point.

We compared rates of vulvar and vaginal symptoms in the pregnant and postpartum women to those of a historical cohort of 122 women with the same age range (18–41 years) who presented to the general gynecology clinics at the same institution for annual examinations between March and September 2003, and who answered the same questions regarding vulvar and vaginal symptoms and urinary incontinence. These women were recruited and enrolled as a control group for a previous study of vulvar symptoms in women presenting to a vulvar vaginal specialty clinic [14]. Women eligible for participation in the comparison group were

18 years and older, English speaking, and were neither pregnant nor within 3 months post partum.

Continuous variables were summarized by mean and standard deviations (SD). Ordinal variables were summarized by median with interquartile range (IQR). Demographic and other characteristics were compared using χ^2 or Fisher exact and unpaired t tests for categorical and continuous variables, respectively. Ordinal variables were compared using a Wilcoxon rank-sum test. The presence of vulvar vaginal symptoms (any response >0) was compared between the study group and the historical control group using the Mantel–Haenszel test, adjusting for age (continuous), marital status (currently married or living with partner; yes, no), education (high school or less, beyond high school), and current smoking (yes, no). Statistical analyses were conducted using the Statistical Analysis System (SAS, Cary, NC, USA). $P \leq 0.05$ was considered statistically significant.

3. Results

One hundred and fourteen women were enrolled in the longitudinal pregnancy study. Of these, 10 had a spontaneous or missed abortion and 1 was diagnosed with a molar pregnancy soon after enrollment. These 11 women were excluded from analysis, leaving 103 participants, of which 77 women completed the second trimester survey, 70 women completed the third trimester survey, and 63 women completed the final postpartum survey. The participants were primarily white non-Hispanic, which reflects the population of the center. Given the paucity of non-white participants, analyses by race were not performed.

There were 124 women in the historical group within the same age range as the prospective pregnancy study group (18–41 years) available for comparison. Of these women, 2 reported a history of hysterectomy and were therefore excluded, leaving 122 women in the gynecology comparison group.

Patient characteristics are presented in Table 1. The mean age in the pregnancy cohort was 28 ± 5 years, whereas the mean age of the gynecology comparison cohort was 30 ± 6.6 years. Both groups had similar rates of prior vaginal and cesarean deliveries; however, education and tobacco use differed. Interestingly, women in the pregnancy study group reported excellent or very good general health status more often, whereas gynecology comparisons sanctioned a lower general health status. The general health status remained consistent at all time periods (data not shown).

The presence of all vulvar and vaginal symptoms became more common during pregnancy, and all (except dyspareunia) decreased in the postpartum period (Table 2). Unlike the other symptoms, dyspareunia was reported more often at 3 months post partum when compared with rates reported during pregnancy. Compared with the gynecology cohort, dyspareunia was reported significantly less often in the first trimester and significantly more often post partum. Furthermore, vulvar pain, vaginal discharge, and stress urinary incontinence were significantly more common during the second and third trimesters, and urge incontinence was identified more often during the third trimester.

Although the presence of vulvar and vaginal symptoms became more common as pregnancy progressed, the symptom severity increased only slightly for vaginal discharge during the third trimester ($P < 0.01$; median score 2 vs 4, first and third trimester, respectively), and dyspareunia post partum ($P < 0.05$; median score 0 vs 2, first trimester and post partum, respectively). Thus, although more women in the pregnancy group increasingly reported the presence of vulvar and vaginal symptoms during pregnancy, the median symptom severity remained low on a 0 to 10 ordinal scale.

In evaluating vulvar symptoms post partum, women who delivered vaginally were more likely to report vulvar burning ($P<0.01$), and dyspareunia ($P=0.01$); the rates of vulvar itching and pain, and vaginal discharge were not affected by the mode of delivery. Twenty-two of 53 women who delivered vaginally identified postpartum dyspareunia compared with 2 of 10 who delivered by cesarean.

4. Discussion

We found that vulvar symptoms were common during pregnancy and several (vulvar burning, vulvar pain, dyspareunia, and vaginal discharge) increased in frequency in later pregnancy. Dyspareunia was most commonly reported at 3 months post partum, but the other symptoms decreased post partum to levels similar to those reported during the first trimester. When compared with the historical gynecology control group, rates of vulvar pain, vaginal discharge, and urinary incontinence were significantly increased during the second and third trimesters, and dyspareunia was more common post partum. These associations held after adjusting for potential confounding factors.

Vulvar pain is a common problem with prevalence estimates up to 23% depending on the population studied [15]. The onset of vulvar pain syndromes has been inconsistently associated with various factors including pregnancy. However, most studies are retrospective in nature and rely on participant recall when identifying a “preceding” event.

We found that dyspareunia was less common during the first trimester and more common post partum. The presence of postpartum dyspareunia is noted in obstetric texts and, is typically “anticipated” by women following vaginal delivery. Perineal pain and dyspareunia are typically attributed to vaginal trauma, use of episiotomy, and atrophic changes associated with lactation following delivery [6,16–18]. However, entry dyspareunia has also been reported by women following cesarean delivery [8]. Thus, vaginal dilation and trauma are not causal requirements for postpartum dyspareunia. Although we found that women who delivered vaginally were more likely to report vulvar burning and dyspareunia than those who delivered by cesarean, cesarean was not entirely protective. Unfortunately, lactation and resumption of menstruation were not queried. Thus, whether lactation and resultant amenorrhea (hypoestrogenism) were associated with postpartum dyspareunia could not be determined from this cohort.

It is notable that in the study population, the rate of vulvar pain following delivery was similar to the rate during the first trimester; whereas, dyspareunia was noted more often only following delivery. Thus, when asked specifically, women separated dyspareunia from vulvar pain. Although the prevalence of vulvar symptoms increased during pregnancy, it was interesting to note that the rates of vulvar pruritus and burning were not significantly increased compared with the gynecology cohort. Thus, not all vulvar symptoms appear to be affected by gestation and delivery.

Presence of leucorrhea was noted to be more common among pregnant compared with nonpregnant women in a cross-sectional study of Nagpurian women and was hypothesized by the authors to be related to increased vascularity and glycogen content of the vaginal epithelium in pregnancy [19]. Similarly, we identified an increase in vaginal discharge during the second and third trimesters. Although increased vascularity and glycogen content of the vaginal epithelium have been hypothesized to contribute to increased vaginal discharge, to our knowledge no studies have been conducted to confirm this hypothesis.

We also queried women regarding urge and stress urinary incontinence symptoms and found, similar to prior studies, that both increased during gestation, and then decreased at 3 months post partum [3,5,20,21]. Van Brummen et al. [21] completed a prospective longitudinal study

of 515 nulliparous pregnant women and found that stress incontinence increased from 19% at 12 weeks of pregnancy to 42% at 36 weeks, and urge incontinence increased from 6% at 12 weeks to 19% at 36 weeks. However, the prevalence of “bothersome” symptoms was much lower in these women: bothersome stress incontinence was reported by 2% and 6%, and bothersome urge incontinence by 0% and 3% at 12 and 36 weeks, respectively. We did not ask women to rate the severity or level of inconvenience related to incontinence symptoms in the present study, but we did find a similar trend in terms of vulvar and vaginal symptoms during and after pregnancy. Rates of vulvar pain, vaginal discharge, and dyspareunia were high at various time periods, but overall the level of severity reported was low (none with median severity >4 on a 0 to 10 ordinal scale). This low level of severity may reflect response bias rather than degree of nuisance.

The strengths of the present study included the prospective, longitudinal design to determine rates of vulvar and vaginal symptoms during gestation and following delivery. To our knowledge, this is the first longitudinal report to quantify the presence and severity of vulvar symptoms during pregnancy. Although this study was limited by the lack of a concurrent nonpregnant control group, we were able to utilize data from a historical group consisting of patients presenting for annual gynecologic examination at the same institution. Our analysis adjusted for variables that differed between the groups (age, education, and smoking) as well as for other potentially confounding variables. Other limitations include the loss to follow-up of many participants after the first trimester. We did identify several characteristics that differed between those participants who contributed more data and those lost to follow-up, but we are unable to predict whether missing data might affect the results. Furthermore, the inconsistent return rate and overall 40% decline in response at the final 3 month postpartum query does not allow a paired analysis using all 4 study points for each woman. A paired analysis would have allowed each woman to serve as her own control regarding change in vulvar symptoms over time. Finally, the predominately white population limits our ability to generalize our results to other ethnic or racial groups.

In conclusion, we found that vulvar and vaginal symptoms are common during pregnancy, and the prevalence of some, but not all, increase during gestation and decrease post partum. Thus, from a clinical standpoint, these findings may be used to counsel patients.

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Table 1**Patient characteristics ^a**

Characteristics	Pregnancy study group (n=103)	Nonpregnant comparison group (n=122)	P value
Age, y	28.4 ± 5	30.1 ± 6.6	0.03
Race			0.75
White	95 (92.2)	113 (92.6)	
Black	2 (1.9)	3 (2.5)	
Hispanic	2 (1.9)	1 (0.8)	
Other or unknown	4 (3.8)	5 (4.1)	
Married or living with partner	83 (80.6)	109 (89.3)	0.07
Parity			
At least one prior delivery	47 (45.6)	42 (34.4)	0.12
Prior vaginal delivery	44 (42.7)	40 (32.8)	0.16
Prior cesarean delivery	11 (10.6)	9 (7.4)	0.53
Education			0.03
High school or less	15 (14.6)	7 (5.7)	
Beyond high school	88 (85.4)	115 (94.3)	
Current smoking	3 (3.0)	14 (11.8)	0.02

^aValues are given as mean ± SD using unpaired *t* test or as number (percentage) using χ^2 or Fisher exact tests.

Frequencies of vulvar and vaginal symptoms by trimester and at 3 months post partum in the pregnancy study group and in nonpregnant comparisons^a

Table 2

	Trimester			Post partum (n=63)	Comparisons (n=122)
	First (n=103)	Second (n=77)	Third (n=70)		
Vulvar burning	8 (8)	10 (13)	13 (19)	6 (10)	13 (11)
Vulvar itching	24 (24)	33 (43)	27 (39)	21 (33)	35 (30)
Vulvar pain	5 (5)	10 (13) ^b	14 (20) ^c	5 (8)	7 (6)
Dyspareunia	11 (11) ^b	17 (22)	15 (23)	24 (39) ^c	26 (22)
Vaginal discharge	68 (67)	68 (88) ^c	64 (93) ^c	44 (70)	69 (59)
Urge urinary incontinence	8 (8)	11 (14)	15 (21) ^b	9 (15)	14 (11)
Stress urinary incontinence	35 (34)	53 (70) ^c	45 (64) ^c	22 (35)	32 (27)

^aData are presented as number (percentage). Mantel-Haenszel test, adjusted for age (continuous), marital status (currently married or living with partner: yes, no), education (high school or less, greater than high school), and current smoking (yes, no).

^b $P < 0.05$ compared with gynecology group, adjusted for age, marital status, education, and smoking.

^c $P < 0.01$ compared with gynecology group, adjusted for age, marital status, education, and smoking.