

Original Research Article

# Prevalence of vaginitis during pregnancy and its fetomaternal outcome

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	International Archives of Integrated Medicine, Vol. 7, Issue 2, February, 2020. Copy right © 2020, IAIM, All Rights Reserved. Available online at <a href="http://iaimjournal.com/">http://iaimjournal.com/</a>	
	ISSN: 2394-0026 (P)	ISSN: 2394-0034 (O)
	Received on: 01-01-2020	Accepted on: 03-01-2020
Source of support: Nil		Conflict of interest: None declared.
How to cite this article: Y. Pramoda. Prevalence of vaginitis during pregnancy and its fetomaternal outcome. IAIM, 2020; 7(2): 62-67.		

## Abstract

**Introduction:** Bacterial vaginosis (BV) is related to the increased risk of miscarriage, preterm labor, and postpartum endometritis.

**Aim:** To know prevalence of vaginitis in pregnant women attending antenatal clinic and its correlation with adverse pregnancy outcome.

**Materials and methods:** The prospective study was conducted in the Department of Obstetrics and Gynecology over a period of one year This study was conducted on 200 pregnant women investigated for bacterial vaginitis with vaginal secretion/discharge sent to detect BV by Nugent's criteria, Amsels criteria, Candidiasis by KOH preparation, gram staining, Trichomonas vaginitis by saline wet mount preparation and culture of vaginal secretions.

**Results:** Out of total 200 patients, 37 patients had vaginal infections with a frequency of 18.5%. Out of 37 patients with vaginal infections, Most of the patients in study were with bacterial vaginosis of 30 (81%). Younger age group of women, primi with lower socioeconomic status was more effected subjects with bacterial vaginitis. Second trimester was most prone for bacterial vaginitis. Patients with bacterial vaginitis had significant maternal complications and also low birth weight babies than that of women without vaginal infections.

**Conclusions:** The incidence of poor pregnancy outcome was higher in bacterial vaginosis with UTI. So it is necessary to check for abnormal vaginal discharge and early diagnoses and treatment can prevent the adverse perinatal outcome due to vaginitis.

## Key words

Bacterial vaginosis, Pregnancy outcome, Asymptomatic.

## **Introduction**

Bacterial vaginosis (BV), defined as a disturbance in the natural vaginal microbiota characterized by reduced *Lactobacillus* and overgrowth of anaerobic bacteria [1], is found in 9 % to 23 % of pregnant women [1]. Symptoms include vaginal discharge and malodor, but often women who have BV are asymptomatic. BV during pregnancy is an established risk factor for preterm delivery as well as other adverse preterm pregnancy outcomes such as premature rupture of membranes, low birth weight, chorioamnionitis, and spontaneous abortion [2, 3, 4].

The most common causes of infectious vaginitis in pregnancy are Bacterial vaginosis (BV), Candidiasis and Trichomoniasis. BV is characterized by a change from normal *Lactobacillus* dominated flora to a mixed flora consisting of *Gardnerella vaginalis*, *Mycoplasma hominis*, *Mobiluncus* species and other anaerobes.1 BV has been linked to many gynecological conditions like pelvic inflammatory disease (PID), posthysterectomy infections and postabortal PID. Certain obstetrical complications like preterm labor and preterm delivery premature rupture of membranes (PROM), amniotic fluid infections and post- partum endometritis have been linked to occurrence of BV during pregnancy. *Candida* vaginitis is responsible for 80% to 90% of infections during partum endometritis have been linked to occurrence of BV during pregnancy. *Candida* vaginitis is responsible for 80% to 90% of infections during pregnancy [5]. Since, different type of vaginitis can be associated with pregnancy complications; we undertook this study to know the prevalence of vaginitis in pregnant women attending antenatal clinic and its correlation with adverse pregnancy outcome.

## **Materials and methods**

The prospective study was conducted in the Dept. of Obstetrics and Gynecology over a period of one year. This study was conducted on 200 pregnant women.

**Inclusion criteria:** Single pregnancy, Period of gestation <28 weeks (as calculated by last menstrual period or first obstetrical ultrasound).

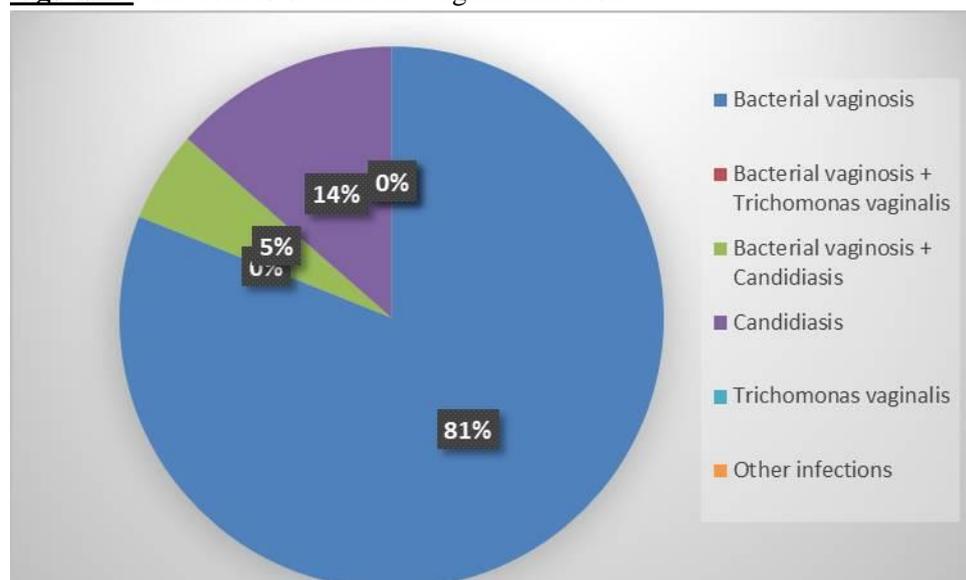
**Exclusion criteria:** Women with history of previous preterm labor or threatened preterm labor, Women with known obstetrical complications, which can be a confounding factor for preterm labor such as antepartum hemorrhage, severe anemia, pregnancy-induced hypertension, essential hypertension, multiple gestation, existing kidney or heart disease, structural and functional abnormalities of the uterus and chronic documented urinary tract infection, Cases where preterm labor was induced for any obstetrical and medical condition.

Written and informed consent in patients own language was taken before enrolling patients for the study. Women with period of gestation <20 weeks and no vaginitis at first visit were followed up again at 20 weeks and 28 weeks to assess for the presence of vaginitis. Those women with period of gestation between 20 and 28 weeks and no vaginitis at first visit were followed up after their primary visit again at 28 weeks to assess for presence of vaginitis. A detailed history and examination was done in all the antenatal women. All women were subjected to routine antenatal investigations. Apart from the routine investigations, vaginal secretion/discharge were sent to detect BV by Nugent's criteria, Amsels criteria, Candidiasis by KOH preparation, gram staining, *Trichomonas* vaginitis by saline wet mount preparation and culture of vaginal secretions.

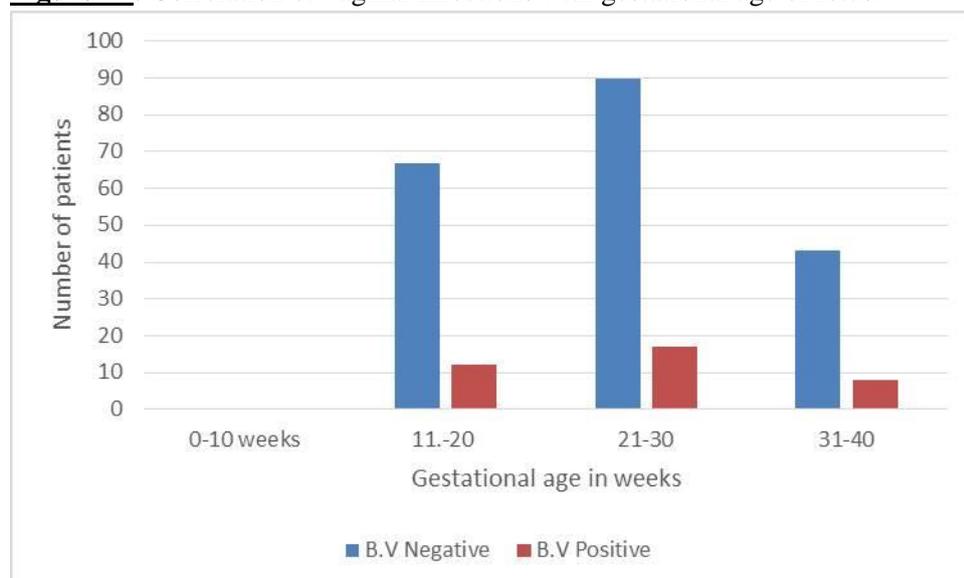
## **Results**

Out of total 200 patients, 37 patients had vaginal infections with a frequency of 18.5%. Out of 37 patients with vaginal infections, most of the patients in study were with bacterial vaginosis of 30 (81%) as per **Figure - 1**. Younger age group of women, primi with lower socioeconomic status were more effected subjects with bacterial vaginitis (**Table – 1**).

**Figure - 1:** Incidences of different vaginal infection.



**Figure - 2:** Correlation of vaginal infections with gestational age of fetus.



Second trimester was most prone for bacterial vaginitis (**Figure - 2**). Patients with bacterial vaginitis had significant maternal complications and also low birth weight babies than that of women without vaginal infections (**Table - 2**).

(18.5%) women had bacterial infection. The prevalence of BV in this sample, at 19%, was in the range of previous findings for other populations in India [6]. Study also in agreement with Govender, et al. and Levett, et al. [7, 8].

## Discussion

India has a high burden of reproductive morbidity, and BV has been documented as a risk factor for both adverse birth outcomes and HIV, this study investigated potentially modifiable behavioural and biological risk factors for BV. Out of 200 patients enrolled, 37

In our study, younger age group of women, primi with lower socioeconomic status are more effected subjects with bacterial vaginitis. In India, this may have important implications because women in the 15–20 year age range are at higher risk for STI and bad birth outcomes. Another study in Africa showed similar findings

[9]. Since we did not collect information on certain risk factors, such as genital hygiene practices that are known to be associated with BV and may vary by religion [15], additional research is needed to better understand the socio-cultural risk factors surrounding this condition.

**Table - 1:** Demographic Distribution.

Age-wise distribution of B.V. associated with UTI	Frequency (N=37)	%
18-27* years	30	81.0
28-35 years	6	16.2
>35 years	1	2.7
Parity-wise distribution		
P0+0*	24	64.8
P1+0	6	16.2
P2+0	2	5.4
P3+0	0	0
P0+1	3	8.1
P0+2	0	0
P1+1	2	5.4
Socio-economic status of BV positive		
Upper	2	5.4
Upper-middle	2	5.4
Lower-middle	1	2.7
Upper-lower	11	29.7
Lower*	21	56.7

**Table - 2:** Adverse pregnancy outcome with BV, without BV and with BV associated with UTI.

	Without BV (n=118)	BV only (n=41)	BV with UTI (n=14)
Abortion	3	5	1
PROM	7	12	4
Preterm labor	15	25	10
Conservatively	9	3	4
Delivered	7	17	5
Puerperal pyrexia	1	3	2
Birth weight			
2.5 kg	100	17	12
2.0-2.5 kg	20	22	4
<2.0 kg	0	1	0

The frequencies of second trimester miscarriage in women with BV are higher than that in the women without BV (N = 17). In statistical analysis, the presence of BV is also significantly associated with second trimester miscarriages ( $P < 0.05$ ). Rai, et al. reported that untreated infections going on for a long time without any symptoms cause pregnancy losses [10]. To our opinion, consistent with these results, untreated and asymptomatic BV infection in first trimester or before pregnancy may cause second trimester miscarriage.

Patients with bacterial vaginitis have significant maternal complications and also low birth weight babies than that of women without vaginal infections. BV is associated with pregnancy outcomes, including abortion, preterm labor, and premature rupture of membranes [11]. According to the National Health and Nutrition Examination Survey, BV was positive in 29% of the fertile women aged 14-49 years [12]. Jacobsson, Svare, and McGregor, et al. studied pregnant women, and the prevalence of BV was found between 15.6% and 32.5% among their study subjects [13, 14]. The effects of BV on abortion were examined generally in pregnant women so far.

Recent studies showed women with BV during pregnancy increased two- to threefold spontaneous abortion risk compared to women without BV. In addition, Meningistie, et al. and Goffinet, et al. showed that BV was observed in pregnant women with the history of spontaneous abortion [15, 16]. In our study, BV was found in 12 of 30 (40%) women with a history of spontaneous abortion in the last 6 months. Consistent with previous reports, our data showed that BV is more frequent in fertile women with the history of spontaneous abortion in the last 6 months ( $P < 0.05$ ) than the women with recurrent pregnancy losses ( $P > 0.05$ ).

Study related to the recurrent pregnancy losses, Llahf-Camp, et al. aimed to state whether or not BV was related to a history of recurrent pregnancy losses in 500 women [17]. This report

indicated that BV is more frequent in women with a history of late miscarriage.

## Conclusion

The incidence of poor pregnancy outcome was higher in bacterial vaginosis with UTI. Prevention of BV and UTI is cost effective to minimize the pregnancy outcome complication such as abortion, PROM, PPRM and preterm labor to decrease perinatal and maternal mortality and morbidity. So, it is necessary to check for abnormal vaginal discharge and early diagnoses and treatment can prevent the adverse perinatal outcome due to vaginitis.

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