

Study of Bacterial Vaginosis in Women of Reproductive Age Group in Southern Odisha

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Abstract: Bacterial vaginosis is the most common cause of abnormal vaginal discharge among women in the reproductive age group with complex changes in vaginal flora and is associated with low birth weight infant and preterm birth. This study was done with the aim of detecting different bacteria causing vaginosis in 18 – 49 years age group of women in Southern Odisha. A study on 120 women presenting with abnormal vaginal discharge attending the Gynaecology OPD was conducted from August 2016- July 2017. Two high vaginal swabs were taken. One was used for Gram stain, pH testing and Whiff test. Second swab was used for culture on blood agar and Columbia blood agar. Diagnosis was done using the Nugent scoring system.

Total 120 patients were studied. Maximum no. of patients with vaginal discharge belonged to 18 to 28 years (56%). Vaginal pH more than 4.5 was seen in 78% and Whiff test was positive in 50% women. The predominant isolate was Gardnerellavaginalis (56.7%) followed by Mobiluncusspp (23.3%), and Bacteroides (8.3%). Sixty eight percent (68%) of patients showed Nugent score of 7 and 32% women showed 9-10 indicating complete depletion of Lactobacillus spp. Gardnerellavaginalis, Bacteroidesspp and Mobiluncusspp were associated with bacterial vaginosis in this population. Early diagnosis and appropriate treatment would reduce the complication.

Keywords: Bacterial Vaginosis, Gardnerellavaginalis

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I. Introduction

Bacterial vaginosis is the most common cause of abnormal vaginal discharge among women in the reproductive age group. Symptomatic women usually present with thin, foul smelling, homogenous, frothy vaginal discharge¹. It is characterized by a complex change in the vaginal flora with reduction in the numbers of lactobacilli and increase in Gardnerellavaginalis and resident anaerobic bacilli². It is associated with pelvic inflammatory disease, infertility, low birth weight infant and preterm birth. Method of diagnosis of bacterial vaginosis include Amsel's criteria and Nugent's score^{2,3,4}

II. Aims And Objectives

To isolate and identify the etiologic agent causing bacterial vaginosis. To know the prevalence of bacterial vaginosis among reproductive age group women of Southern Odisha.

III. Material And Method

3.1 Study design

Prospective study A total of 120 clinically diagnosed bacterial vaginosis patients within age group 18 – 49 years attending the outpatient Department of Obstetrics and Gynaecology MKCG Medical college and Hospital Berhampur were studied over a period of one year from August 2016 to July 2017.

IV. Method

A speculum examination without antiseptic cream was done and the nature of discharge and condition of vagina were noted. Then two high vaginal swabs were taken from the posterior fornix from which one was used to measure pH secretion, Whiff test for odour of the secretion by adding 10% KOH on secretion, wet mount and Gram stain. Second swab was used for culture on blood agar and Columbia blood agar.

Saline wet mount: A drop of vaginal discharge was mixed with a drop of normal saline on a clean glass slide and a cover slip was placed over it. The slide was examined under high power (40X) for various bacteria and cells. Clue cells were identified as those vaginal epithelial cells adherent with numerous small bacteria. Presence of any motile bacteria were also noted.

4.1 Gram stain: Done to identify clue cells and to quantify bacterial morphotype scored for the diagnosis of bacterial vaginosis following the Nugent’s scoring system³.

4.2 Amsel’s Criteria ^{1,2,4}

Is used to diagnose the bacterial vaginosis cases which is characterised by -

1. Profuse thin (low viscous),white homogenous vaginal discharge uniformly coated on vaginal wall.
2. pH of vaginal discharge >4.5.
Accentuation of distinct fishy odour when vaginal secretions are mixed with 10% solution of KOH(Whiff test).Attributable to volatile amines such as trimethylamine.
3. Clue cells-They are vaginal epithelial cells coated with coccobacilli(they have a granular appearance with indistinct border on wet mount).

When Three Out Of These 4 Criterias Are Present Bacterial Vaginosis is Diagnosed.

Table 1 (Nugent’s Diagnostic Criteria For Bacterial Vaginosis) ^{1,2,3,5}

Organismmorphotype	Number/Oil Immersion Field	Score
Lactobacillus – Like (Parallel-Sided, Gram- Positive Rod)	>30	0
	5-30	1
	1-4	2
	<1	3
	0	4
Mobiluncus – Like(Curved, Gram- Negative Rod)	>5	2
	<1-4	1
	0	0
Gardnerella/ Bacteroideslike (Tiny, Gram - Variablecoccobacilli And Rounded, Pleomorphic, Gram Negative Rods With Vacuoles	>30	4
	5 – 30	3
	1 – 4	2
	<1	1
	0	0

Score	Interpretation
0 – 3	Normal
4 – 6	Intermediate, repeat test later
7 – 10	Bacterial vaginosis

V. Observation

Table 2: Age Distribution(N=120)

Age (in yrs)	Total no.	Percentage
18-28	58	48%
29-39	42	35%
40-49	20	17%
Total	120	100%

Incidence of bacterial vaginosis is highest (48%) between 18 – 28 years followed by (35%) in 29 – 39 years age group indicating that there is a high incidence of vaginal infections in young individuals in the reproductive age group.

Table3:Predisposing Factors

FACTORS	No.	%
1.IUCD	48	40%
2.Low SES	32	27%
3.ILLITERACY	29	24%
4.DOUCHING	11	9%
Total	120	100%

(IUCD – Intra Uterine Contraceptive Device, SES – socioeconomic Status)

High incidence of bacterial vaginosis was found in the IUCD user 40% followed by low socioeconomic status (27%)

Table 4: Clinical Presentation Of Symptomatic Patients (N=120)

Clinical feature	No.	%
Abnormal Vaginal discharge (Vd) only	68	56%
Vd+Lower Abdominal Pain	38	31%
Vd + Dysuria	10	8%
Vd+ Dyspareunia	4	3%

(Vd – Vaginal discharge)

Majority of patients presented with abnormal vaginal discharge only (56%), followed by symptoms of abnormal vaginal discharge associated with lower abdominal pain (31%).

Table 5 :Macroscopy Finding Of Vaginal Secretion (N=120)

Macroscopic findings	No.	%
Homogenous thin white discharge	80	66
Gray colour discharge	40	33
pH>4.5	94	78
Amine test positive	60	50

Table 6 :Microscopic Finding

WET MOUNT	Number	%age
Motile bacilli	40	33.3
Non-motile bacilli	100	83.3
GRAM - STAIN		
Gram negative bacilli	60	50
Gram variable bacilli	40	33
Gram positive bacilli	20	17
Clue cells	20	17

Motile bacilli were found in 33.3% of cases. Gram stain showed gram negative bacilli in 50% of cases, and clue cells in 17% cases.

Table 7: Isolated Microorganisms

Microorganism	No.	%
Gardnerellavaginalis	68	56.7
Mobiluncusspp	28	23.3
Bacteroidesspp	10	8.3
No growth	14	11.7

Most common organisms isolated was Gardnerellavaginalis56.7%, followed by Mobiluncusspp 23.3 % and Bacteroidesspp 8.3%. Bacterialgrowthcouldnot be observed from 14 cases(11.7%).

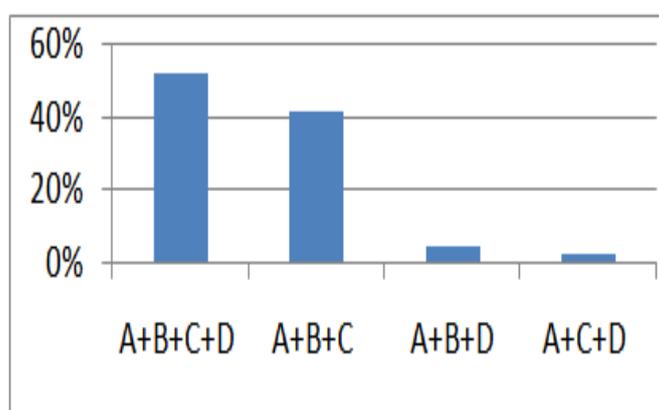
5.1 Diagnosis Based On Amsel's Criteria (N=120)

A – Homogenous Thin Vaginal Discharge

B – Ph4.5 Or More

C - Positive Amine Test

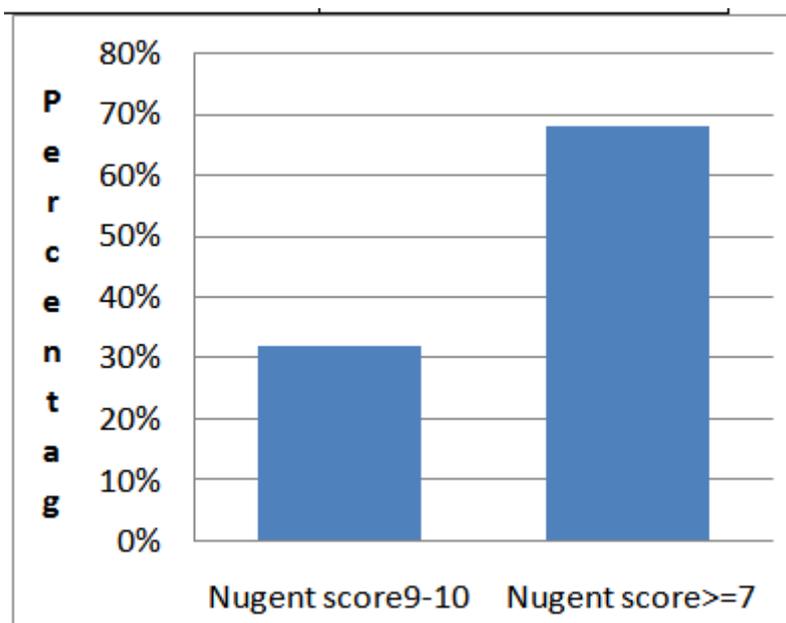
D – Positive Clue Cell



57% of the cases shows all 4 criteria and 40% shows three criteria.

Table 8: Diagnosis By Nugent's Score(N = 120)

Nugent's score	%age of women
9-10	32
>=7	68



1. Thirty two percentage (32%) women showed Nugent score 9-10 indicating complete depletion of Lactobacillus spp
2. Sixty eight percentage (68%) of patients showed Nugent score of 7

VI. Discussion

These findings confirm that women of childbearing age were affected by BV in Southern Odisha. The highest incidence of women with BV among the age group of 18 - 28 years. The prevalence of BV on women from low socioeconomic status. In the study, Gardnerella vaginalis was the predominant organism that was isolated (56.7%) from all symptomatic patients. However, a study in Uganda among women of reproductive age had found no association between Gardnerella vaginalis and Bacterial Vaginosis. J.NZOMO ET AL. Homogenous, thin, vaginal discharge was the most common presenting symptom. Bacterial vaginosis found in women from IUCD users, low socioeconomic status, illiteracy, early sexual activity. Habits and practices like douching and pH of vaginal fluid may also be an important cause for bacterial vaginosis. Similar finding in study by Tiyyaguru et al. Clue cells were present in 17% of cases of bacterial vaginosis. As per our results, Nugent's score showed a positive association with bacterial vaginosis which coincides with other studies.

VII. Conclusion

Predominant isolate was Gardnerella vaginalis (56.7%) followed by Mobiluncus spp (23%), Bacteroides spp (8.3%). Early screening and appropriate treatment would reduce prevalence of bacterial vaginosis in the population.

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