

Prevalence of Bacterial Vaginosis in Sexually Active Females

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OBJECTIVE— To know prevalence of bacterial vaginosis (BV) in sexually active females coming with the chief complaint of vaginal discharge to the out patient department **METHOD** - One hundred females attending the OPDs with complaint of vaginal discharge were studied. Diagnosis of bacterial vaginosis was made according to Amsel's clinical criteria and Nugent's criteria for evaluating Gram stained vaginal smears. The results were compared with the data available from the previous studies. **RESULTS** - We found a 40% prevalence of BV, out of which 10% women were pregnant and 18.3% were IUCD users. **CONCLUSION** - The prevalence of bacterial vaginosis is on higher side of the available data. There is an association between IUCD use and occurrence of bacterial vaginosis.

Key words - bacterial vaginosis, sexually active females, intrauterine contraceptive device

Introduction

Bacterial vaginosis (BV) also called non-specific vaginitis, develops when the normally predominant peroxide producing lactobacillus species in the vagina are replaced by mixed predominantly anaerobic flora consisting of Gardnerella vaginalis, Mycoplasma hominis, Mobiluncus species, Bacteroides species, Prevotella species, Peptostreptococcus species, Fusobacterium species and Porphyromonas species.

Risk factors associated with developing BV include non-caucasian race, intrauterine contraceptive device use and multiple sexual partners. Although sexual intercourse is thought to play a role in its transmission BV is not considered exclusively a sexually transmitted disease. Patients with BV most commonly present with a musty or fishy vaginal odour and a thin, white vaginal discharge. The diagnosis of BV is determined if three of the following four signs (Amsel's criteria) are present -

1. Presence of clue cells
2. Homogenous white, non-inflammatory discharge that adheres to the vaginal walls.
3. pH of vaginal fluid > 4.5
4. Fishy odour from vaginal discharge before or after addition of 10% potassium hydroxide.

BV is the syndrome thought to be the most prevalent cause of vaginitis. Several clinical diagnostic criteria,

Gram stain methods and biochemical markers have been developed to aid the diagnosis. Gram stain of vaginal secretions is relatively rapid, objective and inexpensive method of diagnosing BV by identifying the characteristic change in the vaginal flora. It offers the advantage of allowing retrospective diagnosis. The interpretation of Gram staining is done by Nugent's scoring¹ (Table-I)

The present study was conducted to know the prevalence of BV in sexually active females coming with the chief complaint of vaginal discharge to Obstetrics and Gynecological OPD and to STD Clinic of Department of Dermatology, Venereology and Leprology.

Materials and Method

One hundred and fifty sexually active females attending these OPDs with complaint of vaginal discharge were selected at random. Vulva was cleaned with a saline soaked swab. A Sim's speculum was inserted into the vagina and type of discharge noted. A drop of discharge was taken on a glass slide and a drop of 10% KOH was added to it to look for fishy odour and pH of the discharge was tested. A smear was obtained with a swab stick from the posterior vaginal fornix and the swab was rolled across a glass slide. The smear was air dried, fixed and Gram stained and examined under microscope (100X) for presence of clue cells i.e. vaginal epithelial cells whose borders are obscured by attached bacteria (Photograph I).

Results

Out of 150 patients 60 (40%) were found to be suffering from BV. All these patients fulfilled three out of four Amsel's criteria and also showed clue cells on Gram staining with scores ranging from 4 to 10 suggestive of

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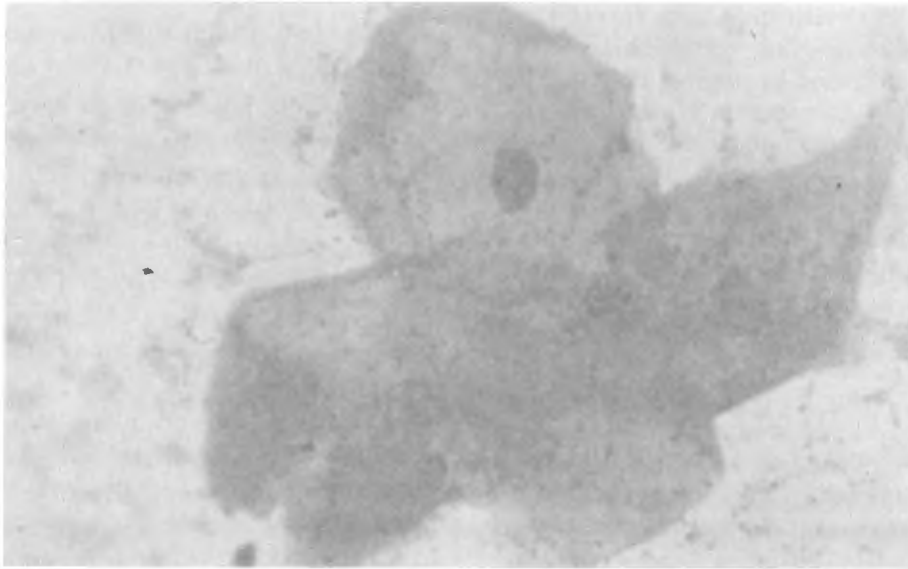
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bacterial vaginosis. Six out of these 60 patients were pregnant (10%) and 11 (18.3%) were IUCD users. The

comparison of prevalence of BV in different studies conducted world-wide in given in Table II.



Photograph 1 : Photograph shows Gram stained vaginal smear showing typical clue cells from a woman with bacterial vaginosis

Table I : Nugent's Scoring of Gram Stained Smears for Diagnosis of BV⁴.

Bacterial Morphotype	None	Points scored per Morphotype ^a			
		1+ ^b	2+ ^b	3+ ^b	4+ ^b
Large Gram positive rods	4	3	2	1	0
Small Gram negative / variable rods	0	1	2	3	4
Curved Gram negative/variable rods	0	1	1	2	2

a - Score or 0 to 3 points, normal; 4 to 6, intermediate; 7 to 10, bacterial vaginosis.

b - 1+, < 1/1000; 2+ 1-5/1000x; 3+, 6-30/1000x; 4+>30/1000x

Table II : Comparison of Prevalence of BV in Different Studies.

Authors	Year	Prevalence of B.V. (Percentage)
Levetts	1995	28%
Ankirskaia et al ⁹	1997	35.8%
Sanchez et al ¹⁰	1998	30%
Mahadani et al ¹¹	1998	44.30%
Paxton et al ¹²	1998	50.9%
Fonck ¹³	2000	9%
Georgijevic et al ¹	2000	10-35% (Gynae wards) 10-30% (Obstetric wards) 20-60% (STD clinic)
Mc Gregor and French ⁵	2000	10-41%
Present study	2001	40%

Discussion:

BV is a clinical condition caused by replacement of the normal hydrogen peroxide producing lactobacillus species in the vagina with high concentration of characteristic sets of aerobic and anerobic bacteria. BV is the most prevalent cause of vaginal discharge or malodour, although 90% of women who meet the criteria for this condition are asymptomatic. BV is reported in 10-44% of women and new evidence has shown association with maternal and fetal morbidity. Studies have shown that spontaneous abortion, preterm rupture of the membranes, amniotic fluid infection, postpartum endometritis and post cesarean wound infections are increased because of infection with BV during pregnancy.

Amu et al. have found that intrauterine devices were associated with a high incidence of BV in a population of university students. Among patients with BV, 18.81% were IUCD users; while only 5.4% of normal subjects were IUCD users (p = 0.001). Among women using any form of contraception, IUCD users were affected with BV the most. One half of all IUCD users had BV. Also, data on the association between BV and HIV have shed light on an important risk factor for HIV infection.

In our study, we have found prevalence of BV to be 40% which is consistent with the recent data available worldwide (Table II).

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