

BACTERIAL VAGINOSIS - A PROSPECTIVE AND RETROSPECTIVE CYTOLOGICAL EVALUATION OF VAGINAL SMEARS

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ABSTRACT

Bacterial vaginosis (B.V.) is the most common cause of vaginitis in reproductive age group. Amsel et al (1983) claimed that bacterial vaginosis is present if three of the following four criteria are fulfilled -

- (1) Homogenous thin milk like vaginal discharge sticking to the vaginal walls.
- (2) Vaginal PH 4.5
- (3) Presence of clue cells.
- (4) Positive amine test (Flagy test or whiff test).

Single most reliable indicator of bacterial vaginosis is the presence of clue cells on wet mount examination of vaginal secretion. So far *Gardnerella vaginalis* is the only organism incriminated in the etiology of B.V. Recently motile gram variable curved rods belonging to genus *Mobiluncus*, have been identified as the cause of B.V., in addition to *Gardnerella vaginalis*. We decided to see if cervical/vaginal smear assessment by Papnicolou's stain would help us in recent concepts concerning the etiology of B.V., as the culture methods are cumbersome, time consuming and costly. Pap's smears obtained from vagina/cervix were studied for the presence of cytological changes seen in B.V., and verified Amsel's criteria for diagnosing B.V.

INTRODUCTION

Bacterial vaginosis previously known as non specific vaginitis is an abnormal condi-

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tion of the vaginal ecosystem caused by abnormal overgrowth of both aerobic and anerobic vaginal bacterial flora (Amsel et al 1983, cristiano et al 1989). It is responsible approximately for 1/3 of all cases of vulv-

vaginitis in women of reproductive age group. Amsel et al (1983) claimed that bacterial vaginosis is diagnosed if three of the four criteria are present- (1) homogenous thin milk like vaginal discharge. (2) Vaginal PH 4.5 (3) Clue cells which are epithelial cells of vagina with attached bacteria whose borders are obscured by them and (4) Fishy odour on alkalization of vaginal secretions with 10% KOH (Amine Test)

The purpose of this study was to determine how far the various criteria of Amsel were diagnostic of bacterial Vaginosis and the significance of various parameters.

MATERIALS AND METHODS

A prospective study of 100 outpatients presenting with the complaint of white discharge of sticky nature was undertaken. The smears were taken from the vagina and cervix and were fixed in alcohol immediately and stained by Papanicolou's stain. A drop of discharge was taken on a slide and a drop of 10% KOH was added to it, to look for fishy odour, PH of the discharge was tested. The cytological smears were studied for clue cells and other cytological features like presence or absence of inflammatory cells, pseudo clue cells of lactobacilli were also looked for. In a retrospective study 350 vaginal smears were screened to see whether we have missed clue cells.

DISCUSSION

Bacterial vaginosis is not an infection caused by one organism but exists because of an overgrowth of colonising bacteria. A recent study has also documented an increased risk of pelvic inflammatory disease in patients having bacterial vaginosis. In patients

with B.V., lactobacilli morphologic types decrease and other bacterial morphological types increase. Bacterial proliferation reaches the point that the organisms literally cover the epithelial cells and produce enough aromatic amines (Trimethylamine, Putrescine, Cadavericine, Methylamine etc) to be detectable by doing amine test with 10% KOH. This has got high predictive value. In our study 56 out of 75(74.9%) were positive for amine test. This test is positive only when the cells are completely covered by the bacteria. In few cases only few bacteria covering the cells are seen, thereby conditions are not favourable for the production of amines. Variation in the PH of vaginal secretion can occur because of many reasons including recent intercourse, menses, different sampling times within the menstrual cycle. Only in 69%(52/75) of our cases PH was more than 4.5; as such the use of PH alone as an indicator of bacterial vaginosis would result in many erroneous diagnosis. It is a useful result in so far as to alert the physician to look for the cells. In BV usually the background non-inflammatory, but an inflammatory response should not be used to rule out bacterial vaginosis. Presence of mobiluncus clue cells is an excellent indicator of bacterial vaginosis. It is difficult to visualize homogenous discharge which has been reported to be the least sensitive of Amsel's criteria, but it is considered relatively specific.

The best combination of tests which were diagnostic of BV is when all four Amsel's criteria were positive. In the present study 35% cases were positive (Table I) for all four criteria (26 out of 75). This is similar to the study of cristiano et al (1989). Three tests were positive in 32 cases out of 75 in various combinations. White discharge, PH

TABLE I

BACTERIAL VAGINOSIS

TYPE OF TESTS	NO	GAR	MOB
ALL FOUR TESTS POSITIVE	26	24	2
THREE TESTS POSITIVE	32	-	-
WD, PH PLUS CC	12	9	3
AMINE PLUS CC PLUS WD	16	12	4
PH PLUS AMINE PLUS WD	4	3	1
TWO TEST POSITIVE	12	-	-
pH PLUS AMINEP	4	3	1
PH PLUS CC	2	2	1
AMINE PLUS CC	6	5	1
ONLY CLUE CELLS IN MIXED POPULATION	5	5	-
LB/CANDIDA/TV/HPV			
	75	63	12

more than 4.5 and clue cells were positive in 16% of cases (12/75). Amine test clue cells and white discharge were positive in 21% of cases (16/75). Amine test white discharge and PH more than 4.5 were positive in 5% of cases (4/75). Two tests were positive in 12 cases PH more than 4.5 and amine test positive were seen in 5% of cases (4/75), compared to 11% of Cristiano et al's (1989) series. Clue cells and pH more than 4.5 were positive in 2.5% of cases (2/75) compared to 17.2% of Cristiano et al's (1989) series. Only clue cells in mixed population were positive in 5 cases i.e. 6.61 of all cases.

The best overall method to diagnose bacterial vaginosis is to look for clue cells

and test for odour on alkalization of vaginal secretion. Smears stained by Papanicolou's stain is not only useful in the study of other cytological changes apart from preserving the slides. It is important to be able to differentiate clue cells from heavily granulated and mucous coated epithelial cells which can only be differentiated by an experienced cytopathologist.

REFERENCES

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