

Clinico-Microbiological Profile of Women with Vaginal Discharge in a Tertiary Care Hospital of Northern India

Varsha Chaudhary¹, Ved Prakesh², Kiran Agarwal³,
Vijender Kumar Agrawal¹, Arun Singh¹, Sachin Pandey⁴

¹ Department of Community Medicine, ² Department of Microbiology, ³ Department of Obstetrics & Gynaecology, Rohilkhand medical college & hospital, Bareilly

⁴ Department of Community Medicine, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh

Correspondence to: Varsha Chaudhary (dr_varsha25@yahoo.co.in)

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ABSTRACT

Background: The complaint of vaginal discharge is very common, particularly in south East Asia. An accurate diagnosis is recommended, based on knowledge of the epidemiology of lower genital tract infections, consistent application of laboratory tests and, where needed, microbiological.

Objective: To find out socio-demographic variables associated with the complaint of vaginal discharge, to study the microbiological profile of women presenting with complain of vaginal discharge and characteristic of discharge.

Materials and Methods: The present cross sectional study was conducted in one of the tertiary care hospital of Bareilly district. The respondent were the female in reproductive age group (15-49yrs) attending Obstetrics & Gynaecology OPD with history of vaginal discharge. Vaginal swabs were collected from women with history of discharge and sent to microbiology department in Amie's medium. Analysis of Variance test was applied as a test of significance.

Results: A total of 270 women with vaginal discharge were studied. Bacterial vaginosis was the commonest disorder seen (36.68%). Effect of age on Candida infection, literacy status on Candida, Bacterial vaginosis and Pseudomonas infection and marital status on Klebsiella infection was found to be statistically significant. Vaginal discharge was found to be excessive (87.8%), continuous (64.8%) and foul smelling (60.4%) in majority of women. Consistency of discharge was told to be Curdy (44.4%), Mucopurulent (22.2%) and thin (33.3%).

Conclusion: There is need for creating community awareness about health care facilities and instills self concern in women for their own health needs.

Key Words: Vaginal Discharge; Microbiology; India; Reproductive Health

INTRODUCTION

Vaginal symptoms (itching, irritation and abnormal but non-bloody discharge) are a common reason for consulting the general practitioner.^[1-4] Though not a cause of great morbidity and, therefore, considered to be trivial at times, they can be the source of much distress. For this reason, an accurate diagnosis is recommended, based on knowledge of the

epidemiology of lower genital tract infections, careful physical examination, consistent application of laboratory tests and, where needed, microbiological.^[5] Vaginal trichomoniasis, candidiasis and bacterial vaginosis, as well as cervical infections with *Neisseria gonorrhoeae* and *Chlamydia trachomatis*, can be diagnosed in this way. Appropriate therapy can then alleviate much of the suffering from vaginal symptoms and

prevent complications from, and spread of, sexually transmitted diseases.^[6] The complaint of vaginal discharge is very common, particularly in south East Asia where about a quarter of all adult women report this complaint.^[7] The complaint is associated with considerable disability, health seeking, and associated costs.^[8] Gynecological disorders have substantial impact on female reproductive health, mental health, and ability to work and to perform routine physical activities.^[9] Present study was conducted with the objective to study the microbiological profile of women presenting with complain of vaginal discharge, to find out socio-demographic variables associated with the complaint of vaginal discharge and characteristic of discharge.

METHODS

The present cross sectional study was conducted in one of the tertiary care hospital of Bareilly district after taking approval from Ethical committee. The respondent were the female in reproductive age group (15-49 yrs) attending Obstetrics & Gynaecology OPD with the history of vaginal discharge during the month of February 2010 to April 2010. The semi structured schedule used for interviewing women was prepared. One Health inspector and one Medico social worker from urban health center were trained by two faculty members of Obstetrics & Gynaecology department for collection of vaginal discharge sample. All the women with history of vaginal discharge in reproductive age group attending Obstetrics & Gynaecology OPD were interviewed with exclusion criteria of pregnant lady, women with any organic pathology of reproductive tract and women in puerperal period. All the female included in the study were informed about the purpose of study. Oral consent was sought prior to each interview and sample collection. The necessary information was collected on a semi structured schedule. The information collected include socio demographic details, personal hygiene, menstrual history, history of vaginal discharge, lower abdominal pain and burning during micturition and treatment seeking behavior. Socioeconomic status was assessed

according to modified BG Prasad classification.^[10] After a detailed history vaginal swabs were collected from women with history of discharge and sent to microbiology department in Amie's medium. In microbiology laboratory, following procedures were performed:

1. Wet and fixed dried smears examination- For fixed smears Grams stain, Giemsa stain and Acridine orange staining were performed to find out type of bacteria, Candida sp. And Trichomonas vaginalis. Standard procedures were adopted.
2. Cultures of vaginal swabs – following media were used to isolate etiopathogenic agents: Blood agar, Sabourauds dextrose agar, MacConkeys agar, Modified New York City medium and Modified peptones starch agar.

Cultural characteristics of etiopathogenic agents:

- a. *Candida albicans* - was isolated on Sabourauds dextrose agar and they showed cream colored, pasty colonies after 24-48hrs of incubation at 35 degree Celsius. Confirmation of *Candida albicans* was done by germ tube test^[11]
- b. *Gardnerella Vaginalis* – was detected in smears as clue cells (clue cells are epithelial cells with fuzzy border due to adherence of bacteria *G. Vaginalis*). Fresh specimens were also tested by adding 10% KOH, which gives fishy odour and is pathognomic of anaerobic bacterial Vaginosis.^[12]
- c. Cultures for other bacteria were performed on blood agar and MacConkey's agar.
- d. Modified Peptone starch was used for cultivation of *Gardnerella vaginalis*. The organism produces white colonies with slightly darkened centre and surrounded by clear areas, when incubated at 37 degree Celsius for 48hrs on modified peptone starch agar.
- e. For *Neisseria gonorrhoeae*, Modified New York city medium was used. *N. gonorrhoea* gives small raised, grey colonies after overnight incubation at 37 degree Celsius in a moist, carbon di oxide rich atmosphere.^[12]

Biochemical tests were also performed where ever required, to identify the etiopathogenic agents.

Data Analysis

The data thus collected was computerized in specific programme developed on Microsoft excel 2007 soft ware. The data base so prepared was analyzed with the help of SPSS statistical software and the results were transferred to predesigned classified tables prepared according to the aims and objectives of the study. Valid inference was drawn from the information and the results were discussed with the available studies. Analysis of Variance test was applied as a test of significance. Level of significance was taken as 0.05.

RESULTS

A total of 270 women with vaginal discharge were studied. Out of them maximum belonged to 29-35 year age group (39.3%), class V of BG Prasad classification (60.4%) and were illiterate (60.0%) (Table1).

Table-1: Distribution of Women with Vaginal Discharge According to Their Sociodemographic Variables (N = 270)

| Variables | No. | Percentage | Mean ± SD |
|-----------------------------|-----|------------|--------------|
| Age | | | |
| 15 – 21 | 26 | 9.6 | 2.84 ± 1.709 |
| 22 – 28 | 77 | 28.5 | |
| 29 – 35 | 106 | 39.3 | |
| 36 – 42 | 35 | 13.0 | |
| 43 – 49 | 26 | 9.6 | |
| Education | | | |
| Illiterate | 162 | 60.0 | 1.90 ± 1.33 |
| Up to Primary | 43 | 15.9 | |
| Up to High School | 19 | 7.0 | |
| Up to Higher Secondary | 23 | 8.5 | |
| Graduate and Above | 23 | 8.5 | |
| Socioeconomic Status | | | |
| I | 2 | 0.7 | 4.96 ± 0.835 |
| II | 3 | 1.1 | |
| III | 9 | 3.3 | |
| IV | 35 | 13.0 | |
| V | 163 | 60.4 | |
| VI | 58 | 21.5 | |

Most of the women were married (98.5%) and house wife (97.4%). Age at marriage in 70.0% of women was found to be less than 19 years. Out of total 270 women with vaginal discharge, 107 (39.6%) complained of vaginal discharge alone while 163 (60.4%) patients had both vaginal discharge and pruritus. Most common coexisting symptoms were pain in lower abdomen (227/270, 84.1%), backache (197/270, 72.96%), burning micturition (66.7%) and genital ulcer (113/270, 41.85%). One hundred ninety nine (73.7%) patients had laboratory documented disorder as shown in table 2. More than one aetiology was found in 73 (27.03%) patients. Bacterial vaginosis was the commonest disorder seen (36.68%) followed by Candida (32.66%), Pseudomonas (31.66%), Trichomonas and Klebsiella (2.01%).

Table-2: Distribution of Cases According to Aetiological Disorder

| Aetiological Disorder | No. of Cases (%) |
|-----------------------|------------------|
| Candida | 65 (24.1) |
| Trichomoniasis | 4 (1.5) |
| Bacterial vaginosis | 73 (27.0) |
| Pseudomonas | 63 (23.3) |
| Klebsiella | 4 (1.5) |

Figure-1: Distribution of Cases According to Aetiological Disorder

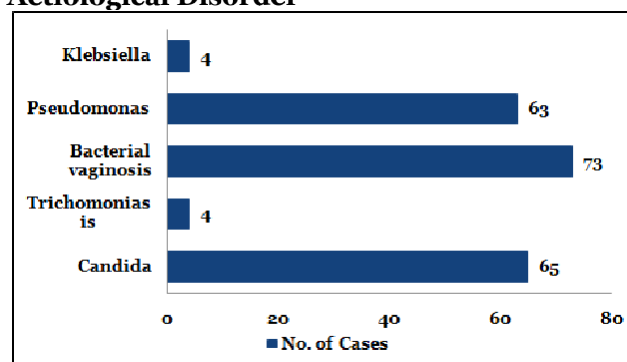


Table 3 show the sociodemographic profile of 199 microbiologically positive women. It was observed that majority of the positive women were more than 28 years (59.3%), illiterate (59.3%) and belonging to class V of Modified B.G.Prasad classification (60.8%). Among all of them bacterial vaginosis was found to be main etiology. Effect of age on Candida infection, literacy status on Candida, Bacterial vaginosis and Pseudomonas infection and marital status on Klebsiella infection was found to be statistically significant.

Table-3: Sociodemographic Profile of 199 Microbiologically Positive Women

| Variables | Candida | Trichomonas | Bacterial Vaginosis | Pseudomonas | Klebsella | Positive Microbiology | Anova Test |
|------------------------------|------------|-------------|---------------------|-------------|-----------|-----------------------|--|
| Age | | | | | | | |
| <28 | 25 (30.86) | 1 (1.23) | 33 (40.74) | 23 (28.39) | 2 (2.4) | 81 (40.70) | Significant for Candida |
| >28 | 40 (33.8) | 3 (2.54) | 40 (33.89) | 40 (33.89) | 2 (1.69) | 118 (59.3) | |
| Literacy | | | | | | | |
| Illiterate | 40 (33.89) | 2 (1.69) | 42 (35.59) | 42 (35.59) | 2 (1.69) | 118 (59.3) | Significant for Candida, Bacterial Vaginosis and Pseudomonas |
| Literate | 25 (30.86) | 2 (2.4) | 31 (38.27) | 21 (25.92) | 2 (2.4) | 81 (40.70) | |
| Marital Status | | | | | | | |
| Married | 64 (32.82) | 4 (2.05) | 71 (36.41) | 62 (31.79) | 3 (1.59) | 195 (97.98) | Significant for Klebsiella |
| Unmarried | 1 (25.0) | 0 (0.0) | 2 (50.0) | 1 (25.0) | 1 (25.0) | 4 (2.01) | |
| Occupation | | | | | | | |
| House Wife | 63 (32.47) | 4 (2.06) | 72 (37.11) | 62 (31.95) | 4 (2.06) | 194 (97.5) | Not significant |
| Student | 1 (50.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (1.0) | |
| Worker | 1 (33.33) | 0 (0.0) | 1 (33.33) | 1 (33.33) | 0 (0.0) | 3 (1.5) | |
| Socio-economic Status | | | | | | | |
| I | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (100.0) | 0 (0.0) | 1 (0.5) | Not significant |
| II | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (50.0) | 0 (0.0) | 2 (1.0) | |
| III | 3 (50.0) | 0 (0.0) | 2 (33.33) | 1 (16.66) | 0 (0.0) | 6 (3.0) | |
| IV | 9 (30.0) | 1 (3.33) | 13 (43.33) | 8 (26.66) | 1 (2.33) | 30 (15.07) | |
| V | 36 (29.75) | 2 (1.65) | 47 (38.84) | 40 (23.05) | 3 (2.47) | 121 (60.8) | |
| VI | 17 (43.58) | 1 (2.56) | 11 (28.20) | 12 (30.76) | 0 (0.0) | 39 (19.59) | |

Multiple Responses

Vaginal discharge was found to be excessive (87.8%), continuous (64.8%) and foul smelling (60.4%) in majority of women (Table 4). Consistency of discharge was told to be Curdy (44.4%), Mucopurulent (22.2%) and thin (33.3%).

When hygiene of women with vaginal discharge was studied it was observe that most of the women use cloth during menses (83.3%) and more than half of them changes cloth (55.5%) only two times per day (Table 5).

Table-4: Characteristic of Vaginal Discharge (N = 270)

| Character | No. (%) | |
|-------------|--------------|------------|
| Amount | Excessive | 237 (87.8) |
| | Scanty | 33 (12.2) |
| Consistency | Curdy | 120 (44.4) |
| | Mucopurulent | 60 (22.2) |
| | Thin | 90 (33.3) |
| Smell | Present | 163 (60.4) |
| | Absent | 107 (39.6) |
| Character | Continuous | 175 (64.8) |
| | Off & on | 95 (35.2) |

Table-5: Relationship of Vaginal Discharge with Hygiene of Women (N = 270)

| Hygiene | No. (%) | |
|-------------------------------|---------|------------|
| Bath Daily | Yes | 240 (88.9) |
| | No | 30 (11.1) |
| Clean Genitals Daily | Yes | 256 (94.8) |
| | No | 14 (5.2) |
| Change Undergarments Daily | Yes | 251 (93.0) |
| | No | 19 (7.0) |
| Use | Cloth | 225 (83.3) |
| | Pad | 45 (16.7) |
| No. of times Cloth/Pad Change | 1 | 62 (23.0) |
| | 2 | 151 (55.9) |
| | ≥ 3 | 57 (21.1) |

DISCUSSION

Various Clinicomicrobiological studies have revealed that bacterial vaginosis is the commonest cause of vaginal discharge. It occur among 35% of women attending sexually transmitted diseases clinics^[13,14], 5-15% of women attending gynaecological clinic^[13,15] and more than 50% of women having vaginal symptoms.^[16] In this study also, bacterial vaginosis was the commonest disorder observed in women with vaginal discharge (36.68%).

Bhalla et al^[17] in their study reported nearly similar percentage of bacterial vaginosis in women with vaginal discharge (35.2%). However in study conducted by Gupta et al^[18] slightly high percentage of bacterial vaginosis was observed (43.6%). In our study *Candida* was reported in 32.66% patients and *Trichomonas* in 2.01% patients. In contrast to present study low percentage of *Candida* (10%) and high percentage of *Trichomonas* (9.1%) has been reported by other studies.^[16, 18, 19]

It was observed in our study that majority of the microscopically positive women were more than 28 years, illiterate and belonging to low socioeconomic status. Similar findings were also reported by Jindal et al^[20] in their study on RTI/STI. The finding that majority of the microscopically positive women of our study had low level of education and belonged to low socioeconomic status, indicate that poverty and ignorance, along with the availability of few health care facilities played an important role women morbidity in India.

In our study discharge was found to be continuous (64.8%) and foul smelling (60.4%) in majority of the women. This is in agreement with the finding reported among rural women in Haryana by Singh AJ^[21] in his study. In his study consistency of discharge was found to be thin in majority of women (40.9%) where as in our study majority of women had curdy discharge (44.4%).

In our study vaginal discharge was found mainly in the woman who uses cloth as a menstrual pad (83.3%). Similar findings were reported by another study.^[21] Pant B et al^[22] in their study in rural area of Meerut reported that 40.2% of the female who uses dirty cloth at the time of menstruation were suffering from RTI. Limitation of the study is that since it is institutional based study it lack external validity.

CONCLUSION

Vaginal discharge is common and distressing symptom reported by many women. When pathological, it may lead to increase morbidity,

if not recognized and treated in time. In view of this it is suggested that women with vaginal discharge attending various health care facilities including antenatal clinic, gynecology clinic, genitourinary medicine clinic or family planning clinic should be properly examine, investigated and treated to reduce the risk of acquisition of other more serious STIs. Clinicians need more education in the laboratory diagnosis of vaginal discharge, as many of the diagnostic techniques can be done as office procedure which avoids unnecessary delay in initiating treatment. The study recommends for creating community awareness about health care facilities and instills self concern in women for their own health needs. Built-in service component and confidentiality may improve self reporting of reproductive morbidity in survey. Thus such survey could prove to be an inexpensive way for generating continuous information on reproductive health issues for health managers. Unfortunately in our part of world there is culture of silence regarding reproductive health problems, hence most of the women with vaginal discharge avoid visiting hospitals. So there is need of more community based study. In present study vaginal discharge was found more among poor population (class V) and among illiterates, as majority of the rural women were illiterate so it is required that in future more similar studies should be conducted in rural areas. Further research with larger sample size is needed to study the known risk factors and other local factors.

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