Utility of Microbiological Profile of Symptomatic Vaginal Discharge in Rural Women of Reproductive Age Group

DEEPA LOKWANI MASAND¹, JAYA PATEL², SWETA GUPTA³

ABSTRACT

Introduction: Symptomatic vaginal discharge is the most frequent symptom in women of reproductive age group. Owing to social stigma majority of affected women hesitate to seek medical consultation. Therefore the actual incidence of vaginal discharge is much more than what is reported. The aim of the study is to determine the microbiological profile of symptomatic vaginal discharge in rural area and its utility in the management of genital tract infection.

Materials and Methods: This was a descriptive type of observational study, conducted in sexually active women of reproductive age group (18-45 years) attending the OPD/IPD of Obstetrics and Gynaecology Department of National Institute of Medical Sciences, Shobhanagar, Jaipur (Rajasthan), over a period of 18 months from June 2012 to December 2013. Hundred sexually active non pregnant women of reproductive age group (18-45 years) were included in the study. After taking consent general physical examination along with pelvic examination was performed. Two high vaginal swabs and blood sample were collected for various tests. Hanging drop preparation was immediately made. This was followed by gram staining and culture. Chlamydia trachomatis IgM antibody was detected by ELISA method.

Results: Out of 100 women with symptomatic vaginal discharge, specific diagnosis was obtained in 89% of cases whereas no specific aetiology was found in 11% cases. Mean age was 32.60 years. Fifty-three percent patient had Bacterial vaginosis, candidiasis was found in 14% cases, 16% had Chlamydia trachomatis infection while Trichomonas vaginalis infection was detected in 6% cases. Homogenous discharge was most prevalent (52%), followed by mucopurulent discharge in 23% of women.

Conclusion: Patient with symptomatic vaginal discharge need to be actively managed with appropriate antimicrobial agents. Judicious management may be helpful in prevention of HIV, HPV, CIN and post infection sequelae.

Keywords: Bacterial vaginosis, Chlamydia trachomatis infection, Trichomoniasis, Vulvovaginal candidiasis

INTRODUCTION

Symptomatic vaginal discharge in the women of reproductive age group is responsible for 5-10 million OPD visits per year throughout the world [1]. Abnormal vaginal discharge also predisposes to significant morbidity in the form of pelvic inflammatory diseases, infertility, endometriosis, cuff cellulitis, urethral syndrome, pregnancy loss, preterm labour, increase susceptibility to sexually transmitted infections (STI), including HIV and to be associated with low birth weight and preterm birth [2]. The prevalence of vaginal discharge in India is estimated to be 30% [1]. Most common cause of symptomatic vaginal discharge is Bacterial vaginosis (33%-47%), followed by candidiasis (20%-40%) and trichomoniasis (8%-10%). These three conditions account for 90% of all etiologies of abnormal vaginal discharge. Multiple infections can also coexist [3]. The normal vaginal flora often includes hemolytic Streptococci, anaerobic Streptococci (Pepto Streptococci), Bacteroids species, Clostridia, Gardnerella vaginalis, Ureaplasma urealyticum and sometimes Listeria or Mobiluncus species but the cervical canal and fallopian tubes are sterile [4]. The aim of the study is to determine the microbiological profile of symptomatic vaginal discharge in rural area and its utility in the management of genital tract infection.

MATERIALS AND METHODS

This was a descriptive type of observational study, conducted in sexually active women of reproductive age group (18-45 years) attending the OPD/IPD of Obstetrics and Gynaecology Department of National Institute of Medical Sciences, Shobhanagar, Jaipur (Rajasthan), over a period of eighteen months from June 2012 to December 2013. Hundred sexually active non pregnant women of reproductive age group (18-45 years) included in the study. Pregnant women, post menopausal, menstruating women, those who had received antimicrobial/antifungal in the previous one month, patient who had delivered or aborted six weeks prior were excluded from the study.

Written informed consent was taken and proper counselling done. Information was collected in relation to the patient’s socioeconomic status, sexual behaviour, medical & surgical history, followed by physical examination with sample collection. General physical examination followed by pelvic examination including a per speculum examination by bimanual examination conducted. All the relevant information was recorded on pretested proforma regarding socioeconomic status, Literacy, hygiene and associated symptoms and the clinical examination done and the different varieties of vaginal samples were collected. Blood sample obtained for various tests. The pH was measured using litmus papers ranging from 2 to 10. Wet mount preparation/Hanging drop preparation was made and examined under microscope immediately for the presence of Trichomonas vaginalis. The first swab taken and smears were made on a clean and grease free glass slide, then heat fixed by just passing the glass slide over the flame. Then the smear was stained by Gram's staining and culture.
method and observed under oil immersion objective and assessed using the Nugent's score for diagnosis of Bacterial vaginosis and the presence gram positive oval yeast like budding cells (2-4μm) and/or pseudohyphae [5] [Table/Fig-1]. The second swab taken and all samples immediately transported to microbiology laboratory for culture and sensitivity. Two millilitre blood was collected in plain vial under all aseptic precautions and refrigerated at 2-8°C for detecting Chlamydia trachomatis IgM antibody. After collecting all the required samples, treatment given as recommended by the National AIDS Control Organization (NACO) for the management of vaginal discharge [6] [Table/Fig-2]. The data was analyzed using Software for statistical calculations: Medcalc 14.0.0 version.

<table>
<thead>
<tr>
<th>Score</th>
<th>Lactobacillus morphotype per field</th>
<th>Gardnerella morphotype per field</th>
<th>Curved bacteria (mobiluncus) per field</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&gt;30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>5-30</td>
<td>&lt;1</td>
<td>1-5</td>
</tr>
<tr>
<td>2</td>
<td>1-4</td>
<td>1-4</td>
<td>&gt;6</td>
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<tr>
<td>3</td>
<td>&lt;1</td>
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</tr>
<tr>
<td>4</td>
<td>0</td>
<td>&gt;30</td>
<td>&gt;30</td>
</tr>
</tbody>
</table>

[Table/Fig-1]: The nugent scoring system for diagnosis of Bacterial vaginosis

RESULTS

Out of 100 women with symptomatic vaginal discharge, specific diagnosis was obtained in 89% of cases whereas no specific aetiology detected in 11% cases [Table/Fig-3]. Majority (46%) patients belong to age group of 21-30 years while 25% cases were in age group of 31-40 years and 20% between 41-50 years. Bacterial vaginosis, Trichomonas vaginalis and Chlamydia trachomatis infection was common in women between the age groups 21-30 years accounting for 77% of cases while candidiasis was seen in women between age group 31-40 years. The association of age with the vaginal infections was not statistically significant (p >0.5). Majority of women (44%) complained of symptoms more than one year while (24%) patient had duration of disease between four and six months. Most of the women presented with homogenous discharge (52%) [Table/Fig-3]. Trichomonas vaginalis detected in 6% cases while clue cells were detected in 44% cases and 20% cases showed pus cells [Table/Fig-4-6]. The commonest symptom was malodorous discharge and pruritus in 27% cases [Table/Fig-7]. In Bacterial vaginosis and Chlamydia trachomatis infection homogenous discharge was most prevalent. 58% & 28% patients

<table>
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<tr>
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<tbody>
<tr>
<td>Bacterial vaginosis</td>
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<td>16</td>
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</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>6</td>
<td>06.00</td>
</tr>
<tr>
<td>Etiology not found</td>
<td>11</td>
<td>11.00</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.00</td>
</tr>
</tbody>
</table>

[Table/Fig-4]: Reproductive tract infection causing vaginal discharge according to organism

<table>
<thead>
<tr>
<th>Microbiological Diagnosis</th>
<th>No.</th>
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</thead>
<tbody>
<tr>
<td>Staphylococcus aureus</td>
<td>18</td>
<td>18.00</td>
</tr>
<tr>
<td>E.Coli</td>
<td>9</td>
<td>9.00</td>
</tr>
<tr>
<td>Chlamydia Igm positive</td>
<td>16</td>
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</tr>
<tr>
<td>Enterococcus</td>
<td>9</td>
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</tr>
<tr>
<td>Candida albicans</td>
<td>8</td>
<td>8.00</td>
</tr>
<tr>
<td>Candida species other than albicans</td>
<td>6</td>
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</tr>
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<td>Coagulase negative staphylococcus</td>
<td>5</td>
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<td>Klebsiella oxytoca</td>
<td>3</td>
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</tr>
<tr>
<td>MRSA</td>
<td>2</td>
<td>2.00</td>
</tr>
<tr>
<td>haemolytic streptococci</td>
<td>1</td>
<td>1.00</td>
</tr>
<tr>
<td>Pseudomonas aeruginosa</td>
<td>2</td>
<td>2.00</td>
</tr>
<tr>
<td>Proteus species</td>
<td>1</td>
<td>1.00</td>
</tr>
<tr>
<td>Acinetobacter</td>
<td>1</td>
<td>1.00</td>
</tr>
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<td>1</td>
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[Table/Fig-5]: Various aetiological agents isolated from vaginal discharge

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<thead>
<tr>
<th>Wet Mount</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Clue cells</td>
<td>44</td>
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</tr>
<tr>
<td>Pus cells</td>
<td>20</td>
<td>20.00</td>
</tr>
<tr>
<td>Trichomonas vaginalis</td>
<td>06</td>
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</tr>
<tr>
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[Table/Fig-6]: Comparison of wet mount results (n=100)

<table>
<thead>
<tr>
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<tr>
<td>Homogenous</td>
<td>52</td>
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<tr>
<td>Curdy White</td>
<td>17</td>
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<tr>
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<td>23</td>
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[Table/Fig-3]: Distribution of cases according to type of discharge (n=100)

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[Table/Fig-8]: Distribution of cases according to socio-economic status

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Microbiological methods revealed that *staphylococcus aureus* was most prevalent and was found in 20% of total 100 patients. This was followed by *Chlamydia* IgM positive in 16% patients. These findings correlate with study done previously in south India (*staphylococci in 30% cases of Bacterial vaginosis*) and Lybia (28% *staph aureus*) [13]. Similarly Doodiaia et al., found 17.7% *Candida* and Mohanty et al., reported 18.5% *Candida* species infection in their study on vaginal discharge [14,15]. *Chlamydia trachomatis* was detected in 23.0 per cent of patients attending gynaecology OPD and among 19.9 per cent patients attending STD clinic in a study from New Delhi [16].

WHO recommends that all women complaining of abnormal vaginal discharge be treated empirically with metronidazole and when *Candida* noted, to treat for candidiasis as well. This study shows if blanket treatment was advocated to all the women complaining of abnormal vaginal discharge, most of the women would receive unnecessary antibiotic and antifungal therapy. Over diagnosis and unnecessary use of antibiotics and antifungal treatment not only have financial consequences for the health system but also carries the risk of possible social consequences in the community [17]. Oral metronidazole is associated with anorexia, nausea, vomiting and skin rashes. It crosses the blood brain barrier and may cause dizziness, convulsion and peripheral neuropathy. Antifungal therapy is associated with renal and hepatic complications, hypersensitivity reactions, nausea and vomiting, flatulence and rarely angioedema. FDA condemns blanket therapy and combination therapy for treatment of vaginal infections without proof of infections [6].

**CONCLUSION**

Vaginal infections are common gynaecological problem. Known predisposing factors for symptomatic vaginal discharge are poor hygiene, low socioeconomic status, early sexual activity and multiple partners. The most ideal approach is the microbiological diagnostic approach for the aetiological diagnosis of symptomatic vaginal discharge. Large scale randomized controlled trials should also be used to elucidate the most effective treatment options. These trials must be followed by robust economic analyses to quantify the possible health gains. It can help clinicians to institute appropriate antimicrobial therapy to treat these conditions and prevent long term sequelae and also prevent the over treatment and development of resistance against various antibiotics. Further studies are recommended to emphasize the role of microbiological diagnosis, as clinical diagnosis alone can lead to false interpretation.

**REFERENCES**


Deepa Lokwani Masand et al., Utility of Microbiological Profile of Symptomatic Vaginal Discharge in Rural Women of Reproductive Age Group


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1. Associate Professor, Department of Obstetrics and Gynaecology, National Institute of Medical Sciences, Shobhanagar Jaipur (Rajasthan), India.
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3. Student, Department of Obstetrics and Gynaecology, National Institute of Medical Sciences, Shobhanagar Jaipur (Rajasthan), India.

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E-mail: sunshinejaya@gmail.com, masand_deepa3@rediffmail.com

FINANCIAL OR OTHER COMPETING INTERESTS: None.