GDDDR GLOBAL DRUG DESIGN & DEVELOPMENT REVIEW

Cite Us

▪ Pages: 15 – 21 ▪ Vol. VII, No. II (Spring 2022) ▪ p- ISSN: 2788-497X ▪ e- ISSN: 2788-4120
▪ DOI: 10.31703/gdddr.2022(VII-II).03 ▪ URL: http://dx.doi.org/10.31703/gdddr.2022(VII-II).03

Utilization of the Microbiological Profile of Symptomatic Vaginal Discharge in Rural Reproductive-Age Women

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Abstract: *Women frequently report an irregular vaginal discharge, which can be caused by vaginal pathogens such as bacterial vaginosis, candidiasis, and trichomoniasis. The research objective was to ascertain the microbiological composition of symptomatic vaginal discharge in rural areas and the use of this information for treating genital tract infections. The current research was carried out over the course of a year, from Jan 2022 to June 2022, among sexually active females of reproductive age between 18 and 40 years, who visited the Obstetrics and Gynecology Department at the Hayatabad Medical Complex, Peshawar. Out of 120 women who had symptomatic vaginal secretions, 62 patients (51.67%) were in the 18–28 age range, followed by 39 patients (32.5%) in the 29–39 age range, and 19 patients (15.83%) in the 40–45 age range. Chlamydia trachomatis and Candida were discovered in 21 and 26 women, respectively, accounting for 17.5% and 21.67% of infections, but bacterial vaginosis infections were common in women (n=59), representing approximately 49.16% of scenarios. The majority of the patients (n=62; 51.67% and n=29; 24.16%) exhibited homogeneous and mucopurulent discharge respectively. Low socioeconomic class, premature sexual activity, and recognized genetic factors for unusual vaginal secretions, are one of the important risk factors that cause mortality in women in the form of lack of self, reduced work time, more hospital visits, and miscarriage. To assess the potential health benefits, thorough economic studies must be conducted after these experiments. It can assist doctors in implementing the proper antimicrobial therapy to treat these illnesses, avoid long-term complications, as well as avoid overdiagnosis and the emergence of antibiotic resistance.*

Key Words: Vaginal Discharge, Pathogens, Genital Tract Infections, Bacterial Vaginosis

Introduction

Menstruation causes alterations in the body's normal secretion (Eschenbach et al., 2000). During the majority of the cycle, it's indeed thick and sticky; although, mostly around the time of fertilization, it briefly turns clearer, wetter, and stretcher. Females who use contraceptive pills would not experience such modifications (Pyper & Knight, 2001). Normal vaginal emission might well be profuse, but it usually lacks a distinct odour and is therefore not accompanied by itchiness or discomfort (Itriyeva, 2020). At puberty,

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Citation: Faridoon, N., Afridi, S., Aqeeq, S., Khittab, S., Hashmi, H., & Javed, I. (2022). Utilization of the Microbiological Profile of Symptomatic Vaginal Discharge in Rural Reproductive-Age Women. *Global Drug Design & Development Review, VII*(II), 15-21. https://doi.org/10.31703/gdddr.2022(VII-II).02

premenstrual, ovulation, the beginning of hormonal contraceptives, and even during sexual excitement, the physiological discharges might enhance (Becker et al., 2005).

Changes in the colour, structure, quantity, or smell of aberrant or pathological vaginal secretions are connected with indications including itching, soreness, urinary frequency, pelvic discomfort, irregular menstrual bleeding, or post-coital haemorrhage (Bowler & Griffiths 2015). The most prevalent sources of irregular vaginal secretions include vaginal pathogens such as Trichomoniasis, Candidiasis, and Bacterial Vaginosis (BV). Inside the globe, severe vaginal discharge causes 5–10 million outpatient department (OPD) visits annually among women of reproductive age.

Since it can result in an inflammation of the upper gastrointestinal tract, Bacterial Vaginosis is one of the major reasons for vaginal disease in females who are pregnant or nursing (Mathew et al., 2001). The much more dominant bacterial sexually transmitted infection (STI) in the globe includes Chlamydia trachomatis. The female reproductive system is generally asymptomatic, however, if ignored, it can cause dangerous side effects such as pelvic inflammatory disease (PID), infertility, ectopic pregnancy, and persistent pelvic discomfort (Madhivanan & Krupp, 2015), (Pandey 2009.

To identify and treat aberrant vaginal emissions, it is therefore vital to be familiar with the microbiological profile of vaginosis. The research objective was to ascertain the microbiological composition of symptomatic vaginal discharge in rural areas and employ this information for treating genital tract infections.

Material and Methods

The current research was carried out over the course of a year, from January 2022 to June 2022, among sexually engaged females in the reproductive age range between 18 to 40 years, who visited the Outpatient Department (OPD) of the Obstetrics and Gynecology Department at the Hayatabad Medical Complex, Peshawar, Pakistan. Participants experiencing vaginal haemorrhage, patients between the ages of 18 and 40, and patients with genital tract cancer were eliminated. 120 women in the menstrual age range (18-45 years) who were sexually active but not expectant were recruited for the research.

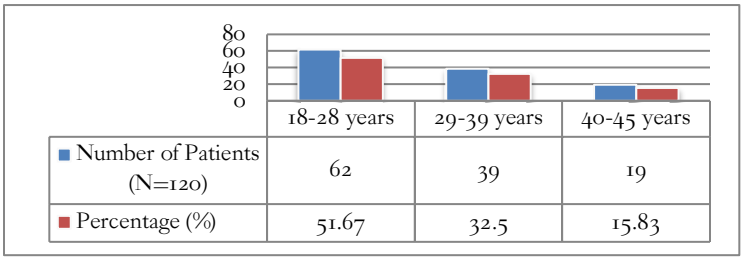
The required counselling was conducted and written informed consent was obtained. All patients had comprehensive medical histories and examinations, a speculum was placed into the vagina to see the cervix and vagina, any pathology in the cervix and vagina was documented, and swabs from the anterior fornix of the vagina were taken and submitted for microbiological analysis. Vaginal secretions prepared with the saline wet mount are examined under a microscope. To verify the presence of Trichomonas vaginalis, a drop of effluent is combined with saline on a glass slide, covered with a sterile coverslip, and inspected right away under a microscope.

The primary swab was obtained, and smears were produced on a dirt-free, grease-free glass slide. The glass slide was then heat-fixed by simply moving it over the burner. Following Gram's technique staining, the smear was examined under an oil immersion microscope and scored employing Nugent's grading (Schwebke, 1996) system for bacterial vaginosis based on the structure of microbes per high per field. All specimens were promptly delivered to a microbiology facility for culture and sensitivity once the second swab was taken. Software for statistical calculations: Medcalc 14.0 edition was used to examine the data.

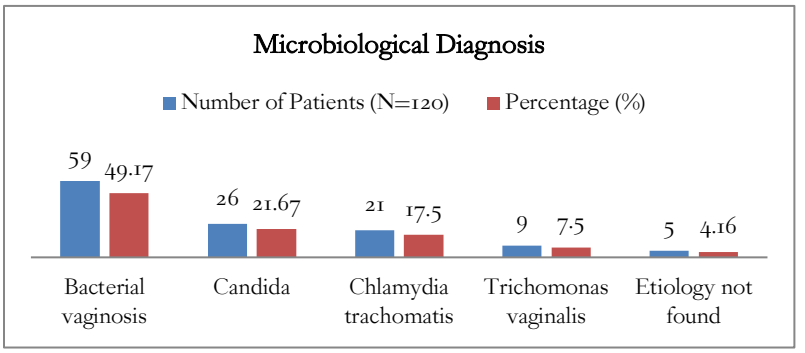
Result

Out of 120 women who had symptomatic vaginal secretions, 62 patients (51.67%) were in the 18–28 age range, followed by 39 patients (32.5%) in the 29–39 age range, and 19 patients (15.83%) in the 40–45 age range (graph 1). Chlamydia trachomatis and Candida were discovered in 21 and 26 women, respectively, accounting for 17.5% and 21.67% of infections, but bacterial vaginosis infections were common in women (n=59), representing approximately 49.16% of scenarios. Nine patients (7.5%) were caused by Trichomonas vaginalis,

whereas five cases had no apparent aetiology (graph 2). A statistically insignificant relationship existed between age and vaginal infections (p >0.5).

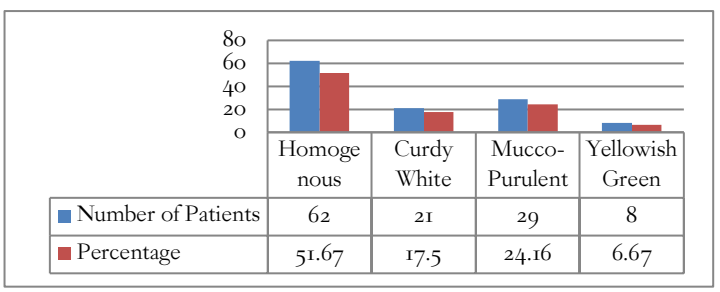


Graph 1: Distribution of cases by Age

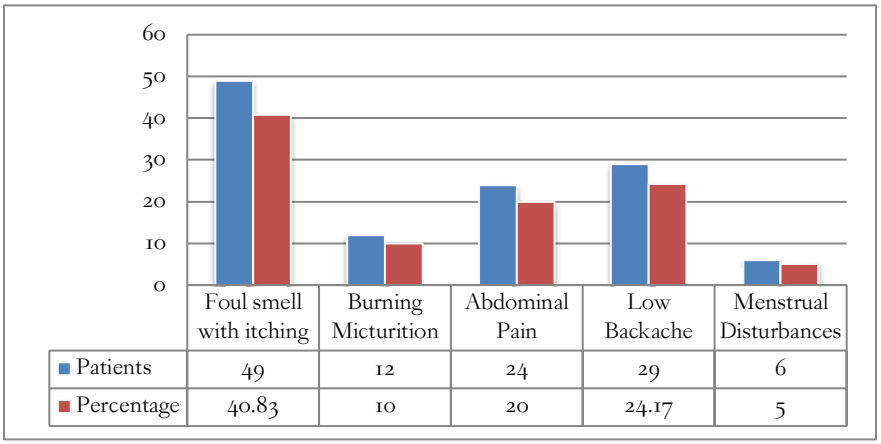


Graph 2: Reproductive tract disease causing vaginal discharge in patients

The majority of the patients (n=62; 51.67% and n=29; 24.16%) exhibited homogeneous and mucopurulent discharge respectively (graph 3). The most prevalent sign was a foul smell along with itching, low backache, and abdominal pain in 49, 29, and 24 women accounting for 40.83%, 24.17%, and 20% of all incidents (graph 4). Staphylococcus aureus was determined to be the most common bacteria and to be present in 35% of women (n=42) of all cases, according to microbiological techniques. Chlamydia IgM positivity was then observed in 24.17% of patients (n=29) (Table 1). Outcomes were clear in 80.83% of cases (n=97), including (n=15; 12.5%) Trichomonas, (n=53; 44.17%) cases that had clue cells, (n=29; 24.17%) patients that had pus cells, and around 23 (19.16%) incidents that had outcomes that were unclear (graph 5). The bulk of patients come under the lower class 46 (38.34%), followed by upper lower class 29 (24.17%), lower middle class 21 (17.5%), 14 (11.66%) upper middle class and 10 (8.33%) were under the upper class of socioeconomic background (Table 2).



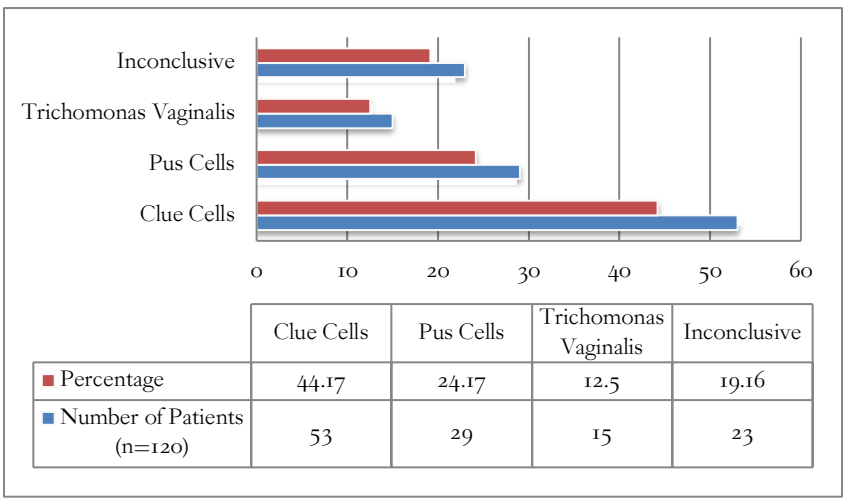
Graph 3: Cases distributed based on discharge pattern (n=120)



Graph 4: Symptom-based dispersion of cases

Table 1. Different causative factors found in vaginal discharge

Microbiological Diagnosis	Number of Patients (n=120)	Percentage
Acinetobacter	3	2.5
E.Coli	7	5.84
Staphylococcus aureus	42	35
Chlamydia Igm positive	29	24.17
Enterococcus	8	6.67
Trichomonas vaginalis	9	7.5
Candida albicans	5	4.17
Klebsiellaoxytoca	4	3.3
Citrobacter	2	1.67
Etiological agent not found	11	9.18
Total	120	100



Graph 5: Analysis of wet mount outcomes

Table 2. Based On Socioeconomic Status Division

Socioeconomic Status	Number of Patients (N=120)	Percentage (%)
Upper class	10	8.33
Upper middle class	14	11.66
Lower middle class	21	17.5
Upper lower class	29	24.17
Lower class	46	38.34
Total	120	100

Discussion

Vaginal discharge is one the most prevalent symptoms with which women report to gynaecological OPD (Gandhi et al. 2015). Vaginal discharge can have a variety of physiological or pathogenic reasons. There are both infectious and non-infectious pathological diseases (Bates, 2003). The research involved a total of 120 individuals that had vaginal discharge as their initial presenting complaint.

The majority of incidents (n = 62) with symptomatic vaginal discharge were observed in women aged 18 to 28 years (51.67%). Comparable maximum age cases between 15 to 30 years, representing 82.8% of cases was observed in other research done by Rekha *et al.*, (2010), Singh *et al.*, (2014) and Madhivanan *et al.*, (2008). Out of 120 patients, mucopurulent discharge occurred in 24.16% of women (n=29) and homogeneous discharge was most common in 62 women (51.67%). The most prevalent symptoms were a bad smell, itching, back pain, and stomach discomfort, which were present in 49, 29, and 24 women, accounting for 40.83%, 24.17%, and 20% of all incidents. These findings concur with those of (Guntoory et al., 2017), (Chaudhary et al., 2012).

Chlamydia trachomatis and Candida were discovered in 21 and 26 women, respectively, responsible for 17.5% and 21.67% of cases, whereas Bacterial Vaginosis infection was common in women (n=59), representing 49.16% of scenarios. Nine cases (7.5%) were caused by Trichomonas vaginalis, whereas five cases had no apparent aetiology. These results contradict those of research by Koumans *et al.*, (2001) and Pawanerkar *et al.*, (2004), which could be attributable to regional dispersion, and are comparable to those of Kamara *et al.,* 2000.

The most common bacteria, staphylococcus aureus, was identified using microbiological techniques and was present in 42 (or 35%) of the 120 patients. Chlamydia IgM positivity was then detected in 24.17% of patients (n=29). These results are consistent with earlier research from Lybia (28% staph aureus) and south India (30% staphylococci in cases of bacterial vaginosis) (Madhivanan et al., 2009). In our investigation, findings were definitive in 80.83% of cases (n=97), including Trichomonas (n=15; 12.5%), clue cells in 53 instances (44.17%), pus cells in 29 instances (24.17%), and unclear findings in 23 instances (19.16%). These results are consistent with earlier research by Ponnaluri (2021).

Conclusion

Low socioeconomic status, early sexual activity, and multiple partners are recognised genetic factors for unusual vaginal secretions, which is one of the important risk factors and causes mortality in women in the form of lack of self, reduced work time, more hospital visits, miscarriage, etc. The best method for determining the cause of the vaginal discharge is the microbiological diagnostic technique. The most effective treatment alternatives should indeed be clarified via wide-scale controlled studies. To assess the potential health benefits, thorough economic studies must be conducted after these experiments. It can assist doctors in implementing the proper antimicrobial therapy to treat these illnesses, avoid long-term complications, as well as avoid overdiagnosis and the emergence of antibiotic resistance. It is advised to further research be done to stress the importance of microbiological identification, as a doctor's diagnosis alone might result in an incorrect understanding.

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