



Pattern of Vaginal Discharge and Associated Demographic Characteristics among Female Patients Seen at a Gynaecology Clinic in Northern Nigeria

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Abstract

Background: Vaginal discharge is a common gynecological symptom seen among women provoking anxiety and fear of sexually transmitted infections (STIs). **Methods:** This was a hospital based retrospective study done from November 2008 to March 2013. Records of 969 patients presenting to the gynaecology clinic with symptoms of “vaginal discharge” were retrieved and relevant data on demographics, discharge characteristics and frequency, associated risk factors and symptoms, as well as investigations were retrieved. Data were analyzed using the statistical package for social sciences (SPSS) software, version 15. Relevant descriptive and bivariate analysis was done. Level of $p < 0.05$ was considered statistically significant. **Results:** Majority of the patients (54.9%) were aged between 21 and 30 years, and the mean age was 26.7 ± 7.9 . More than half (53.3%) were of the Hausa ethnic group, Muslims (82.6%) and housewives (51.9%). In terms of colour only 28.2% was characterized; more commonly as whitish (16.9%) or milky (7.7%). About 560 patients (57.8%) had additional associated symptoms. The commonest organism cultured was *Candida* species in 252 patients (26%), followed by *Staphylococcus aureus* (15.6%) and *Streptococcus* species (0.8%). When compared, those with additional symptoms were more likely to present with whitish vaginal discharge, candidiasis and recurrence of symptoms ($p < 0.05$), than those who had no additional symptoms. **Conclusions:** Vaginal discharge is a common symptom among women but may not always be pathological. Candidiasis was the commonest infectious cause in this population though the symptom needs to be properly characterized, and investigated when required.

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Keywords

Pattern, Vaginal Discharge, Northern Nigeria

Subject Areas: Gynecology & Obstetrics

1. Introduction

Vaginal discharge is a common gynecological condition among women of childbearing age that frequently requires care, and affects about one-third of all women and half of pregnant women [1]-[3]. In South Asia, about a quarter of all adult women report this complaint [4]. In Lagos [5], vaginal discharge was shown to be the commonest symptom of reproductive tract infections (STIs) (21.8%) and that majority of women sought medical treatment for this symptom. Vaginal discharge provokes anxiety and fear that a woman may have STIs, and controlling the spread of STIs and HIV is a key public health priority worldwide [6].

Although vaginitis is not a serious condition in strict medical terms, it may have repercussions on a woman's quality of life [2], cause fear and anxiety that one may have a sexually transmitted disease, and is associated with substantial discomfort leading to frequent medical visits [7] which have economic implications [8].

The most common causes of altered vaginal discharge are physiological such as bacterial vaginosis (BV) and candidiasis. Other causes that must be considered include sexually transmitted infections (STIs), and less commonly, non-infective causes such as foreign bodies, cervical ectopy and genital tract malignancy [9].

What is regarded as physiological vaginal discharge is quite normal for healthy women of reproductive age. It is derived from the physiological secretions of the cervical and Bartholin's glands, as well as the desquamation of vaginal epithelial cells resulting from bacterial action in the vagina [1] [9]. The quantity and type of physiologic vaginal discharge may actually vary due to the hormonal fluctuations that occur during the menstrual cycle. About the time of ovulation, cervical mucus may appear to become clearer, more copious, have more stretch and be more slippery [9]. Stress increases the rate of vaginal desquamation and thus the amount of discharge [7]. Atrophic vaginitis must also be considered in the differential of vaginal discharge [7].

The rising estrogen levels seen at puberty can also lead to the colonization of the vagina with lactobacilli which metabolize glycogen and make the normal vaginal environment acidic, with a pH of ≤ 4.5 . Whenever this balance is disturbed, commensal organisms (such as *Candida albicans*, *Staphylococcus aureus* and *Streptococcus agalactiae*, *Group B streptococcus*) can cause a change in the character of vaginal discharge if they "overgrow" [9].

Vaginal discharge can also be pathological and all women with persistent vaginal discharge should be examined to exclude serious pathology [9]. Historically, vaginal discharge can be easily characterized by asking a woman questions related to: what has changed, onset, duration, odour, cyclical changes, colour, consistency, exacerbating or associated risk factors (e.g. after intercourse or menstruation, immunocompromised states, pregnancy, diabetes) and any other associated symptoms [9]. Abnormal vaginal discharge is usually more likely to be more abundant, have an associated unpleasant odor, and be accompanied by other symptoms such as vulvar or vaginal itching, dysuria, abdominal pain, and/or dyspareunia [1].

Vaginal discharge is not always investigated except when it is recurrent or history suggests a pathological cause. Various diagnostic methods are available to identify the etiology of an abnormal vaginal discharge ranging from simple tests like determining the pH and microscopic examination of fresh samples of the discharge (NaCl and KOH wet mounts), Whiff test, to more complex microbiological culture and use of DNA probe and other rapid tests.

Women experiencing vaginal discharge who are at low risk of STI can be treated by syndromic or empirical management while those assessed as being at risk of STI, or who request testing should be offered appropriate tests for chlamydia, gonorrhoea, syphilis and HIV [9]. Ideally settings should have their own suitable local protocols for investigating and treating vaginal discharge.

Few studies have investigated vaginal discharge in this environment. Most studies done focus on either one etiologic causal agent or only the pregnant population. This study was done to determine the patterns of vaginal

discharge seen among women in the study population, and to see how the symptom was characterized and investigated.

2. Methodology

This was a hospital based retrospective study. The study setting was the Kaduna polytechnic clinic and permission to use data was gotten from hospital authorities. The Kaduna polytechnic, a tertiary educational institution, is the largest polytechnic in Africa, South of the Sahara. The clinic caters for the primary and secondary health-care needs of an estimated staff and student population of 50,000, as well as the general public. Most of the female students are of the reproductive age group. The study period was from November 2008 to March 2013. Records of 969 patients presenting to the gynaecology clinic with symptoms of “Vaginal discharge” was retrieved and relevant data on demographics, discharge characteristics and frequency, associated risk factors and symptoms, as well as investigations were retrieved. Information gotten was kept anonymous and no personal identifiers were disclosed to ensure patient confidentiality. Data was analyzed using the statistical package for social sciences (SPSS) software, version 15. Relevant descriptive and bivariate analysis was done. Levels of $p < 0.05$ was considered statistically significant.

3. Results

The gynaecology clinic records showed that a total of 969 female patients presented with a complaint of “vaginal discharge” during the study period. Majority of the patients (54.9%) were aged between 21 and 30 years, the minimum age was 3 years, maximum age 54 years, and the mean age was 26.7 ± 7.9 . More than half (53.3%) were of the Hausa ethnic group, Muslims (82.6%) and housewives (51.9%). Demographic characteristics of patients are shown in **Table 1**.

Vaginal discharge was not always well characterized. In terms of colour only 28.2% was characterized as shown in **Figure 1**, and it was more commonly described as whitish (16.9%) or milky (7.7%). It was also described as yellowish (1.2%), clear (0.8%), brownish (1.3%) bloody (1.0%) and not characterized in 71.8% of cases. About 560 patients (57.8%) had one or more additional associated symptoms; these included itching (35%), abdominal pain (27.7%), internal heat (0.7%), vulva soreness (2.6%), abnormal menstruation (5.9%), rashes (4.5%) and malodour (1.0%).

About 126 (15.1%) presented within a week of their last menstrual period, 34 (3.5%) had recent antibiotic exposure, 19 (2%) use antiseptic douches and 17 (1.8%) were pregnant. Of the 253 single patients, only 49 reported about sexual activity and 44 were sexually active and 35 used condoms. Not all patients were investigated. Only 458 (47.3%) patients had high vaginal swabs, and 511 (52.7%) did not. The commonest organism cultured was *Candida* species in 252 patients (26%), followed by *Staphylococcus aureus* (15.6%) and *Streptococcus* species (0.8%). *Candida* and *Staphylococcus aureus* occurred as a mixed infection in 6.7% of cases. In 112 patients (11.6%) culture yielded no growth. About 144 patients had rapid HIV (human immunodeficiency virus) antibody testing and 127 (88.2%) were non-reactive and 17 (11.8%) were reactive). VDRL (venereal disease research laboratory test) for syphilis was done in 50 patients and were all non-reactive. Fasting blood sugar was done to screen for diabetes in 124 (12.8%) patients and all had normal blood sugar levels except one.

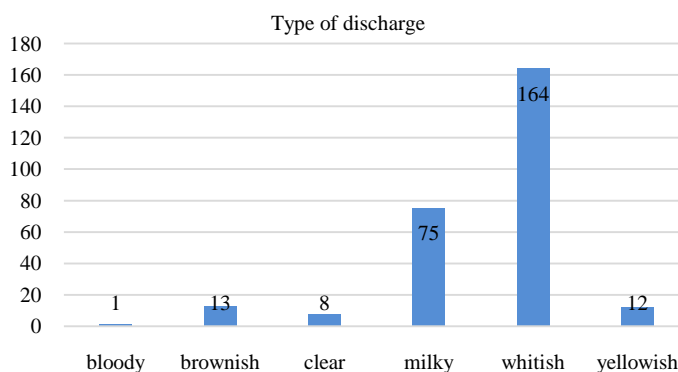


Figure 1. Type of vaginal discharge.

Table 1. Demographic characteristics of patients.

	Frequency	Percent
Age (in years)		
<10	14	1.4
11 - 20	177	18.3
21 - 30	532	54.9
31 - 40	167	17.2
41 - 50	49	5.1
>50	13	1.3
<i>Missing</i>	17	1.8
Ethnic group		
Hausa	516	53.3
Igbo	40	4.1
Yoruba	130	13.4
Others	254	26.2
<i>Missing</i>	29	3.0
Religion		
Islam	800	82.6
Christianity	167	17.2
Others	0	0.0
<i>Missing</i>	2	0.2
Marital status		
Married	712	73.5
Single	253	26.1
Divorced/widowed	3	0.3
<i>Missing</i>	1	0.1
Occupation		
Child	14	1.4
Civil servant	54	5.6
Youth corper	2	0.2
Housewife	503	51.9
Nurse	1	0.1
Private business	129	13.3
Student	242	25.0
Tailor	10	1.0
Teacher	14	1.4
Parity		
0	45	4.6
1 - 4	138	14.2
≥5	107	11.0
<i>Missing</i>	679	70.1
Total	969	100

There was no information recorded at all about a history of recurrence of “vaginal discharge” for 703 patients (72.5%) while 57 (5.9%) patients had never had the symptom in the past and 209 (21.6%) had similar symptom in the past. Timeframe for recurrence of symptoms is shown in **Table 2**.

When compared, those with additional symptoms were more likely to present with whitish vaginal discharge, candidiasis and recurrence of symptoms ($p < 0.05$) as shown in **Table 3** than those who had no additional symptoms.

Table 2. Time frame for recurring symptom of “vaginal discharge”.

Average duration of recurrence	Frequency	Percent
Within two weeks	2	0.2
One month	6	0.6
Two months	80	8.3
Three months	26	2.7
Six months	6	0.6
One year	20	2.1
Two years	19	2.0
Missing	810	83.6
Total	969	100

Table 3. Comparing symptoms to nature of vaginal discharge, HVS (high vaginal swab) results and history of recurrence.

	No additional symptoms	Had additional symptoms
Type of discharge		
Not characterized	261	435
Bloody	0	1
Brownish	0	13
Clear	0	8
Milky	59	16
Whitish	87	77
Yellowish	2	10
$\chi^2 = 74.372$, $df = 6$, $p = 0.000$		
Result of HVS		
Test not documented	237	274
Candida only	34	153
Candida and staphylococcus	13	52
No growth	73	39
Staphylococcus only	44	42
Streptococcus only	8	0
$\chi^2 = 99.049$, $df = 5$, $p = 0.000$		
History of recurrence		
Not stated	291	412
No	2	55
Yes	116	93
$\chi^2 = 50.330$, $df = 2$, $p = 0.000$		

Note: χ^2 = chi Square, df = degree of freedom, p = p-value.

4. Discussion

Vaginal discharge is a common symptom seen in clinics in Nigeria. Though vaginal discharge is one of the commonest symptoms of STIs [5], the association between it and the presence of RTIs may be weak [4].

In this study, vaginal discharge was commoner among those aged 21 to 30 years. This is similar to another study [8] that found a higher percentage of vaginal discharge in younger age and unmarried group. It is also consistent with findings from other studies [10] [11] and was attributed to higher incidence of sexual activity and contraceptive use among younger women. Sexual activity may have been under-reported in our study (44 out of 253 unmarried patients) as perceived promiscuity is stigmatized in our context. In contrast, studies elsewhere [12] found vaginal discharge to be more among females aged forty three and above (59.1%).

Vaginal discharge was most commonly characterized as being white (16.9%) which is similar to what was found in Saudi Arabia where white was the most common color of vaginal discharge, representing 50.8% of the complaints [2] and was not specific to a particular causative agent.

In our study, a high proportion (75.5% or 346 out of 458) of patients were investigated by using high vaginal swabs resulted in an etiologic diagnosis. In India however, laboratory diagnosis was lower; 51.75% [13], (2013) and 33.1% [14]. High vaginal swabs (HVS) are often used to diagnose causes of vaginal discharge because they are more accessible to our labs, but they are actually of limited value [15] except in cases of inconclusive assessment, recurrent symptoms, treatment failure, or in pregnancy, postpartum, post-abortion or post-instrumentation [9].

Candidiasis was the commonest etiologic agent found in our study (26%), followed by Staphylococcus (15.6%). This is very similar to what was found in Kano, also in northern Nigeria [16], that among those with vaginal discharge of infective origin, *Candida albicans* was isolated in 94% of cases, while *Staphylococcus aureus* was isolated in 6%. This is also similar to other studies where higher rates of candidiasis (53.6% - 75%) was found; [3] [10] [11] [17] [18].

The risk factors for candidiasis are well known and include douching, use of antibiotics, immunocompromised states and diabetes [9]. Few of the women studied had these risk factors. Though douching is a common cultural practice in this environment for personal hygiene, to prevent infections and as an aphrodisiac [19] [20]. The practice of douching is however discouraged [21]. Irrational use of antibiotics is also widespread [22]. Identification of species type would be useful especially in recurrent candida infection [9] but was not always done in this case. Roughly 80% of candidiasis are due to *Candida albicans*, while others are with other *Candida* species including *Candida glabrata* and *Candida tropicalis*. Some 15% to 20% of cases are however asymptomatic [7]. Recurring candidiasis without the common predisposing factors, may be an acquired candida-antigen specific cutaneous anergy in about 40% - 70% of cases leading to a relapse rather than reinfection [7], especially when short treatment regimens are used. And in some cases, reinfection has been attributed to a persistent intestinal reservoir of candida [7].

One study [13], however found bacterial vaginosis to be commonest in 105 (26.25%) women, and other infections were also common; candidiasis alone (61, 15.25%), trichomoniasis alone (12, 3%), mixed infections (22, 5.5%). Bacterial vaginosis was also commonest, 14.3% - 17.4% according to some other [14] [23].

Apart from the type of tests available, results are also affected by the quality of the tests and lab procedures as well as experience of personnel. Facilities for some cultures, transport media and storage conditions are not always available or adequate in resources poor settings. Yet reporting of commensal bacteria can cause anxiety and lead to overtreatment while poor quality of tests may lead to under-diagnosis of other causative agents [9].

5. Limitations of the Study

Record keeping is generally poor in this part of the world. In this study uniform data of all women presenting to the clinic during the study period could not be reliably gotten to calculate actual prevalence. Characterization of vaginal discharge and educational level of patients was not well documented and missing data is a limitation of retrospective studies. The study is also facility based with a small sample size which may not necessarily reflect what obtains in the community. Lack of adequate laboratory resources limited investigation into causes of the symptom.

6. Conclusion and Recommendation

Vaginal discharge is a common symptom among women but it is significant to note that it may not always be

pathological. Hence most women need to be educated and reassured to allay anxiety. Candidiasis was the commonest infectious cause in this population and was sometimes recurrent, so women should avoid its predisposing factors which are well known. More attention should be paid to proper record keeping, documentation of facts and improving laboratory services. More prospective and qualitative studies are needed to further study this symptom.

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