CLINICAL AND AETIOLOGICAL PATTERN OF VAGINAL DISCHARGE IN PATIENTS ATTENDING STD CLINIC OF A TERTIARY HOSPITAL

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ABSTRACT

BACKGROUND

Vaginal discharge is a considerable problem for many women causing discomfort, anxiety affecting women's quality of life and consuming considerable resources though some vaginal discharges are normal.

MATERIALS AND METHODS

This is a descriptive (Prospective) study undertaken over a period of 12 months in STD Clinic, Dept. of DVL, Osmania Medical College/Osmania General Hospital, Hyderabad. A total of 100 eligible consented women with vaginal discharge in reproductive age group (15-50 yrs.) were studied with consequent sampling methodology with zero intervals after administering inclusion and exclusion criteria. The percentage method is followed for statistics.

RESULTS

Among the study group of 100, 84 (84%) women were having pathological vaginal discharge and 16 (16%) were having the excessive amount physiological discharge. Bacterial Vaginosis (BV) is most common with 51 (51%), followed by Candidal Vaginitis (CV) in 30 (30%), Trichomonal Vaginitis (TV) in 18 (18%) and Mixed infections in 15 (15%). However, 16 (16%) women attended with physiological discharge with assumption of pathologic discharge. 44 (44%) were having risky sexual behaviour of participating in multiple sexual encounters with other than regular partner in the last 30 days. 50 (50%) of pathological discharges are seen in the 1st decade of start of sexual activity i.e., in 21-30 years age group followed by 20 (20%) in 31-40 years group and 8 (8%) in more than 40 years age group.

CONCLUSION

Provision of information on Sexual and Reproductive Health (SRH) services in early years of starting of sexual journey may help in reduction of STIs/RTIs in reproductive populations. Since isolated and mixed infections are being the causes of vaginal discharge, the utilisation of available minimal laboratory services may help in provision of specific treatment. In the absence of laboratory, the syndromic management of vaginal discharge is highly recommended.

KEYWORDS

Vaginal Discharge, Bacterial Vaginosis, Candidiasis, Trichomoniasis, Candidal Vaginitis, Trichomonal Vaginitis, High Risk Group.

HOW TO CITE THIS ARTICLE: Ananthula VK, Prasad JVDS, Katikala S, et al. Clinical and aetiological pattern of vaginal discharge in patients attending STD clinic of a tertiary hospital. J. Evolution Med. Dent. Sci. 2017;6(65):4741-4745, DOI: 10.14260/Jemds/2017/1027

BACKGROUND

As the lower genital tract is directly exposed to the external environment, it is subjected to various infections and inflammations, which may remain localised or may progress to other areas such as the endometrium, fallopian tubes, peritoneal cavity and, less likely, the ovaries¹. Genitourinary

tract infections are among the most frequent disorders for which patients seek care from a health care worker. By understanding the pathophysiology of these diseases and having an effective approach to their diagnosis, clinicians can institute appropriate antimicrobial therapy to treat these conditions and reducing long-term sequelae.² Vaginitis is a commonly encountered complaint among women of reproductive age group. Vaginal discharge is a considerable problem for many women causing discomfort, anxiety affecting women's quality of life and consuming considerable resources. Some vaginal discharges are normal and can vary with age, use of contraceptives, menstrual cycle and with the oestrogen level.³

The vaginal flora is a dynamic ecosystem that can be easily altered. The following are the most frequently encountered causes of vaginal discharge.³

Financial or Other, Competing Interest: None.

Submission 09-07-2017, Peer Review 02-08-2017,

Acceptance 08-08-2017, Published 14-08-2017.

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DOI: 10.14260/Jemds/2017/1027

- Physiological–Premenarche, Preovulatory, Premenstrual, Sexual activity, Pregnancy, Lactation.
- Pathological vaginitis - Bacterial vaginosis, vaginal candidiasis, vaginal trichomoniasis, desquamative inflammatory vaginitis, toxic shock syndrome.
- Atrophic vaginitis - Chlamydia trachomatis, Neisseria gonorrhoea.
- Uterine sepsis - Neoplasm, psychosomatic vaginitis.

There are four causes of vaginal discharges which cover almost 95% of cases. These are Bacterial Vaginosis, Candidal Vulvovaginitis, Trichomoniasis and normal physiological discharge. The modern management of vaginal discharge demands a specific diagnosis, which is a combination of naked eye examination plus laboratory workup.³

If a proper diagnosis is made, instituting appropriate antimicrobial therapy will prevent long-term sequelae. This has indicated the need to take up this study of clinical and aetiological correlation in Vaginitis. The annual incidence of sexually transmitted diseases (STDs) in India is estimated as 5 percent i.e. approximately 40 million new infections occur every year. Prevalence of vaginal discharge in India is 30% and in Delhi it is 29.9%.⁴

Aims and Objectives

To understand the association between the type of vaginal discharge, its clinical features, organisms associated with the discharge and their prevalence in reproductive age women.

MATERIALS AND METHODS

A descriptive (prospective) study was undertaken over a period of 12 months from January 2015 to December 2015 in STD Clinic, Dept. of DVL, Osmania Medical College & Osmania General Hospital, Hyderabad, Telangana State, India.

Study Population

A total of 100 women in reproductive age with the complaints of vaginal discharge were eligible and consented

for the study in the study period after administering inclusion and exclusion criteria.

Inclusion Criteria

1. Sexually active reproductive age group women between 15-50 years presenting to the STD Clinic with complaints of Vaginal Discharge associated with or without other symptoms.
2. Willing to be part of the study with informed consent.

Exclusion Criteria

1. Not willing to be part of study.
2. Who had received systemic antibiotic therapy, steroids or local vaginal antimicrobial therapy within the preceding month.
3. Premenarchial Girls, Girls/women who have not started sexual activity, Pregnant & Lactating women, Postmenopausal women, women with Genital or cervical malignancy and on treatment.
4. Women in menstrual period at the time of visit.

Method of Study

A consecutive sampling method with zero intervals was followed in the consenting order. A detailed clinical, personal and sexual history of the patient was taken; followed by performing external and internal examination with necessary sample collection for investigations.

RESULTS

The present study aims at determining clinical features & aetiological agents of vaginal discharge in women attending STD Clinic, Dept. of DVL, Osmania Medical College/Osmania General Hospital, Hyderabad, TS. A total of 100 consented eligible women aged between 15-50 years were studied.

Age in Years	No.	Normal Vaginal Flora		Bacterial Vaginosis (BV)		Candidal Vaginitis (CV)		Trichomonal Vaginitis (TV)		Mixed Inf (BV+CV+TV)		BV+ CV		BV+ TV		CV+ TV	
	(n)	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%	(n)	%
< 21	09	3	3	2	2	2	2	1	1	1	1	1	1	0	0	0	0
21-30	56	6	6	21	21	13	13	7	7	9	9	6	6	2	2	1	1
31-40	24	4	4	10	10	2	2	5	5	3	3	2	2	1	1	0	0
> 40	11	3	3	4	4	2	2	0	0	2	2	1	1	1	1	0	0
Total	100	16	16	37	37	19	19	13	13	15	15	10	10	4	4	1	1

Table 1: Age Distribution of Discharge in 100 Women

In the present study, a total of 16 women (16%) had normal physiological discharge but the quantity and timing with menstrual cycle is the concern for the women to misinterpret it as pathological discharge and attending the hospital. It is observed that with increasing age, the women are able to distinguish between these two, with which the lesser number is seen with advancing age.

Isolated cases of Bacterial Vaginosis (BV) is seen in 37 women (37%), however, as part of mixed infection BV is present in 14 women (14%), combined together totalling to 51 (51%).

Isolated cases of Candidal Vaginitis (CV) is seen in 19 women (19%), as part of mixed infection CV is seen in 11 women (11%), together totalling to 30 (30%).

Isolated cases of Trichomonal Vaginitis (TV) is seen in 13 women (13%), as part of mixed infection TV is seen in 5 women (5%), together totalling to 18 (18%).

One common finding is highest number of discharges are seen in the initial part of onset of sexual and reproductive activity age i.e., between 21 to 30 years. The types of discharges seen are both physiological and pathological. However, as the age advances, the numbers of infections including physiological discharges are coming down. This phenomenon may be attributable to increased awareness on

sexual and reproductive health (SRH) through various means capacitating the women to follow sexual and reproductive hygiene and protect themselves through safer sex practices.

In the present study, there are 84 women diagnosed with either a single or mixed pathological vaginal discharges.

Age in Years	No. of Path. Vag. Discharge		Total Bacterial Vaginosis (BV) (Isolated + Mixed)		Total Candidal Vaginitis (CV) (Isolated + Mixed)		Total Trichomonal Vaginitis (TV) (Isolated + Mixed)	
	(n)	%	(n)	%	(n)	%	(n)	%
< 21	06	07.14	02+01=03	06.0	02+01=03	10.00	01+00=01	05.56
21-30	50	59.53	21+08=29	56.9	13+07=20	66.67	07+03=10	55.56
31-40	20	23.80	10+03=13	25.5	02+02=04	13.33	05+01=06	33.33
> 40	08	09.53	04+02=06	11.8	02+01=03	10.00	00+01=01	05.56
Total	84	100	51	100	30	100	18	100

Table 2. Age Wise Distribution of Pathological Vaginal Discharge in Women

Among the study group, majority of pathological discharges are seen in the age group of 21-30 years (59.53%) followed by 31-40 years (23.80%). The same pattern is seen across all 3 infections viz., for Bacterial Vaginosis 56.9% & 25.5%, for Candidal Vaginitis 66.67% & 13.33% and for Trichomonas Vaginitis 55.56% & 33.33%.

Among the clinical features of Bacterial Vaginosis (BV), homogenous discharge is the most common feature (94.11%), followed by odour (70.59%), dysuria (39.21%) and pruritus (11.76%). Among the clinical features of Candidiasis (CV), most common feature is curdy white discharge

(53.33%) followed by pruritus (40.0%), burning sensation (33.33%), dysuria (16.66%) and dyspareunia (16.66%). Among the clinical features of Trichomoniasis (TV), most common feature is frothy discharge (77.77%) followed by pruritus (66.66%), odour (44.44%) and dysuria (22.22%).

Table 3. Distribution of Discharges in High Risk Group

The women are categorised as high risk based on having more than one sexual partner in last 30 days and used condom inconsistently.

Age in Years	Total No.	HRG No.	Normal Vaginal Flora	Bacterial Vaginosis (BV)	Candidal Vaginitis (CV)	Trichomonal Vaginitis (TV)	Mixed Inf (BV+CV+TV)	BV+ CV	BV+ TV	CV+ TV
< 21	09	03	1	1	0	0	1	1	0	0
21-30	56	23	0	9	5	3	6	3	2	1
31-40	24	13	1	5	2	3	2	2	0	0
> 40	11	05	1	2	1	0	1	0	1	0
Total	100	44	3	17	8	6	10	6	3	1

Table 3

HRG constitutes 44 (44%) in total attendees with Vaginal Discharge. It is observed that, as the age is increasing the number of women in high risk category are decreasing with which the risk of STIs/RTIs. The decrease in partner number can be attributable to failure of attracting the male clients and the men preferring the younger women, etc. Accordingly, all types of vaginal discharges have followed decrease in number as the age is increasing in the HRG.

Bacterial Vaginosis (BV) is the most common cause of discharge in 26 of 44 constituting 59%, followed by Candidiasis in 15 (34%), Trichomoniasis in 10 (22.72%) and mixed infections in 10 (22.72%). The higher prevalence of BV can be attributable to multiple and varied partners of HRGs, inconsistent condom use, poor genital and sexual hygiene, poor nutritional status, etc.

Age in Years	Total No.	HIV No.	Normal Vaginal Flora	Bacterial Vaginosis (BV)	Candidal Vaginitis (CV)	Trichomonal Vaginitis (TV)	Mixed Infections (BV+CV+TV)	BV+ CV	BV+ TV	CV+ TV
< 21	09	03	0	0	1	1	1	1	0	0
21-30	56	22	1	11	4	2	4	2	1	1
31-40	24	11	0	6	1	3	1	1	0	0
> 40	11	05	1	1	1	0	2	1	1	0
Total	100	41	2	18	7	6	8	4	2	1

Table 4. HIV Seropositivity and Vaginal Discharges

HIV seropositivity is seen in 41 women (41%) among total study group population. Only 2 of 41 (4.88%) seropositive women are carrying normal vaginal flora in the studied population. Bacterial Vaginosis (BV) is most common in 24 of 41 (58.53%), followed by candidiasis in 12 of 41 (29.26%), Trichomoniasis in 9 of 41 (21.95%). Mixed

infections are seen in 8 of 41 (19.51%). HIV serostatus is one strong influencing factor in disturbing the vaginal ecosystem and results in increased risk of both STIs/RTIs. The present study also shows higher prevalence of BV and CV due to disturbed protective mechanisms at genital level.

In the present study, an Amsel criterion is seen in 43 cases of Bacterial Vaginosis and Nugent's score is positive in 51 cases. Candidiasis was isolated using Sabouraud's Dextrose Agar (SDA) in 30 cases, where in the organism is seen by using KOH Mount in 24 cases and by Gram stain in 12 cases. Trichomoniasis was isolated in 18 cases by using Kupferberg medium, 16 cases by Wet mount, 13 by Pap smear and 8 by Giemsa stain.

DISCUSSION

A clinical and microbiological evaluation of vaginal discharge was carried out on 100 eligible and consented women aged between 15-55 years attending STD OP, Dept. of DVL, Osmania Medical College/Osmania General Hospital, Hyderabad after meeting inclusion and exclusion criteria.

The following Observations are made Age Wise Incidence of Vaginitis

Vaginitis was found to be most prevalent in the age group of 21-30 years (56%) and least in <21 years age group (9%). J. W. Mahadani (1998) showed similar incidence (66.45%) in the age group 21-30 years.⁵ In the present study across all age groups, 21-30 years age group patients showed 56.9% prevalence among Bacterial Vaginosis, 66.67% prevalence among Candidiasis and 55.56% prevalence among Trichomoniasis. Mixed infections are also more common (60%) in 21-30 years age group. Study of Muvunyi et al⁶ showed that bacterial vaginosis was found in 52.8% in the age group of 21-30 years. The study of Ako et al supports that vaginal candidiasis occurs most frequently in the age group of 21-30 years.⁷ Welbeck A. Twum et al showed prevalence of *T. vaginalis* in 18 to 31 (68.15%) in females.⁸

Sexual Behaviour

In the present study, Bacterial vaginosis is seen in 40.90% of total high-risk group infections. Marrazzo et al and Bradshaw CS et al found BV is the most prevalent vaginal infection particularly in countries with high HIV prevalence.^{9,10} In the present study, Candidiasis is seen in 19.69% of total high-risk group infections. Among the total candidal infections, 68.42% are seen in high-risk group. Sebitloane HM et al showed HIV infection as a risk factor for developing VVC.¹¹

Bacterial Vaginosis

Among the patients diagnosed with Bacterial Vaginosis, clinical features suggestive of homogenous grey white discharge is seen in 48 patients (94.11%) followed by odour in 36 patients (70.59%), other symptoms like dysuria is seen in 20 patients (39.21%), itching in 6 patients (11.76%). Similar findings were observed by Charles H Livengood et al.¹² In the present study, dysuria is seen in 36.36% of bacterial vaginosis patients. After microbiological evaluation, these patients were showing mixed infections with candidiasis & Trichomoniasis. Amsel R et al observed BV alone does not cause dysuria, dyspareunia, pruritus, burning, or vaginal inflammation (erythema, oedema).¹³ The presence of these symptoms suggests mixed vaginitis (Symptoms due to two pathogens).¹⁴

In our study, 37% of the women were presumptively diagnosed as suffering from Bacterial vaginosis. Similar rates have been observed by V. O. Rotimi et al (1991) 38.9%.¹⁵

In this study, Amsel criteria diagnosed 43% of women suffering from bacterial vaginosis. Therefore, the sensitivity and specificity of Amsel criteria were 72.5% and 87.7% respectively. Among the four Amsel criteria, clue cells in Gram stain had the highest sensitivity of 88.2% and a positive whiff test had 100% specificity. Clue cells were absent in 11.8% of the bacterial vaginosis cases. While J W Mahadani (1998) found clue cells to be 100% sensitive and 95.25% specific.⁵ Modak et al (2011) found it to be 100% sensitive and 76% specific.¹⁶ Brijinder K. Gupta (1998) noted clue cells in only 61% of the cases symptomatic for bacterial vaginosis.¹⁷ In this study, presence of clue cells correlated best with a positive diagnosis by Nugent's score while thin homogenous discharge had the lowest correlation. This is similar to the findings of Modak et al (2011).¹⁶

Candidiasis

In this study, among 30 patients with Candidal Vaginitis, 16 patients gave history of discharge and in whom discharge was observed on examination (53.33%). Other symptoms like vaginal itching were observed in 12 patients (40%), burning sensation in 10 patients (33.33%), dyspareunia and dysuria in 5 patients (16.66%). Stanley et al (1975) observed complaints of discharge in 42%, irritation in 15% of patients.¹⁸ In this study, prevalence of candidiasis as a single cause of discharge is seen in 19%. Mixed infections with Bacterial vaginosis and Trichomoniasis are seen in 11%. Similar incidence (17.8%) reported by Di Bartolomeo et al (2002).¹⁹ Out of 100 cases *Candida* was isolated in 30% of the patients by Gram stain and culture on SDA.

Trichomonas Vaginalis

In this study of patients with Trichomoniasis, Greenish yellow discharge was seen in 77.77%, itching in 66.66%, Odour in 44.44%, dysuria in 22.22%. Similar findings were reported by Thomason in 1988 with vaginal discharge in 78% of Trichomoniasis patients.²⁰ Swygard and colleagues (2004) observed vaginal discharge as the most common presenting complaint followed by pruritus and dysuria.²¹

The methods used for diagnosis were wet mount, Giemsa stain, Pap stain and culture on Kupferberg medium. Of the 100 cases, 18% were found to be harbouring *T. vaginalis* by culture. The prevalence of *T. vaginalis* infection reported in the present study is almost equivalent with that reported by Kaydos et al (2002) 16.7%.²² A slightly lower prevalence was reported by Pillay et al (2004) 12.6%.²³ A high prevalence of 47% was reported by Watt et al (1986).²⁴

In our study, Giemsa stain detected 8 cases with 44.44% sensitivity; Pap stain detected 13 cases with 72.22% sensitivity. Wet mount detected 16 cases out of 18 that is 88.8% sensitivity which is similar to that reported by Thomasen et al (1988) 86%.²⁰ A very low sensitivity has been reported by Watt et al (1986) 36.9%.²⁴ Remaining 2 cases which were missed by wet mount were detected by culture. In this study, 100% cases were found by culture. Considering culture as the gold standard, the prevalence of *T. vaginalis* infection was found to be 18%.

CONCLUSION

Present study shows Bacterial Vaginosis was the highest (51%) followed by Vaginal Candidiasis (30%) and Trichomoniasis (18%) and mixed infections are seen in 15%

in the studied population with normal vaginal flora seen in 16 (16%). The prevalence of vaginal discharge was more common in 21-30 years and low in <21 years. Incorporating the sexual and reproductive health education in academic curriculum at school level is very important. With practise of aetiological diagnosis by minimal laboratory support, the undertreatment or overtreatment can be corrected. However, in the absence of lab support, syndromic management of vaginal discharge by following the flow charts developed by each nation/WHO is recommended.

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