

Comparative Study of Visual, Clinical and Microbiological Diagnosis of White Discharge

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Abstract: The main aim of this study microbial aetiology in patients with white discharge and to compare by visual, clinical and microbiological methods. The present study was a hospital based prospective study done at Department of Obstetrics and Gynaecology, Government General Hospital, Vijayawada over a period of one year from January 2013 to January 2014. This study included 150 women with white discharge in the age group 19 to 45 years, according to inclusion and exclusion criteria. The three common causes of vaginal discharge BV, Candidiasis and Trichomoniasis were analysed. Diagnosis based on visual, clinical and microbiological methods were compared and results were summarised.

Bacterial vaginosis and Candidiasis are the most common causes of vaginal discharge in our community than Trichomoniasis. Microbiological diagnosis is the ideal approach for etiological diagnosis of vaginal discharge. Treatment based on WHO Syndromic approach has limited role as it over treated BV and Candidiasis. Trichomoniasis was under treated. Due to high negative predictive value and specificity, with meticulous visual and clinical diagnosis in low resource settings, where microscopy cannot be done, blanket therapy based on Syndromic approach can be advocated

Keywords: bacterial vaginosis , candidiasis , comparision.

I. Introduction

Vaginal discharge is the most common complaint in reproductive age women. In addition to its socio economic connotations, leucorrhoea is a disease of physical and pathological significance which contributes to psychosexual problems. It is an enigmatic medical problem owing to its physical discomforts which deserves concern and attention. Symptomatic vaginal discharge is caused by infection of the vaginal mucosa and inflammation. It occurs in 1-14%, of all women in the reproductive age group and is responsible for 5-10 million OPD visits per year throughout the world. Three common causes of symptomatic vaginal discharge which account for 90% of all causes of abnormal vaginal discharge are Bacterial vaginosis (33- 47%) , Candidiasis (20-40%) and Trichomoniasis (8-10%). Abnormal vaginal discharge predisposes to significant morbidity in the form of pelvic inflammatory diseases, infertility, endometriosis, cuff cellulitis, urethral syndrome, pregnancy loss, premature rupture of membranes, chorioamnionitis and preterm labour.

Successful management of symptomatic vaginal discharge lies in the diagnostic approach. Etiology of vaginal discharge diagnosed mostly basing on clinical examination of the discharge characteristics may be inaccurate. Laboratory methods for diagnosis of etiological agent are accurate, but they are expensive and not available in all settings. To overcome the limitations of these two methods WHO proposed Syndromic approach based on combinations of symptoms and signs without microscopic examination in low resource settings. Syndromic approach does not detect asymptomatic cases and leads to overtreatment of the disease.

The present study is undertaken to determine the inaccuracies of visual/presumptive diagnosis and clinical diagnosis of symptomatic vaginal discharge and to evaluate if addition of simple microscopic techniques such as wet smear and Gram's stain can aid in the accurate diagnosis of white discharge. The need for treatment of patients based on visual, clinical and microbiological diagnosis is compared.

II. Materials and Methodology

This is a hospital based prospective study conducted on patients attending Obstetrics and Gynaecology outpatient department of GGH, Vijayawada from January 2013 to January 2014. 150 women attending Gynaecology OPD with symptomatic vaginal discharge were examined. Informed consent was taken from all the patients. Selection of patients was strictly according to inclusion and exclusion criteria.

Inclusion criteria

All women of age 18-45 years, attending Gynaecology OPD with abnormal vaginal discharge.

Exclusion criteria

1. Pregnancy
2. Puerperium
3. Post abortal women within 6 weeks
4. Women in whom per speculum and pelvic examination is not possible.
5. Women during menstrual bleeding.
6. Women who have taken antibiotics or antifungals in past 1 week.
7. Hysterectomised women
8. Benign and malignant tumors of uterus and cervix
9. Acute pelvic inflammatory disease
10. Women with laboratory confirmed STD
11. Cervicitis

Materials

1. Vaginal speculum (cusco's or sims' speculum)
2. Sterile cotton swabs
3. Glass slides
4. Slides for hanging drop preparation
5. Gram stain
6. Microscope

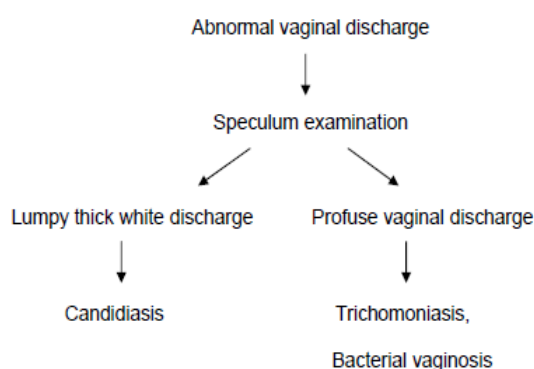
Methodology

A comprehensive history was taken from all the patients, followed by general examination and gynaecological examination. Using aseptic precautions vaginal speculum was introduced and the nature of vaginal discharge was observed. A diagnosis is made based on clinical examination (visual diagnosis) and WHO syndromic approach (clinical diagnosis). A sterile vaginal swab was used for collection of vaginal discharge for microbiological diagnosis.

Visual diagnosis

Characteristics	Bacterial vaginosis	Trichomoniasis	Candidiasis	Physiological
Discharge	Profuse foul smell, grey or white	Profuse greenish discharge	Thick white discharge	White, no foul smell
Odour	Offensive/fishy	Offensive	Non offensive	Non-offensive
Pruritis	Absent	Present	Present	Absent
Other symptoms		Dysuria	Soreness, Superficial dyspareunia, dysuria	Nil
Signs	Discharge coating vagina and vestibule. No vulval inflammation	Frothy yellow discharge, Vulvitis, Vaginitis. Cervicitis [strawberry cervix]	Vulvar erythema, Oedema, Fissuring, Satellite lesions	Nil

WHO SYNDROMIC APPROACH FOR VAGINAL DISCHARGE



Specimen

Three vaginal swabs were collected from vagina from each case under aseptic conditions. First swab was kept in 0.5ml of sterile physiological saline. Second swab and third swab were transferred immediately to microbiology department for Nugent's score and Gram staining for Candidial pseudohyphae.

Microscopic

Wet mount for Trichomonas vaginalis and clue cells

The wet mount was prepared immediately by gently pressing the swab on a slide and placing a cover slip on the drop of saline. The slide was immediately examined under the microscope first under low power and then under high power after racking down the condenser, for the presence of Trichomonas vaginalis and clue cells. Second and third swabs are sent to microbiology department for Gram's staining for Candida and for Nugent's score.

Gram's staining for Candida: shows presence of gram positive budding yeasts and pseudohyphae.

Gram's staining for Bacterial vaginosis: Bacterial vaginosis is diagnosed based on nugents score of more than 7 by microbiologist.

III. Results:

WET MOUNT (Trichomonas and clue cells)

Negative Report : No Trichomonas vaginalis seen.

Positive Report : Trichomonas vaginalis seen.

Negative report : no clue cells seen .

Positive report : clue cells seen .

Gram Stain (Candida Results):

Negative Report: No budding cells or pseudohyphae seen.

Positive Report: budding cells or pseudohyphae seen.

Gram Stain (Bacterial Vaginosis Results)

Nugent's score

0-3 = Normal vaginal flora

4-6 = Intermediate flora

7-10 = Bacterial vaginosis

Diagnosis based on the three methods is compared and tabulated.

Statistical Methods:

Statistical significance regarding association between study outcomes was assessed using Chi-square test. A p value of < 0.05 was considered statistically significant.

Microsoft excel work sheet was used for data analysis.

Medcalc statistical software version 14.8.1 for windows was used for statistical analysis.

IV. Observation and Results

The present study was a hospital based prospective study done at Department of Obstetrics and Gynaecology, Government General Hospital, Vijayawada over a period of one year from January 2013 to January 2014. This study included 150 women with white discharge in the age group 19 to 45 years, according to inclusion and exclusion criteria. The three common causes of vaginal discharge BV, Candidiasis and Trichomoniasis were analysed. Diagnosis based on visual, clinical and microbiological methods were compared and results were summarised as follows:

- Majority of the women (34%) presenting with white discharge were in the age group of 25 to 29 years.
- 97% of the women belonged to low socio economic status according to modified Kuppuswamy scale.
- Majority of the women were multiparous (61.3%).
- Common symptoms associated with vaginal discharge were lower abdominal pain, pruritis and urinary symptoms.
- Examination revealed white or gray discharge in half of the cases. The discharge was thin in consistency and moderate in quantity in 56% cases.
- Only 29% of women with white discharge had signs of inflammation.
- On visual diagnosis, Bacterial Vaginosis (55%) was the most common infection diagnosed followed by Candidiasis in 21.7% and Trichomoniasis

in 2% of the cases.

- On clinical diagnosis, BV was diagnosed in 48%, Candidiasis in 24% and Trichomoniasis in 3.3% of the cases.
- Microbiological diagnosis revealed pathological organisms in 62% cases whereas in 38% of the cases the discharge was physiological.
- Among the pathological organisms isolated, BV in 26.6%, Candidiasis in 20% and Trichomoniasis in 5.33% were the common isolates. 10% of the cases revealed mixed infections.
- On comparison, visual and clinical methods over diagnosed BV and Candidiasis.
- Sensitivity of visual diagnosis for BV is 81.48 % and specificity is 45.8 %. Positive predictive value of visual diagnosis is 45.83 % and negative predictive value is 81.48 %.
- Sensitivity of clinical diagnosis for BV is 94.4 % and specificity is 66.6 %. Positive predictive value of clinical diagnosis is 61.44 % and negative predictive value is 91.04 %.
- If WHO blanket therapy was used for treatment, BV would be over treated
- Sensitivity of visual diagnosis for Candidiasis is 52.6 % and specificity is 80.3 % .Positive predictive value of visual diagnosis is 47.61 % and negative predictive value is 83.33 %.
- Sensitivity of clinical diagnosis for Candidiasis is 63 .1 % and specificity is 85.7 % .Positive predictive value of clinical diagnosis is 60 % and negative predictive value is 87.27 %.
- If visual and clinical methods are used, Candidiasis would be over treated.
- Sensitivity of visual diagnosis for Trichomoniasis is 35.2 % and specificity is 98.4 % .Positive predictive value of visual diagnosis is 75 % and negative predictive value is 92.25 %.
- Sensitivity of clinical diagnosis for Trichomoniasis is 63.1 % and specificity is 85.7 % .Positive predictive value of clinical diagnosis is 60 % and negative predictive value is 87.27 %.
- Trichomoniasis would be undertreated based on visual and clinical methods.
- As the negative predictive value is high, if there are no clinical signs of infection patients may not require treated.
- According to present study, 27.33 % had physiological discharge. If blanket therapy was used for all cases of white discharge, then these women would receive unnecessary treatment.

V. Conclusion

- Bacterial vaginosis and Candidiasis are the most common causes of vaginal discharge in our community than Trichomoniasis .
- Microbiological diagnosis is the ideal approach for etiological diagnosis of vaginal discharge.
- Treatment based on WHO Syndromic approach has limited role as it over treated BV and Candidiasis. Trichomoniasis was under treated.
- Due to high negative predictive value and specificity, with meticulous visual and clinical diagnosis in low resource settings, where microscopy cannot be done, blanket therapy based on Syndromic approach can be advocated.

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