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# Vaginal Candidiasis- The Known Opportunistic Fiend in Developing Countries

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***Abstract***
***Background-*** *Vaginal yeast infections, also known as candidiasis, are a common female condition. A healthy vagina has bacteria and some yeast cells,but when the balance of bacteria and yeast changes, the yeast cells can multiply. This causes intense itching, swelling, and irritation. Treating a vaginal yeast infection can relieve symptoms within a few days. In more severe cases, it may take up to two weeks. Vaginal yeast infections aren't considered a sexually transmitted infection (STI). Sexual contact can spread it, but women who aren't sexually active can also get them.*
***Aims and Objectives-*** *To study the prevalence of candidiasis in Gwalior, role of cervicovaginal smear examination in it's diagnosis and spectrum of disease in various age groups.*
***Methodology-*** *This is a retrospective study. A total number of 5000 cervicovaginal smear which were reported in Department Of Pathology, G.R Medical College Gwalior, were included in the study. The data of cervicovaginal smear examination reported were retrieved, compiled and analyzed.*
***Results and Conclusions-*** *Out of 5000 cervicovaginal smears examined, 280 (5.6%) females were positive for candidiasis, with highest incidence found in women aged between 21-30 years (37.5%). Cervicovaginal smear examination with Leishman-Giemsa staining would help in early detection of candidiasis which can prevent various complications in women chiefly in the reproductive age group.*
***Key Words-*** *Candidiasis, Leishman-Giemsa, Cervicovaginal Smear*

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## I. Introduction

Vaginal yeast infections, also known as candidiasis, are a common female condition. Yeast infections are caused by the fungus Candida. The Candida genus of yeast is a naturally occurring microorganism in the vaginal area. Its growth is kept in check by the lactobacillus bacteria. The disease spectrum ranges from "innocent bystander," where symptoms are wrongly attributed to coincidental isolation of candida to complicated disease where Vulvovaginal Candidiasis is severe, persistent, or recurrent or there is an underlying host abnormality [1].

Vulvovaginal candidiasis is most commonly observed in women the reproductive age group. It is quite uncommon in prepubertal and post menopausal females. It may be associated with the following factors: Flares just before and during menstruation ,Pregnancy, Higher dose combined oral contraceptive pill , Oestrogen-based hormone replacement therapy after the menopause, including vaginal oestrogen cream, A course of broad spectrum antibiotics such as tetracycline or amoxicillin, Diabetes mellitus, Obesity, Iron deficiency anaemia, Immunodeficiency eg, HIV infection, An underlying skin condition, such as vulval psoriasis, lichen planus or lichen sclerosus, Other illness.

The imbalance that allows the overgrowth of yeast to happen can be due to:antibiotics, pregnancy, uncontrolled diabetes, weak immune system, poor eating habits, including a lot of sugary foods hormonal imbalance near your menstrual cycle stress and lack of sleep.

Vulvovaginal candidiasis (VVC) has been associated with considerable direct and indirect economic costs [2], enhanced susceptibility to HIV infection [3], and is being investigated for a potential relationship with preterm birth [4]. Short-course azole-based treatment regimens are considered effective and safe [5] and are accessible and affordable in most settings. Much of the epidemiologic literature concerning vulvovaginal candidiasis reports on studies in which women were queried on their self-reported history of it [6]. The lack of representative data on the epidemiologic features of laboratory-confirmed vulvovaginal candidiasis has been evident throughout the time in which it has evolved from being considered a "nuisance infection" to a clinically relevant condition [7, 8].

This includes severe episodic VVC, persistent non-Candida albicans infection, recurrent VVC, and those with underlying host abnormality—for example, pregnancy, HIV infection and diabetes [1]. As well as

microbiological testing women with chronic symptoms need a careful history and examination. Particular attention needs to be paid to alternative diagnoses, most commonly vulval eczema/dermatitis. Possibilities otherwise include other causes of vaginal discharge—for example, recurrent bacterial vaginosis and also recurrent herpes, vulval vestibulitis syndrome, and other vulvar dermatoses [9], Microscopy should be of either a Gram stained or wet mount preparation [10,11,12].

## II. Materials and methods

Patients visiting the Gynaecology OPD with complaints of vaginal discharge, itching, dysuria, dyspareunia, and foul odour of various age groups were considered symptomatic. Informed consent was taken from them and Cervicovaginal smear from each patient was carefully taken with aseptic precautions and prepared slides were sent for examination in the Department of Pathology, Cytopathology Section. The smear was air dried and was covered by Leishman stain for one minute, 2 drops of Giemsa stain was also added. After 10 seconds, it was diluted with distilled water and kept for 10 minutes. Then washed in running water, dried in air and mounted with Dibutyl Phathalate xylene (D.P.X) mountant media. Total sample size was 5000 cases. The slides were examined and reported by experienced cytologists and records were maintained in the master register. The data were retrieved, compiled, summarized and statistically analyzed by frequency distribution and percentage proportion.

**Limitations of the study**- the study could only be carried out in the patients who visited the OPD of our centre so the actual prevalence in this region was not ruled out due to the undiagnosed hidden cases in this region.

## III. Results

A total number of 5000 cases were examined through cervicovaginal smear examination out of which **280 (5.6%)** cases were positive for candidiasis.

The positive cases were further divided into various age groups which showed that out of 280 positive cases 37.5% patients were in their 20's, 35% were in their 30's, 9.3% in 40's, 6.1% in 50's and 5.7% were in their 60's (table no.1).

**Table. No. 1** Age Wise Distribution of Patients Suffering With Vaginal Candidiasis

| S.No | Age Group (In Years) | Number Of Cases | Percentage (%) |
|---|---|---|---|
| 1. | <20 | 18 | 6.4 |
| 2. | 21-30 | 105 | 37.5 |
| 3. | 31-40 | 98 | 35 |
| 4. | 41-50 | 26 | 9.3 |
| 5. | 51-60 | 17 | 6.1 |
| 6. | >60 | 16 | 5.7 |

## IV. Discussion

Vulvovaginal candidiasis is due to an overgrowth of yeasts within the vagina, most often Candida albicans. About 20% of non-pregnant women aged 15–55 harbour Candida albicans in the vagina without any symptoms.

Oestrogen causes the lining of the vagina to mature and to contain glycogen, a substrate on which Candida albicans thrives. Symptoms often occur in the second half of the menstrual cycle when there is also more progesterone. Lack of oestrogen makes vulvovaginal candidiasis less common in younger and older postmenopausal women.

Nonalbicans candida species, particularly C glabrata, are observed in 10-20% of women with recurrent vulvovaginal candidiasis. Isolation of candida is common in asymptomatic women.[13,14]

Bang et al. diagnosed vulvovaginal candidiasis in 35% of 650 adult women living in rural Maharashtra state, and Prasad et al. diagnosed vulvovaginal candidiasis in 10% of 451 married, 16–22 year old women in rural Tamil Nadu state [15,16]. However, neither study assessed the incidence of or identified risk factors for vulvovaginal candidiasis.

As reduction of HIV transmission and of adverse birth outcomes remain public policy priorities in India [17], and studies have shown gynecological morbidity is extremely common [18,19,20,21], additional investigation of the epidemiologic features of vulvovaginal candidiasis is necessary.

Consistent with previous research [22], we could not identify behavioral risk factors for vulvovaginal candidiasis, which provides impetus for additional investigation into intrinsic factors such as the composition of vaginal flora, the presence or absence of genetic factors, and the features of the host and local immune response. Only 20% of those infected with Candida were diagnosed as having vulvovaginal candidiasis, much lower than the 53% found in a community-based study in Tamil Nadu, India .Previous research in India has found a high

proportion of women infected by non-albicans Candida species [23,24], which are more resistant to treatment with azoles [25]. For example, women infected with Candida may have discharge caused by bacterial vaginosis and could thus be misdiagnosed with vulvovaginal candidiasis [26].

In the present study out of 5000 cervicovaginal smears examined, 280 (5.6%) females were positive for candidiasis, with highest incidence found in women aged between 21-30 years (37.5%). Occasionally, C albicans infection persists despite adequate conventional therapy. In some women this may be a sign of iron deficiency, diabetes mellitus or an immune problem, and appropriate tests should be done.

Recurrent symptoms due to vulvovaginal candidiasis are due to persistent infection, rather than re-infection. The aim of treatment is to avoid the overgrowth of candida that leads to symptoms, rather than complete eradication.

## V. Conclusion

Cervicovaginal smear examination with Leishman-Giemsa staining would help in early detection of candidiasis which can prevent various complications in women chiefly in the reproductive age group. For correct diagnosis of vulvovaginal candidiasis laboratory confirmation of vaginal infection with Candida is necessary as is a mean of assessing whether the discharge has been caused by bacterial vaginosis. Absent accurate means of diagnosing vulvovaginal candidiasis, women remain at risk for vulvovaginal candidiasis-associated negative birth outcomes and acquisition of sexually transmitted infections.

## References


[1]. Sobel J D, Faro S, Force R W. Et Al Vulvovaginal Candidiasis: Epidemiologic, Diagnostic, And Therapeutic Considerations. Am J Obstet Gynecol 1998178203–211.211 [Pubmed]

[2]. Foxman B, Barlow R, D'arcy H, Gillespie B, Sobel Jd. Candida Vaginitis: Self-Reported Incidence And Associated Costs. Sexually Transmitted Diseases. 2000;27(4):230–235. [Pubmed]

[3]. Røttingen Ja, Cameron Wd, Garnett Gp. A Systematic Review Of The Epidemiologic Interactions Between Classic Sexually Transmitted Diseases And Hiv: How Much Really Is Known? Sexually Transmitted Diseases.2001;28(10):579–597. [Pubmed]

[4]. Roberts Cl, Morris Jm, Rickard Kr, Et Al. Protocol For A Randomised Controlled Trial Of Treatment Of Asymptomatic Candidiasis For The Prevention Of Preterm Birth [Actrn12610000607077] Bmc Pregnancy And Childbirth. 2011;11, Article 19 [Pmc Free Article] [Pubmed]

[5]. Sobel Jd. Vulvovaginal Candidosis. Lancet. 2007;369(9577):1961–1971. [Pubmed]

[6]. Geiger Am, Foxman B, Gillespie Bw. The Epidemiology Of Vulvovaginal Candidiasis Among University Students. American Journal Of Public Health. 1995;85(8):1146–1148. [Pmc Free Article] [Pubmed]

[7]. Kent Hl. Epidemiology Of Vaginitis. American Journal Of Obstetrics & Gynecology. 1991;165(4):1168–1176. [Pubmed]

[8]. Marrazzo J. Vulvovaginal Candidiasis. British Medical Journal. 2003;326(7397):993–994.[Pmc Free Article] [Pubmed]

[9]. Geiger A M, Foxman B, Sobel J D. Chronic Vulvovaginal Candidiasis: Characteristics Of Women With Candida Albicans, C Glabrata, And No Candida. Genitourin Med 199571304–307.307 [Pmc Free Article][Pubmed]

[10]. Zdolsek B, Hellberg D, Froman G. Et Al Culture And Wet Smear Microscopy In The Diagnosis Of Low-Symptomatic Vulvovaginal Candidosis. Eur J Obstet Gynecol Reproduct Biol 19955847–51.51 [Pubmed]

[11]. Sonnex C, Lefort W. Microscopic Features Of Vaginal Candidiasis And Their Relation To Symptomatology. Sex Transm Infect 199975417–419.419 [Pmc Free Article] [Pubmed]

[12]. Schaaf V M, Perez-Stable E J, Borchardt K. The Limited Value Of Symptoms And Signs In The Diagnosis Of Vaginal Infections. Arch Intern Med 19901501929–1933.1933 [Pubmed]

[13]. Odds F C. In: Candida And Candidosis; A Review And Bibliography. 2nd Ed. London: Bailliere Tindall, 1988

[14]. Priestley C J, Jones B M, Dhar J. Et Al What Is Normal Vaginal Flora? Genitourin Med 19977323–28.28[Pmc Free Article] [Pubmed]

[15]. Prasad Jh, Abraham S, Kurz Km, Et Al. Reproductive Tract Infections Among Young Married Women In Tamil Nadu, India. International Family Planning Perspectives. 2005;31(2):73–82. [Pubmed]

[16]. Bang Ra, Baitule M, Sarmukaddam S, Bang At, Choudhary Y, Tale O. High Prevalence Of Gynaecological Diseases In Rural Indian Women. Lancet. 1989;1(8629):85–88. [Pubmed]

[17]. Hawkes S, Santhya Kg. Diverse Realities: Sexually Transmitted Infections And Hiv In India. Sexually Transmitted Infections. 2002;78(1, Supplement):I31–I39. [Pmc Free Article] [Pubmed]

[18]. Stephenson R, Koenig Ma, Ahmed S. Domestic Violence And Symptoms Of Gynecologic Morbidity Among Women In North India. International Family Planning Perspectives. 2006;32(4):201–208. [Pubmed]

[19]. Koenig M, Jejeebhoy S, Singh S, Sridhar S. Investigating Gynaecological Morbidity In India: Not Just Another Kap Survey. Reproductive Health Matters. 1998;6(11):84–97.

[20]. Garg S, Sharma N, Bhalla P, Et Al. Reproductive Morbidity In An Indian Urban Slum: Need For Health Action. Sexually Transmitted Infections. 2002;78(1):68–69. [Pmc Free Article] [Pubmed]

[21]. Desai Vk, Kosambiya Jk, Thakor Hg, Umrigar Dd, Khandwala Br, Bhuyan Kk. Prevalence Of Sexually Transmitted Infections And Performance Of Sti Syndromes Against Aetiological Diagnosis, In Female Sex Workers Of Red Light Area In Surat, India. Sexually Transmitted Infections. 2003;79(2):111–115.[Pmc Free Article] [Pubmed]

[22]. Mohanty S, Xess I, Hasan F, Kapil A, Mittal S, Tolosa Je. Prevalence & Susceptibility To Fluconazole Of Candida Species Causing Vulvovaginitis. Indian Journal Of Medical Research. 2007;126(3):216–219.[Pubmed]

[23]. Ahmad A, Khan Au. Prevalence Of Candida Species And Potential Risk Factors For Vulvovaginal Candidiasis In Aligarh, India. European Journal Of Obstetrics Gynecology And Reproductive Biology.2009;144(1):68–71. [Pubmed]

[24]. White Dj, Vanthuyne A. Vulvovaginal Candidiasis. Sexually Transmitted Infections. 2006;82(4, Supplement):Iv28–Iv30. [Pmc Free Article] [Pubmed]
[25]. Nyirjesy P, Seeney Sm, Grody Mht, Jordan Ca, Buckley Hr. Chronic Fungal Vaginitis: The Value Of Cultures. American Journal Of Obstetrics And Gynecology. 1995;173(3):820–823. [Pubmed]
[26]. Sobel Jd, Faro S, Force Rw, Et Al. Vulvovaginal Candidiasis: Epidemiologic, Diagnostic, And Therapeutic Considerations. American Journal Of Obstetrics And Gynecology. 1998;178(2):203–211. [Pubmed]

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