

VULVOVAGINAL CANDIDIASIS IN PREGNANCY – A COMPARATIVE STUDY

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ABSTRACT

Vulvovaginitis is one of the major problems encountered in obstetrics and gynaecological practice. Vulvovaginal candidiasis is an infection of the Vulva and Vagina caused by a yeast like grow positive fungi of candida species. The present study reveals the prevalence of vulvovaginal candidiasis in pregnant women and also confirms the symptomatology of the affected patient. Pre-disposing factors, associated pathology and comparison of the laboratory test has also been discussed. The study shows that the prevalence of vulvovaginal candidiasis in pregnancy is found to be 22% and also it reveals, KOH smear provides a screening test for candidiasis.

Keywords: Pregnancy, Vulvovaginal Candidiasis, Symptomatology, KOH

INTRODUCTION

Amonkar (1961) reported the increased incidence of vaginal candidiasis during pregnancy and different cases are discussed. Amitava *et al.*, (1993) done antenatal screening of STD's found that prevalence of trichomonas vaginalis infection was 9.2% candida 19.2%, H.vaginalis 16% , Chlamydia 1.2%, Gonococcus 0%, AIDS 0%, syphilis 3.2%, leucorrhoea is the common symptoms of the candida, trichomonas vaginalis and H. vaginalis. Amitava *et al.*, (1993) has done a comparative study of laboratory investigation in trichomonosis and candidiasis in 500 patients. The prevalence of trichomonosis infection of candida by culture 78%, KOH smears 59%. Trichomonas was diagnosed by wet mount 61.02% and culture 84.74% showed that in both cases (infection) culture was the best method of diagnosis. Ameet *et al.*, (1995), studied management of Vulvovaginal candidiasis in pregnant and non-pregnant women with symptoms and determine the prevalence of candidiasis in pregnant women is 46% and non-pregnant is 18% and laboratory test efficacy in detecting candidal infection was 6% in hanging drop, 75% in KOH smear and 100% in culture and 28% in pap smear and stated that clotrimazole in pregnant women and fluconazole in non-pregnant women are effective therapeutic tools in the treatment of vulvo-vaginal candidiasis. Sandhya and his Colleagues (1996) showed the germ tube positive candida species were isolated in 60% of sexually active women and increase of C.T. antibody titre (IgG) was seen in 86% cases. The candida species and CT antibody titre seen in 77.1% of severe anaemia and 55% of moderate degrees of anaemia. Mary *et al.*, (1998) studied epidemiology and outcomes associated with moderate to heavy candida colonization during pregnancy and found that moderate to heavy candida colonization at midgestation was 10% (Candida colonization was positively associated with trichomonas vaginalis) and results suggest that candida colonization is not associated with low birth weight or preterm delivery. Wise *et al.*, (1999) studied the fungal infections of the genitourinary system, showed that, there is an increasing pool of immune compromised patients who are at an increased risk to fungal infections, which now cause 8% of nosocomial infections. Premature infants and elderly and HIV patients are prime candidates for invasive fungal infections. The genitourinary system can be a source or target of disseminated fungal infection. Although candidal species are the most frequent pathogen. Blankhart *et al.*, (1999) conducted study of sexually transmitted infections in young pregnant women. The results are 46.6% candidiasis, 3.1% gonorrhea, 9.9% T. vaginalis 12.2% HIV-I. Fonck *et al.*, (2000) studied the validity of the vaginal discharge algorithm among pregnant and non-pregnant women. In pregnant women the overall prevalence rates were 50% candidiasis, 23% trichomoniasis, 9% bacterial vaginosis, 7% gonorrhea, 9% Chlamydia, 7% syphilis and 22% HIV. Benson *et al.*, (1987) studied the mycotic cultures of 33 couples, in which the

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women had a diagnosis of chronic recurrent vulvovaginitis, were prepared from the oral cavity, the rectum, the vagina and the male ejaculate.

Reservoirs of infection were found in the oral cavity of 36% of the couples, the rectum in 33% and the ejaculate in 15% prostatic instances, the same organisms were found. Betsy (1990) studied the effects of personal hygiene, sexual history, diet and stress on the risk of vulvovaginal candidiasis and found that frequent sexual intercourse was a strongest risk factor (7 times or more for week). Frequent orogenital contact appears to increase the risk of vulvovaginal candidiasis (Jack *et al.*). Michael *et al.*, (1987) suggest that women using the sponge are protected (partially) against the two most common sexually transmitted pathogens, but they may have an increase likelihood of a vaginal infection with candida.

MATERIALS AND METHODS

In the present study, the specimen comprises 100 vaginal swabs collected from pregnant women attending the antenatal out-patient. Department of Government General Hospital, Gulbarga, Sangameshwar Teaching & General Hospital, Gulbarga and Basaveshwar Teaching and General Hospital, Gulbarga.

Inclusion Criteria

All the pregnant women who complaints of white discharge, pruritis vulvae, dysuria and dyspareunia.

Exclusion Criteria

All the pregnant women not complaining of white discharge, pruritis vulvae, dysuria, and dyspareunia.

All the non pregnant women complaining of white discharge, pruritis vulvae, dysuria, and dyspareunia.

The name, age and relevant clinical history of each pregnant woman under investigation were carefully recorded and analyzed in detail to determine the prevalence of vaginal candidiasis.

Specimen Collection

The patients were placed in a lithotomy position, the introitus was cleaned with sterile water and a sterile Sims speculum was inserted into the vagina, and retract the posterior vaginal wall. Retract the anterior vaginal wall with anterior vaginal wall retractor. After retracting the anterior and posterior vaginal wall, the discharge was collected from the upper 3rd of the posterior vagina, with the help of two sterile cotton swabs for each patient. The swabs were transported immediately to the laboratory and processed further.

Direct Examination

One swab was used to study the wet mount preparation and KOH smear examination.

Wet Mount

On a clear glass slide one or two drops of normal saline was placed, the swab was emulsified in the normal saline. A cover slip was placed over the emulsion and was examined under the microscope immediately for the presence of trichomonas vaginalis, candida budding cells.

KOH Smear

The same swab was used for preparing a smear on a clean glass slide and adds one or two drops of 10% KOH solution. A cover slip was placed over the smear and was examined under the microscope for the presence of branching hypha with budding cells or only budding cells.

Note: KOH dissolves the cellular debris.

Culture

The 2nd swab of each specimen was incubated on a Sabouraud's medium. The plate was incubated at 37°C for 24-48 hours. Growth of candida was identified by their smooth, creamy coloured colonies.

The Investigations which are made are Hb%, Blood grouping / Rh typing, VDRL / RBS, HIV / HbsAg, Urine, Albumin, Sugar, Microscopy, C/S, USG Abdomen.

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RESULTS AND DISCUSSION

Symptomatic pregnant women are screened for vulvovaginal candidiasis and the prevalence of vulvovaginal candidiasis is found to be 22%.

Table 1: Prevalence of kvulvogonal candidiasis in different studies

Authors	Prevalence
Amitava <i>et al.</i> , (1993)	19.2%
Ameet <i>et al.</i> , (1995)	46.0%
Present Study	22.0%

The prevalence of vulvovaginal Candidiasis varies widely. This wide variation in the prevalence of candida infection may be due to random selection of cases, poor hygiene and social class of the patients. The prevalence rate of vulvovaginal candidiasis during pregnancy (in Symptomatic) was found to be 19.2% in a study conducted by Amitava *et al.*, (1993) while in the present study the prevalence is 22% which is evident from the table 1.

Table 2: Comparative study of symptomatology of vulvovaginal candidiasis

Symptomes	Percentage		
	Present Study	Ameet <i>et al.</i> , (1995)	Amonkar (1996)
Leucorrhoea	100.00%	100.00%	78.0%
Pruritis Vulvae	72.70%	91.30%	31.0%
Dysuria	36.36%	39.50%	20.0%
Vulvul Erythema	13.63%	28.20%	28.0%
Dyspareunia	--	--	4.0%

Symptomatic analysis reveals leucorrhoea is 100% in the present study and in the study by Ameet *et al.*, (1995) while it was 78% in a study by Amonkar (1961).

The pruritis vulvae were reported in 72.7% in the present study. While it was 91.3% in Ameet *et al.*, (1995) study and 31% in the study conducted by Amonkar (1961).

Complaints of dysuria was 36.36% of pregnant women in present study, while it was 69.5%, in study conducted by Ameet *et al.*, (1995) and 20% in the study by Amonkar (1961), as shown in table 2.

Vulval erythema was found to be 13.63% in the present study, while it was 28.2% and 28% in study conducted by Ameet *et al.*, (1995) and Amonkar (1961) respectively.

Dyspareunia was 0% in present study and in Ameet *et al.*, (1995) but it is 4% in study by Amonkar (1961).

Higher prevalence of the Vulvo-vaginal candidiasis seen in the low-social class with 33.33%, it may due to poor hygienic habits and anemia. Uncleaness and unhygienic habits count a major role in candida infection.

A definite correction has also established between age and the incidence of vaginal candidiasis. In the present study maximum affected age group was 20-30 years with 23.33%.

During the reproductive age group the candida infection is more common because of high glycogen content of vaginal cells due to oestrogen. The letter has the effect of building up a good vaginal epithelium and also to maintain the acid PH there by rendering the vagina more prone to resist infection by other organisms but not with candida which on the other hand grows well in acid media.

Vaginal candidiasis during pregnancy also revealed a direct relationship to parity and period of gestation. The highest candida infection in the present study was found in multiparous women 23.45%.

In the present study, the candida infection was highest in the 3rd trimester 32.0%, 1st trimester (25.0%) and 2nd trimester 10.86%. This may be explained by the fact that the peak of acid PH is attained during the last trimester as a result of maximum glycogen concentration.

Table 3: Comparative study of predisposing factors in vulvovaginal candidiasis

Predisposing factors	Percentage	
	Present Study	Ameet <i>et al.</i> , (1995)
Broad Spectrum Antibiotic therapy	40.09	13.04
Obesity	--	26.08
Family history of diabetes	4.54	06.52
Gestational diabetes	--	--
HIV HbsAg positive cases	--	--

Among the predisposing factors the broad spectrum antibiotic therapy were highest in the present study, while in the study conducted by Ameet *et al.*, (1995) was 13.04% as shown in table 3.

In the present study obesity is not found as a predisposing factor, while it was 26.08% in the study conducted by Ameet *et al.*, (1995).

Family history of diabetes is 4.5% in the present study, while it was 6.52% in the study of Ameet *et al.*, (1995).

Table 4: Comparative study of associated pathology in vulvovaginal Candidis

Associated Pathology	Percentage	
	Present Study	Ammet <i>et al.</i> , (1995)
Erosion	63.60	69.50
Trichomoniasis	--	26.08
nemia (Hb<8.05 gm/dL)	54.54	08.60

In the present study the Anemia is the commonest associated pathology as compared to 8.6% in the study conducted by Ameet *et al.*, (1995) which is presented in table 4.

Trichomoniasis is nil in the study while it was 26.08% in Ameet *et al.*, (1995)

Cervical erosion was found to be 63.6% in the present study, while it was 69.5% in the study conducted by Ameet *et al.*, (1995).

Table 5: Comparative efficacy of laboratory test in various Studies

Test	Percentage		
	Present Study	Ameet <i>et al.</i> , (1995)	Amitava <i>et al.</i> , (1993)
Wet mount	13.63	6.20	--
KOH Smear	72.70	75.0	59.0
Culture	100.0	100.0	78.0

In the present candida is diagnosed by KOH smear in 72.7% of cases, wet mount in 13.63% of cases and culture is final diagnosis for candida infection (100%) some workers suggests that the diagnosis might be missed if culture technique was not used in associated with microscocopy.

In the present study wet mount (13.63%) and KOH smear (72.7%) as compared to culture and this is low. The present study is comparable with Ameet *et al.*, (1995) and Amitava *et al.*, (1993), as presented in table 5.

The following concluding are drawn from the present study-

1. The prevalence of vulvovaginal candidiasis in pregnancy was 22%.
2. A Pruritis vulve (except leucorrhoea) is the cardinal symptom suggestive of candida infection.
3. Previous drug therapy with broad-spectrum antibiotic predisposes to its occurrence.
4. Cervical erosion and Anemia were common associated factors observed.
5. Vulvovaginal candidiasis was common in reproductive age (20-30 years) and low social class.

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6. During pregnancy vaginal candidiasis was found to be more prevalent in multiparous women and during 3rd trimester.
7. A KOH smear provides a satisfactory screening test for candidiasis, however, mycological culture on sabourauds media is the final test for establishing the diagnosis.

REFERENCES

- Ameet S Daftary, Murari, UK Ghosh, Raj Baveja and Pandey RC (1993).** Comparative study of laboratory investigations in trichomoniasis and candidiasis. *Journal of Obstetrics and Gynecology of India* **43** 968-970.
- Amitava Pal, Ghosh UK, Gouri Ganguli, Raj Baveja, Meena Dayal and Pandey RC (1993).** Socio-Demographic profile of sexually transmitted diseases in females. *Journal of Obstetrics and Gynecology of India* **43** 388-390.
- Amitava Pal, Modak R, Ghosh UK, Raj Baveja and Pandey RC (1993).** Comparative study of laboratory investigations in trichomoniasis and candidiasis. *Journal of Obstetrics and Gynecology of India* **43** 968-970.
- Amonkar DM (1961).** Aetiology of excessive vaginal discharge A study of one hundred cases", *Journal of Obstetrics and Gynecology of India* **10** 168-175.
- Benson J Horowitz, Stanley W Edelstein and Leonard Lippman (1987).** Sexual Transmission of Candida. *Obstetrics and Gynecology* **69** 883-886.
- Betsjy Foxman (1990).** The epidemiology of vulvovaginal candidiasis Risk factors. *American Journal of Public Health* **80** 329-331.
- Blankhart D, Muller-O, Gresenguet G and Weis P (1999).** Sexually transmitted infections in young pregnant women. *International Journal of STD & AIDS* **10** 609-14.
- Fonck K, Kidula N, Jaoke W and Estambale B (2000).** Validity of the vaginal discharge algorithm among pregnant and non-pregnant women. *Sexually Transmitted Infections* **76** 33-8.
- Mary Frances Cofch, Sharan L Hillier, Ronald S Gibbis and David A (1998).** Epidemiology and colonization during pregnancy. *American Journal of Obstetrics & Gynecology* **178**.
- Michael J Rosenberg and Paul J Feldblum (1987).** Effect of the contraceptive sponge on chlamydial infection", Gouorrhoea and candidiasis. *JAMA* **257**.
- Sandhaya Agarwal, Agarwal BM, Khalid M, Ansari and Ghizala Rizvi (1996).** Chlamydia trachomatis and candida SPS in sexually transmitted disease 672-676.
- Wise SS Yujr and Ledger WJ (1983).** Inhibition of candida albican induced lymphocytes proliferation by lymphocytes and sera from women with recurrent vaginitis, *American Journal of Obstetrics & Gynecology* **147** 809.