

Original Research Article

## **Prevalence of Fungal Infection of Vagina among the Pregnant Woman's**

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**Abstract:** Pregnant women can develop increased vaginal discharge leading to various complications such as abortions, premature birth and low birth weight. One of the reasons for the increased vaginal discharge is the presence of fungal infections. The present study was done to study the prevalence of vaginal fungal infection among pregnant women. Vaginal swabs were collated from the pregnant and non-pregnant women with the symptoms of vaginal infection. One swab was used for the preparation of the wet mount and thin smear on the microscopic slide for the gram staining. The other swab was inoculated under aseptic precautions on Sabouraud Dextrose agar (SDA) and incubated at 37° C for 24 to 72 hours. Out of 188 patients examined, 120 were pregnant patients and 68 were non-pregnant woman. In case of pregnant patients, 51 (43.5%) were shown to had positive fungal infections. While in non-pregnant patients, 24 (35.2%) were shown to had positive fungal infections. *Candida albicans* was present in 93.4% of the positive patients, while yeast other than *Candida albicans* was present in 6.6% of samples. As the pregnant woman showing more positive yeast infections, early detection and early diagnosis may improve the clinical condition of the pregnant women.

**Keywords:** Yeast infection, pregnant patients, *Candida albicans*.

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### **INTRODUCTION**

Reproductive tract infections are one of the most serious public health issues in both developed and developing countries [1]. Vaginal candidiasis is a common type of vaginitis, a gynecologic disorder with a white discharge, soreness, dyspareunia, irritation and itching [2]. It is believed that higher estrogen levels and higher glycogen content in vaginal secretions during pregnancy increase a woman's risk of developing fungal infections. As vulvovaginal candidiasis is so common in women during their childbearing years, it is important to understand the pathology of this disease. Vulvovaginal candidiasis is caused by overabundant growth of yeast cells, belonging to the *Candida* species, in the vaginal mucosa [3]. The present study was done to study the prevalence of vaginal fungal infection among pregnant women.

### **MATERIALS AND METHODS**

Vaginal swabs were collated from the pregnant and non-pregnant women with the symptoms of vaginal infection. The study was done over a period of 1 year from april 2016 to march 2017 at the gynecological and

microbiology department. Two samples were collected from each of the patient at the same time and transported immediately to the mycology lab. Ethical committee approval was taken before start of the study and a well-informed consent was taken from each of the participant.

One swab was used for the preparation of the wet mount and thin smear on the microscopic slide for the gram staining. The other swab was inoculated under aseptic precautions on Sabouraud Dextrose agar (SDA) and incubated at 37° C for 24 to 72 hours.

Identification of the colony morphology present or not, wet mount preparation, germ tube test, gram staining were done for the identification of the fungal infections. Standard germ tube method according to Davise was carried out with each pure cultures of yeast growth to identify *Candida albicans*, any negative germ tube yeast colonies were recorded as yeast other than *Candida albicans*.

**RESULTS**

A total of 188 patients samples were collected for the identification of the fungal species from the women. Out of these, 120 were pregnant patients and 68 were non-pregnant woman. In case of pregnant patients, 51 (43.5%) were shown to had positive fungal infections. While in non-pregnant patients, 24 (35.2%) were shown to had positive fungal infections. (Table 1,

Graph 1) Candida albicans was present (Germ tube test, Fig. 1) in 93.4% of the positive patients, while yeast other than candida albicans was present in 6.6% of samples. Culture had shown higher rate of yeast yielding, while gram stain and wet mount had shown almost similar result. (Table 2) Yeast was isolated in higher percentage from woman of 16 to 25 age group than other age groups. (Table 3)

**Table-1: Showing comparison of the positive candida infection in pregnant and non-pregnant patients.**

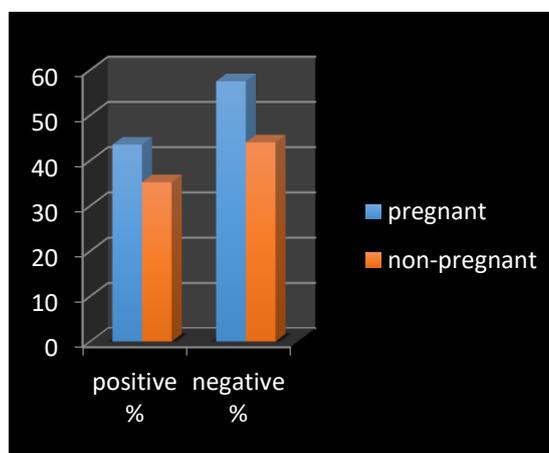
<b>Pregnant</b>	51 (43.5%)	69 (57.5%)	120
<b>Non-pregnant</b>	24 (35.2%)	44 (64.70%)	68
<b>Total</b>	75 (39.89%)	113 (60.10%)	188

**Table-2: Different identification methods.**

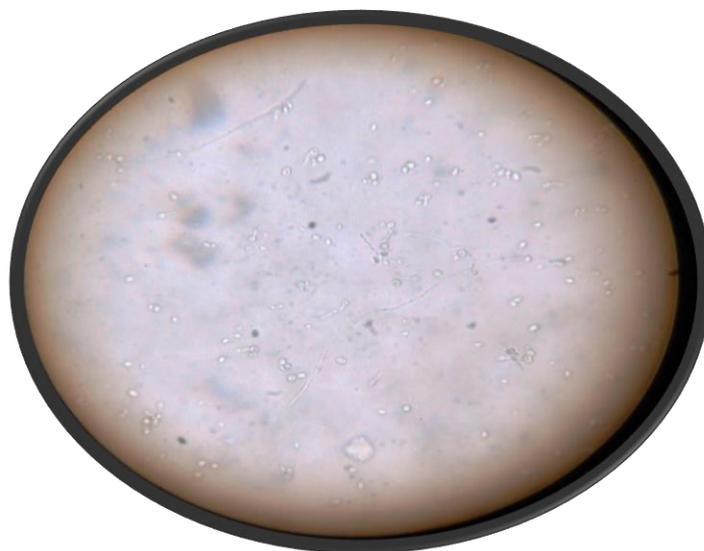
<b>Wet mount</b>	61	81.11
<b>Gram stain</b>	67	89.33
<b>Culture</b>	75	100

**Table-3: Distribution of the patients according to the age groups.**

<b>16-25</b>	78	33	42.30
<b>26-35</b>	66	26	39.39
<b>36-45</b>	44	16	36.36
<b>Total</b>	188	75	



**Graph-1: Showing comparison of the positive candida infection in pregnant and non-pregnant patients.**



**Fig-1: Germ tube test.**

## DISCUSSION

The female genital tract is considered as the point of entry for number of pathogens for various sexually and non-sexually transmitted diseases that causes vaginal discharge. Vaginal discharge is a common symptom in gynecological clinic and is often the second most common gynecological problem after menstrual disorders [4].

Vulvovaginal candidiasis is also called candidal vaginitis or monilial infection of the vulva which is caused by overgrowth of candida yeast species, most commonly *Candida albicans*, *C. glabrata* and *C. tropicalis* characterized by curd like vaginal discharge, itching, erythema, burning, irritation of vulva and vagina usually odourless with dysuria and dyspareunia [2,4].

In our study age group of 16 to 25 years had shown higher percentage of the vaginal candidiasis than other groups. Similar results were present in study by Altayyar *et al* [5], Ali-Aali Ky *et al* [2] and Nelson M [6] *et al* showed a 60% frequency of candidiasis in pregnant women of 26–35 years. This may be due to

high sexual activity, poor personal hygiene, the use of contraceptives and drug abuse among this age group [2].

The study showed higher prevalence of vaginal candidiasis among pregnant women than non-pregnant women. These findings were in accordance to the findings by Altayyar *et al* [5], Parveen N *et al* [7] and Feyi P *et al* [8].

The high prevalence of vaginal candidiasis may due to many different reasons include; suppression of the immune system due to the pregnancy as it is among the contributing factors of vaginal candidiasis, prolonged and misuse of antibiotics which leads to the destruction of good and beneficial bacteria resulting to reduction of vaginal immunity could have also contributed to the increase of the prevalence of the infection. Hormones during pregnancy can play role of enhancing candida colonization and serve as risk factor of the vagina infection, progesterone has suppressive effect on the anti-candida activity of neutrophils while estrogen has been found to reduce the ability of vaginal epithelial cells to inhibit the growth of *Candida albicans*.

Inadequate knowledge, poor personal hygiene, limited diagnostic facilities, poor dietary habits also contributed in high prevalence vaginal candidiasis [5, 6].

#### **CONCLUSION**

The results of this study showed a high occurrence of *Candida* among pregnant women. The culture of vaginal discharge should be warranted because culture technique is more sensitive than direct smear. Early detection and early diagnosis may improve the clinical condition of the pregnant women.

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