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European Journal of Experimental Biology, 2016, 6(3):25-29



## Prevalence of vaginal candidiasis among pregnant women attending different gynecological clinic at South Libya

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### ABSTRACT

Pregnant women commonly develop increased vaginal discharge which may lead to pregnancy complications like abortions, premature birth, low birth weight and other morbidities. This study aimed to determine the prevalence of *Candida* isolates among patients attending different Gynecological clinic in a different area at south of Libya [Sebha, Obari, Morzoq and Tragen] was examined. 150 samples of high vaginal swabs [HVS] were collected from both pregnant and non pregnant women with symptoms of vaginal infection, samples were tested by microscopic examination and culture on Sabouraud Dextrose agar [SDA]. Colonial morphology, wet preparation, gram staining, germ tube test, were carried out for identification of the isolated organisms. Thirty six *Candida* species were isolated, *Candida albicans* isolated from [92%] patient samples, while yeast other than *Candida albicans* were isolated from [8%] samples. Aged between 16-25 years old had higher percentage of candid isolate. Vaginal discharge was the most symptoms were noticed in pregnant and Non-pregnant women. High prevalence of *Candida albicans* and other *Candida* species among pregnant women were documented in this study. Screening protocol for early diagnosis of candidiasis is recommended.

**Key words:** *Candida albicans*, pregnant women, Vaginal Candidiasis

### INTRODUCTION

*Candida* species are part of the lower genital tract flora in 20-50 % of healthy asymptomatic women. [1, 2] Carrier rates are higher in women treated with broad spectrum antibiotics [3], pregnant women, diabetic women [4, 5] and women with HIV/AIDS. [6, 7]

Nelson *et al* showed *Candida albicans* as the most common vaginal candida species followed by *Candida glabrata* causing vaginal Candidiasis among pregnant women. [8] *Candida* spp. that rarely causes infection includes *C. parapsilosis*, *C. pseudotropicalis*, *C. krusei*, *C. guilliermondi* and *C. stellatoidea*. [9]

Vaginal Candidiasis is infection caused by overgrowth of *Candida* species affecting the genital tract as opportunistic pathogen. Vaginal Candidiasis [VC] is a common type of vaginitis, a gynaecologic disorder with a white discharge, soreness, dyspareunia, irritation and itching. [10]

Pregnant women commonly develop increased vaginal discharge, which in many instances is not pathological. [11] However, abnormal vaginal discharge is the result of vulvovaginal infections that include bacterial vaginosis [BV], Candidiasis or trichomoniasis. [12, 13, 14]

*Candida* infection in pregnancy does not usually harm the unborn child but causes great discomfort to the mother, which includes increased discharge, redness, itching, and burning sensation in the vulva area. [15]

Untreated vaginal infections can lead to pelvic inflammatory disease, a condition which can scar the fallopian tube and cause infertility. [16]

In pregnancy, vaginal Candidiasis is common due to altered pH and sugar content in vaginal secretions. Increased estrogen level during pregnancy produces more glycogen in the vagina providing a good source of carbon needed for *Candida* growth and their germination, causing it to grow faster and stick more easily with the walls of vagina. [17] The incidence of Candidiasis is almost doubled in pregnant women particularly in the third trimester compared to the non-pregnant women. [18]

Early Laboratory diagnosis done by gram staining of the smears and culture and appropriate treatment may improve the clinical condition of the women and neonates. In view of this, the present study was undertaken to find out the prevalence of vaginal Candidiasis in pregnant women in Sebha, Libya.

#### MATERIALS AND METHODS

A Total number of 150 samples of high vaginal swabs [HVS] were collected from both pregnant and non pregnant women with symptoms of vaginal infection, women age between the ranged from 16- 45 years. Sample collected during the period between October 2012 to Jun 2014 from different Gynecological clinic in a different area in south of Libya [Sebha, Obari, Morzoq and Tragen].

Two swabs were collected for each patient in the same time and transport immediately to Mycology Lab.

The first swab was used to prepare wet mount and thin smear on microscopic slid for gram stain, second swab was inoculated under aseptic condition on Sabouraud Dextrose agar [SDA] and e incubated at 37 °C for 24 to 72hours.

Colonial morphology, wet preparation, gram staining, germ tube test, were carried out for identification of the isolated organisms. 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*. [19]

A questionnaire forms were collected back including age and symptoms and other data of each patient was noted.

#### RESULTS

Total numbers of one hundred and fifty [150] samples were collected for isolation and identification of *Candida* species from both symptomatic pregnant women and non pregnant women.

Thirty six *Candida* species were isolated, *Candida albicans* isolated from 58 [92%] patient samples, while yeast other than *Candida albicans* was isolated from 5 [8%] samples. [Table. 1]

*Candida* species were isolated with higher percentage 28 [46.7] from women aged between 16-25 years old, 22 [40.7] from women aged between 26-35 years old and the lowest percentage 13 [36.1] were isolated from women aged between 16-25 years old. [Table. 2]

Discharge was the most symptoms were noticed in pregnant and Non-pregnant women with slightly high followed by itching while odor and burning are present lowest percentages in all subjected women. [Table. 3]

Culture, direct gram stain and wet amount were used to identify *Candida* species, culture showed the higher rate of yeast isolating, while direct gram stain and wet mount preparation showed almost similar result. [Table. 4]

**Table 1: Percentage of isolated *Candida* among pregnant and Non-pregnant women's**

	Pregnant		Non pregnant	
	positive	negative	positive	negative
NO.	46	59	17	28
%	43.8	39.3	37.8	62.2

**Table 2: Percentage of isolated *Candida* among age groups**

Age group	Total sample number	Number of <i>Candida</i> positive samples	Percentage [%]
16-25	60	28	46.7
26-35	54	22	40.7
36-45	36	13	36.1

**Table 3: Percentages of symptoms among pregnant and Non-pregnant women**

Symptoms	Percentage in pregnant women	Percentage in non-pregnant women
Discharge	86	71
Itching	49	46
Odor	27.5	13
Burn	12	10

**Table 4: Sensitivity of different methods used to detect *Candida* species**

Method	Positive samples	Percentage
Wet mount	53	84.1
Gram stain	55	87.3
Culture	63	100

## DISCUSSION

This present study investigated the prevalence of vaginal candidiasis among pregnant women and non pregnant women with symptoms of vaginal infection attending different gynecological clinic over the period of eight [8] months in a different area in south of Libya.

The study showed prevalence [43.8%] of vaginal candidiasis among pregnant women and [37.8%] among non pregnant women, our founding similar to the observations of [20] who reported a frequency of 38%. Feyi [21] in Tanzania and Menza *et al* in Kenya also in agreement with our result which they reported that, prevalence of vaginal candidiasis in among pregnant women were 42.9% , 42.7% respectively. [22]

In contrast Wise *et al.* [23] and Trofa *et al.* [24] reported a low occurrence of *C. albicans* in New York. On the other hand our result was lower than previous study by [25, 26, 27] which reported high prevalence of candidiasis with prevalence rates 60%, 62.2% and 67% respectively among pregnant women in Jos and Enugu State, Nigeria.

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 [28], 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. [29, 30]

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. [25]

Inadequate knowledge, poor personal hygiene, limited diagnostic facilities, poor dietary habits also contributed in high prevalence vaginal candidiasis. [29, 30]

The highest prevalence of vaginal infections in this study was noted among the age groups 16–25 years [44.4%], followed by 26–35 age group [34.9%] and 36–45 age group [20.6%]. This observation is consistent with Sehgal *et al.* [31] reported that, a 54% incidence rate within age bracket 20 - 30 years in Northern Nigeria.

The infection was at a higher frequency in this age group than the other age groups due to high sexual activity and fact that women in this age group are likely to indiscriminate drug usage and use of contraceptives to prevent pregnancy. [22]

Other reports found that age group 26–35 years had the highest occurrence of vaginal candidiasis, Nelson *et al* showed a 60% frequency of candidiasis in pregnant women of 26–35 years. [22] Fifty five percent [55%] incidence rate was reported within age group 26 - 35 years in Benin City by Okungbowa *et al.* [32] while Akortha *et al.* [33] reported 57% within age bracket 26 - 35 in Benin City, Edo state in Nigeria. age group 16-25 represent the highest than 26-35 due to the early marriage age in south Libya

In this study, 86 of pregnant women and 71 of non pregnant women presented with vaginal discharges, 49 of pregnant women and 46 of non pregnant women presented with urethral itching and 12 of pregnant women and 10 of non pregnant women present with burn. Alli *et al* in agree with our result they founded that, vaginal discharges was the most common symptoms between pregnant women followed by itching. [34]

It was obvious from this result; *Candida albican* was the dominant isolated yeast with [92%]. Many of reports from different place in similar to our report, Shivan *et al* [35] in India , Rad *et al* [36] in Iran, Oyewole and his colleagues [37] in Nigeria reported that, *C. albicans* was the highest occurrence with [50%] and also observed by Isibor and his colleague . [38]

The current findings however contradicts the earlier report by Okungbowa *et al.* who reported *Candida glabrata* as the most common *Candida* species among the symptomatic pregnant women in Nigeria cities. [33]

Virulent factors of *Candida albican* like dimorphism, phenotypic switching, protease and phosphatase which enhance its attachment to human epithelium play an importance role in there highly occurrence. high incidence rate also may due to increased physiological changes, estrogen and rich glycogen content of the vaginal mucosa thereby providing an adequate supply of utilizable sugar that favor *Candida albican* growth during pregnancy.

## CONCLUSION

This result showed high prevalence of vaginal candidiasis may lead to pregnancy complications like abortions, premature birth, low birth weight and other morbidities. Screening protocol incorporation with routine antenatal checkup for early diagnosis of candidiasis and its treatment by recommended.

## Acknowledgment

The authors are extremely thankful to the Principal of Sabha University and to the all family of Department of Medical Laboratory Science for providing facility to complete this research work.

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