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Candida Vulvo vaginitis in Pregnancy

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ABSTRACT

Vulvovaginal candidiasis is common in pregnant women. Its signs and symptoms are redness, irritation, soreness and white vaginal discharge. In this study, 100 samples of high vaginal swabs and urine samples were collected from 100 pregnant women aged between (16 – 45) years suffering from signs and symptoms of vulvo vaginitis who visited the anti- natal care unit of AL-Khansaa hospital. These swabs were examined under microscope, germ tube test, culture by sabourads dextrose agar and 10% KOH wet mount. All these tests were done to diagnose the *Candida* vulvo vaginitis. The result showed there is an increased prevalence of *candida* vulvo vaginitis (68%) in pregnant women. The prevalence increased in multi gravida (79%). The stage of pregnancy also affects prevalence, 50% of cases in third trimester of pregnancy. In diabetic women, there is a high prevalence. 88% of them have *candida* vulvo vaginitis. 55% of the cases have candidiasis in genital tract and urinary bladder.14% of cases have *candida* in urinary bladder but not *candida* in genital tract. History of recent usage of antibiotic has increased prevalence of *candida* vulvo vaginitis to 75% of cases. The age of pregnant women also affects the prevalence of candidiasis. Women aged 35 years, and less have 94% prevalence rate. Women more than 35 years old have only 5% prevalence rate. The importance of *candida* vulvo vaginitis comes from the complications which may occur in pregnant women who suffer from this infection like abortion, preterm labour, chorioaminonitis and transmissions of fungal infection to neonate So, with this high prevalence rate, examination of pregnant women must be done routinely to diagnose and treat the *candida* as early as possible.

Keywords: candidiasis, pregnancy, prevalence, vulvo vaginitis.

INTRODUCTION

Candida vulvo vagintis is the second most common infection that affects the lower genital tract of pregnant women after bacterial vaginosis, and it affects the way of living she is having [1,2].

The pregnant women come to hospital with signs and symptoms like irritation, itching, white vaginal discharge, soreness and dysuria [3]

It is a yeast or fungal infection which affects (70-75%) of women 1-2 times in her reproductive life, and in (5-10%) of women *candida* vulvo vaginitis occurs more frequently [4]

This infection occurs more frequently in diabetes mellitus women because of increased level of sugar [5,6]. It also increases in patients who take broad spectrum antibiotic[7]and in patients who have HIV, AIDs[8,9]

In pregnant women, also, there is an increase in prevalence of *candida* vulvo vaginitis because of changes in pH of vagina and hormonal changes. Increased estrogen level leads to increasing glycogen level of vagina, and increased carbon increases the growth of *candida* in vagina and germination [10]. Therefore, in multigravida and third trimester there is double increase in incidence of *candida* vulvo vaginitis [11,12] because of more increase of hormones in this condition.

In obesity, consumption of drugs with high estrogen and addiction also increases the prevalence of *candida* vulvo vaginitis [13]. There are some habits that increase the incidence of *candida* vulvo vaginitis such as vaginal douches, use of tight clothes, low hygiene, sexual intercourse and increase glucose content in diet [14].

The most common species of *candida* that affects the women is *candida albicans* followed by *candida glabrata* and then the other species comes less frequently [15].

It is important to know the species of *candida* which is responsible for *candida* vulvo vaginitis. The use of anti-fungal medication not appropriate for species can lead to increase distress, irritation, inflammation, excoriation, rubbing, secondary infection and maceration [(16)].

The importance of *candida* vulvo vaginitis comes from the complications which may occur in pregnant women like abortion, premature labour, chorio amnionitis and transmission of fungal infection to delivered neonate [(17)].

The aim of study is to see the prevalence of *candida* vulvo vaginitis among symptomatic pregnant women who visit the anti natal care unit of Al-Khansaa Hospital aged (16-45) years from 1st of September 2018 to 1st of October 2018.

SUBJECT, MATERIAL AND METHOD

The study was conducted at Al-Khansaa Teaching Hospital.

SUBJECTS

The subjects enrolled in the current study composed of (100) pregnant women.

The inclusion criteria were age between (16-45) years with signs and symptoms of vulvo vaginal discomfort. The procedure employed consists of a questionnaire interview and taking patient clinical history.

MATERIALS AND METHODS

Bacteriological samples

A total of (200) bacteriological samples were collected. The samples consisted of (100) urine samples and (100) swabs from the vagina.

High vaginal swab was carefully and appropriately collected with sterile cotton swabs from the vagina. The urine sample was subjected to the general examination looking for *candida* species which is one of the etiological agent of urinary tract infections, while HVS was inoculated on sabourads dextrose agar and incubated aerobically at 28C^{o} for (37-48) hours.

10% KOH wet mount and gram stain were applied on swab and colonies and examined microscopically using 40x objective lens for the presence of pseudohyphae and/or budding yeast cells suggestive of *candida*.

Germ tube tests were also performed to identify *candida albicans*.

RESULTS

In this study high vaginal swabs and urine samples were taken from 100 pregnant women complaining from signs and symptoms of vulvo vaginitis like vaginal discharge, soreness, irritation, discomfort and dysuria and then the swabs were examined under microscope with gram stain, germ tube, and culture was done to diagnose the cases of *candida* vulvovaginitis and the urine samples were examined under microscope to diagnose *candida* and bacterial infection in the bladder.

Analysis of results showed that 68 cases out of 100 cases sufferd from *candida* vulvovaginitis so the prevalence rate is 68%.

The results of *candida* vulvo vaginitis in association to variabilities studied come as follows: with reference to age, there is an increase in prevalence in age of 35 years and less. The cases are 64 (94%) and in age more than 35 years the positive cases are 4 only (5%)as in(table 1)

Table (1): association of age with *candida* vulvovaginitis

Age in years	+ve cases	-ve cases	Total No.
≤35	64	30	94
>35	4	2	6

Candidiasis occurred in 54 women who are multigravida (79%) and only 14 cases are primigravida (20%) as seen in (Table 2)

Table (2): association of parity with *candida* vulvovaginitis

Parity	+ve cases	%	-ve cases	Total No.
Multigravida	54	79%	20	74
Primigravida	14	20%	12	26

Stage of pregnancy affects the rate of *candida* vulvo vaginitis. The third trimester has the higher percentage of *candida* vulvo vaginitis 34 women are in third trimester (50%)and the other half is in second trimester and first trimester. There is no significant difference in rate of candida vulvo vaginitis; 18 cases and 16 cases respectively (26%, 23%) as in (table 3)

Table (3): association of Stage of pregnancy with *candida* vulvovaginitis

Stage of pregnancy	+ve cases	-ve cases	Total No.
1st trimester	16	8	24
2nd trimester	18	8	26
3rd trimester	34	16	50

In 100 samples taken, 18 cases are pregnant with diabetes mellitus. 16 cases have *candida* vulvo vaginitis (88%) and only 2 cases do not have *candida* vulvo vaginitis (12%).

As for the cystitis in pregnancy, 38 cases of *candida* vulvo vaginitis have candidiasis in bladder (55%) and 30 cases do not have candidiasis in bladder (44%), only 14 cases have candida in bladder but do not have vulvo vaginal candidiasis as in (table 4)

Table(4): association of candida vulvovaginitis with candidiasis in urine

Candida in urine only	%	Cases +ve vulvo vaginal candidiasis with +ve candidiasis in urine	%	-ve urine candidiasis +ve vulvo vaginal candidiasis	%
14	14%	38	55%	30	44%

The recent use of antibiotic increases the prevalence of vulvo vaginal candidiasis; 48 cases have history of use broad spectrum antibiotic 75% and women who do not use antibiotic with *candida* vulvo vaginitis are only 20 cases 31% as in (Table 5)

Table (5): association of use of antibiotic with *candida* vulvo vaginitis

	+ve cases	%	-ve cases
Patients not using antibiotic	20	31%	6
Patients using antibiotic	48	75%	26

The weight of women affects prevalence of *candida* vulvo vaginitis.
Women weigh more or equal to 75kg the prevalence is 55% (38 cases) and women weigh less than 75kg are only (30 cases) and are positive for *candida* vulvo vaginitis (44%) as in (table 6)

Table (6): association of weight with *candida* vulvo vaginitis

Body weight	+ve cases	%	-ve cases
≥ 75kg	38	55%	6
< 75kg	30	44%	26

So more increase in weight mean more susceptibility to *candida* vulvo vaginitis

DISCUSSION

Candidiasis in vulvo vaginal area of pregnant genital tract is common and very important to diagnose and treat this infection because of its complications which may occur in pregnant ladies like abortion, preterm labour, choro aminonitis and transfer of infection to the newborn baby.

So in this study, 100 samples of vaginal swabs and 100 of urine samples were taken from symptomatic pregnant ladies who visit the anti- natal care unit in Al-Khansaa Teaching Hospital from 1st of September 2018 to 1st of October 2018. The results obtained from the study showed increase in the prevalence of vulvo vaginal candidiasis; the prevalence is high (64%) similar to Oyewole et al study (70%)[18], but it is higher than other studies 41%, 56% rate observed in study done in North Eastern Nigeria and higher than study done in South Eastern Nigeria (only 30%)[19,20,21].

On the other hand, it's not like the study done by Parveen et al which have low prevalence (38% only) [10].
In a study done in New York, also there is low prevalence rate[22,23].

This high prevalence maybe because the study included only women who have signs and symptoms of vulvo vaginitis and also maybe because of the bad hygiene and bad dietary condition in our locality, low immunity of pregnant women[24] specially after the war which occurred in Mosul before a short period of this study, and because of the very high misuse of the antibiotics in this area[25,26].

If we compare multigravida with prim gravida, there is a high prevalence in multigravida 54%(prim gravida 14%). This result is in agreement with the study done before which says the prevalence is 59.5%, 60%, 82%[10,18,27].

The parveeen et al say longer sexual history and increase parity in multigravida are the cause of the more susceptibility to develop *candida* vulvo vaginitis in multigravida more than primigravida[10].

The prevalence of *candida* vulvo vaginitis in relation to age showed that the patients who are 35 years old and less have high prevalence (94%) and women more than 35 years old have prevalence of 5% only. This prevalence is like result of this study [19,20,28].

This high prevalence is because of high peak of child bearing age and high reproductive age like Nigeria society [28, 29]. Nelson et al also have a high prevalence 60% in age (26-35) years. This high rate is because of in discriminate drug usage and use of contraception[15]. Also a study in India showed the incidence of *candida* vulvovaginitis in 2nd and 3rd decade increase and then decline in the 4th decade[30].

The stages of pregnancy also affect the prevalence of *candida* vulvo vaginitis; 50% of cases in 3rd and trimester of pregnancy in 2nd and 1st trimester is 26%, 23% respectively.

So the 3rd trimester has the highest percentage of *candida* vulvovaginitis which is comparable to the study from Nnew in South Eastern Nigeria, Australia & Brazil[19, 29, 31].

This occurs because of the increasing hormone in pregnancy (progesterone, estrogen, corticosteroid). This decreases the defense mechanism of vagina and enhances increase growth of yeast cells[32]. The prevalence of candidiasis is 68% in 3rd followed by 2nd trimester 21%, and the lowest prevalence in 1st trimester 10%. This is as Nelson et al[15].

In Oye Wole et al, this high incidence is in 2nd trimester 61%, then 3rd trimester 21%,and then 1st trimester 16.7%[18] un like this study's results.

Port Moresby in PNG and North Eastern Nigeria study found that there is no increase in prevalence in 3rd trimester compared with the 1st or 2nd trimester[21, 33].

In diabetic patients with pregnancy, the prevalence is 88% and only 2 cases do not have *candida* vulvovaginitis 12%. This is because in diabetic patients there is increase in level of glucose which favours the *candida* species growth[34].

The relation of cystitis with *candida* vulvovaginitis in the study shows that 55% of cases have *candida* vulvovaginitis with *candida* in the bladder, and 44% of them do not have *candida* in bladder but *candida* in vulvo vaginitis area.

14 cases out of 100 cases in this study have only *candida* in the bladder and do not have *candida* in vulvo vaginal region 14%.

The prevalence of *candida* vulvovaginitis is higher than candida in urine. This occurs because of pH changes in the vagina which increase the growth of *candida* in genital tract of female[35] .

The recent use of antibiotic also increases prevalence of *candida* vulvovaginitis,75% of cases have history of AB use and only 21% do not have history of AB use[36] .

The weight of pregnant women also affects the prevalence of *candida* vulvovaginitis. Women who weigh more or equal to 75kg have prevalence of 55%, and women less than 75kg have 44% prevalence rate, but the relation of increase weight with increase of prevalence of *candida* vulvovaginitis has not yet been studied.

CONCLUSION

There is an increase in the prevalence of *candida* vulvo vaginitis in pregnant women and the increase prevalence of candidiasis is associated to some variability like age of patient, stage of pregnancy, the parity, present of candidiasis in urine diabetes, increase weight of women and recent use of antibiotic.

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