ORIGINAL ARTICLE

Frequency of Vaginal Candidiasis in Pregnant Women Attending Routine Antenatal Clinic

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ABSTRACT

Objective: To determine the frequency of vaginal candidiasis in clinically symptomatic and asymptomatic cases of pregnant women attending routine antenatal clinic.

Study Design: A descriptive cross-sectional study.

Place and Duration of Study: The antenatal clinic of Gynaecology and Obstetric Department at Isra University Hospital, Hyderabad, from April to October 2005.

Patients and Methods: A total of 110 pregnant women were nonrandomly recruited by convenient sampling. The studied variables included the demographic data information on parity, trimester of pregnancy, presence of vaginal discharge and the presence or absence of diabetes. Vulva and vagina were inspected for signs of inflammation and discharge with sterile speculum and vaginal specimens were collected with sterile cotton tipped swabs. Swabs were subjected to Gram staining and examined microscopically for the diagnosis of candidiasis.

Results: The frequency of vaginal candidiasis during pregnancy was found to be 38%, in which 27% were symptomatic and 11% were asymptomatic group. Increased ratio of infection was observed in multigravida and diabetic women. There was no marked differences in results with respect to age and trimester of pregnancy.

Conclusion: Although there is generally a high frequency of vaginal candidiasis, an increased ratio of vaginal candidiasis in multigravida and diabetic pregnant women requires these women to be routinely screened for vaginal candidiasis regardless of symptomatic status.

Key words: *Pregnancy. Frequency. Vaginal candidiasis. High vaginal swabs.*

INTRODUCTION

Candida or yeast is a normal commensal organism colonizing in the vagina, particularly the albicans species. Normally their overgrowth is prevented by the Lactobacilli.[1, 2]

In pregnancy, vaginal candidiasis is common due to altered pH and sugar content of vaginal secretions. Increased estrogen level during pregnancy produces more glycogen in the vagina and it also has direct effect on yeast cells, causing it to grow faster and stick more easily with the walls of vagina.[3,4]

Nearly 75% of women have at least one episode of genital yeast infection in their reproductive years and 10-20% of women have asymptomatic vaginal colonization with Candida species.[1,5] Pregnant women with diabetes are more susceptible and vaginal mycosis is four times higher in them.[3,6] Other risk factors are use of broad spectrum antibiotics, oral contraceptive pills, IUCDs (intrauterine contraceptive device), use of corticosteroids, HIV/AIDS, weakened immune system, topical use of antimicrobial agents, tight clothing, use of vaginal douches and unsanitary living conditions.[3] Itching, burning, irritation of the vulva, vagina and curdy white vaginal discharge usually odorless with dysuria and dyspareunia are the most common symptoms.[3,4]

Although recurrent episodes of vaginal candidiasis are common, a marked proportion of women with chronic and recurrent infection may present first time during pregnancy.[3,7] Vaginal candidiasis can cause abortion, Candida chorioamnionitis and subsequent pre-term delivery. Premature neonates are severely endangered by generalized fungal infection because of their immature immune system. During delivery, transmission can occur from the vagina of infected mother to the newborn, giving rise to congenital candida infection. Infants with the oral thrush can give rise to nipple candidiasis in breastfeeding mothers. Hence, several investigators have recommended pre-natal treatment of vaginal candidiasis.[3,7] However, clinical manifestation and response to therapy is largely based on empiric diagnosis of disease.[8] Therefore, certain important investigations are required, like KOH (potassium hydroxide) preparation test in which scraping or swab of

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affected area is placed on glass slide and a single drop of 10% KOH is put on it then viewed under microscope, the presence of hyphae, pseudohyphae are suggestive of yeast infection.[1,2] Swab and culture test is the most sensitive method but it takes longer time to make definite diagnosis. Clinicians are required to make immediate diagnosis, so the Gram stain smear is reliable and rapid method in order to treat the patient at their initial attendance.[7] In pregnancy, the recommended treatment is topical antifungal vaginal agents in the form of creams, suppositories or tablets, whereas oral therapy should not be used during pregnancy or breastfeeding.[1] It was the view that every pregnant woman, symptomatic or asymptomatic, suffers from vaginal candidiasis, hence, the current study was undertaken to evaluate this assumption.

PATIENTS AND METHODS

The study was carried out at the antenatal clinic of Gynaecology and Obstetric Department at Isra University Hospital Hyderabad, from April to October 2005. A total of 110 women were enrolled into the study by convenient sampling, to determine the frequency of vaginal candidiasis during pregnancy.

Proformas were completed, which included the demographic data information on parity, trimester of pregnancy, complaint of vaginal discharge (colour of discharge) and presence or absence of diabetes. Vulva and vagina were inspected for signs of inflammation and discharge. Sterile speculum examination was performed and vaginal specimens were collected with sterile cotton tipped swabs. Swabs were subjected to Gram staining and examined microscopically for the diagnosis of Candida. This was performed by microbiology laboratory of pathology department of the institute.

Women in their 2nd or 3rd trimester and with Singleton pregnancy, primigravida or multigravida (whether diabetic or non-diabetic), irrespective of age, were included. Women in their first trimester of pregnancy and those who had recently received the treatment for vaginal candidiasis were excluded.

Prior to enrollment into the study, an informed consent was obtained from each participant. Software SPSS version 11 was used and results were statistically analyzed by using descriptive methods. Chi- square test was used for the assessment of p-values and p-value of <0.05 was considered to be statistically significant.

RESULTS

In the current study, we investigated 110 pregnant women and the results were analysed according to their age, parity, trimester of pregnancy and presence or absence of diabetes. Table I depicts their ages, which ranged from 18-40 years with a mean age of 28.24 SD±6.14 years. Of 110 patients, 77 (70%) were between the ages of 18-30 and remaining 33 (30%) were between 31-40 years (p=0.260) did not show significant difference.

Table I: Distribution of patients according to age, parity, trimester of pregnancy and presence of diabetes and symptoms.

Variable	Group	n= (%)	Symptomatic	Asymptomatic	p-value
Age	18-30 years	77/ 70	33/42.85%	44/57.14%	0.260
	31-40 years	33/30	18/54.54%	15/45.45%	
Parity	Primigravida	19/17.27	05/26.36%	14/73.68%	0.036
	Mutigravida	91/82.72	48/52.74%	43/47.25%	
Trimester of pregnancy	2nd	26/23.63	13/50 %	13/50%	0.670of
	3rd	84/76.36	38/45.23%	46/54.76%	
Diabetes	Present	07/6.36	06/85.71%	01/14.28%	0.031
	Absent	103/93.63	45/43.68%	58/56.31%	

Most of the women (91) were multigravida (82.72%), and the rest of all (19) were primigravida (17.27%). Their parity was from 1 to 10 and mean parity was 4.19 SD ± 2.74, statistically significant (p=0.036) obtained in symptomatic and positive cases, 84 (76.36%) women presented were in their third trimester of pregnancy and remaining 26 (23.63%) in second trimester, insignificant (p=0.670) reported. From the total 110 pregnant women, 7 (6.36%) were diabetic and the remaining 103 (93.63%) were non-diabetic. Of the 7 diabetic patients, 6 were symptomatic, 2 among them had positive laboratory diagnoses for fungus (p=0.031), which was significant.

Amongst the 110 pregnant women, 51 (46.36%) had characteristic symptoms of vaginal candidiasis, while the remaining 59 (53.63%) were asymptomatic. On clinical examinations, 89 (80.90%) women had vaginal discharge and rest, 21 (19.09%) had no discharge. Of these total population, Gram staining showed that 42 (38.2%) of the microscopically examined vaginal specimen were positive for Candida and other 68 (61.81%) were negative. Out of these total 42 positive cases, 30 (27%) were from symptomatic group and remaining 10 were from asymptomatic. (This data is shown in Table II).

Table II: Total 110 pregnant women, their clinical findings correlated with laboratory diagnosis on Gram staining.

Diagnosis	n= (%)	Clinical findings n=89		Gram staining n=42		p-value
Symptomatic	51/46.36	+ve 50	-ve 1	+ve 39	-ve 20	0.001
Asymptomatic	59/53.63	+ve 30	-ve 11	+ve 12	-ve 47	0.001

DISCUSSION

Vaginal candidiasis during pregnancy is the second most common cause of vaginal infection after the bacterial vaginosis.[4] In this study, 38% of vaginal candidiasis was found during pregnancy, out of the total

110 pregnant women, 46.36% were clinically symptomatic and 53.63% women were asymptomatic. The main symptoms were vaginal discharge and itching. Similar results were reported by Omar[7] where he found 39% prevalence of vaginal candidiasis with Gram staining and culture of vaginal specimen; multigravida suffered more than did the primigravida as in the study.

In another study, by Feyi-Waboso and Ahmadi[9], where 42.9% of vaginal candidiasis was found during pregnancy and they observed that primigravida and younger age group suffered more from vaginal candidiasis. On the other hand, we noted younger age group, 18-30 years, and multigravida suffered significantly more. These may be due to early marriages in our population and by the time they reached 30 years of age, they become the multigravida.

In contrast, higher prevalence was recorded by Marcano and Feo.[10] They isolated Candida albicans in 60% of pregnant women who had complaints of vaginal discharge and 92% out of those were complaining of pruritis vulva but they did not find significant results with respect to the age, parity and period of gestation. Similarly, in Jordon, 68.2% prevalence of vaginal candidiasis was seen in pregnant women.[11]

In another study, published in the Pakistan Journal of Medical Research reported by Talat H Rizvi[11] investigated Candida albicans in (72.5%) of the vaginal specimen of pregnant women. This high percentage may be due to the selection of women who were complaining of vaginal discharge whereas we enrolled, clinically symptomatic and asymptomatic pregnant women, who attended routine antenatal clinic.

However, lower results have also been recorded; Ngeow[13] reported 27% prevalence of vaginal candidiasis with symptoms and 14% without symptoms.

Meis *et al*[14] observed 19.5% prevalence of vulvo vaginal candidiasis but they only selected the pregnant women at 28 weeks of gestation. On the other hand, low results 14.9% of vaginal candidiasis also revealed in the study carried out at Combined Military Hospital, Rawalpindi, Pakistan, but it was basically for bacterial vaginosis.[5]

We found small number of pregnant women 7 with diabetes, among them, 2 had positive laboratory diagnosis for Candida, which makes 28.56%. It is significantly high. One study conducted in Poland, reported high prevalence, 40.4%, of vaginal candidiasis, according to the study, it selected all the pregnant women with diabetes.[6] Grigoriou[15] evaluated pregnancy with diabetes mellitus, a possible risk factor in their study.

In the current study, multigravida suffered significantly more from vaginal candidiasis than the primigravida. This finding can be explained as multigravida have longer sexual history and also number of pregnancies that make them more prone to develop vaginal candidiasis than primigravidae who have less sexual exposure. Although, no significant relationship was seen with respect to age and trimester of pregnancy, it was observed that most of the women were in their third trimester of pregnancy and belonged to younger age group (18-30 years).

It is important to note that when we compared our results with other studies, high prevalence was seen in developing countries. In contrast, low results were reported from developed countries where public awareness of female hygiene and contraception was well pronounced.

CONCLUSION

In this study, the overall 38% frequency of vaginal candidiasis was seen during pregnancy, 27% from symptomatic and 11% from asymptomatic group, Gram staining test was observed a valuable method for rapid and specific diagnosis. Multigravida and diabetic pregnant women were found to have significantly increased infection ratio, therefore, we recommend that multigravida and diabetic women, clinically symptomatic or asymptomatic, should be routinely screened for vaginal candidiasis during pregnancy.

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