INCIDENCE OF VAGINAL CANDIDIASIS IN LEUCORRHOEA IN WOMEN ATTENDING IN OPD OF GYNECOLOGY AND OBSTETRICS DEPARTMENT

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Abstract
Background: Candida is the most common agent causing leucorrhoea affecting the women of all strata. It is becoming difficult to completely eradicate the infection mainly due to recurrence caused by non-albican species of Candida. Most of the non-albican species of Candida are resistant to commonly used antifungal agent - azole. Therefore, studying the Incidence of Candida species in vaginal secretion is of great significance.
Objective: To study the incidence of Candidiasis in patients of leucorrhoea and identification of different species of candida found in leucorrhoea and to study the effect of pregnancy and age on infection rate in women Attending in OPD of Gynecology and Obstetrics, Department, Gurugobind Singh Hospital, Jamnagar, Gujarat, India.
Materials and Methods: The study was conducted on 300 patients with specific complaints of leucorrhea. Discharge was examined by direct wet preparation by KOH mount, Gram staining, and Culture on Sabouraud's dextrose agar. Species differentiation was done by Germ tube formation, Sugar assimilation and Sugar Fermentation test.
Results: In 19% of the women the leucorrhea was due to Candida infection with highest incidence in women of age (21-30 years). Incidence of candidiasis was higher in Pregnant (22.5%) compared to non-pregnant (16.6%). *Candida albicans* was the most common strain identified and *Candida krusei* was the least common one.
Conclusion: Highest incidence found between 21-30 years age group, in pregnant women, in women from lower socio-economic class. Among candida species *C. albicans* was commonest followed by *C. glabrata, C. tropicalis, C. krusei.*
Keywords: *Candida*, Candidiasis, Leucorrhoea

1. Introduction

Candidiasis is the infection caused by species of genus Candida. The infection can be acute or chronic, superficial or deep, and its clinical spectrum is so wide that a more specific definition cannot be made[1]. Increasing literature on infection shows no sign of narrowing the clinical and scientific interest in Candida infection, which is remains high[2].

Data of incidence of vaginal candidiasis suggest approximately two-thirds of women experience at least one episode during their lifetime and nearly 50 % of women have multiple episodes. The majority of cases of vulvovaginal candidiasis are caused by C. albicans; however, incidences due to non-albicans species of Candida appear to be increasing[3].

2. Materials and Methods

A total of 300 Patients having symptoms of Leucorrhoea attending the OPD of Obstetrics and Gynecology departments of Gurugobind Singh Hospital, Jamnagar were included in the study.

Specimen collection: Specimens were collected with sterile cotton swab from the vagina or cervix avoiding the contamination of other organisms. The set of two swabs were collected for each specimen. Out of that one was subjected for direct smear examination and other was inoculated on Sabouraud's dextrose agar and incubated at 25 and 37°C aerobically. Direct smear examination was done by 10% KOH preparation and Gram staining.

Identification: The growth of Candida on Sabouraud's dextrose agar was confirmed by Gram staining in which gram positive budding fungal cells were observed. Then its growth was examined for colony morphology on Sabouraud's dextrose agar and chlamydospore production on Corn meal tween 80 agars. Germ tube tests and other biochemical tests like sugar fermentation, sugar assimilation and urease test were performed to identify the species of Candida.

3. Results

The study was conducted on 300 women with leucorrhoea attending the OPD of Obstetrics and Gynecology Departments of Gurugobind Singh Hospital, Jamnagar. Out of the 300 women 57 were positive for vaginal candidiasis in leucorrhoea having incidence of 19%.

Incidence of vaginal candidiasis higher in age group 21-30 (64.90%) followed by 31-40 (17.54%), and lower incidence was found in age group above 50 year (1.75%). [Table-1].

Incidence of vaginal candidiasis was higher in Pregnant (22.5%) than non-pregnant (16.66%) patients. [Table-2]. In pregnant women the incidence of candidiasis was also studied in relation with the gestation period. It was seen that incidence of candidiasis increases with gestation period, lowest in first trimester 18.5% , in second trimester 33.3% and highest 48.1 % in third trimester

In study of positive isolates most of the patients were from lower class (64.91%).

Incidence of candidiasis was higher in women using Oral contraceptives (20.51%) than non user (13.52%). [Table-3].

Species wise distribution of the isolates was also studied. C. albicans was the most common isolate, having incidence of 80.71 %, followed by *C. glabrata* (10.52 %) and *C. tropicalis* (05.26 %) and *C. krusei* (3.51%). [Table-4].

Table-1: Incidence of Vaginal Candidiasis in relation to age

Age group in Year	Positive	Positive %
16-20	06	10.53
21-30	37	64.91
31-40	10	17.54
41-50	03	5.27
Above 50	01	1.75
Total	57	

Table-2: Comparison of the incidence of candidiasis in Pregnant and Non pregnant Women

Status	Total No. of Patients	No. of positive Patients	Positive %
Pregnant	120	27	22.5
Non-pregnant	180	30	16.66

Table-3: Incidence of Vaginal Candidiasis in relation to oral contraceptive

OCP	Total	Positive	%
User	78	16	20.51
Non-user	102	14	13.52
Total	180	30	

Table-4: Incidence of Different species of Candida

No.	Candida Species	Total Cases	%
1	*C.albicans*	46	80.71
2	*C.glabrata*	06	10.52
3	*C.tropicalis*	03	5.26
4	*C.krusei*	02	3.51
Total		**57**	

4. Discussion

Vaginal candidiasis is a prevalent opportunistic mucosal infection, caused predominantly by C. albicans, which affects a significant number of otherwise healthy women of childbearing age. Vaginal candidiasis is one of the common infections of general practice, second only to anaerobic bacterial vaginosis. About three quarter of all women suffer at least one episode of this condition during their life time.

Incidence of vaginal candidiasis reported by different workers show the rate of 9.5 % [4], 16.5% [5] and 21.31 % [6]. In present study we found 19% incidence of vaginal candidiasis.

In the present investigation, 64.90 % of women with leucorrhea were of the age 21-30 and 17.54% were in the age group 31-40 years which is comparable with other study like nandan *et al*[5], Field PL[7], and Nwokolo NC[8]. Ovarian activity as well as sexual activity is maximum in women of 20-30 years age. During this period, the ovary produces adequate amount of estrogen, which favors the Candida growth by maintaining the acidic pH and enhancing the yeast adherence to vaginal epithelial cells[9].

Incidence of vaginal candidiasis is remarkably higher during pregnancy due to physiological changes. Sobel has reported incidence of symptomatic vaginal candidiasis high in pregnancy and increases during the course of gestation.[10] In present study also similar findings were obtained. During pregnancy, elevated level of reproductive hormones like estrogen increases the vaginal glycogen content that acts as a carbon source for the growth of Candida species. [11]

In the present investigation, 80.71% of women with leucorrhea were harboring *C. albicans*. Which is comparable with other study like Azam

et al [12] which shows 87.5%? However, we also observed a concomitant increase in the prevalence of non-albicans species in our study group. Among the non-albicans species, *C. glabrata* was the most common type (10.52%) and *C. krusei* was the least common type (3.51%). Studies have shown that *C. glabrata* is one of the major causes for recurrent vulvovaginal candidosis. More than 10% of the women in the present study were infected with *C. glabrata* which agrees with the reports of Corsello S et al (14.6%) [13]. Vaginitis induced by non-albicans species is clinically indistinguishable from that caused by *C. albicans* [14]. The explanation for increase in the incidence of vulvovaginal candidosis caused by non-albicans strains is thought to be because of single-dose treatment, low-dosage azole maintenance regimens and the use of over-the-counter antimycotics. [15] Therefore for effective control of candidiasis, it is advisable to identify the Candida species before planning the treatment.

Conclusion

In conclusion, highest incidence of candidiasis in patient of lecorrhoea found in age group of 21-30 years. Incidence was higher in pregnant women, multipara with third trimester. Women using oral contraceptive (20.51%) and coming from lower socio economic class (64.51%) show higher incidence. Among the candida species most frequent isolate was *C.albicans* (80.71%) followed by *C. glabrata* (10.52 %) and *C. tropicalis* (05.26 %) and *C.krusei* (3.51%). For effective treatment of the infection, to prescribe the correct medication and to overcome the recurrence, it may be advisable to identify the Candida species routinely from vaginal swabs of infected women.

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