

Research Article

Prevalance of Vulvovaginal Candidiasis in women of reproductive age group

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Abstract

Introduction: Vulvovaginal Candidiasis is a common problem in women of reproductive age group with overgrowth of fungus Candida due to loss of imbalance between normal vaginal flora, Candida and immune defense mechanisms. Most common Candida species is *C. albicans*. However, the incidence of non-*albicans* species is on the rise. Direct microscopy and vaginal cultures are a valuable tool for identifying Candida species so that appropriate therapy may be given to eliminate the vaginal source of infection rather than treating vulval symptoms.

Objectives: The main objectives of the present study were to estimate the incidence of Candida infections in women of reproductive age and identify the species of Candida causing such infections. 150 women were subjected to speculum examination and vaginal swabs were collected for culture, direct microscopy and candida isolation.

Results: 53.3% of women in their early reproductive years were found to suffer from Candida infections of which 86% were *Candida albicans* species.

Conclusion : Culture for Candida species routinely maybe a valuable tool not only to treat vaginal symptoms effectively but also to avoid usage of unnecessary antifungal agents.

Keywords: Vulvovaginal Candidiasis, vaginal culture, Microscopy

1. Introduction

Vulvovaginal candidiasis is a common problem among women of the reproductive age groups wherein 75% of them are affected at least once in their lifetime and 40-50% of women may have repeated infections¹. It involves overgrowth of the fungus, Candida due to disruption of the normal balance between Candida, bacterial flora and immune defense mechanisms leading to colonization that may occur during usage of broad spectrum antibiotics and hormonal fluctuations^{2,3}. Pregnancy, use of high estrogen oral contraceptive pills, steroids, antibiotics, chemotherapy drugs and aging favour its growth. Increased secretion of estrogen during pregnancy results in increased amounts of glycogen in the vagina that acts as a good source of carbon needed for Candida growth and germination. Limited human studies have shown that vaginal carriage may continue from several months to years and was often ignored and treated as an insignificant problem. Many mental and emotional problems are found to be associated with vaginitis. The infection is rare in postmenopausal women and young girls as the fungus is hormone dependant. The exact mechanism of development of Candida infection is not clear however, there is a possibility that Candida by multiple mechanisms causes cell damage by direct invasion of the epithelial

tissue by the hyphae. pH remains normal at 4-4.5. Global studies have shown that the most common Candida species is Candida albicans.

The present study was undertaken to analyse the vaginal swabs taken from women in the reproductive age group to look for Candida species.

2. Materials & Methods

150 women attending the gynaecology out patient department in Government Maternity Hospital, Hyderabad from July 2004 to June 2005 were included in the study. All women were sexually active between 20-50 years of age. The women were divided into 2 groups, group I (test group) consisting of 100 women with vaginal discharge and group II (control group) of 50 women attending the out patient department for other gynaecological problems. An informed consent was taken from all the participants. The institutes Ethics Committee permission was obtained.

2.1. Methodology:

A through speculum examination without antiseptic cream was done and the nature of discharge and condition of vagina were noted.

2.1.1 Collection of swabs: Three high vaginal swabs were taken from the posterior fornix from both groups, two swabs were immediately inoculated in culture media and the third swab was used for making smear. Many women exhibited symptoms suggestive of vaginal candidiasis. pH was noted by using a multirange pH paper that was dipped in the pooled vaginal secretion.

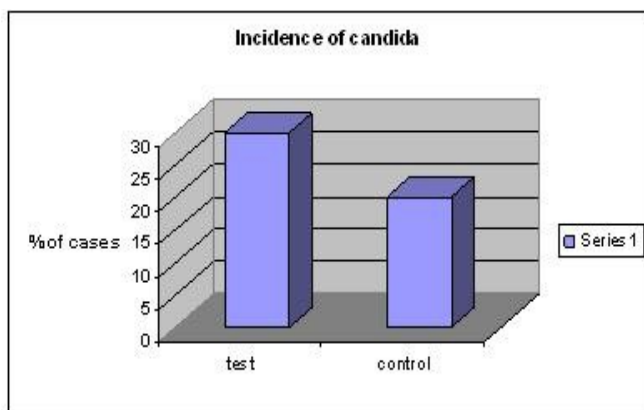
2.1.2 Microscopy : Saline wet mount with a drop of vaginal discharge mixed with a drop of normal saline on a clean glass slide and covered with a cover slip and examined under high power (40X) for clue cells and budding yeast cells. Gram stain was done with methylene blue and examined microscopically under high power. Presence of regular blastopores and pseudohyphae was determined by this method.

2.1.3 Candida isolation : For mycological studies, 2 vaginal swabs were collected, one to detect the presence of yeast by gram staining and the other used to test growth of Sabouraud Dextrose Agar slants containing 2 ug of gentamicin per ml and 0.5% cycloheximide. Using this method, yeast colonies were identified and counted. Candida species identification was done by conventional method by Germ tube test (GTT) done by inoculating a single colony into 0.5 ml human serum, followed by incubation at 37C for 2 hrs. A drop of this suspension was examined microscopically for presence of germ tubes. Isolated colonies from the growth on MA and BA were further processed and identified using biochemical tests.

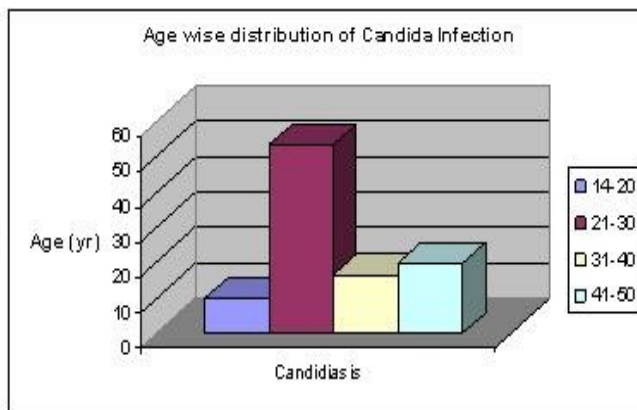
3. Results :

Out of 100 women in the test group, 30 women (30%) had Candida infection while 20% of women in the control group had the infection (Graph1). The infection was found to be high (53.3%) in women between 21-30 years followed by 16.7% in women between 31-40 years (Graph 2). Results of Candida sp grown on SDA showed that out of 43 isolates of candida, 37 (86%) in test group were Candida albicans and 6 (14%) were other candida species and 21 (87.5%) in control group were Candida albicans and 3 (12.5%) were other candida (Graph 3).

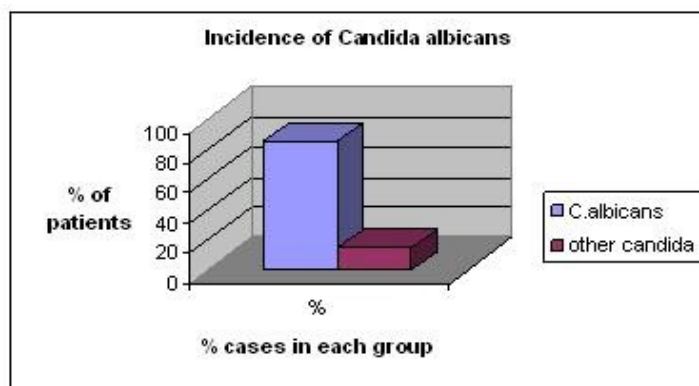
Graph 1



Graph 2



Graph 3



4. Discussion :

A large number of women with Candida infection were found between 21-30 years which is the most active reproductive age group. Vaginal cultures, germ tube test was performed to identify the species. In the present study 43% of the cases and 24% of controls were found to have Candida species. Among these, Candida albicans predominated (86%) and non- albicans found in 14% only. In the controls, 87.5% were *Candida albicans* (Germ tube positive) and 12.5% were non-albicans. Numerous studies have shown that the greatest number of symptoms associated with Candidiasis were due to *Candida albicans*. However, in the past three decades there has been an increasing incidence of infections due to non-albicans species as well which are found to be resistant to conventional therapy which is a matter of great concern^{2,5,8}. Studies have also shown that the non-albican species are non-pathogenic but appear more frequently due to antifungal drug abuse^{6,7}. Vaginal cultures are valuable source of identifying Candida species and to monitor any changing trends to provide complete and effective treatment for long periods. The imbalance between Candida, normal bacterial flora and immune defense mechanisms leads to such infections caused especially by usage of antibiotics that destroy the protective vaginal flora. Disorders of immune system and host defense mechanisms probably cause accelerated colonization of the genital system by yeast. Treatment in such cases should be to eliminate the vaginal source of infection rather than simply treating the vulvar area symptoms which are mostly caused by yeast metabolites.

5. Conclusion :

Culture for Candida species routinely maybe a valuable tool not only to treat vaginal symptoms effectively but also to avoid usage of unnecessary antifungal agents.

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