Detection Of *Candida Albicans* Responsible For Vulvovaginitis In Women

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ABSTRACT

Background: The vaginal microbial ecosystem stability preclude many other organisms but sometimes the vaginal micro biota is disturbed and this cause change in the normal balance causing symptoms of vulvuvaginitis like abnormal or increased vaginal discharge, redness and itching.

Objective: To prove *C. albicans* presence in their vagina clinically and laboratory by culture of vaginal swab on two media.

Type of the study: This study is a case control study

Methods: This study is a case control study in which 100 clinically patient women admitted to maternity hospital in kalar city and khanaqin hospital during the period from 1st August- 30th of October 2016 who were examined to prove *C. albicans* presence in their vagina clinically and laboratory by culture of vaginal swab on two media, the first media was used for primary isolation which was Sabouraud´s dextrose agar media and the second was to differentiate *Candida* spp. according to their color .

Results: Results of this study presented that the highest invasion of the vagina of *Candida* spp was accounted for *C. albicans* (39.6%)from the (53) positive cultures , while other species were as follows: *C. glabrata (26.4%), C. tropicalis (20.8%) ,C. krusi(13.2 %).*

Conclusions: this study presented that the highest invasion of the vagina of *Candida* spp was accounted for *C. albicans*

Keywords: Magar, vaginitis , CHROC. albicans .

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The vaginal microbial ecosystem stability preclude many other organisms but sometimes the vaginal micro biota is disturbed and this cause change in the normal balance causing symptoms of vulvuvaginitis like abnormal or increased vaginal discharge, redness and itching. Vaginitis is an inflammation of vagina which is very common disease for women of reproductive age all over the world. Children and postmenopausal women can also be affected, but not as commonly [1, 2]. Bacterial vaginosis and Candida vaginitis are considered to be the two most common causes of vaginitis [3, 4]. The etiology of Candidal vulvovaginitis or vaginal thrush is C. albicans which is the most common cause (> 90%) of vaginitis. While the minority Of these infections, is caused by non-C. albicans spp. (< 10 %), including C. glabrata, C. krusei, C. parapsilosis and C. tropicalis [5, 6, 7]. The correct detection of Candida species is of great importance, because it presents prognostic and therapeutically significance that allowing an early and appropriate antifungal therapy [8].it also useful for studying their epidemiology, spread and modes of transmission [9]. Nowadays, a large number of Candida spp. identification methods are commercially available which differ in their principles,discrimination power and cost. The traditional microbiological procedures and methods are based on macroscopic and microscopic analysis of colonies and cells (presumptive tests) and on biochemical characteristics of the yeasts (confirmative tests) [10]. Also, several molecular methods have been developed for the accurate identification of the yeasts [11, 12].

Methods : This study was conducted at outpatient consultation clinics for Gynecology in maternity hospital in kalar city and khanaqin hospital for study for clinically diagnosed women infected with recurrent vulvo vaginal candidiasis. During the period from 1st ofAugust – 30th of October2016, a total of 100 specimens from 100 apparently infected with recurrent vulvovaginal candidiasis were collected by vaginal swab, and also the study included 20 healthy women considered control group. The patients and control groups were aged from 15-50 years. After physical examination by a gynecologist, a vaginal swabs from anterior fornix have been taken from the pregnant and non-pregnant women. Cotton sterile disposable swabs have been used for vaginal collection. The swabs have been transported directly to the laboratory for culturing on Sabouraud's dextrose agar and incubation at 37°C for 24 - 48 hours .Subsequently the positive cultures were plated on CHRO Magar Candida at 37 °C for 24 hours to ensure detection of mixed infections. For detection of germ tube a loopful of yeast cells suspension was inoculated into test tube containing 0.5 ml of human serum and incubated at 37°C for 3 h. After incubation , it was examined under light microscope. Germ tube was considered as a lateral tube without septum and had no constriction at initiating site, this test is a positive test for C. albicans [13,14] On Sabouraud´s dextrose agar the growth of yeast colonies was noticed. Most of them had a heavy growth .In Some cases, the growth was scanty. Scanty growth has been excluded supposing Candida albicans as a normal flora in this case. Direct examination under light microscope was done to determine the shape and size of yeast cells by picking a colony from the culture and emulsifying it within a drop of cotton blue stain. Examination was done on the power 40 X. CHROM agar Candida medium is a novel, differential culture medium that is used to facilitate the isolation and suppositional identification and detection of some clinically important yeast species and to differentiate them from other yeasts on the basis of strongly contrasted colony colors which are produced by reactions of species-

specific enzymes with a proprietary chromogenic substrate. it greatly facilitates the detection of specimens containing mixtures of yeast species. All of the isolates were inoculated on CHROM agar-Candida medium and incubated at 37°C for 24-72 hrs looking for light green colonies (a typical color of C. albicans).

Results : The results of this study revealed that on Sabouraud´s dextrose agar media, the appearance of colonies of Candida albicans were white to cream colored, smooth, glabrous and yeast-like odor from the colonies after 72 hrs of incubation as showed in figure (1) .

Figure1. Candida albicans colonies grew on SDA media .

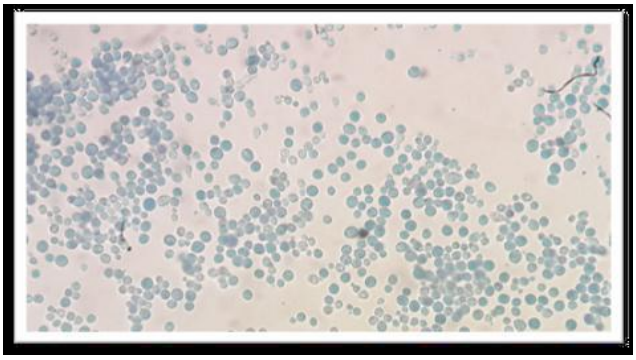


Figure 2 Candida albicans blastospores grew on SDA media and stained with cotton blue stain under light microscopy 100X magnification.

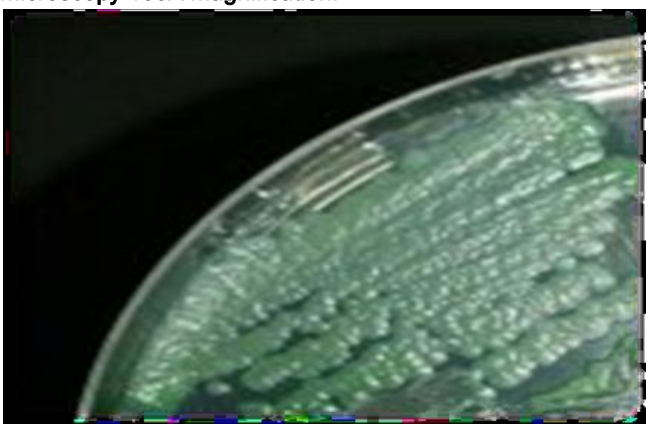


Figure-3- Candida Differential medium green colonies on HiCrome albicans C.

while Microscopic examination showed a morphology of spherical to sub spherical budding yeast-like cells or blasto conidia as clearly was showed in figure (2).

Discussion: the growth of Candida spp. on HiCrome Candida medium showed good luxuriant light green colonies after 24-72 hrs of incubation at 37°C. The color was consistent after 24 – 48 hrs and then the color began to be lighter than the first time of its appearance as revealed in figure 3. These results were agrees with the fact that this medium having good performance, less time wasting and having good sensitivity for the isolation and detection of Candida albicans [16] .

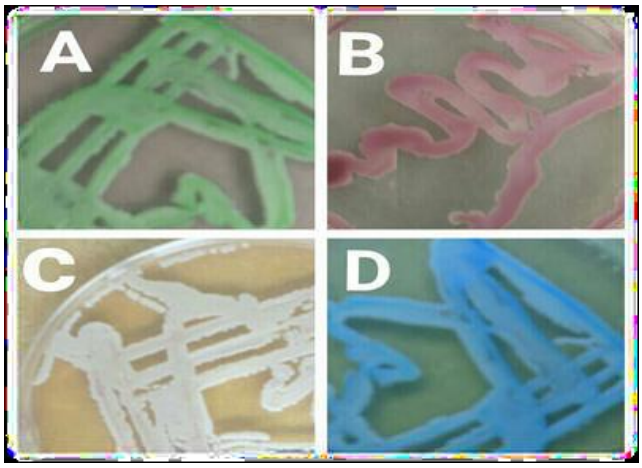


Figure 4. Colonies of Candida spp. On HiCrome Candida Differential medium .(a): Candida albicans, (b): Candida krusie , (c)candida glabrata , (d) candida tropicalis

Table 1 Candida spp. percentage isolated from patients on chromogenic medium .

Percentage %	**No. of isolates of total 100 positive.**	***Candida* spp.**
39.6	21	***C. albicans***
26.4	14	***C. glabrata***
20.8	11	***C. tropicalis***
13.2	7	***C. krusie***
100	53	**Total no.**

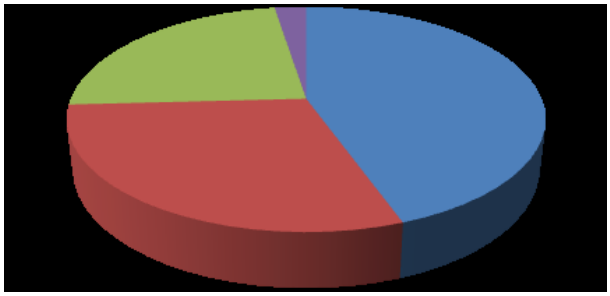
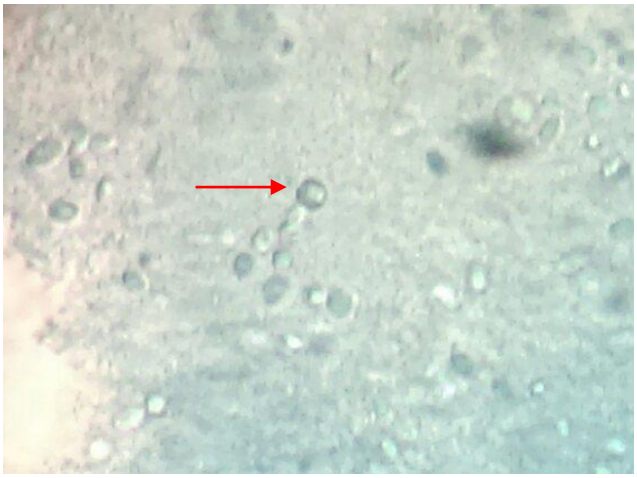


Figure 5 Percentage of Candida spp according to its appearance on CHROMagar.



Figure(6): C. albicans germ tube formation (red arrows)

Out of 100 vaginal samples, only 53samples revealed positive vaginal candidiasis. Most of C. albicans isolates formed germ tubes . Almost all of the isolates after 24 -72 hrs of incubation on HiCrome Candida .Differential medium revealed a luxuriant light green colonies (C. albicans colonies). C. albicans species is the predominant as was showed in Table (1) and figure (5) and these results agree with the previous studies that almost all colonies form this color which was the light green on chromogenic media [17,18, 19]. In addition to that results showed that 90% of C. albicans isolates formed germ tubes which means that they are pathogenic isolates. These results are in line with those of Beheshti et al. (1975).

Table 2. Germ tube formation and colony color of vaginal Candida spp.

Species	No. of isolates	Germ tube No.	Germ tube %	Colony color on CHROM Agar, texture
C. albicans	21	19	90	Light green ,smooth
C. glabrata	14	0	0	Pink-to creem
C. tropicails	11	0	0	Blue-pink
C. krusei	7	0	0	White pink with white border

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