Incidence of Vulvovaginal Candidiasis among Iraqi women

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Abstract

This work was carried out on 50 women, they were attended to the gynecological out patient clinic, and they were suffering from itching, burning and irritation of vagina, vaginal discharge was not always exist but most discharge was vary from watery in consistency with whitish – gray color. Vaginal swabs were collected from these women. Samples were examined macroscopically and microscopically to find the etiological agents. Results showed that *Candida albicans* (70%) and non albicans candida (20%) played an important role in this disease, the incidence of infection varied among age group, it was high among age (35) y and above also patients' history may play a big role in vulvovaginal candidiasis. In conclusion, vulvovaginal candidiasis considers as a serious problem among Iraqi women therefore understanding the pathogenic mechanisms of albicans and non albicans candida may be very important to reduce the incidence of infection and find proper treatment.

Introduction

Vaginal yeast infections, also called Candida vaginal infections typically are caused by *Candida albicans* fungus.

During a life time, 75% of all women are likely to have at least one vaginal Candida infections. Yeast is always present in vagina in small numbers, and symptoms only appear with over growth. Several factors are associated with increased symptomatic infection including pregnancy, uncontrolled diabetes mellitus and other factors. [1] Vulvovaginal candidiasis primarily affects vulvar skin and vaginal epitheliums are usually involved. Standard therapy for candidiasis is often ineffective for patients' whom recurrences are frequent, and the reason for this ineffectiveness, at least in the proportion of cases due to *Candida albicans*, remains obscure. The prognosis for recurrent vulvovaginal candidiasis patients that do not resolve readily can be one of the chronic, unremitting vulvovaginal pain or vulvodynia.[2]

This woke was attempted to determine the incidence of vulvovaginal candidiasis caused by albicans and non albicans candida among Iraqi women

Material and methods

A total of 50 vaginal swab samples were collected from women attending to the (gynecological out patient clinic),they were suffering from itching, burning and irritation of vagina, vaginal discharge was not always present but most discharge was vary from watery in consistency with whitish – gray color.[3]All samples were examined macroscopically and microscopically. Regarding microscopical examination, direct wet mount preparation was done to determine the presence of yeast's budding, pus cells, epithelial cells, pseudomycelium, and presence of parasites. Gram stain test was also done to determine the presence of bacteria. Germ tube formation test

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used as confirmatory test for detection of *Candida albicans* as follows [4]: lightly touched single colony was emulsified in 0.5 ml of human serum in small test tubes; tubes were incubated at 37C° for 2-4h. Germ tubes were seen as extension of typical yeast cells. (Fig 3).Also 10% potassium hydroxide examination was also done for detection the presence of pseudomycelium.

While macroscopical examination was done using microbiological media for isolation of yeast (Fig 2) including sabouraud's dextrose agar (Difco). Detection of chlamydospore production was bone by using Corn meal agar (Oxoid), chlamydospores were thick-walled born singly or in cluster at the tip of pseudohyphae. Other microbiological media were used like blood and MacConkey agar (Oxoid) for detection of bacteria. [5] .All samples were incubated at 37 C° for 24-48h. before discarded as negative.

Results

Incidence of vulvovagican candidiasis (either *Candida albicans* or *non albicans candida*) shows in (Table 1), which represent the distribution of infection according to different age group. High albican isolates were shown among age group between (35-45) y. also among age above 45y. including age of menopause.

Non albican candida was isolated among 10 cases from different age group. mainly among women in pre-menopause age and menopause but only 2 cases were isolated from age between (25-35)y. Non albicans species were detected by macroscopic examination because they did not produce pseudophyae on slid , also high incidence of non albicans candida was among age 25y. and above

Table (1)
Distribution of *Candida albicans* and non albicans candida according to the age groups

Age group	C.albicans	%	Non-albicans	%
15-25	4	8	0	0
25-35	6	12	2	4
35-45	15	30	4	8
45y and above	10	20	4	8
Total	35	70	10	20

*This work does not include complete diagnosis for non albicans spp. due facilities deficiency

Table (2)
Types of Gram positive and Gram negative bacteria among patients suffering from vulvoageinal candidiasis

Gve^+ bacteria	No.	%
Staphylococcus. aureus	6	12
Staphylococcus .epidermidis.	8	16
Dephtheroids species	8	16
Gve⁻ bacteria		
E.coli	2	4
Klebsellia species	2	4
Proteus species	1	2

This table shows that the GVE^+ bacteria including (*Staphylococcus spp.* and *Dephtheroid spp.*) were the most isolated organisms and less among Gram negative.

Association between patients history and vulvovaginal candidiasis can be seen in Table (3) and Fig (1).

Table (3)
Association between patients history and vulvovaginal candidiasis

Cases	No. of patients	No. of isolates	percentage
Urinary tract infection (uti)	12	10	83
Contraceptive	10	6	60
Use of antibiotics	15	14	93
Diabetes mellitus	8	4	50

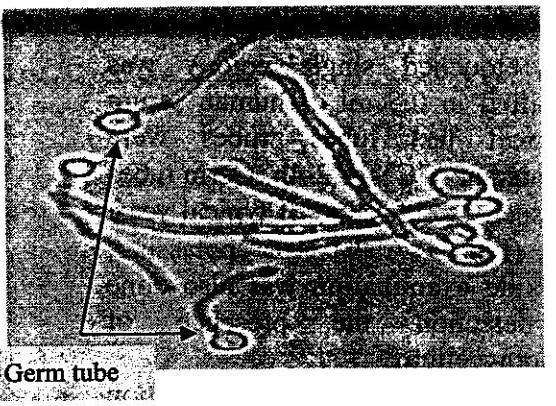

Fig (3) shows positive germ tube test for detection of *Candida albicans*

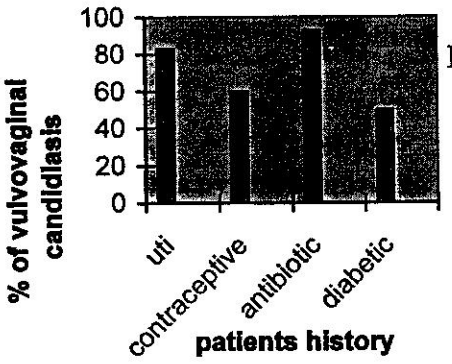

Fig. (1) Shows the association between disease, Drug abuse and vulvovayinal candidasis.

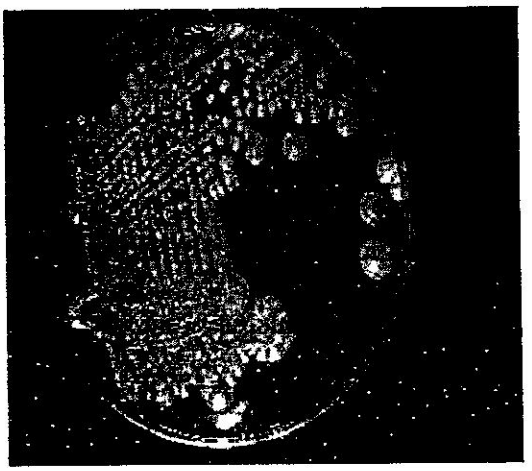

Fig (2) shows Growth of *Candida albican* on sabouruds dextrose agar.

Discussion

A vaginal yeast infection is a disease caused by a yeast fungus called *Candida albicans*. Although another yeasts were always present in vagina in small number, it can overgrow and cause uncomfortable symptoms of yeast infection. [6].Candida can be dangerous if left without treatment and care, they can get to the blood stream from where it may find its way to other part of the body leading to sore joints, and other problems. [7]

It is clear from the present study that the incidence of vulvovaginal candidiasis was high among Iraqi women mainly in age group between (25-35)y. this could be attributed to the fact that this period considered as reproduction years for women and (most of them had 1-2 children). Pregnancy considers as one of the important factor that enhance vulvoaginal candidiasis. Similar study was carried out by (Sobel 1997)[8] who reported that the incidence of infection increase at this age group. Incidence of infection was also increased at the age group 45 and above. High incidence of infection at this age (premenopause menopause and post menopause) may be due to the hormonal changes mainly

estrogen hormones. These changes usually effect vaginal environment. (Spinillo.1995)[9] observed that hormonal changes may effect on the bacterial microflora in the vagina.

These bacteria play an important role in reduction of pathogenic organisms due to there ability to decrease the pH level. Other study carried out by (Boris.1998)[10] who reported that highly acidic environment act as bactericidal and Fungicidal action agents pathogenic organisms.

This study found that *Candida albicans* were the most common yeasts isolated from female vagina which represented (70%), this could be due to the fact that *Candida albicans* can adhere easily to the vaginal epithelial cells through their surface Mannoprotein. A study carried out by (Saporitim 2001)[11] who reported that mannoprotein in the surface of *Candida albicans* as well as germ tube for matian and mycelium formation facilitates vagial mucosal invasion by *Candid albicans*.

Species other than *Candida albicans* were also observed among 10 women (20%). (Maccato 1991) [12] observed that non *Candida albicans* species include *Candida glabrata* and *Candida tropicals* also play an important role in vulvovaginal candidiasis, but neither *C.glabraln* non *C.tropicalis* produce mycelia, but they may produce proteolytic enzymes that help fungi to adhere to vaginal epithelial cells.

Different bacterial species (varies from gram positive to gram negative bacteria) were detected in this study. High level of bacterial isolates were among Gram positive bacteria mainly (*Staphylococcus aureus* (12 %), *Staphylococcus epidermidis* (16%) and *Dephtheroids spp.*(16%), these organisms may be present as vaginal contaminate especially *Diphtheroids spp* and *Staph. epidermedis*, that are normally present in urethra and anterior part of vagina. Gram negative bacteria were also detected among women suffering recurrent urinary tract infection and were attended to gynecological out patient clinic due to the signs of vulvovaginal candidiasis. UTI considered as one of big problem among women and they are mainly caused by gram negative bacteria. This result agree with (Jakdet.d) [13] who reported that different species of Gram positive can be detected in vaginal examination either they are commensally organisms or due to the technique of sample collection, that allows swab to be contaminated with the vaginal wall as well as Gram negative bacteria due to recurrent UTI.

This work was also study the correlation between vulvoaginal candidiasis the patient's history. Fig (1) and Table (3) show that the high incidence of infection was among women taking antibiotic therapy. (Daus1975) [14] reported that Antibiotic abuse plays an important role in vaginal Candidiasis.

Antibiotics cause disbalances of normal vaginal flora and allow virulent strains of *Candida spp.* to be colonized and invade vaginal wall causing disease. High incidence of infection was also observed among patients with urinary tract infection and those taken oral contraceptive, the most common isolate were *Candida albicans*. (Kuebrichetal 2004)[15] reported that the risk of vulvovaginal candidiasis may be higher in women who use oral contraceptive containing high levels of estrogen.

The incidence of infection was low among diabetic patients, the most common Candida was non albicans species, this could be due to the fact that diabetic patients usually more susceptible for infection due to valve irritation and valve erythema caused by glucosuria. (Huntley 1995)[16] Reported that vulvovaginal Candidasis is an

especially common problem for the diabetic women. Diabetes mellitus is a common cause of pruritus value during glucosuria and non albican species usually involved [17, 18].

In conclusion vulovaginal Candidasis consider as an important problem among Iraqi women, species other than albicans candida had a role in this disease, therefore understanding the pathogenic mechanisms of non albicans candida like (*C.tropicals, C.glaborat*) may be essential, also study the virulence factors of these organisms and their resistance to antifungal drug may be important.

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دراسة التهاب المهبل المتسبب عن المبيضات الفطرية لدى النساء العراقيات

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الخلاصـــة:

أجريت هذة الدراسة على (50) أمرأة كانت قد راجعت العيادة النسائية الأستشارية وكن يعانين من التهابات مهبلية مصحوبة بحكة مؤلمة وافرازات مهبلية ذات لون ابيض كثيف.تم أخذ مسحات من أعلى المهبل لغرض التحري عن الجراثيم المسببة. نقلت المسحات الى المختبر لغرض اجراء الفحوصات المخبرية عليها حيث تم اجراء الفحص المجهري المباشر لها اضافة الى استعمال بعض الأوساط الزرعية الخاصة بها. وقد أظهرت النتائج أن اكثر النساء أصابة كن في عُمر 35 سنة فما فوق وكانت المبيضات البيض أكثر الجراثيم المعزولة والتي شكلت نسبة 70% في حين ان المبيضات غير البيض تم عزلها ايضا من النساء وبنسبة 20% .شملت هذة الدراسة ايضا أيجاد علاقة بين تاريخ المريضة ، مدى تعرضها لأصابات سابقة ، تناولها للعقاقير وحالات التهاب المهبل .نستنتج من هذة الدراسة أن المبيضات البيض وغير البيض تلعب دور مهم في حالات التهاب المهبل بالنسبة للنساء العراقيات لذلك يمكننا القول بان دراسة الميكانيكية التي تتبعها المبيضات البيض وغير البيض في احداث التهاب المهبل تعتبر ضرورية لغرض الحد من هذة الظاهرة أضافة لأيجاد علاج مناسب لهذة الجراثيم.