

Prevalence of Vaginal Candidiasis among women and Diagnosis of *Candida* species from vaginal infection in Kirkuk city

Bari lateef mohammed¹, Kalil I. Bander², Thekra A. Hamad³

¹ Department of biology, Science college , Kirkuk University , Kirkuk , Iraq

² Department of biology, Science college ,Tikrit University , Tikrit , Iraq

³ Department of microbiology in medicine college ,Tikrit University , Tikrit , Iraq

Abstract

Vaginal candidiasis is a common complaint among women of different age groups in any society whether or not they are sexually active. Although it is both treatable and mild, when left untreated, The study was set to detect *Candida* organisms in women vaginal. A prospective study of women vaginal swabs collected from Gynecological Clinic in Azadi teaching Hospital and some privet clinical in Kirkuk city and a total of two hundred (200) women swab were analysed for microscopy and culture, from May 2014 to April 2015. Data on epidemiologic indices were collected from the patients, using structured interviewer-administered questionnaires. fifty- seven positive cultures were obtained, constituting 28.5% (n = 57) in a total of 200 women vaginal samples. A total of 28.5% (n= 57) isolates were detected which comprises four different *Candida* species, namely *Candida albicans*, *C. glabrata*, *C. krusei* and *C. kefyr* respectively as well as isolated *Cryptococcus lorynti* with frequency of occurrence of 23%, 2%, 1.5%, 0.5% and 1.5% respectively. The isolates were related to age, the age range of 26-35 years had the highest incidence (35%), followed by age range of 36-45 years (29.5%) and 56-88 years had the least (2%) percentage of occurrence. The isolates were also related to used contraceptives, copper-T contraceptives and combined oral contraceptives 41.5% was the most common methods used by recurrent vaginitis patients while the male condom contraceptives users had lower cure (26.5%). The distribution of vaginal candidiasis according antibiotic using was highest in women take antibiotic with 64.4% of the total 200 cases, while the women don't take antibiotic was recorded lowest occurrence (35.5%). The result shows that *Candida* species has assumed the role of the most common cause of vaginitis, with *Candida albicans* as the most prevalent species. vaginal candidiasis was common in the young adults o age range of 26-35 years, contraceptive , broad spectrum antibiotic users ,other diseases and operation .We therefore recommend prevention, early diagnosis and prompt treatment of vaginal candidiasis especially among the risk groups in order to avert its complications.

Introduction

Vaginal candidiasis is a kind of vaginal mucosis infection which is caused by *Candida species* . During fertile period, it is one of the most common vaginal infections in women, and most frequent as well as most important fungal disease of vaginal content⁽¹⁾. *Candida spp.* are genus of yeasts and are the most common cause of fungal infections worldwide.⁽²⁾ Many species are harmless commensals or endosymbionts of hosts including humans; however, when mucosal barriers are disrupted or the immune system is compromised they can invade and cause disease.⁽³⁾ *Candida albicans* is an opportunistic fungal pathogen, this dimorphic yeast is a commensal that colonizes in the human skin, gastrointestinal tract and the female lower genital tract⁽⁴⁾. It is a unique parasite capable of colonizing, infecting, and persisting on mucosal surfaces, and also of stimulating mucosal responses. As a pathogen *C. albicans* is associated with a wide spectrum of diseases in humans, ranging from allergy, severe intractable mucocutaneous diseases, to life-threatening bloodstream infections⁽⁴⁾ Non-*C. albicans* species are emerging pathogens and can also colonize human mucocutaneous surfaces⁽⁵⁾. Consequently, they are also isolated in the setting of candidiasis, albeit at a lower frequency. Candidal infections are significant clinical problem for a variety of immunocompetent and immunocompromised patients^(4,6). The pathogenesis and prognosis of

candidial infections are affected by the host immune status and also differ greatly according to disease presentations. Therefore, diagnosis, management, and treatment choices vary and need to be considered in the overall setting of the affected human host⁽⁷⁾.

Aim of Study:

1. The aim of this study was to determine the frequency of *Candida species* isolated from women with vaginitis in azadi hospital and some privet clinical in Kirkuk city.
2. Determine related infection according to age, contraceptives, antibiotics, diseases clinic and impotent.

Materials and Methods

Patients

The study was conducted on 200 female patients attending the Obstetrics and Gynecological Clinic of Azadi Hospital and some privet clinical, In Kirkuk city, from May 2014 to April 2015. All women were complaining of symptoms of vaginitis (Discharge that looks like cottage cheese, Itching, pruritus, redness and burning (especially during urination) .After careful history taking. Information about age, Women with severe medical disorders, taking oral contraceptive pills, had taken a course of antibiotics or corticosteroids within the preceding 7 days or had vaginal douching during the previous 48 hours were excluded. Written informed consent was obtained from each participant.

Sampling

The patient was placed in lithotomy position and vaginal exposure was done through introduction of a non-lubricated sterile Cusco speculum. Double high vaginal swabs (HVS) were collected using sterile cotton tipped swabs and they were sent to the laboratory without delay.

Microscopic examination

One swab sample was examined microscopically (40x) after 10% KOH preparation to detect the presence of budding yeast cells and pseudohyphae of *Candida species*. For yeast isolation, the other swab sample was inoculated on Sabouraud's dextrose agar (SDA) supplemented with 0.05g/ L Chloramphenicol and CHROMagar Candida to detection of mixed infections with more than one species of *Candida*. After 48 hours incubation at 37°C, cultures were examined for pasty, creamy and smooth white colonies of yeasts which were further identified.

Using the formula = $O/P \times 100$

where: O = The number of individuals with the disease.

P = Total number of individuals in the population involved in the study at the study period.

Yeast identification

Yeast identification was done to each positive growth on SDA as follows:

a) Cultivation on the selective medium (CHROMagar Candida)

CHROMagar Candida is a selective fungal medium that includes chromogenic substances allowing for quick identification of several different *Candida spp.* It can be used for identification of individual non-albicans species, as well as *C. albicans*, if germ tube test was not characteristic. After incubation for (48 hours at 37°C) identification of yeast was performed based on a colony colour. Using this method, we were able to identify the following individual nonalbicans species: *C. glabrata* (dark pink colonies,

wet), *C. tropicalis* (blue colonies, wet), *C. krusei* (light pink colonies, dry), and *C. albicans* (green colonies, wet), which also facilitates the detection of mixed infections with more than one species of *Candida*^(8,9). The method is based on the differential release of chromogenic breakdown products from various substrates by *Candida* species following differential exoenzyme activity⁽¹⁰⁾.

Germ Tube Test⁽¹⁰⁾

Chlamydospores Formation Test⁽¹⁰⁾

RapID Yeast Plus System

The Rap ID Yeast Plus System“ Remel Co. USA” consists of 18 wells containing the following tests: utilization of glucose, maltose, sucrose, trehalose, and raffinose; hydrolysis of fatty acid ester; *p*-nitrophenyl-*N*-acetyl-b, D-galactosaminide; *p*-nitrophenyl-a, D-glucoside; *p*-nitrophenyl-b, D-glucoside; *o*-nitrophenyl-b, D-galactoside, *p*-nitrophenyl-a, D-galactoside; *p*-nitrophenyl-b, D-fucoside; *p*-nitrophenyl phosphate; *p*-nitrophenyl phosphorylcholine; urea; proline b-naphthylamide; histidine b-naphthylamide; and leucylglycyl b-naphthylamide. Procedure for Panels were inoculated according to the manufacturer's instructions RapID Yeast Plus System is a qualitative micromethod that uses conventional and chromogenic substrates for identification of medically important yeasts, yeast-like fungi, and similar organisms isolated from human clinical specimens⁽¹¹⁾

Result and Discussion

Results of microscopic examination from total number samples of test 25.5% (51/200) showed positive using the microscopic examination, while 74.5% (149/200) of microscopic findings were determined as negative, negative microscopic findings (Figure1) were more than positive microscopic examination.

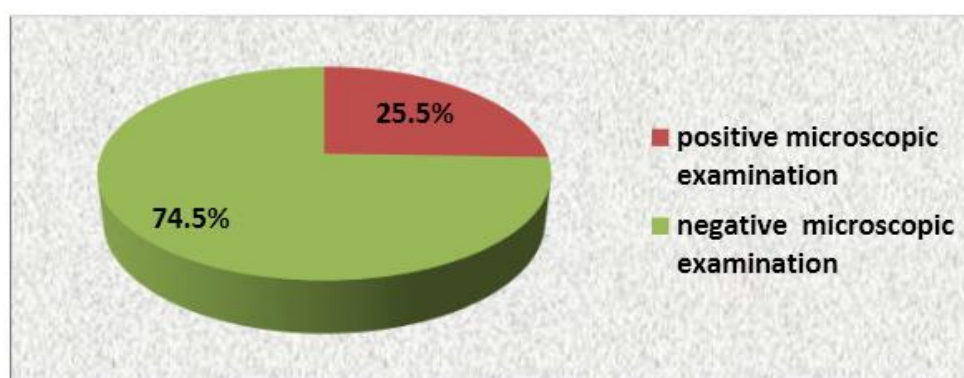


Figure 1: The results of microscopic examination from total number samples

Results of culture isolation

Two hundred (200) of women with symptoms of vaginal candidiasis visiting the antenatal Gynecological Clinic of Azadi Hospital, participated in this study. The results growth of *Candida* species on Sabourauds agar and CHRO Magar Candida

showed 28.5% (57/200) positive cultures and 71.5% (143/200) negative cultures tested for vaginal candidiasis infection in the laboratory as shown in Figure 2. This finding is agree with studies recorded in Baghdad AL-Hachami ,(2001)⁽¹²⁾. The high

prevalence of vaginal candidiasis among women may be due to inadequate knowledge, poor personal hygiene, limited diagnostic facilities, poor dietary habits, shortage of effective treatment, increased

levels of estrogens and corticoids, wearing of tight-fitting synthetic underclothing, prolonged use of antibiotics which kill the good and beneficial bacteria (13, 14) .

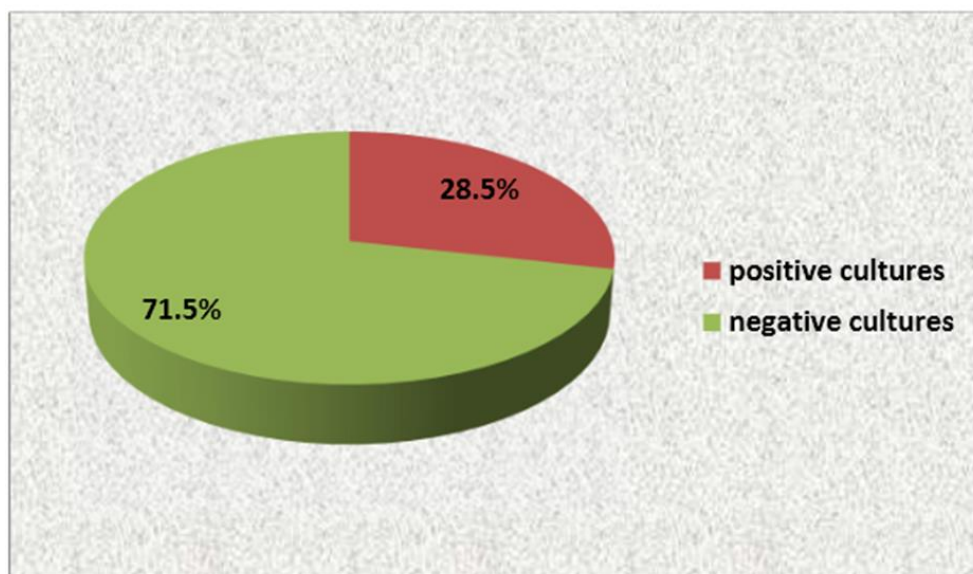


Figure 2: The results of *Candida* species growth on Sabourauds agar and CHROMagar

Etiological agent that isolated in this study:

C. albicans :

The colore colonies of *C. albicans* cultures on Sabourauds (SDA) agar Colonies was white to cream smooth, glabrous, on CHROMagar colonies was green, wet Figure 3. Microscopic examination

Spherical to sub spherical budding blastoconidia Figure 4. Germ tube positive Figure 5. Dalmau Plate Culture on Cornmeal and Tween 80 Agar: branched pseudo hyphae with dense blastoconidia. Spherical chlamydospores, mostly terminal Figure 6,7.

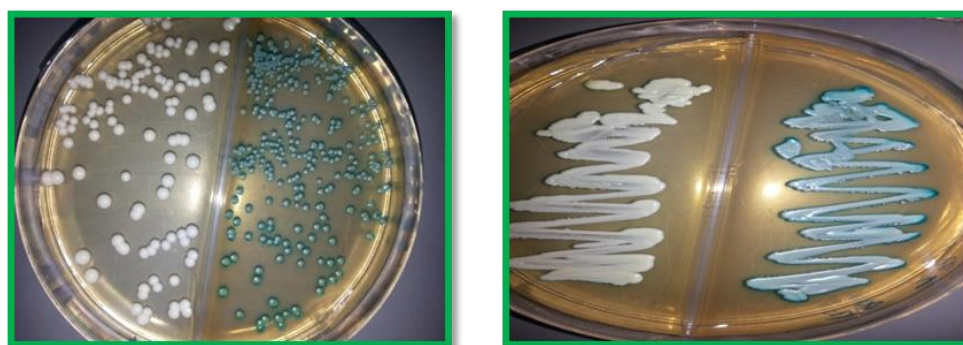


Figure 3 :*C.albicans* on Sabourauds (SDA) agar and CHROMagar

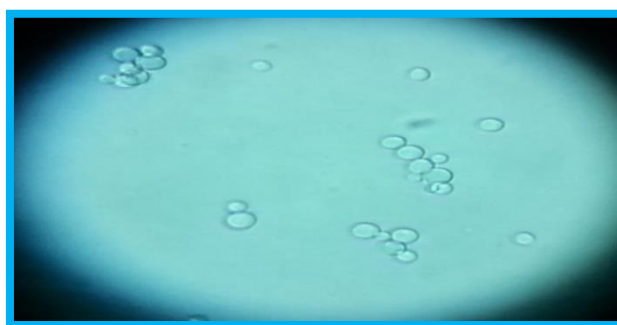


Figure 4: Microscopy of *C.albicans* showing Budding and yeast cells (400x).

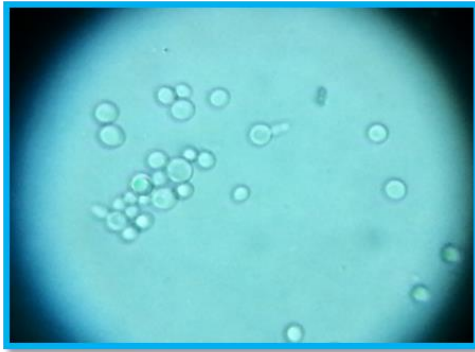


Figure 5 : Germ tube of *Candida albicans* after three hours incubation.

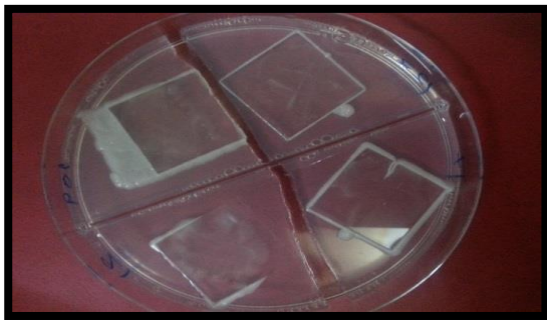
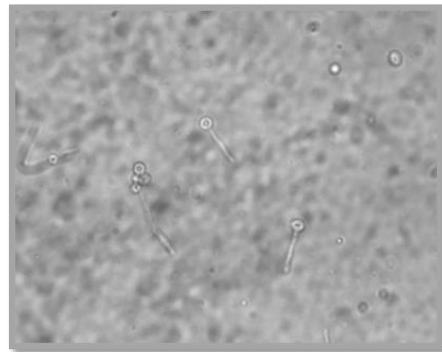


Figure 6 : Dalmau Plate Culture on Cornmeal and Tween 80 Agar

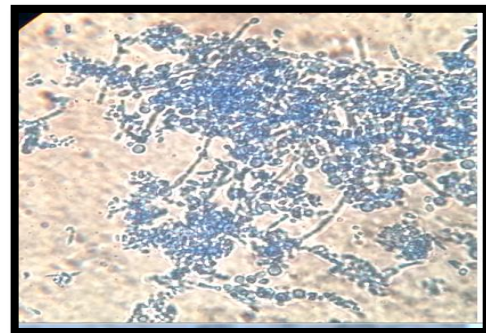


Figure 7: *Candida albicans* on Cornmeal agar showing branched pseudo hyphae and chlamydospores

C. glabrata :

The colonies of *C. glabrata* cultures on Sabourauds (SDA) agar colonies was small, white, shiny and smooth, on CHROMagar colonies was dark pink colonies, wet Figure 8, microscopic examination

small, raised, smooth with an entire periphery Figure 9 ; Dalmau Plate Culture on Cornmeal and Tween 80 Agar: negative. Spherical chlamydospores, mostly terminal. Germ tube negative.

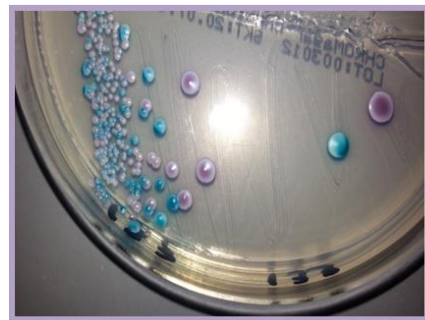
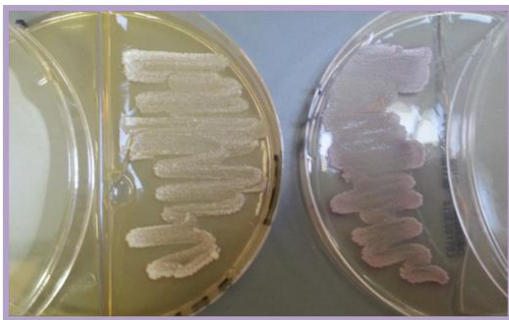


Figure 8 : *C. glabrata* on Sabourauds (SDA) agar and CHROMagar and showing mixed infections with more than one species of *Candida*

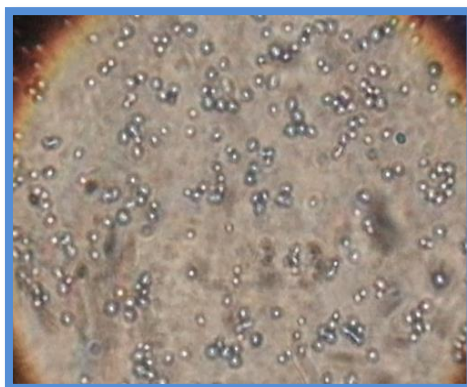


Figure 9 : Microscopy of *C. glabrata* showing yeast cells (400x).

***C. krusei* :**

The colonies of *C. krusei* cultures on Sabourauds (SDA) agar colonies was flat, dry, spreading ,ground-glass appearance; variants dull and no separated, glabrous, on CHROMagar colonies was light pink

colonies, dry Figure 10. microscopic examination Large, flat, dry with a delicate feathery periphery Figure 11. Dalmau Plate Culture on Cornmeal and Tween 80 Agar: negative . Germ tube negative.

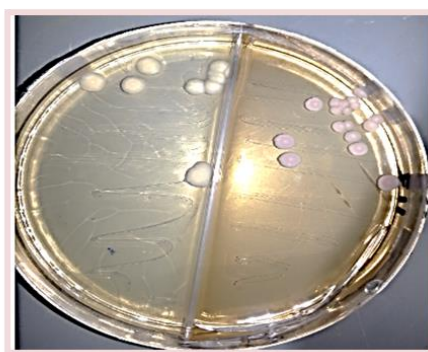


Figure 10 : *C. krusei* on Sabourauds (SDA) agar and CHROMagar

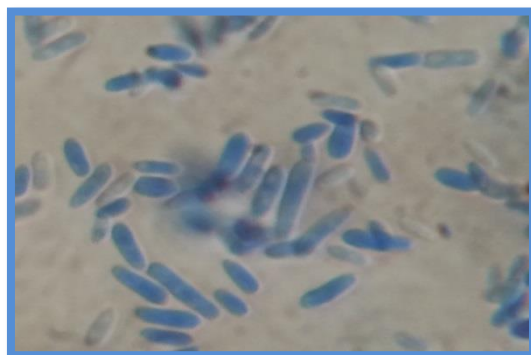


Figure 11 : Microscopy of *C. krusei* showing yeast cells (400x).

***C. kefyr* :**

The colonies of *C. kefyr* cultures on Sabourauds (SDA) agar colonies was white to cream colored smooth, glabrous, on CHROMagar colonies was

white, wet Figure 12. microscopic examination spherical to sub spherical budding blastoconidia Figure 13. Dalmau Plate culture on Cornmeal and Tween 80 Agar: negative. Germ tube negative.

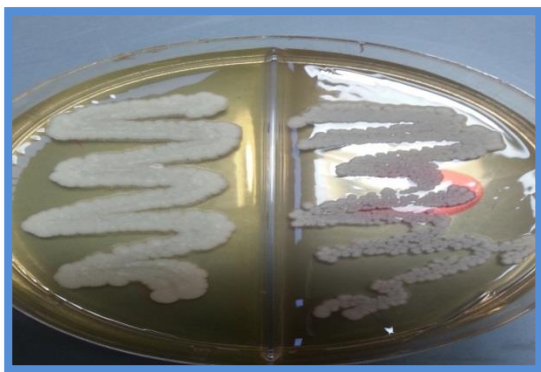


Figure 12 : *C. kefyr* on Sabourauds (SDA) agar and CHROMagar

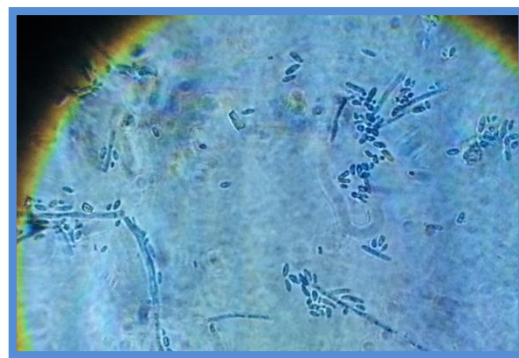


Figure 13 : Microscopy of *C. kefyr* showing yeast cells (400x).

Distribution frequency of isolates in vaginal infection

Four *Candida* species were isolated from the women, namely, *C. albicans*, *C. glabrata*, *C. krusei* and *C. kefyr* with percentage occurrence of 23%, 2%, 1.5%, and 0.5% respectively as well as isolated *Cryptococcus lorynti* 1.5%. *C. albicans* had the highest occurrence *C. glabrata* found next after *C. albicans* with 1.5%, *C. krusei* and *C. kefyr* in this study which is comparable with the reports of ^(15, 16). (Fig. 14). This is similar to the reports of Shivan and Saldanha 2011 ⁽¹⁷⁾ in India and Rad *et al.* 2012 ⁽¹⁸⁾ in Iran. The high occurrence rate (23%) of *C. albicans* observed in this study is an indication that it is a leading causative agent of the reproductive tract yeast infections in women of child bearing age as also observed⁽¹⁹⁾. These results are comparable to

Kalkanci *et al.* 2012⁽²⁰⁾, who reported similar results. This may be due to its virulent factors which include dimorphism and phenotypic switching. *Candida albicans* produces protease and phosphatase which enhance its attachment to human epithelium. It can also be deduced that the high incidence rate of *C. albicans* could be due to increased physiological changes, estrogen and rich glycogen content of the vaginal mucosa thereby providing an adequate supply of utilizable sugar that favor its growth during pregnancy⁽²¹⁾. However, Wise *et al.* 2007⁽²¹⁾, and Trofa *et al.* 2008⁽²²⁾, reported a low occurrence of *C. albicans* in New York. The low occurrence of *C. albicans* reported by Wise *et al.* 2007⁽²¹⁾, and Trofa *et al.* 2008⁽²²⁾ may be as a result of good personal hygiene, appropriate nutrition, adequate diagnostic facilities and treatment..

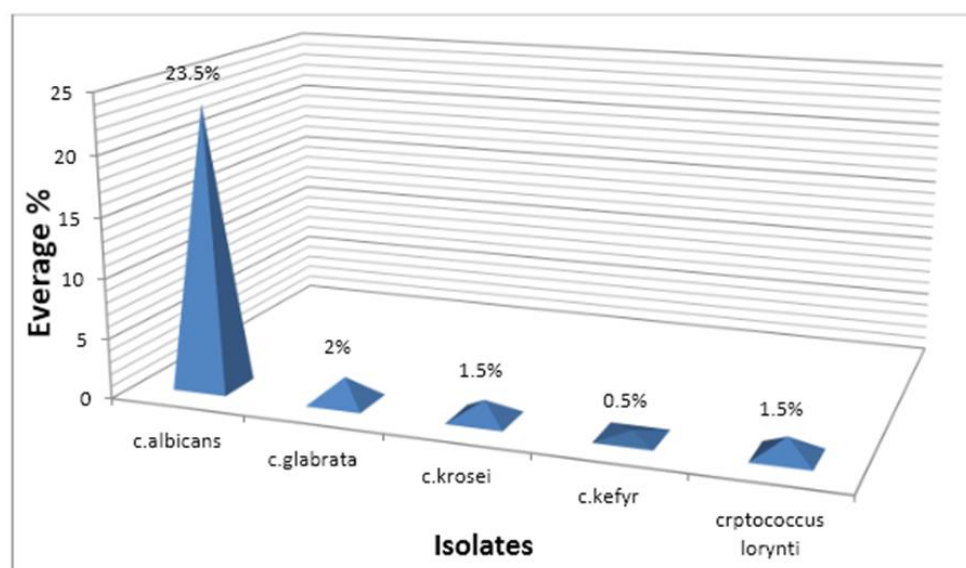


Figure 14: Distribution frequency of isolates in vaginal infection

Relation of Infection Cases with Age Groups

In this study, 200 patients with recurrent vaginal candidiasis were arranged according to the age groups of the patients ranging from 15-80 years. In the age range 15-25 years, only 49 (24.5%) *Candida* species were detected. The highest occurrence of

vaginal candidiasis 70 (35%) was recorded between ages 26-35 followed by ages 36-45 with percentage occurrence of 29.5% while the lowest occurrence (2%) was recorded between age group 56-80 (Fig. 15). Predominance of candidiasis in the study was in the age group 26-35. The age decade of 26-35 is the

most sexually active age group with highest risk of pregnancies, indulgence in family planning pills and immunosuppression due to HIV/AIDS. The inflammation of the vagina, as in any inflammatory STI (sexually transmitted infections), increases the risk of acquisition of HIV⁽²³⁾. The highest prevalence of vaginal infections in this study was noted among

the age groups 26-35 years followed by 36-45 age group. This report agreed with⁽²⁴⁾, which reported a peak vaginal infections between age group 20 and 40. This may be due to high sexual activity, poor personal hygiene, the use of contraceptives and drug abuse among this age group.

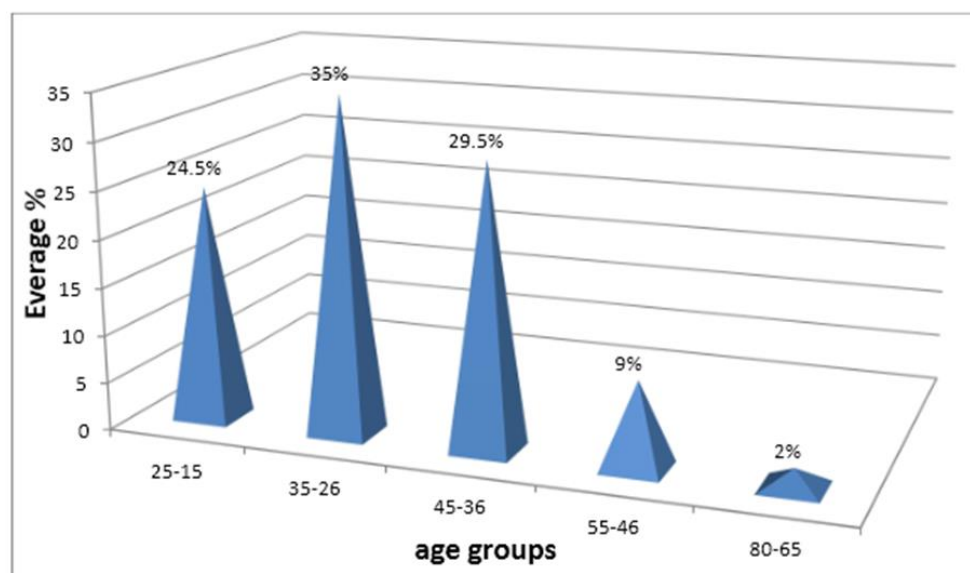


Figure 15: Relation of Infection Cases with Age Groups

Relation of Infection Cases with contraceptive

The results of study showed that the women used copper-T contraceptives and combined oral contraceptives pill users the highest occurrence of vaginal candidiasis was calculated to give the percentage prevalence (41.5%) was recorded, followed by no contraceptives prevalence (32%). While the male condom contraceptives users had lower cure (26.5%), as shown in Figure 16. In this study, more number of women with copper-T contraceptives users and combined oral contraceptives pill users had vaginitis followed by no contraceptive users. This finding suggests that barrier contraception such as copper-T contraceptives and combined oral contraceptives pill has role in recurrent vaginitis. The findings from the present study partly agrees with findings from similar studies in: Indian⁽²⁵⁾ contraceptives (34%) were the most common methods used by recurrent vaginitis cases. Male

condom users were found in (22%) cases and others (copper-T users and combined OC pill users) in (5.2%). Diddle *et al.* 1969⁽²⁶⁾ showed had study the incidence of yeast infection was more common in women given the oral contraceptive pills for year or more than among either women not given the pills or those taking the pills for less than 1 year. Group using male condom as method of contraception also showed recurrent vaginitis in this study. Unhygienic factors may be possible explanation for this category. Counselling about good hygiene and proper menstrual care may help in prevention of recurrent vaginitis in this group. In India, National AIDS Control Programme was launched in 1987, and started promoting condom for prevention of AIDS and STDs. Hence use of male condom should be promoted in recurrent vaginitis cases even if they are sterilized⁽²⁷⁾.

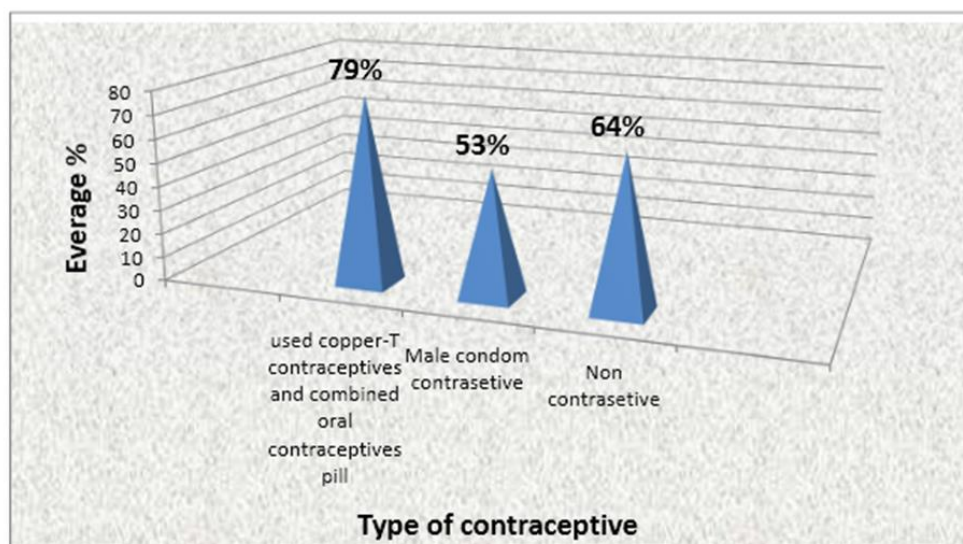


Figure 16: Relation of Infection Cases with contraceptive

Relation of Infection Cases with Antibiotic

The results of Figure 17 showed that the women used antibiotic have the highest occurrence of vaginal candidiasis was calculated to give the percentage prevalence 64.4% was recorded, while the women don't take antibiotic was recorded lowest occurrence (35.5%). The findings from the present study partly agrees with findings from similar study Pirotta *et al*, his reported increased *Candida* colonization from 21% at baseline to 37% 2 weeks after antibiotics, and 23% of women developed symptomatic VVC after antibiotics, similar to our findings. However, none of these studies included a nonantibiotic group for comparison. Broad spectrum antibiotic users posed a risk to vaginal candidiasis in the study. Antibiotics and vaginal douching suppress normal bacterial flora and allow *Candida* organisms to proliferate. Of interest is that sulfonamide decrease neutrophil intracellular killing of *Candida* organisms, and

tetracyclines and amino glycosides have been shown to decrease neutrophil phagocytosis⁽²⁸⁾. Antibiotics alter the bacterial microflora of the vaginal and gastrointestinal tracts and thus allow for overgrowth of *Candida spp*. After antibiotic use, the increase in vaginal colonization with *Candida spp*, mostly *C. albicans*, is estimated to range from 10 to 30%, and VVC occurs in 28 to 33% of cases⁽²⁹⁾. It is commonly hypothesized that the reduction of lactobacilli in the vaginal tract predisposes women to VVC. Lactobacilli play a key role in the vaginal flora through the production of hydrogen peroxide, bacteriocins, and lactic acid, which protect against invasion or overgrowth of pathogenic species⁽³⁰⁾. However, studies have failed to provide evidence that an altered or abnormal vaginal bacterial flora predisposes women to recurrent episodes of VVC in the absence of antibiotic intake^(1, 31).

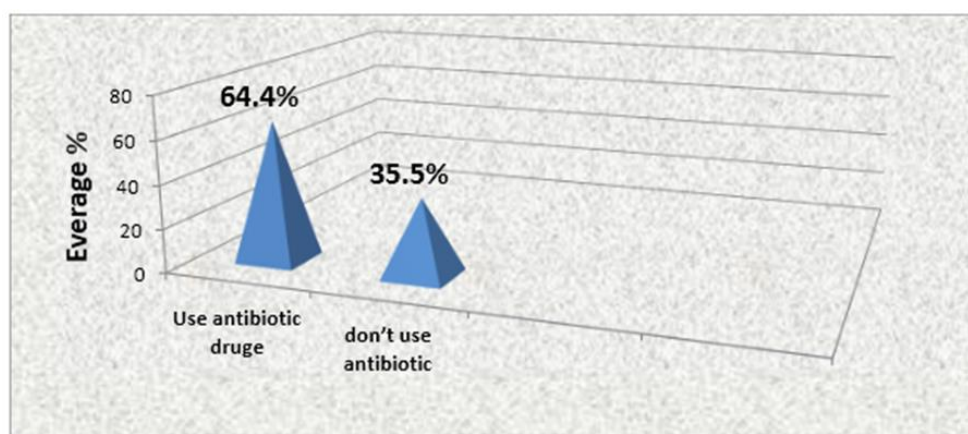


Figure 17: Relation of Infection Cases with Antibiotic

Relation of Infection Cases with other diseases

The highest rate (76 %) of vaginal candidiasis was found in women have other diseases such as diabetes mellitus, thyroid gland diseases, allergy and ulcer

, while the lowest occurrence (24%) was recorded in women do not suffer from any diseases as shown in Figure 18. vaginal candidiasis VC is both treatable and mild, when left untreated, is a possible risk for

acquisition of HIV/AIDS as well as other complications include pelvic inflammatory disease, infertility, ectopic pregnancy, pelvic abscess, menstrual disorders, spontaneous abortion and premature birth. It is now well established that the presence of infective vaginal discharge greatly facilitates transmission and acquisition of HIV between sexual partners^(32,33). *Candida* species e.g. *C. albicans* outgrows other friendly organisms in the genital tract, it disrupts the balance in the host as a

result of response to the changes in the environment and becomes disease-causing pathogen⁽³⁴⁾. This immune imbalance is caused by a number of factors, such as excess stress, allergies, indiscriminate use of antibiotics, steroids, birth control pills and hormonal drugs and nutrient deficiency^(35,36). Diabetes mellitus, pregnancy, and the use of tight nylon underwear also enhance overgrowth of *Candida* in a manner that cannot easily be controlled by the body's defence mechanisms⁽³⁵⁾.

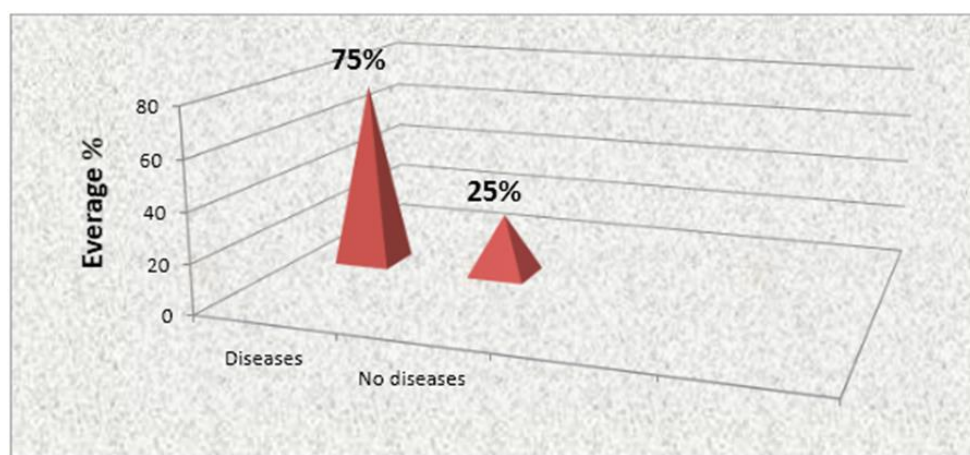


Figure 18: Relation of Infection Cases with other diseases

conclusion

1- The result shows that *Candida* species has assumed the role of the most common cause of vaginitis, with *C. albicans* as the most prevalent species. Vaginal candidiasis was common in young adults of age range 26 to 35 years, contraceptive and broad spectrum antibiotic users.

References

1. Sobel, J. D., and W. Chaim. (1996). Vaginal microbiology of women with acute recurrent vulvovaginal candidiasis. *J. Clin. Microbiol.* 34: 2497–2499.
2. Manolakaki, D., Velmahos, G., Kourkoumpetis, T., Chang, Y., Alam, H. B., De Moya, M. M., & Mylonakis, E. (2010). *Candida* infection and colonization among trauma patients. *Virulence*, 1(5), 367–375.
3. Kourkoumpetis, Themistoklis K. (2011) "The effect of cumulative length of hospital stay on the antifungal resistance of *Candida* strains isolated from critically ill surgical patients." *Mycopathologia* 171.2: 85–91.
4. Odds FC. (1989) *Candida* and *Candidosis* 2d ed. London: Baillie`re-Tindall, pp 68–92.
5. Sobel, J. D. (2006). The emergence of non-*albicans* *Candida* species as causes of invasive candidiasis and candidemia. *Curr. Infect. Dis. Rep.* 8:427–433.
6. Walsh, T.J. Hiemenz JW. , Anaissie EJ . (1996) Recent progress and current problems in treatment of invasive fungal infections in neutropenic patients. *Infect Dis Clin North Am* 10:365–400.
7. Sobel, J. D., S. Faro, R. W. Force, B. Foxman, W. J. Ledger, P. R. Nyirjesy, B. D. Reed, and P. R. Summers. (1998). Vulvovaginal *candidiasis*: epidemiologic, diagnostic, and therapeutic considerations. *Am. J. Obstet. Gynecol.* 178:203–211.
8. Odds, F. C., and R. Bernaerts. 1994. CHROM agar *Candida*, a new differential isolation medium for presumptive identification of clinically important *Candida* species. *J. Clin. Microbiol.* 32:1923–1929.
9. Pfaller, M. A., A. Houston, and S. Coffmann. 1996. Application of CHROMagar *Candida* for rapid screening of clinical specimens for *Candida albicans*, *Candida tropicalis*, *Candida krusei*, and *Candida (Torulopsis) glabrata*. *J. Clin. Microbiol.* 34:58–61.
10. Baker, F.(1967) "Handbook of Bacteriological Technique," 2nd Edition, Butterworth Co. Ltd., London, , pp. 415- 421.
11. Tasna T, Kitch L, Michael R. (1996). Ability of RapID Yeast Plus System To Identify 304 Clinically Significant Yeasts within 5 Hours,. *J Clin Microbiol.* May;34: 1069–1071 .

11. AL-Hachami SH.N. (2004) Isolation and Diagnosis *candida albicans* from vaginal and Study of Virulence Factors and sensitivity to Antifungal Agents .A thesis ,College of Education (Ibn AL-Haitham) ,University of Baghdad .
12. Mikolajczyk K, Zimmer M, Tomialowicz M, Fuchs T. (2006) Mikologia Lekarska;13 (3): 175-179.
13. Limia OF, Lantero DMI. (2004) . Medscape Geral Medicine;6(4): 50.
14. Esmaeilzadeh S, Omran SM, Rahmani Z. (2009) Intl J Fertility Sterility;3 (2): 74-77.
15. Jombo GTA, Akpera MT, Hemba SH, Eyong KI. (2011) African J Cli Exp Microbiol;12(1): 32- 37.
16. Shivan D, Saldanha DRM. J. (2011) Clin Diagnostic Res;5(6): 1177-1181.
17. Rad MM, Zafarghand ASH, Zabihi MA, Tavallae M, Mirdamadi Y. (2012) Inf Dis Obs Gynecol;1-5.
18. Isibor JO, Samuel SO, Nwahan CI, Amanre IN, Igbinovia O, Akhile AO. (2011) African J Microbiol Res;5(20): 3126-3130.
19. Kalkanci A, Güzel AB, Israa Ibrahim Jabban Khalil I I J, Aydin M, Ilkit M & Kuştimur S. (2012) Yeast vaginitis during pregnancy: susceptibility testing of 13 antifungal drugs and boric acid and the detection of four virulence factors Medical Mycology August; 50(6): 585-593.
20. Wise MG, Healy M, Reece K, Smith R, Walton D, Dutch W, Renwick A, Huong J, Young S, Tarrand J, Kontoyiannis D. J. (2007) Med Microbiol;56 (6): 778-787.
21. Trofa D, Gácsér A, Nosanchuk JD. (2008) Clin Microbiol Rev;21 (4):606–625.
22. Kenneth OB. (2003). STDs/HIV/AIDS - Challenge of next millennium. Nigeria. J. Genitourinary Med., 18: 18-30.
23. Willacy H, Jackson C. (2011). Vaginal and Vulval Candidiasis. Online at Patient. co.uk/ doctor/ Vaginal- and- Vulval-Candidiasis.htm.
24. Thulkar, J.; Kriplani, A.; Agarwal, N. and Vishnubhatla, S. (2010) . Aetiology & risk factors of recurrent vaginitis & its association with various contraceptive methods. Indian . J. Med Res 131, pp 83-87.
25. Diddle, A.W.; William, H.; Perry, J. and Kenneth, A. (1969) Oral contraceptive Medication and Vulvovaginal Candidiasis ,Vol.34 ,No. 3.
26. Diddle A.W , William H., Williamson J. and Kenneth A. (1967). Oral Contraceptive Medication and Vulvovaginal Candidiasis. Editorial . Contraceptive pill .New Eng J Med, 276:239
27. John EE. (2000). Mycosis. In: Mandell G L, Bennett J E, Dollin R ,(editors) Textbook of Principles and Practice of Infectious diseases. 5th Ed. New York: Churchill Livingstone, pp. 2291.
28. Sobel, J. D. (2007). Vulvovaginal candidosis. Lancet 369:1961–1971.
29. Ronnqvist, P. D., Forsgren-Brusk, U. B. and Grahn-Hakansson E. E. (2006). Lactobacilli in the female genital tract in relation to other genital microbes and vaginal pH. Acta Obstet. Gynecol. Scand. 85:726–735.
30. Vitali, B., C. Pugliese, E. Biagi, M. Candela, S. Turroni, G. Bellen, G. G. G. Donders, and P. Brigid. (2007). Dynamics of vaginal bacterial communities in women developing bacterial vaginosis, candidiasis, or no infection, analyzed by PCR-denaturing gradient gel electrophoresis and real-time PCR. Appl. Environ. Microbiol. 73:5731–5741.
31. Federal Ministry of Health (FMOH) (2005). A manual of technical report on the National HIV/Syphilis sentinel survey among pregnant women attending Antenatal clinics in Nigeria. Abuja. Nigeria. pp. 1-11.
32. Abebe EA, Olumide M., Oke O. (2001). A manual for Health workers on Syndromic Management of STI. National AIDS and STD control program; Federal Ministry of Health Abuja. pp. 3-7.
33. Saigal S, Bhargava A, Mehra SK, Dakwala F. (2011) Contemporary Clinical Dentistry; 2(3): 188–193.
34. Giraldo PC, Araújo ED, Junior JE, Amaral RLG, Passos MRL, Gonçalves AK. (2012) . Inf Dis Obs Gynecol;1-4.
35. Williams OT, Joy OA, Ugongal NP, Chukwuemeka IJ, Kester UE. (2012) International Journal of Pharmaceutical Research and Development;4(3):323-331.

انتشار داء المبيضات بين النساء وتشخيص انواع المبيضات في الاصابات المهبلية في مدينة كركوك

بري لطيف محمد¹ ، خليل ابراهيم بندر² ، ذكرى احمد حمادة³

¹ قسم علوم الحياة ، كلية العلوم ، جامعة كركوك ، كركوك ، العراق

² قسم علوم الحياة ، كلية العلوم ، جامعة تكريت ، تكريت ، العراق

³ كلية الطب ، جامعة تكريت ، تكريت ، العراق

الملخص

يعتبر داء المبيضات المهبلية من اكثر المشاكل شيوعا بين النساء في مختلف الفئات العمرية سواء كانت نشطة او غير نشطة جنسيا . وقد تكون الاصابة شديدة او معتدلة عندما تترك بدون علاج . اعدت الدراسة الحالية للكشف عن انتشار المبيضات في مهبل النساء . وتم جمع المسحات المهبلية من النساء اللواتي يراجعنا الاستشارية النسائية في مستشفى الازادي التعليمي وبعض العيادات الخارجية في مدينة كركوك . وقد جمعت 200 مسحة من النساء في الفترة من شباط 2014 ولغاية نيسان 2015 واجريت لها الاختبار المجهرى المباشر والزرع على الاوساط الخاصة , وتم جمع المعلومات من كل مريضة في قائمة استبيان خاصة معدة للدراسة . وظهرت نتائج الزرع على الاوساط الزرعية بنسبة 28.5 % (57) من المجموع الكلي 200 مسحة . وتم عزل اربعة انواع من المبيضات منها *C. albicans* , *C. glabrata* , *C. krusei* و *C. kefyr* بالإضافة الى عزلة *Cryptococcus lorynti* بنسبة 23% , 2% , 1.5% , 5% و 1.5% على التوالي . اما بالنسبة لعلاقة الاصابة بالعمر سجلت اعلى نسبة في الفئة العمرية الواقعة بين 26-35 سنة (35%) ويتبعه الفئة العمرية 36-45 سنة وبنسبة (29.5%) وسجلت اقل نسبة اصابة في الفئة العمرية الواقعة بين 56-88 سنة وبنسبة (2%) . وظهرت علاقة الاصابة بموانع الحمل بان النساء اللواتي يستعملن اللولب وحبوب لمنع الحمل هم اكثر عرضة للمبيضات والتي كانت بنسبة (41.5%) وسجلت اقل نسبة في النساء اللواتي تعتمدن اى موانع الحمل الذكورية والتي كانت بنسبة (26.5%). وبالنسبة لتوزيع اصابة داء المبيضات اعتمادا على تناول المضادات الحيوية للنساء حيث سجلت اعلى نسبة اصابة وهي (64.5%) في النساء اللواتي يتناولن المضادات الحيوية وسجلت اقل نسبة اصابة وهي (35.5%) في النساء اللواتي لم يتناولن المضادات الحيوية . اظهرت نتائج الدراسة بان انواع المبيضات تكون اكثر شيوعا في التهابات المهبلية ويعتبر خميرة *C. albicans* اكثر انتشارا بين الانواع الاخر . وداء المبيضات المهبلية تكون اكثر شيوعا بين النساء اللواتي تقع اعمارهم بين (26-35) سنة وبين اللواتي يستخدمن موانع الحمل والمضادات الحيوية او يعانين من امراض اخرى واللواتي اجريت لهن عمليات جراحية . ونوصي بالوقاية والتشخيص المبكر والعلاج الفوري من داء المبيضات وخاصة بين الفئات المعرضة للخطر من أجل تجنب مضاعفاته .