R E S U L T S

This study was conducted on 120 females (45 pregnant and 55 non-pregnant) in the fertile period of life (25-45 years). They were attending Benha University Hospital gynaecological out patients clinic seeking advice for recurrent vaginal discharge and vaginitis. In addition twenty healthy women of same age group served as control group. All cases and control were subjected to vaginal swabbing. Swabs were cultured directly on sabouraud's dextrose plates. Only 80 women (40 pregnant and 40 non-pregnant) out of 100 women showed growth on culture after 2-3 days of incubation at 37 C, the growth was confirmed to be Candida albicans by the chlamydospore formation and germ tube test.

It can be seen form table (1) that among the 45 pregnant female examined 40 (88.9%) gave a positive evidence for candidiasis by culture and 5 (11.1%) gave a negative evidence for candidiasis and among 55 non pregnant female examined 40 (72.7%) gave a positive evidence for candidiasis and 15 (27.3%) gave a negative evidence for candidiasis and among the 20 control female gave a negative evidence for candidiasis, this difference is statistically significant ($P < 0.05$).

As shown from table (2) the incidence of vaginal candidiasis is high in the age groups between 25 and 34 years among pregnant women (40%) and among non pregnant women (35-37.5%). Then it markedly decline with increasing age as it is 17.5% in age group between 35-39 years among both pregnant and non pregnant women and 2.5, 10% in between age group 40-45 years among pregnant and non pregnant women respectively.

As shown from table (3), recurrent vaginal candidiasis is most common among gravida (4-5) in both pregnant (50.0%) and non pregnant (42.5%), the disease among gravida (2-3) in pregnant (22.5%) and non pregnant (40.0%). While the disease among gravida 6-7 in pregnant (20.0%) and non-pregnant (7.5%). While the disease recorded in gravidity 8-9 in pregnant (5.0%) and non pregnant (5.0%). Lastly the disease among gravida 10 or more both pregnant (2.5%) and non pregnant (5%).

As shown from table (4) the percentage of the disease in the first trimester was (17.5%), in the second trimester was (30.0%) and is most common in the third trimester (51.5%).

It can be seen from table (5) the main presenting symptoms in recurrent vaginal candidiasis was vulval itching in pregnant (100%) and in non-pregnant (92.5%) followed by discharge in pregnant (62.5%) and in non-pregnant (67.5%), dyspareunia in pregnant (40%) and in non-pregnant (27.5%), sorness in pregnant (17.5%) and in non-pregnant (25.0%) lastly dysuria in pregnant (5%) and in non pregnant (15%).

It can be stated from table (6) the percentage of lymphocyte transformation to blast cell in recurrent vaginal Candidiasis was lowest during pregnancy (13.5%) compared to the non-pregnant women (48.4%) if compared with the healthy women as a control group (80.10%), this difference is statistically significant.

Table (1): Distribution of Recurrent Vaginal Candidiasis in pregnant, non-pregnant and control group by culture on sabouraud's dextrose agar.

Results / Cases	Pregnant No.	Pregnant %	Non-pregnant No.	Non-pregnant %	Control No.	Control %
Positive	40	88.9	40	72.7	0	0
Negative	5	11.1	15	27.3	20	100
Total	45	100.0	55	100.0	20	100.0

This table reveals that the positive culture for recurrent vaginal candidiasis was more common among pregnant women (88.9%) than the non-pregnant women (72.7%). This difference is statistically significant ($P < 0.01$).

Table (2): Distribution of cases of vaginal candidiasis according to age grouping.

Age gp.	Pregnant (n = 40) No.	%	Non-pregnant (n = 40) No.	%
25 - 29	16	40.0	15	37.5
30 - 34	16	40.0	14	35.0
35 - 39	7	17.5	7	17.5
40 - 45	1	2.5	4	10.0
Total	40	100	40	100

$P > 0.05$.

This table shows that the incidence of vaginal candidiasis is high in the age group between 25 and 34 years among both pregnant and non pregnant women and this is not statistically significant.

Table (3): Distribution of cases of recurrent vaginal candidiasis according to gravidity.

Gravidity Sub.gp	Pregnant (n = 40) No.	%	Non-pregnant (n = 40) No.	%
0 - 1	-	-	-	-
2 - 3	9	22.5	17	40
4 - 5	20	50.0	16	42.5
6 - 7	8	20.0	3	7.5
8 - 9	2	5.0	2	5.0
10 or more	1	2.5	2	5.0
Total	40	100	40	100

$P > 0.05$

This table reveals that the disease is most common among gravida 4-5 in both pregnant and non-pregnant women.

Table (4): Distribution of recurrent vaginal candidiasis in pregnant women according to duration of pregnancy.

First trimester		Second trimester		Third trimester	
No.	%	No.	%	No.	%
7	17.5	12	30	21	51.5

This table reveals that the disease is most common in the third trimester (51.5%).

Table (5): Incidence of presenting sympotoms of recurrent vaginal candidiasis among the studied group.

Symptoms	Itching		Discharge		Sorness		Dyspareunia		Dysuria	
Sub gp.	No.	%	No.	%	No.	%	No.	%	No.	%
Pregnant n = 40	40	100	25	62.5	7	17.5	16	40	2	5
Non-pregnant n = 40	37	92.5	27	67.5	10	25.0	11	27.5	6	15
P	>0.05		>0.05		>0.05		>0.05		>0.05	

This table reveals that the commonest symptoms of recurrent vaginal candidiasis was itching followed by discharge, dyspareunia, sorness, and dysuria.

Table (6): Lymphocyte transformation percentage in recurrent vaginal candidiasis in the studied groups.

Variable / Subgroup		Age (mean)	Gravidity (mean)	Frequency of recurrance (mean)	Blast cell % (mean)
Pregnant n = 40	X	31.11	4.7	4.55	13.5
	SD	4.11	1.77	0.84	6.95
Non-pregnant n = 40	X	32.15	4.22	4.67	48.4
	SD	4.94	2.00	1.24	7.78
Control n = 20	X	30.14	3.9	-	80.10
	SD	4.31	2.1		
P		>0.05	>0.05	>0.05	<0.001

This table shows that the percent of lymphocyte transformation to blast cell in recurrent vaginal candidiasis in pregnant women is (13.5%), non pregnant women (48.4%) and control (80%) and this also is illustrated in Fig. (1).

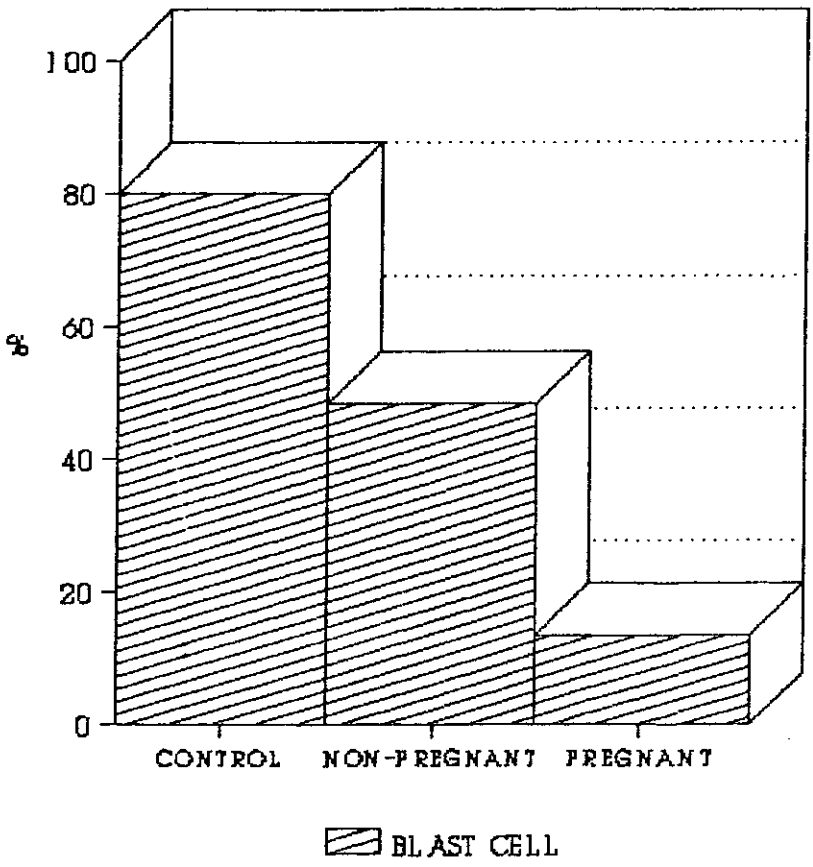

Fig. (1): Incidence of blast cells in the studies subgroups.

Fig. (2): Candida species culture on sabourauds agar.

Fig. (4): Germ tube formation.

Fig. (3): Chlamydospore formation.

Fig. (5): Lymphocyte blast transformation.

D I S C U S S I O N

Candida albicans has a wide distribution in the human being. It is found in the mouth, gastrointestinal tract, and the vagina of about 35% of normal healthy women. It is usually a commensal organism in normal individual (Hilton and Wornock, 1975).

Its pathogenicity depends on the condition of its environment. Many of the most common conditions which favour the development of Candida albicans in the vagina are well known, the most important are pregnancy, diabetes mellitus, antibiotic therapy, steroid therapy and the use of oral contraceptive pills (Catterrall, 1971).

Candida vaginitis is far more easily occurred in the pregnant than in the non pregnant women. This yeast like fungus has been isolated from 10-20% or more of culture of the vagina of normal non pregnant women and about twice as frequently from normal pregnant women (Editorials, 1971). In India it was also found that vaginal Candidiasis was twice as prevalent in pregnant women than in non-pregnant women, the incidence being (55%) and (26%) respectively (Nagesha and Ananthakrishna, 1970).

The present study was conducted on 100 women, suffering from vulvovaginitis [45 pregnant and 55 non-pregnant ranging in age from (25-45) years], out of these 80 cases, gave positive culture for candidiasis (40 cases were pregnant women, and 40 cases were non-pregnant and non pilluser women). Almost all patients had recurrent vaginitis with leukorrhea and or pruritis vulvae. Vaginal and vulvar finding varied from apparently normal to diffuse hyperemia of vagina and vulvar areas. Most of patient had a white crudy vaginal discharge. None of our cases had a history of diabetes or a history of antibiotics usage within the 10 days prior to the examination. Vaginal swabs were obtained from each case, cultured directly on sabourounds dexrose agar slopes. Candida albicans had been isolated by culture from the vagina of 40 out of 45 pregnant giving an incidence of (88.9%). While out of 55 cases non pregnant non pilluser 40 cases gave positive Candida albican culture with incidence of 72.7%. In addition twenty healthy women of same age group served as control group gave a negative evidence of Candidiasis.

Recurrent vaginal Candidiasis is more common among pregnant women than non pregnant. Pregnancy is a high risk factor for mycotic infection. Two explanation exist for this

fact, first is that estrogen from placenta, increases the glycogen deposition in the vaginal epithelium this increases vaginal acidity (lactic acid production) so, the growth of pathogenic bacteria diminishes (Peeters et al., 1972) leading to flourishing of fungal flora, second, cell mediated immunity is reduced in pregnant women to help in protecting the fetus from maternal immunologic rejection (David and Puritlo, 1975).

Regarding the distribution of Candida albicans in pregnant and non-pregnant by culture on sabouraud's dextrose agar, it was found that vaginal Candidiasis in pregnant is 88.9% and in non pregnant is 72.7% and this agrees with that reported by Hussein, (1986) who found that the incidence of vaginal candidiasis in pregnant (86%) and non-pregnnat (70%).

Analysis of age distribution in recurrent vaginal Candidasis in this study revealed that the disease was common among age group 25-34 years. This result agrees with that reported by Timonen et al. (1966). They found that, age distribution of the patients showed that this condition was most frequent in age group 28-35 years. However Oriel et al., (1972), Willmott, (1975) and Amin (1983) failed to show any age high risk groups for the disease.

Regarding the gravidity, the present study revealed that the recurrent vaginal Candidasis was common among gravida 4-5. This correlation with the high risk age group 25-34 years. Also, these finding agrees with that recorded by Clark and Solomons, (1970), they found that, in pregnant female, the infection was more common in multigravidae than in primigravidae. On the other hand Davis, (1972) and Amin, (1983) found that gravidity had no effect in the incidence of vaginal candidiasis.

The present study revealed that the disease was most common in the third trimester of pregnancy where it recorded (51.5%) in our patients, these result agrees with Eillot et al., (1972) whose studies recorded high incidence of the disease in the last trimester of pregnancy.

The main presenting symptom of recurrent vaginal Candidasis was itching, followed by discharge and dyspareunia and lastly sorness and dysurea. These data agrees with those reported by (Staven et al., 1977; Charles, 1980 and El-Nagar, 1984).

The present study recorded that the rate of lymphocyte transformation into blast cell was low in recurrent vaginal

Candidasis which recorded in pregnancy (13.5%) and in non-pregnant patient (48.4%) if compared to the control group (80.10%). The infectivity of Candida and most other fungi is thought to be suppressed predominantly by cellular immunity rather than circulating antibodies (Helgi et al., 1970). Candida infections are common among patients with severe defects in cellular immunity. Kirkpatrick et al. (1971) reviewed the immune status of patients with chronic mucocutaneous Candidiasis, all of those studied group had demonstrable anti-candida agglutinins and precipitins. However, circulating antibody was not protective (Reiss et al., 1974). Previous investigators have reported antibody to be of minimal or no significant role in resistance to fungal infections. A protective role of antibody to Candida albicans has been reported. However, it is generally accepted that host resistance to mycotic infection is mounted through cellualr responses. It was concluded that both CMI and innate defences were involved in host resistance to Candidiasis. Cellular immunity has been described as a process involving two cell types. Evidence presented by a number of investigators leads to the believe that cell-mediated immunity involves collaboration between "comitted lymphocytes and macrophages" (Hadfield and Stanley, 1982).

In an attempt to explain the mechanism by which recurrent vaginal Candidiasis cause inhibition of T-lymphocytes in such situation, Witkin, (1987) suggested that macrophages from susceptibe women with recurrent vulvo vaginal Candidiasis produce prostaglandin E2 which inhibits interleukin-2 production and thereby block lymphocyte proliferation. When lymphocyte responses are impaired, Candida albicans can readily proliferate and initiate a clinical infection.

From the above results and discussion the present study justifies:

1- Addition of prostaglandin inhibitors e.g. ibuprofen and indomethacin, to the treatment, will prevent macrophage form inhibiting T-lymphocyte proliferation (Witkin et al., 1986).

2- The patients were treated with azoles locally and lymphocyte stimulating pentapeptide thymopentin. The prolongation of disease-free intervals and a cure was mainly seen in the patients with low T-cell values before therapy (mendling and Koldovsky, 1989).