RESULTS

Seventy seven cases, attending the out-patient clinic of Benha University Hospital were the subject of this study. The cases were categorized into different groups which are shown in table (4). Mycotic investigation had been made, searshing for candida species, harbouring the vagina of those patients.

The percentage of candidal infection in different categories of the studied groups with typing of candida species is shown in table (5). The incidence of candidal infection diagnosed by the ordinary conventional laboratory methods: microscopy, culture, fermentation and assimilation was compared with the results of diagnosis by the new S.L.A. reagent used in this study (Table 7).

Results of the control groups :

The women of this group were 15 healthy women free from any apparent gynaecologic disease, not receiving treatment for a vaginal complaint, they were non pregnant or using any contraceptive method.

The mycotic study of this group revealed the isolation of candida species in one case only (6.7%) and typing showed that it was Candida albicans Table (4).

Results of women with leucorrhea :

These were 19 women, suffering from leucorrhea and 9 of them were complained of pruritis with the discharge, those (19) were suspected to have vaginal moniliasis. The results revealed isolation of candida species in 9 cases (47.4%). Candida albicans was the most common type of candida isolated [8 cases] (88.9%), while candida stelatoidae was detected in only one case (11.1%).

Results of pregnant women :

The eighteen (18) pregnant women revealed the isolation of candida from (eight) 8 cases (44.4%).

Six (6) in the first and third trimester, two (2) in the second trimester.

Typing of isolated candida (Table 5) revealed that Candida albicans was identified in all the 8 cases (100%).

Results of women taking contraceptive pills :

These were 13 women using the pills as contraceptive measure, 5 of them have no gynecological complaint, nonpregnant & not under any line of treatment and the other 8 complaining of pruritis and discharge.

Candida was isolated from 4 cases (30.8%) 3 cases were Candida albicans (75%) and the fourth one was Candida pseudotropicalis (25%).

Results of diabetic women :

They were 8 women proved to be diabetic. Candida was isolated in 3 cases (37.5%). From those, 2 cases revealed Candida albicans (66.7%) while the remaining one was candida glabrata (33.3%).

Results of women with prolonged antibiotic therapy or corticosteroid therapy :

These were 4 cases, from whom candida was isolated from 2 cases (50%) and in both of the two isolates was candida albicans (100%).

* The results obtained with the latex reagent are summarised in Table (7). Of the 77 vaginal swab tested, 27 (34%) were positive by microscopy and culture, and of these 24(88.9%) were also positive with the S.L.A. reagent, false negative results were obtained in 3 (11.1%) instances, but no false positive results were obtained.

The latex reagent had an excellent specificity (100%) and a predictive value of 100% positive. The sensitivity was(88.9%) giving a predictive value negative of(94.3%)and an overall efficiency of (96%).

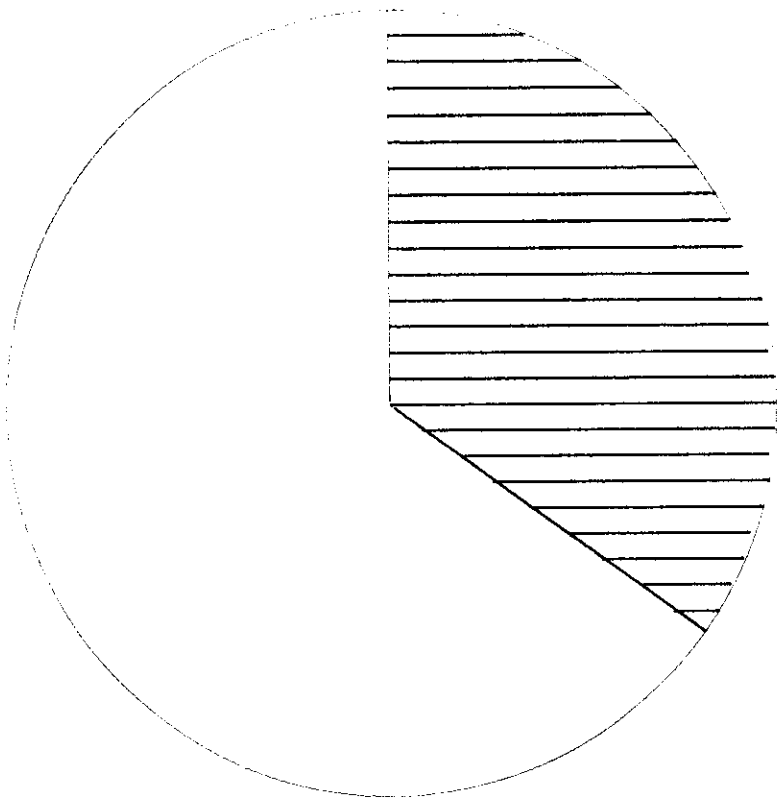

Fig. (6) : Percentage of total positive cases with conventional laboratory investigations in relation to the total sample number.

Total number = 77

+ve cases = 27 35%

-ve cases = 50 65%

Table (4) : Percentage of candidal infection in the different categories of the study.

Group	No. of Women (A)	No. of +ve cases(candida species and isolated) (B)	B/A %AGE
Women with leucorrhea	19	9	47.4
Pregnant women	18	8	44.4
Women taking oral contraceptive pills	13	4	30.8
Diabetic women	8	3	37.5
Women with prolonged antibiotic or cortico	4	2	50.0
Control	15	1	6.7
Total	77	27	35.1

Table (5) : Percentage of infection with different types of candida among the groups studied.

Group	No. of women from whom candida species were isolated	C. albicans No./%	C. stell. No./%	C. pseudo-tropicalis No./%	C. galibrata No./%
Women with leuccohrea	9	8 / 88.9	1 / 11.1	- / -	- / -
Pregnant women	8	8 / 100	- / -	- / -	- / -
Women taking oral C. pills.	4	3 / 75	- / -	- / 25	- / -
Diabetic	3	2 / 66.7	- / -	- / -	1 / 33.3
Women with prolonged antibiotic or cortico-steroid therapy	2	2 / 100	- / -	- / -	- / -
Control group	1	1 / 100	- / -	- / -	- / -
Total	27	24 / 88.9	1 / 3.7	1 / 3.7	1 / 3.7

Table (6) : Percentage of candidal infection among different age groups.

Age	Total	+ Ve		- Ve	
		No.	%	No.	%
Below 20	16	4	25.0	12	75.0
21 - 40	53	22	4.5	31	58.5
Over 40	8	1	12.5	7	87.5

+Ve : Diseased (vulvo-vaginal candidiosis).

-Ve : Not diseased.

A statistical summary for all the studied cases who were classified into 3 age groups: below 20 years old, 21-40 years old, and over 40 years old consequently. The results show: among 16 women below 20 years (4) were diseased (25%). While in the group aging 21-40 years (22) from (53) women were diseased (41.5%), group age over 40 were 8 women, only (1) was diseased i.e. Vulvo vaginal candidiosis is more prevalent during the child bearing period (age group 21-40 years).

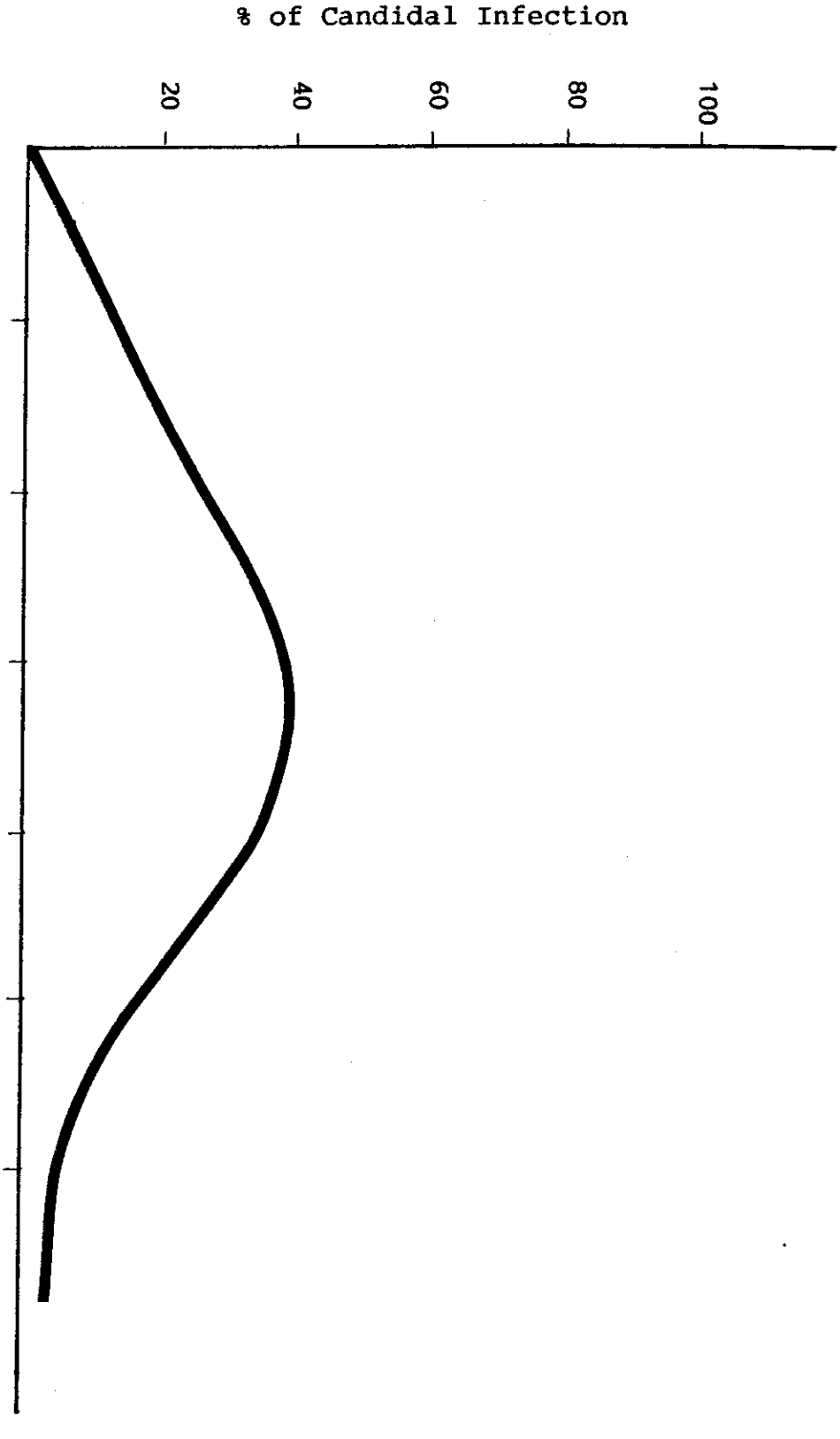

Fig. (7) : Relation between age and percentage of candidal infection.

Evaluation of slide latex particle agglutination (S.L.A.) test for the diagnosis of vaginal candidosis.

Comparison of the number of patients with suspected infection who were positive by microscopy and culture and by S.L.A.

Table (7)

CONV. Test (Mic&Cult.) \ PARID DIAG. Test	Latex Test Positive	Negative	Total
Vaginal Candidosis			
Positive	24 (a)	3 (b)	27 (c)
Negative	0 (d)	50 (e)	50 (f)
Total	24 (g)	53 (h)	77 (i)

Sensitivity (a/c)= 88.9%

Specificity (e/f)=100%

Predictive value +ve(a/g)=100%

Predictive value -ve (e/h)=94.3%

efficiency $(\frac{a + e}{i}) = 96\%$

DISCUSSION

DISCUSSION

Candida vaginitis (thrush) is one of the most frequently encountered forms of superficial candidosis. It usually arises due to alterations in the normal physiological state of the host. A presumptive diagnosis of candida vaginits based on clinical features such as a pruritis, milky white discharge, erythema, and oedema, and the presence of white crude like patches on the epithelial surface of the vulva, vagina and cervix. Some of these features, however, are also seen in infection due to trichomonas or gonorrhoea, and therefore an uneqivocal diagnosis of candidosis also requires the demonestration of yeasts in material from lesions by both microscopy and culture. In practice, the diagnosis of most cases of vaginal candidosis is made on purely clinical grounds because it is often impracticable or too time consuming to perform the necessary confirmatory tests as fermentation and assimilation in a clinical environment and laboratory facilities are not readily available. Also women with vaginitis continue to suffer discomfort because of a delay in initiating appropriate treatment, and furthermore, it is costly in terms of the inappropriate medicaments given to some patients. So in this study we have investigated the possibility of rapid (3 min.) diagnosis of vaginal candidosis using

a slide latex particle agglutination (S.L.A.) test for the detection of Candida antigens in vaginal secretions and have compared its efficiency with clinical and conventional laboratory diagnosis. Seventy seven women constituted the bulk of the present study. They were categorized into groups among whom suspected to be have vaginal candidiasis, groups represented by leucorrhea, pregnant women, those taking contraceptive pills or those with prolonged antibiotic or corticosteroid or any immunosuppresive therapy and diabetic group. Control cases which have no clinical evidence of candida infection were included in this study.

Candida could not be recovered from many of the women who were clinically thought to have vaginal candidosis. It is unlikely that the failure to detect yeasts in swabs from those women would be attributed to the poor sensitivity of the tests employed, in most of those women found to be positive by the laboratory investigation, numerous yeast cells and mycelium could be seen on direct microscopy and large quantities of candida were recovered in culture without any difficulty. Rather, the results confirm the difficulty of diagnosing vaginal candidosis on purely clinical grounds and the desirability of carrying out confirmatory laboratory test. The lack of facilities for such tests and the time needed before results are available, make microscopy and culture

less than satisfactory. Clearly, the required test for the diagnosis of these infections would be rapid and easy to perform to confer any advantage over these conventional laboratory procedures was the S.L.A. test with the required sensitivity and specificity would fit these requirements. Latex particle agglutination tests were first described for the diagnosis of rheumatoid arthritis (Singer, 1956). Since then, the production of new latex reagents has enabled the development of rapid and more sensitive agglutination assays, which have gained wide application for the diagnosis of bacterial infection (Bortolussi et al., 1982). In mycology, a latex test for the detection of antigen has been used routinely for the diagnosis of crypto-coccosis since, 1963 (Bloomfield et al., 1963) and more recently an S.L.A. test has been described for the detection of antigenaemia in patients with systemic candidosis (Gentry et al., 1983).

The S.L.A. reagent evaluated in this study had total specificity with high predictive values, it was still considerably better for the diagnosis of vaginal candidosis than reliance on clinical features alone.

The false negative latex results seen in this survey did not appear to be related to the quantity of candida grown from the swabs since most swabs gave

profuse (confluent) growth of yeast on culture, and conversely, swabs giving fewer colonies on culture scored up to 3+ by S.L.A. There are other possible explanations. False negative reactions could be obtained in infections caused by candida species other than C. albicans. Furthermore, it is possible that some false negative reactions were obtained with infections caused by isolates of the less frequently encountered C. albicans serotype B. The antibodies used to sensitise the latex particles in this study were raised against C. albicans serotype A and differences in cross reactivities between the cell wall antigens of the two serotypes, as well as between different candida species, have been shown (Hasenclever, 1964). Another explanation attributed to the fact that the swab collected may be for a women who was under antifungal treatment.

In conclusion, this study shows the feasibility and potential of S.L.A. for the rapid confirmatory diagnosis of vaginal and possibly other forms of superficial candidosis. The test can easily be carried out in a clinical setting and so offers considerable benefits to doctor and patient. So it is a promising alternative to the current methods, more accurate, more rapid and its results are easy to read.