COMPARATIVE STUDY OF LABORATORY INVESTIGATIONS IN TRICHOMONIASIS AND CANDIDIASIS

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SUMMARY

Five hundred patients attending the out patients department of S. R. N. Hospital, Allahabad, were recorded randomly over one year. Vaginal Swabs were taken for microscopy, Pap. Smear and Culture for the detection of trichomonas and candidal infections. The overall prevalence of infection of trichomonas was found to be 11.8% and candida 16.0%. Trichomonas vaginalis was diagnosed by wet mount in 61.02% of positive cases, while Papanicolaou stain and culture could detect only 16.95% (10/59) and 84.74% (50/59) of positive cases respectively. The sensitivity of detection of candida by culture, Potassium hydroxide (KOH), and Pap. stain was 78%, 59% and 8% respectively. In both the cases culture was the best method of diagnosis.

INTRODUCTION

Trichomonas vaginalis was first described by Donne (1836) and it was not present in normal vaginal secretions. Similarly, candida was not the normal commensal of vagina. The two conditions however are common and rarely exhibit the more serious consequences associated with some of the other sexually transmitted diseases (STDs). The simplest and most rapid method for detection of trichomonas and candida infection is direct microscopy of unstained wet and KOH smear, however, since the development of suitable media it has been noted that culture is the most sensitive method for diagnosis. The paper describe the current comparative study of investigational approach for detection of trichomoniasis and candidiasis in 500 female patients.

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MATERIAL AND METHODS

A sample size of 500 female patients (250 - Gynaecological; 250 - Antenatal) was collected in the age group of 15-40 years, attending the out patient department of Obst. & Gynae., S. R. N. Hospital, Allahabad, over a period of one year. All the cases were selected by random sampling and every sixth patient was examined until

Table XI

Incidence of Infertility

Study	Primary	Secondary
Gupta	65.7	10.2
Present	8.21	17.05

helpful in the work up and management of patients with infertility.

The highest incidence of altered menstrual pattern was observed in the age group of 21-30 years, i.e. the reproductive age group.

The lungs were the most commonly affected organs in the body.

Oligomenorrhoea was the most common change observed.

More than one fourth of the patients had infertility either primary or secondary.

In the present study none of the patients had confirmed genital involvement, however the incidence observed in various other studies of patients with proved genital tuberculosis are comparable to the incidences in the present study. This would stress the need to subject the patients with tuberculosis and infertility to further investigations.

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500 cases had been seen. A detailed clinical history with meticulous local examination was done by vaginal speculum without any lubricant and following specimens were taken.

1. A swab from posterior fornix and wet smear preparation was made to findout trichomonas; candida was identified by KOH preparation under microscope - the trichomonas are actively motile. Branching structures with typical round shaped blastospores at its apex was diagnostic for candidiasis.
2. Using spatula, specimens were collected from cervix and/or vagina and smears were stained by Papanicolaou (Pap) stain and examined under microscope.
3. Culture from posterior fornix and cervix were prepared by the use of cotton wool swab for inoculation into diamond medium for trichomonas and in saboraud's medium for candida detection.

Identification of organisms by culture :

Trichomonas - The sample material was inoculated in pre-warmed tube containing 8ml culture material and incubation was done at 37°C in a normal atmosphere and observed daily for seven days. A small amount of medium was drawn up in a pipette from the bottom of the tube, placed on a slide and examined under microscope. If non motile forms were seen after the seventh day the culture was considered negative.

Candida - Specimen was inoculated in saboraud's glucose agar medium and incubated at 37°C or room temperature. In two or three days raised white creamy colonies were seen. The culture was declared negative if no growth was seen after 21 days. The organisms were identified by microscopy.

OBSERVATIONS

The prevalence rate of Trichomonas vaginalis and Candida infection was 11.8% and 16% respectively (Table I). Trichomonas Vaginalis was detected by three methods as shown in Table II. The positive finding detected by culture methods was 94.75%. The wet mount was positive in 61.02% (36.59%) of positive cases, while papanicolaou could detect only 16.95% (10.59%) of the positive cases. Table III, shows the sensitivity detection of candida by culture, KOH and Pap. stain was 78%; 59% and 8% respectively.

DISCUSSION

In the present study, during pregnancy candidal to trichomonal ratio was 2 : 1 but in nonpregnant state it was 1 : 1.1. Erikson and Wanger (1975) noted the ratio of candida and trichomonas to be 0.9 : 1 and in pregnant the same ratio varied between 1.7 : 1.0 (Velayudhan & Kurup, 1963). In our study the wet smear could diagnose the T. vaginalis in 61.02% of cases, where as culture

Table I

Prevalence of trichomoniasis and candidiasis

Pathology	Non pregnant No. of case & (%)	Pregnant No. or case (%)	Total	Prevalence (%)
Trichomonas	36 (26.08%)	23 (17.83)	59	11.8
Candida	32 (23.19)	48 (37.20)	80	16.0

Table II

Diagnosis of Trichomoniasis

Method of detection			No. of T. vaginalis positive cases	Sensitivity of different methods
Culture	Wet	Pap		
+	+	+	07	culture - 85%
+	+	-	20	Wet smear - 61%
+	-	+	01	
-	+	-	07	
-	+	+	02	
-	-	+	-	
50/59 (84.74%)	37/59 (61.02%)	10/59 (16.95%)	59	

Table III

Diagnosis of candida

Method of detection			No. of candida positive cases	Sensitivity of different methods
Culture	Wet	Pap		
+	+	+	04	Culture - 78%
+	+	-	25	KOH - 59%
+	-	-	32	Pap. stain - 8%
+	-	+	01	
-	+	-	17	
-	+	+	01	
-	-	+	-	
62/80 (77.50%)	47/80 (58.75%)	6/80 (7.50%)	80	

in the same condition diagnosed the organisms in 84.75% of cases (Table II). Hughes et al (1966) reported the diagnosis of T. vaginalis by wet smear in 18% by culture in 41.9% of cases, maximum number were diagnosed by culture. Superiority of culture method for diagnosis over wet smear had been reported by different workers. In our series the number of positive cases were increased by nearly 24% by culture when compared to detect wet smear examination, whereas Menon and Willmott (1962) and Kulkarni et al (1981) reported an increase of only 14.8% and 12.5%. Though the wet smear had the advantage of rapidity of diagnosis, it left behind a significant number of

cases undiagnosed. Pap. stain method did not prove to be very advantageous. In the present study, cases which were negative by pap. stain but positive by the other two methods, the organism may have been to scarce or had undergone lysis and escaped detection during the staining procedure.

In our series candida was diagnosed by culture in 77.50% of cases, KOH-smear was positive in 58.75% of cases and pap. stain was suitable for diagnosis of vaginal candidiasis as it could detect only 7.50% of cases (Table III). Recent workers suggested that the diagnosis might be missed if culture technique was not used in association with microscopy. Becker and Schweisfurth (1971) reported that 60% of candidal infection would be missed if microscopy was used alone. In our study pap. stain sensitivity was 8% as compared to culture and this finding was lower than those in similar studies by Siapco et al (1986) and Ahluwalia et al (1989) who found the sensitivity by pap. smear in 80% and 20% respectively as compared to culture. However in our series pap. stain fail to qualify as a diagnostic aid in the diagnosis of vaginal candidiasis. Moreover we experienced that candidal element is difficult to identify in pap. smear though it was observed that the number of positive results could be increased by prolonged examination of smears.

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