

CYTOLOGY OF NON GONOCOEL CERVICITIS

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SUMMARY

In the present study the incidence of *Trichomonas* infection in nongonococcal cervicitis by wet smear preparation is 4.5%, while by Papanicolaou stain is 10.5% and hence the latter is superior.

The incidence of *Candida* infection by Papanicolaou stain is 4% and by culture 20% and therefore culture is superior for the diagnosis of candidiasis.

The incidence of Chlamydial infection is 0.5% and thus very rare in the present study.

Introduction

Trichomonas, *candida* and *chlamydia* infections are frequently met in Gynaecological practice. Their treatment is not a problem, but recognition still remains difficult and time consuming. The aim of the study was to study the incidence of *candida*, *trichomonas* and *chlamydia* infections, in non gonocoeal infection to compare the diagnostic accuracy of the above infections by Papanicolaou smear culture, wet smear preparation and enzyme immunoassay.

Material and Methods

A total of 200 cases attending Gynaecology out-patient of various hospitals of twin cities of Hyderabad and Secunderabad with complaints of profuse leukorrhoea for varying period of time, even after treatment with antibiotics. The age

group varied from 18 to 50 years. An unlubricatedusco's speculum was used to expose the cervix and vagina. The presence of vaginitis, the character of discharge, and the appearance of cervix were noted. A sterile cotton wool tipped swab was inserted into the cervical canal, and also in posterior fornix and immediately used for the culture of *candida* and *chlamydial* enzyme immunoassay respectively. Wet smear was prepared from the vaginal discharge, and looked for *trichomonas*. The cervix was scraped with an Ayre's spatula. A smear was promptly made on clean microscopic slide and fixed in 95% Alcohol and was stained by Papanicolaou's method. The smear was examined for abnormal cells. Special search was made for *Candida* and *Trichomonas vaginalis* and their presence or absence was recorded.

Results

Out of 200 cases of leukorrhoea 15 cases had signs and symptoms suggestive of

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Trichomonas infection. Wet smear was done in all cases and the smear showed motile *Trichomonas vaginalis* in six cases. The Papanicolaou stained smear revealed *Trichomonas vaginalis* in 10 of these cases thus giving better results. All the 6 cases which were positive by wet smear showed positivity by Papanicolaou stained smear also.

Out of the other 185 cases where *Trichomonas* was not suspected clinically, 11 patients were shown to harbour *Trichomonas vaginalis* as identified on Papanicolaou smear, out of these only 3 patients showed motile *Trichomonas vaginalis* in wet smear preparation (Table I).

Out of 200 cases of white discharge, 19 cases had clinical signs and symptoms suggestive of moniliasis. In 5 patients Papanicolaou smear showed hyphae-budding forms and in 19 cases culture was positive. Out of the remaining 181 cases where moniliasis was not suspected

clinically, in 3 cases candida was demonstrated by Papanicolaou's stain and in 2 of them *Trichomonas* was also present in the smear. In 21 cases candida was grown in culture (Table II).

[By enzyme immunoassay out of 100 cases examined for *Chlamydia trachomatis* only one was positive for chlamydia.]

Discussion

Various methods are employed in identification of *Trichomonas vaginalis* infection by wet smear, culture and smear examination by Papanicolaou's method. The importance of laboratory detection of organisms lies in picking up clinically negative cases (Hughes *et al.*, 1966).

In the present study 15 cases were diagnosed clinically to be suffering from *Trichomonas* infection, in 6 cases *Trichomonas* organisms were demonstrated by wet preparation, whereas by Papanicolaou's smear picked up 4 more cases. In

TABLE I
Comparison of Wet Smear and Papanicolaou Stained Smear in the Diagnosis of Trichomonas Vaginalis

Clinical picture	Number of cases	Positive by wet smear	Positive Papanicolaou smear
1. Clinically suspected <i>T. vaginalis</i> infection	15	6	10
2. Clinically not suspected trichomonas vaginalis infection	185	3	11

TABLE II
Comparison of Papanicolaou's Stain and Culture in the Diagnosis of Genital Candidiasis

Clinical picture	No. of cases	Papanicolaou smear positive	Culture positive
1. Candida suspected clinically	19	5	19
2. Candida clinically not suspected	181	3	21

185 cases clinically trichomonas infection was not suspected, however by wet smear in 3 cases organisms were detected, while in 11 cases 6 Papanicolaou's smear showed organisms. Thus highest percentage of positives were found by examination of Papanicolaou smear. This is in agreement with the findings of Hughes *et al* (1966) and Thin *et al* (1975) who compared cytological, clinical and cultural techniques.

The comparison between wet preparation and Papanicolaou smear confirmed that advantage lies in the collection of specimen. The wet smear examination is simple but it is insensitive and impractical (Hughes *et al*, 1966; Thin *et al*, 1975; Whittington, 1957). McCann (1974) recommended wet film examination and bacteriological cultures, while stained films with cultures have been preferred by many workers (Lowe, 1965); Harrison, 1959; Hess, 1969). Further unlike wet smear preparation, stained smears can be fixed and kept for examination at a convenient time. In this study, culture of organisms was not attempted as it pick up only viable organisms.

Though stains like Grams, Fluorescein, Leishman have been employed, reliable results have only been obtained with the Papanicolaou stain (Mason *et al*, 1976). In this study the material used is cervical scrape smear, so the material and organisms are more. Pearl (1972), found Papanicolaou's smear to be highly erroneous. Though most of the workers do not agree with him, they still feel that chances of confusing degenerated material and cytoplasmic fragments are there specially when the number of organisms are scanty.

Mason (1976), compared between papapap smear (wet smear) and Papanicolaou stained cervical smears (cytopap),

revealing marked differences. The former method showed 24% were positive compared with 40% of positivity by cytopap. In the present study 15 cases clinically diagnosed as Trichomonas infection, wet smear showed positivity in 40% of the cases as compared to 66.6% by Papanicolaou's smear. This positivity is also more in the cases where there are no clinical suspicion of Trichomonas infection, wet smear showed positivity in 1.6% of the cases as compared to 5.9% positivity by cytopap method. The only major disadvantage of Papanicolaou smear is that it is time consuming, and an experienced pathologist is necessary.

Candida a dimorphic fungus described by Lodder (1970) is common between the ages range from 20 to 45 years (Delacretaz, 1976). The culture method is the most reliable way of diagnosing candida vaginitis. Dergman (1983), claimed that in 50% of the times the diagnosis of candida vaginitis may be missed without a culture. The whole procedure though tedious and expensive, but it is more reliable with high percentage of positivity.

In the present study, candidiasis was diagnosed by Papanicolaou's smear in 4% and by culture in 20% of the 200 cases attending the gynaecology outpatient. In 2 cases it was also associated with Trichomonas infection. This clearly shows that Papanicolaou smears were unsatisfactory in the diagnosis of candidiasis. The study by Thin *et al* (1975) revealed Papanicolaou smear sensitivity to be 23.6% as compared to other methods of diagnosis including culture. In comparison in our study Papanicolaou smear sensitivity was 20% as compared to culture. These findings are lower than those in similar studies (McClennan 1972, Siapco, 1986).

In the study by McCleannah *et al* (1972), the sensitivity of Papanicolaou smear as compared with culture was 46%, whereas in the study by Siapco *et al* (1986) revealed 80% Papanicolaou sensitivity.

In general the authors support the view that Papanicolaou smear should not be used routinely for diagnosing candidiasis. Moreover, candidal elements are difficult to identify in Papanicolaou's smears, though the number of positive results can be increased by prolonged and careful examination of the smears.

Although the frequency of infection with *Chlamydiae trachomatis* is increasing rapidly (Holmes *et al*, 1981), the laboratory diagnosis of the organism remains difficult. The growth in cell culture which is the most reliable procedure is time consuming technically demanding, and expensive. Serological tests are not practical because of a high prevalence of Chlamydial antibodies in culture negative women (Schachter, 1979). Naib (1970), originally described chlamydiae induced changes noted in Papanicolaou stained smears of newborns with neonatal conjunctivitis and from their mothers. Gupta and co-workers (1979) described in detail the cytological changes in chlamydial cervicitis.

In the present study, by enzyme immunoassay, the test was positive for chlamydiae in only one case out of 100 cases, the same patient did not reveal any cytological changes associated with *Chlamydia trachomatis* as the smear was not adequate.

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