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COMPARISON OF SALINE WET PREPARATION, GIEMSA STAINING AND CULTURE METHODS FOR THE DETECTION OF *TRICHOMONAS VAGINALIS*.

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ABSTRACT

Objective of the study was to compare the performance of three diagnostic methods for *Trichomonas vaginalis* infection viz-Saline wet mount, Giemsa staining and Culture.

Methods

Vagina swabs from 2720 women comprising 1420 pregnant and 1300 non pregnant women were examined for *Trichomonas vaginalis* infection using the three methods above.

Results

Isolation of *Trichomonas vaginalis* was highest 246 (9.04%) using the culture method. This was followed by the Saline wet preparation 218 (6.01%) and lastly Giemsa staining method with 182 (6.7%) positive results. Using Chi square ($\chi 2$) test at $p \leq 0.05$, it was found that there was statistical difference between the results of the three methods.

Conclusion

The culture method was the most sensitive method though costly and time consuming. It could be used to complement the wet preparation method so as to achieve a higher isolation rate in the patients with *Trichomonas vaginalis* infection in our environment and thereafter proper treatment which will also help in reducing HIV transmission.

Key words: Trichomonas vaginalis, Isolation, Saline wet preparation. Giemsa staining. Culture method.

INTRODUCTION

Trichonomas vaginalis infection is a sexually transmitted infection (STI) linked with reproduction health complications (1). It is the commonest curable sexually transmitted infection: the World Heath Organization estimates that 170 million new infections occur each year (2) .Prevalence is highest in underdeveloped countries and disadvantaged population in developed countries (3-5).

Infection with *T.vaginalis* facilitates the transmission of HIV (6) and treatment of *T. vaginalis* infection significantly lowers the vaginal HIV viral load in dually infected subjects (7,8). Thus control of *T.vaginalis* will have a significant impact on the HIV epidemic in Africa and may reduce the incidence of adverse pregnancy outcome (9).

Major tools in the control of sexually infections in general are accurate diagnosis and treatment. If done properly, will reduce the reservoir of infection.

Diagnosis of *T.vaginalis* infection in most parts of the world is carried out by the Saline wet preparation (wet prep) method (10). However, this

technique has a low sensitivity of 30-80% (11), requires trained and experienced microscopists. With the epidemic of HIV/AIDS, it becomes imperative that more sensitive methods be used in our health care systems for the diagnosis of *T.vaginalis* infection.

Studies have been done as relate to the epidemiology, prevalence and transmission of *T.vaginalis* infection in Nigeria and beyond (12-15), but there is paucity of information on comparing the wet preparation, Giemsa Staining and Culture methods along side each

Other (16), and this study was therefore carried out for that.

MATERIALS AND METHODS

The study was a cross sectional study involving 2720 women attending clinic at Nnamdi Azikiwe University Teaching Hospital (NAUTH). Nnewi and Chimex Specialist Hospital Nnewi. The number of pregnant women was 1420 while 1300 were not.

Ethical clearance was obtained from the Research and Ethics committee of NAUTH.

gh Vaginal swab specimens were collected using 3 sterile, cotton-tipped applicators (swabs). Samples were processed immediately after collection.

The first swab was put in a tube containing 0.2ml of physiological saline solution for wet mount examination (15). The second swab stick was used to inoculate a plate containing 25mls of the Ewang's modification of Chocolate agar. The inoculated plate was incubated at 37°C for up to 4 days. A color change to yellow indicated a positive culture. Such cultures were further confirmed by the wet saline method.

The third swab was used to make a smear on a clean grease free slide. This was dried, fixed with methanol and stained with 3% Giemsa stain for 30minutes. It was then washed, dried and examined under oil immersion objective for characteristic morphological features.

RESULTS

Out of the 2720 patients screened *Trichomonas vaginalis* was isolated in 246 samples (9.04%) using the culture method, 218 (8.01%) with Saline wet mount and in 182 samples (6.7%) using the Giemsa Staining technique. Using Chi square (X^2) test at $P \leq 0.05$, there was a significant difference between the results if the three methods. This is shown in Table I

Table 1. Comparing the three diagnostic techniques for identification of *Trichomonas Vaginalis*

Diagnostic method	Number of positive samples Isolated	Number of negative samples
Culture	246	2474
Wet mount	218	2502
Giemsa staining	182	2538

DISCUSSION

The study compared three techniques used in identification of *Trichomonas vaginalis* viz-Wet mount, Giemsa staining and Culture. These methods were compared in terms of diagnostic yield, cost of performing the test and turn around time for results to be produced.

It was seen that in terms of diagnostic yield there was statistical difference (using the Chi square (x^2) test at $P \leq 0.05$) between the results of the three methods with the culture method having the highest diagnostic yield of 218 and lastly Giemsa stain technique 182. It shows that the wet mount technique through relatively cheap and easier to perform is not a very sensitive diagnostic method, comparatively, the culture method which is slightly expensive and has about 4 days turn around time, is the most sensitive method.

The presence of sexually Transmitted Infections (STIs) increases the susceptibility of a person to HIV. It therefore becomes imperative that a more sensitive technique be used to complement the wet mount method especially in the negative samples so as to improve diagnostic yield and increase the treatment cure rate which thus will help reduce the spread of HIV /AIDS scourge in our society.

Thus the culture method is being recommended in symptomic patients whose wet preparation examination do not show *Trichominas Vaginalis*.

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