



Candidiasis and Trichomoniasis Among Pregnant Women in a Rural Community in the Semi-Arid Zone, North-Eastern Nigeria

Candidose et Trichomoniasis Chez les Femmes Enceintes des Communautés Rurales dans les Zones Semi-Arides, dans le Nord de l'Est du Nigéria

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ABSTRACT

OBJECTIVE: To assess the prevalence of trichomoniasis and candidiasis among women resident in Biu, a rural community in the semi-arid region of North-eastern Nigeria.

Methods: The study was conducted between October 2003 and June 2004, involved a total of 311 women aged 16–37 years and at various stages of pregnancy.

RESULTS: Some of the women manifested clinical symptoms like vulval pruritus and vaginal discharges and had been referred to a private medical diagnostic laboratory for examination. Wet saline preparations of vaginal swabs were examined microscopically for trophozoites of *Trichomonas vaginalis* and yeast cells followed by culture in Sabouraud dextrose agar to enhance the isolation of *Candida albicans*. Among the women examined, 201 (64.6%) were infected with either *Trichomonas vaginalis* (8.4%) or *Candida albicans* (56.3%). Mixed infections of the two organisms were not encountered. Unlike *T. vaginalis*, *Candida albicans* were more frequently isolated from women who had clinical symptoms than those without obvious symptoms ($P < 0.05$). The trimester of pregnancy did not significantly influence ($P > 0.05$) the recovery of any of the organisms from the patients.

CONCLUSION: It concluded that candidiasis and trichomoniasis are prevalent in pregnant women in North-eastern Nigeria and that the trimester of pregnancy does not appear to influence the prevalence of these diseases in the area. *WAJM* 2007; 26(1): 17 – 19.

Keywords: Candidiasis, trichomoniasis, pregnancy, Northern Nigeria.

RESUMÉ

Objectif: Cet étude est destinée à évaluer la prévalence du trichomoniasis et de la candidose parmi les femmes résidentes à Biu, une communauté rurale dans une région semi-aride du Nord - Est du Nigéria.

Methodes: Cet étude a été réalisée entre Octobre 2003 et Juin 2004, 311 femmes âgées de 16 à 37 ans à de divers stades de la grossesse ont été enrégistrées pour cet étude.

Résultats: Quelques femmes ont présenté des symptômes cliniques tels que la pruritus vulval, des sécrétions vaginales. Des préparations salines des prélèvements vaginaux ont été examinés avec le microscope pour observer des trophozoites de *Trichomonas vaginalis* et les levures suivies par des culture sur milieu de Sabouraud pour faciliter l'isolation des *Candidas albicans*. De toutes les femmes examinées, 201 (64.6%) étaient infectées avec soit les *Trichomonas vaginalis* (8.4%) ou les *Candida albicans* (56.3%). Nous n'avons pas observé les infections mixtes causées par ces deux organismes. Contrairement au *T. vaginalis*, les *Candidas albicans* étaient plus fréquemment isolés chez les femmes ayant des symptômes cliniques que celles n'ayant pas de symptômes ($P < 0.05$). Le trimestre de grossesse n'a eu aucune influence sur ($P > 0.05$) le taux d'isolement de ces pathogènes.

Conclusion: La candidose et le trichomoniasis sont prédominants chez les femmes enceintes du Nord-Est du Nigéria et le trimestre de grossesse n'influence pas la prévalence de ces maladies dans cette région. *WAJM* 2007; 26(1): 17 – 19.

Mots Clés: Candidose, trichomoniasis, grossesse, Nord du Nigéria.

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INTRODUCTION

Trichomoniasis due to *Trichomonas vaginalis* and candidiasis caused by *Candida albicans* are common infections of the reproductive tract of humans. Women are particularly susceptible to infections with the two organisms especially when they undergo stress including those due to poor diet, lack of sleep, illness or pregnancy¹. The role of broad-spectrum antibiotics as a contributing factor in the establishment of candidiasis is also well known and accepted². The most common form of candidiasis involves infection of the mucous membrane of the oral cavity, vagina or the intestines²⁻⁴. Candidiasis is usually a harmless infection but in excessive growth could result to thrush characterised by intense irritation and soreness of the vulva accompanied by a thick, white, cheesy vaginal discharge⁴⁻⁷. According to Hurley and de Louvois⁵, overt candidosis or candida vulvovaginitis is the most common infectious disease of women of childbearing age.

On the other hand, infections with *T. vaginalis* usually range from a relatively asymptomatic carrier state to severe inflammation and irritation of the vagina with a characteristic frothy malodorous discharge^{4,7-9}. Women who become infected during pregnancy are predisposed to premature rupture of the placental membrane, premature labour and low birth weight of infants¹⁰. The development of atypical pelvic inflammatory disease, infertility and cervical cancer in women have also been linked to trichomoniasis¹¹.

Although the prevalence of candidiasis and trichomoniasis has been studied and reported among women in some urban centres in southern and central Nigeria and elsewhere in the world^{7,10,12-14}, similar reports are lacking from the semi-arid Northern Nigeria. This study was therefore undertaken to provide preliminary information on the prevalence of *T. vaginalis* and *C. albicans* infections in pregnant women in a rural community in the semi-arid North-eastern Nigeria.

PATIENTS, MATERIALS AND METHODS

Study Area

The study was carried out in Biu the Headquarters of Biu Local Government Area, located 187 kilometres south-west of Maiduguri the capital and largest urban centre in Borno State. Biu city is situated within Borno State in the North-east corner of Nigeria. It lies between latitude 10° 36' N and longitude 12° 13' E. The area experiences three major seasons every year. These are the hot and dry season (February to April), the wet and cool rainy season (May to September) and the cool and dry season (October to January)¹⁵.

Collection and Examination of Samples:

This study was conducted between October 2003 and June 2004 and involved 311 pregnant women aged 16 – 37 years old. The women had been referred to a private medical diagnostic laboratory for examination from various clinics around Biu city. Some of the women were manifesting clinical symptoms such as pruritus vulvae and vaginal discharges. Wet saline preparations were made from vaginal swabs and examined microscopically for

T. vaginalis trophozoites^{16,17} and yeast cells¹⁸. Cultures were made on Sabouraud dextrose agar, incubated for 48 hours at 37°C to enhance the isolation of *Candida albicans*^{6,18}. The organisms were identified using standard criteria^{6,16,17,18}.

RESULTS

Out of a total of 311 pregnant women referred for vaginal swab microbiology during the period, 201 (64.6%) were infected with at least one potentially pathogenic organism (Table 1). *Trichomonas vaginalis* and *Candida albicans* were respectively recovered from 26 (8.4%) and 175 (56.3%) of the women. Mixed infections of the two organisms were not encountered. *Candida albicans* was more prevalent in symptomatic women than in those without symptoms ($P < 0.05$). The prevalence of *T. vaginalis* was similar between symptomatic and asymptomatic women ($P > 0.05$).

Although there were more infections with each of the two organisms during the first three months of pregnancy, the trimester of pregnancy did not significantly ($P > 0.05$) influence the recovery of the organisms from the patients.

Table 1: Prevalence of *Trichomonas vaginalis* and *Candida albicans* amongst pregnant women in Biu, North-Eastern Nigeria.

	Number Examined	Number (%) infected		
		All infections	<i>T.vaginalis</i>	<i>C.albicans</i>
All patients	311	201 (64.6)	26 (8.4)	175 (56.3)
With symptoms	187	163 (87.2)	19 (10.2)	144 (77.0)
Without symptoms	130	48 (36.9)	17 (13.1)	31 (23.8)
All patients	311	201(64.6)	26 (8.4)	175 (56.3)
With symptoms	187	163 (87.2)	19 (10.2)	144 (77.0)
Without symptoms	130	48 (36.9)	17 (13.1)	31 (23.8)

Table 2: Prevalence of *Trichomonas vaginalis* and *Candida albicans* according to trimester of pregnancy amongst women in Biu, North-eastern Nigeria.

	Trimester of pregnancy		
	First	Second	Third
Number examined	86	141	84
Number (%) infected	66 (76.7)	84 (59.6)	51 (60.7)
<i>Trichomonas vaginalis</i>	9 (10.5)	12 (8.5)	5 (6.0)
<i>Candida albicans</i>	57 (66.3)	72 (51.1)	46 (54.8)

DISCUSSION

The results of this study revealed that candidiasis is more prevalent than trichomoniasis contrary to the findings in Port Moresby¹². Socio-economic differences may explain the discrepancies between the two studies. A study in United States showed a prevalence of 12.6%¹⁹ for *T. vaginalis* at mid pregnancy among mainly unmarried, cigarette smoking and less educated black women. Consequently, the socio-economic factors of the women in the USA studies could account for the high prevalence there compared to the present study where all the women were married and non-smoking. Another study in Nigeria has shown an incidence of 37.6% among Jos urban pregnant women and 24% in Jos rural pregnant women¹⁴. This study has also shown that the presence of organisms is not associated with the trimester of pregnancy, which goes in line with a study carried out in Port Moresby showing that infection is not associated with gestational age¹².

Detection of *T. vaginalis* in pregnant women in Biu tends to be low compared with other studies because many asymptomatic cases may not be referred for examination and many pregnant women seen may not complain until the symptoms appear. This study has shown about 27% of asymptomatic pregnant women detected to have *T. vaginalis* while several studies have shown detection of asymptomatic infections to be as high as half of the cases seen^{8,13,20}. These discrepancies could probably be due to the more reliable techniques (cytology and fluorescent antibody techniques) used in the other studies compared to the present study. There is need for further studies on the two diseases especially candidiasis in association with pregnancy using more

recent and more sensitive test techniques.

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