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The Prevalence of Abnormal Cervical Cytology at Federal Teaching Hospital Gombe: A Cross-Sectional Study

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Cervical cancer continues to be a significant public health concern, ranking as the fourth most common cancer among women globally, with approximately 604,000 new cases and 342,000 deaths reported in 2020 (World Health Organization, 2020). The burden of cervical cancer disproportionately affects women in low- and middle-income countries (LMICs), where access to effective screening and treatment options is often limited. Early detection and treatment of cervical premalignant lesions are crucial in reducing the incidence and mortality associated with this preventable disease.

The objectives of this study was to determine the prevalence of abnormal cervical cytology, the histological types and patient characteristics among patients attending the Gynaecology/postnatal clinic of Federal Teaching Hospital, Gombe State, Nigeria.

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Methods: A retrospective study of all cervical smears received and processed at the Pathology laboratory of Federal Teaching Hospital between January 2022 and December 2022.
Results: The records of 596 smears of women between the ages of 20 and 65 years were retrieved and analyzed. Negative smears were predominant (62.6%) while 8.7% were inflammatory smears. Dyskaryotic smears were found in 155 smears (26.0%); this was made up atypical glandular cells of undetermined significance (AGCUS) in 1.8%, Atypical squamous cells of undetermined significance (ASCUS) in 10.23%, Low grade squamous intraepithelial lesion (LSIL) in 10.6% and High grade squamous intraepithelial lesion (HSIL) in 3.6%. Malignant cells were found in 0.5% of the smears while the remaining 2.1% were unsatisfactory.
Conclusion: The relatively high frequency of dyskaryosis in this study lends credence to the need for us to widen our cervical screening coverage in order to achieve the highest possible coverage rate. This can be achieved through the use of public education by means of various media, women and religious organizations.

Keywords: Abnormal cytology; cancer; disease; uterine cervix.

1. INTRODUCTION

Cancer of the uterine cervix is a major reproductive health problem and a preventable disease of significant public health concern [1]. It is the fourth most common malignancy in women worldwide and the leading cancer in women in developing countries [2]. About 604,000 women acquire the disease annually and about 75% are from developing countries [1,3]. In developing countries, the incidence of the disease may be up to six times higher than in developed countries, with 80% of cases presenting at an advanced stage [1]. Cervical cancer is the most common female cancer in Northern Nigeria and second to breast cancer in the southern part of the country [4,5]. The number of deaths from cervical cancer worldwide is estimated to be more than 300 000 per year [3,6].

The incidence of invasive cervical cancer, its morbidity and mortality have declined in developed countries because of the availability of well-organized screening programmes for the detection of the pre-invasive disease [7]. The incidence of cervical cancer can be reduced by as much as 80% if the quality of coverage and follow-up of screening is high [8]. The incidence in any population will not decrease if less than 70% of the population is screened [8]. In Nigeria there is no such established programme and together with a lack of awareness of cancer of the cervix has led to a high prevalence of the invasive disease, which often presents late [9,10]. Screening is opportunistic and is restricted to a few urban and research centers. Consequently, there are only few available reports on results of cervical cancer screening in this country [11,12]. The incidence of positive cervical screening test for abnormal cytology is11.8% in Ibadan [12], 9.8% in Kano [13], 10.8% in Enugu [14].

Cancer of the cervix is the only Gynaecologic cancer that is amenable to extensive screening; this is because the organ involved is easily accessible, exfoliative cells can easily be obtained from it and the disease passes through a well-defined preclinical stage, cervical intraepithelial neoplasia (C.I.N) [15]. When cervical cancer is diagnosed and treated in the preinvasive stage, 5-year survival probabilities approach 100% [16]. Cervical intraepithelial neoplasia (CIN) describes a histological condition where part or the whole thickness of the cervical squamous epithelium is replaced by cells showing varying degrees of atypia [17]. It precedes the invasive disease by about 10-15 years [2].

Cervical cytology (pap smear) is an effective screening tool for the detection of the pre-invasive stages, giving the opportunity for prompt and effective treatment before the emergence of the invasive disease [18]. Pap smear was developed by George Papanicolaou in 1943 and since then it has been the gold standard for the detection of premalignant and indeed early malignant lesion of the cervix [3]. It is simple, cheap, easy to administer and fairly well tolerated by patients [3]. It is also a very specific test but its sensitivity is only moderate [3]. A recent meta-analysis found that cervical cytology had an overall sensitivity of 51 percent and a specificity of 98 percent [3]. The efficacy of cervical smear has been improved by the implementation of liquid based cervical cytology [8]. Also, HPV DNA testing is now used as an adjunct to cervical cytology for women aged 30 years and older [8]. Another approach to

screening for premalignant lesion of the cervix is by using visual inspection of the cervix with acetic acid (V.I.A) [3]. It is simple easy to perform, cheap and acceptable to the clients. Nurses, midwives and even paramedical can be taught to do it. Also, there is no need for histopathological confirmation of the premalignant lesion before treatment [3].

In most developed countries, women are advised to have their first smear test soon after becoming sexually active and subsequently once every 1-3 years. A number of National guidelines are currently moving towards less frequent smear tests (once every 3-5 years) since the cervical lesions develop fairly slowly after several years [19]. However, it has been recommended by the consensus conference on cervical cancer screening and management (CCCCSM) that in developing countries with limited resources screening should aim to target high risk women and commenced at age 30 to 35 years and continue till about 60 years of age to reduce excessive expenditure in screening low risk women [20]. The new ACOG guidelines recommend that cervical cancer screening begin approximately three years after a woman

The prevalence of abnormal cervical smear is relatively high in our Hospital. Frequency of dyskaryosis in this study lends credence to the need for us to widen our cervical screening coverage in order to achieve the highest possible coverage rate. s first sexual intercourse or by age 21, whichever comes first and subsequent annual screening up to age thirty [21]. Women who have negative results on three consecutive annual tests can be rescreened every two to three years [21].

At Federal Teaching Hospital pap smear examination was commenced in 2003 as part of the routine laboratory services of the hospital aimed at detecting premalignant lesions of the cervix. Women who attend the Postnatal and Gynaecological clinic are screened routinely. The aim of this study was to determine the prevalence of abnormal cervical cytology among patients attending the Gynaecology/Postnatal clinic of Federal Teaching Hospital Gombe.

2. MATERIALS AND METHODS

This is a retrospective cohort study of all cervical smears received and processed at the pathology laboratory of Federal Teaching Hospital Gombe between January 2022 to December 2022. The smears were collected mainly from patients presenting for consultation at the Gynaecological, postnatal, family planning and sexually transmitted diseases clinic of Federal Teaching Hospital Gombe. The records of all the subjects were obtained from the pathology laboratory records register. Inclusion criteria-all samples taken at the above clinic, No exclusion criteria -all samples taken were analyzed.

The case files of the patients were retrieved from the medical records library of the hospital. Information on the age, marital status, occupational status, parity, pap smear cytology results and other relevant information were extracted. The data obtained was entered into EPI Info statistical package, version 7.2 and analyzed, results were presented as tables; Mean, mode and standard deviation were employed where applicable.

3. RESULTS

During the period under review 596 smears were recorded. Of the 596 smears, 570 case folders were retrieved giving a retrieval rate of 95.3%. Dyskaryotic smears were found in 155cases (20.6%).

Table 1 shows the sociodemographic characteristics of the subjects. The age range was between 20 to 65 years with a median age of 34 years and a peak age range between 30-39 years. Majority (50.3%) were unemployed, while 41(6.9%), 45(7.6%) and 110(18.5%) were in the skilled, semi-skilled and unskilled occupation categories, respectively.

Table 2 shows the parity of the subjects; majority (34.4%) had 5 or more deliveries. Only 3.4% were nulliparous.

Table 3 shows the distribution of cytological smears by cytological findings. 373 (62.6%) were normal or negative smears, while 52(8.7%) were inflammatory smears. Dikaryotic smears were found in 155 (26.0%); this was made up AGCUS in 11(1.8%), ASCUS in 61 (10.2%), LSIL in 63(10.6%) and HSIL(3.4%). Malignant cells were found in 3 (0.5%) smears while the remaining 13(2.2%) were unsatisfactory that is unsuitable for cytological assessment.

Table 1. Sociodemographic characteristics

Age range	Frequency	Percentage
20-29	50	8.4
30-39	240	40.2
40-49	200	33.6
50-59	50	8.4
60-65	56	9.4
TOTAL	596	100
Marital status	**Frequency**	**Percentage**
Single	40	6.7
Married	540	90.6
Divorced	10	1.7
Widowed	6	1.0
Total	596	100.0
Occupation	**Frequency**	**Percent**
Skilled	41	6.9
Semi-skilled	45	7.6
Unskilled	110	18.5
Unemployed	300	50.3
Student	100	16.8
TOTAL	596	100.0

Table 2. Parity of the subjects

Parity	Frequency	Percent
0	20	3.4
1	49	8.2
2	66	11.1
3	56	9.4
4	200	33.5
>5	205	34.4

Table 3. Findings at cervical cytology

Findings	Frequency	Percent
Negative	373	62.6
LSIL	63	10.6
ASCUS	61	10.2
INFLAMMATORY	52	8.7
HSIL	20	3.4
Unsatisfactory	13	2.2
AGCUS	11	1.8
Malignant	3	0.5
TOTAL	596	100.0

Table 4. Symptoms present in some of the subjects

Symptoms	Frequency	Percent
Abnormal vaginal bleeding	68	11.4
Postcoital bleeding	64	10.7
Postmenopausal bleeding	54	9.1
Vaginal discharge	90	15.2
Asymptomatic	320	53.6
Total	596	100

Table 4 shows the symptoms present in some of the subjects. Majority, 320 (53.6%) were asymptomatic. However most of the asymptomatic subjects have negative or inflammatory smears.

4. DISCUSSION

The prevalence rate of 26.0% for dyskaryosis in this study was higher than the findings of Obafenwa et al. in Jos [11], where the prevalence rate was 11.8%. However, it was also higher than that obtained in the southern part of Nigeria; Lagos 4.1% [6]and Ibadan 7.1% [12]. This may be due to the fact that early marriage and early age at first childbearing, both etiological factors for carcinoma of the cervix are very common in Northern Nigeria [4].

Preinvasive disease of the cervix appears predominantly during the third and fourth decades of life [22,23]. This was similar in this study as 56.2% of the subjects in this study were in the 3rd and 4th decades of life. It was also similar to what was obtained in other studies [6,13]. It has been recommended by the consensus conference on cervical cancer screening and management (CCCCSM) that in developing countries with limited resources screening should aim to target high risk women and commenced at age 30 to 35 years and continue till about 60 years of age to reduce excessive expenditure in screening low risk women [20]. The mean age of 34 years in this study is in keeping with this recommendation. Majority (34%) of the patients in this study had 5 or more deliveries; this is similar to other studies done in Nigeria [6,16,22]. There were statistically significant associations between previous conception, previous child birth and increasing number of deliveries with CIN [22,24].

Wilson et al. found that of 11 cases of dysplasia detected on colposcopy and confirmed by biopsy, eight had inflammatory cytology in the initial smears [25]. Inflammatory smears are also associated with multiple reproductive tract infections [26]. The high prevalence of inflammatory smears found in this study and other studies in Nigeria [6,12,13] is therefore not surprising because, as in other developing countries, reproductive tract infection is endemic. Patients with inflammatory smears, especially in those areas where reproductive tract infections are common, need to be thoroughly investigated and properly followed-up.

Among the dyskaryotic smears seen in this study LSIL was the most common (10.6%). This was different from what was obtained in Jos [11] and kano [22] but similar to what was obtained in Okene [16] where ASCUS was the most common (4.5%). Perhaps the type of population studied may have been responsible for the difference between our studies and that of Okene; the Okene study was community-based, while our own was hospital-based. Sociocultural differences may also have been responsible for the difference.

The prevalence of dyskaryosis in this study was more common in women who were symptomatic. It has been found that there is higher incidence of cervical dysplasia and malignancy in women who were symptomatic than in those who were asymptomatic [6]. The need for cervical smears in women with symptoms of genital tract disease has been demonstrated clearly in this study.

5. CONCLUSION AND RECOMMENDA-TIONS

The prevalence of abnormal cervical smear is relatively high in our hospital. Frequency of dyskaryosis in this study lends credence to the need for us to widen our cervical screening coverage in order to achieve the highest possible coverage rate.

This can be achieved through the use of public education by means of various media, women and religious organizations.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

CONSENT

It is not applicable.

ETHICAL APPROVAL

Ethical approval was obtained from the Ethical and Research Committee of Federal Teaching Hospital, Gombe; before embarking on the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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