

Profile of cervical cytology screening in a tertiary hospital in Nigeria: A ten year review

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Abstract

Introduction: *It is estimated that worldwide cervical cancer accounts for death of 231,000 women annually and over 80% of these are said to be in the developing countries.¹ This sordid fact is observed in spite of the globally acknowledged effectiveness of cervical cancer screening methods in detecting and indeed eradicating the disease.*

Setting: *National Hospital Abuja is a tertiary hospital located in the cosmopolitan city of Abuja, capital of Nigeria. It offers regular cervical conventional cytology screening services to Abuja metropolis and surrounding environment.*

Material and Method: *A retrospective review of all cervical cytology samples received in the department of Histopathology of the NHA from 1st January 2004 to 31st December 2013. Slides were reviewed and diagnosis made according to the Bethesda 2001 classification of cervical cytology. Results are analyzed using simple Microsoft Excel 2011 statistical methods.*

Result: *Of 5667 samples reviewed 14.8% (n=816) showed abnormal cellular changes. Approximately 49.4%, 24.4%, 20.7% and 5% of the abnormal smears constituted the LSIL, HSIL, ASCUS and invasive categories respectively. Majority of the women (72%) and most of the abnormal smears belong to the age group 30 to 49 years.*

Conclusion: *Abnormal cervical smears are considerably high and age group 30 to 49 years are at increased risk. Intense and sustained cervical cancer screening programme needs to be embarked upon in Nigeria.*

Keywords: Cervical Cancer Screening, Pap smear, Abuja, Nigeria

Introduction

Cervical malignancy is known to be second only to breast tumours as the commonest malignant neoplasm among females in Nigeria.^{2,3-5} This incidence contrast sharply with the observed trend in developed countries

where cervical malignancies was drastically reduced to the barest minimum^{1,6}. The paradigm shift observed in developed countries has been attributed to effective cervical screening using predominantly Pap smear⁷⁻⁹. The Papanicolaou (Pap) cervical cytology smear

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is a relatively cheap, effective cervical cancer-screening programme for the detection of carcinoma of the uterine cervix at the precursor stage. It consists of taking a sample from the transformation zone of the cervix and smearing on a glass slide and reviewed for atypical cells after staining. Other methods for screening women for cervical cancer include cervicography, HPV DNA tests, visual inspection with acetic acid or Lugol's solution (VIA or VILI), colposcopy and Biopsy.

The Pap smear is acknowledged to have commendable sensitivity and specificity as well as positive predictive value¹⁰ and is adjudged to compare favorably with most of the other methods like visual inspection with acetic acid (VIA)¹¹, cervicogram¹², colposcopy¹³, and HPV (human papilloma virus) screening.¹⁴ Most studies now advocate for combination of the methods for effective screening.¹⁵⁻¹⁷ Furthermore newer advancement of the conventional Pap smear are in vogue complementing the adequacy and accuracy of the Pap. These include liquid based/thin layer preparations¹⁸, Fourier transform infrared (FTIR) spectroscopy¹⁹, p16(INK4a)²⁰, p16/Ki-67²¹ estimations and computer assisted screening facilities. The liquid based cytology screening is believed to have better positive predictive values than conventional Pap smear¹⁸ but is unsuitable for a resource-constrained society like Nigeria.

There is no national screening programme for cervical cancer in Nigeria and detection of cervical intraepithelial lesions by Pap smear screening has remained virtually the only surrogate end point for the early detection of cervical cancer. Hospital based data are therefore the only available source of information on cervical screening efforts. We hereby present the profile of Pap smear screening in the histopathology department of a tertiary hospital in a cosmopolitan city in Nigeria.

Objective

To assess the profile of cervical cytology smears in National Hospital Abuja over a decade and

to compare the findings with studies from other climes in Nigeria and beyond.

Setting

The National Hospital Abuja (NHA) is a 500-bed tertiary hospital located in the Central Area of the metropolitan city of Abuja, capital of Nigeria, with clientele from all over the country. The hospital offers conventional Papanicolaou (Pap) cervical cytology screening in the department of Histopathology for smear samples from the Obstetric and Gynaecology department as well as other public and private hospitals in and around Abuja.

Materials and Methods

A retrospective study of all Pap cervical smears for the period from 1st January 2004 to 31st December 2013 in the department of Histopathology of the National Hospital Abuja is here undertaken. Records of all smear samples received in the department for the given period was retrieved and slides re-evaluated where necessary. Patients' biostatistics and other clinical data were obtained from the request forms and register. Specimen adequacy was premised on adequate evaluable squamous cells populating up to 10% of the slides and accompanied by presence of endocervical cellular clusters and/or squamous metaplastic cells. Slides were reported using the Bethesda 2001 criteria, which categorizes the diagnosis into **negative intraepithelial lesion**, (NILM - for benign cellular reactive changes, inflammations, infections, and atrophy) and **cellular abnormalities** (atypical squamous cells of undetermined significance (ASCUS), atypical glandular cells of undetermined significance (AGUS), low grade squamous intraepithelial lesion (LSIL), high grade intraepithelial lesion (HSIL) and invasive carcinoma). Data was analyzed using simple Microsoft excel 2011 statistical package.

RESULTS

In the study period from 1st January 2004 to 31st December 2013 six thousand, one hundred and twelve (6112) smear samples

were received in the department of Histopathology of the hospital. Four hundred and forty five (445, 7.3%) of these were unsatisfactory due to poor cellularity, overwhelming haemorrhages, improper smearing, poor fixation or excessive debris and were excluded from this study. Consequently five thousand, six hundred and sixty seven (5667, 93.7%) samples were analyzed.

The ages of the women ranged from 18 to 71 years with a mean of 41.68 years and a standard deviation of 9.72. Majority of the women (n=2068, 36.5%) fall within the age group 30 to 39 years followed closely by the 40 to 49 year (n=2045, 36.0%) cohort. About 9% are below

Table 1. Showing distribution of patients according to age group

Age group	Total	Percentage
0 - 19	5	0.09%
20 - 29	494	8.70%
30 - 39	2068	36.50%
40 - 49	2045	36.10%
50 - 59	806	14.20%
60 - 69	213	3.80%
70 - 79	36	0.60%
	5667	100%

the age of 29 years while only 5% are above 60 years. This is shown in table 1 below.

Majority of the specimen were normal smears constituting three thousand nine hundred and twenty-eight samples (3928, 64.9%) while a significant proportion showed inflammatory or reactive changes (n=906, 15.0%). Smears showing abnormal cytology constituted 14.8% (n=816) of the total samples reviewed. Low-grade squamous intraepithelial lesion (LSIL)

Table 4. Frequencies of common symptoms necessitating pap smear screening

Symptoms	Frequency	Percentage
Postcoital		
Bleeding	206	22.20%
Irregular Menstrual		
Bleeding	126	13.60%
Dyspareunia	114	12.27%
Vaginal Discharge	94	10.12%
Cervical Erosion	66	7.10%
Post-Menopausal		
Bleeding	48	5.16%

accounted for 49.0% (n=413) of the abnormal smears followed by high grade squamous intraepithelial lesion (HSIL) with 24.4% (n=199) and ASCUS 20.7% (n=169). About 5% (n=20) of the abnormal smears show invasive features. These are shown in table 2 below.

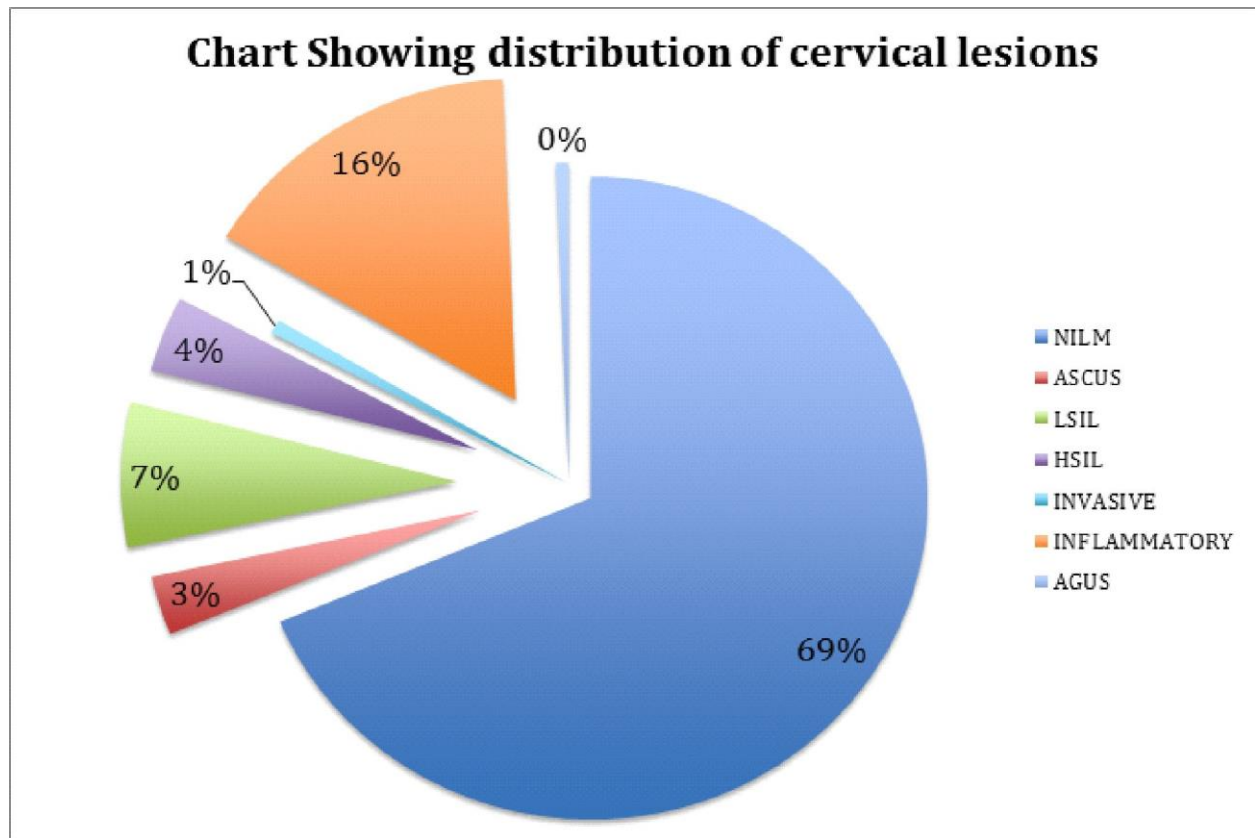
A significant proportion (78%, n=4638) of the smears were taken for routine cervical screening in asymptomatic women while

Table 3. Showing distribution of cellular abnormalities by age group

AGE Group(Yrs)	AGUS	ASCUS	LSIL	HSIL	INVASIVE	TOTAL
0 - 19		2			2	
20 - 29	1	12	23	25	0	61
30 - 39	10	41	152	59	5	267
40 - 49	18	59	126	58	9	270
50 - 59	4	33	74	42	5	158
60 - 69	1	6	33	9	1	50
70 - 79	0	2	5	1	0	8
Total	34	154	413	194	20	816

22.0% (n=1306) had symptoms attributable to the cervix. Among the routinely screened

The most frequently encountered symptoms among the symptomatic patients are post-coital



Key: *NILM*: Negative for intraepithelial lesion or malignancy, *ASCUS*: Atypical Squamous Cell of Undetermined Significance, *LSIL*: Low-Grade Squamous Intraepithelial Lesion, *HSIL*: High-grade Squamous Intraepithelial Lesion, *AGUS*: Atypical Glandular Cell of Undetermined Significance.

(asymptomatic) women about 10.3% (n=478) had abnormal cellular changes as compared to 26.7% (n=322) of the symptomatic patients.

bleeding 22.2%, inter-menstrual bleeding (13.6%), dyspareunia (12.27%) and vaginal discharge (10.2%). Other symptoms for which

Table 5. Table of relationship between abnormal and normal smears

Age group	Normal smears	Abnormal smears	%Abnormal/Normal
0 - 19	5	1	20.0
20 - 29	433	61	14.1
30 - 39	1801	267	14.8
40 - 49	1775	270	15.2
50 - 59	648	159	24.5
60 - 69	163	50	30.6
70 - 79	28	8	28.6
TOTAL	4853	815	

Pap smear was requested included lower abdominal pain (n=11), vaginal growth (n=5), urinary tract infection (n=8) heavy menstrual bleeding (n=11), genital warts (n=5) and repeated miscarriages (n=7). The commoner symptoms are depicted in table 4.

Discussion

Unsatisfactory smears obtained in this study are considerably higher than in most Nigerian studies and from other countries. This may be attributable to sampling errors – as most of the samplers are inconstant staff. The percentage of abnormal smears obtained in this study (14.38%) compares favorably with results from the Northern²², South Eastern²³ and South Western²⁴ parts of Nigeria and is similar to data obtained in screening of women attending sexually transmitted diseases clinic in England in 1985.²⁵ It is however higher than figures obtained from Ghana²⁶, Nepal²⁷ and most European countries. This might suggest a higher prevalence of cervical cancer precursor lesions in some African populations than in Caucasians. Other African countries show similar figures while studies from India showed higher figures.²⁸ Furthermore this result correlates well with abnormal smears in female Americans of African decent in a study about 2 decades ago²⁹. Moreover as may be observed from the results of this study (depicted in table 5) the frequency of abnormal smears increases with rising age. This correlates well with findings from Calabar³⁰ and may give credence to the proposal that cervical screening should begin at age younger than 25 years in this environment.

The distribution of lesions observed in this study with LSIL being the predominant lesion followed by HSIL is in concordance with reports from Calabar³⁰, Thailand³¹, and Japan³² as well as other African countries. This differs from European studies³³ where ASCUS seem to predominate.

Paradoxically relatively more abnormal smears (n=478, 58.6%) were found in asymptomatic

patients than in symptomatic ones (n=322, 39.5%). The ratio of abnormal smears in asymptomatic women to symptomatic patients is 1.5:1. This is in variance with results obtained from Lagos³⁴ and United Kingdom³⁵ where abnormal smears were found to be less among asymptomatic patients. Factors responsible for this contrast need to be investigated but the imperative for intensifying screening among asymptomatic females in Abuja cannot be overemphasized.

The symptoms commonly necessitating Pap smear screening in this study were post-coital bleeding, irregular menstrual bleeding, dyspareunia, vaginal discharge, cervical erosion, post-menopausal bleeding, lower abdominal pain and genital warts. Similar observations were made in other climes.

Conclusion

The uptake of cervical cancer screening programme is relatively low. Cervical intraepithelial lesions are significantly prevalent in the study group. The age group most affected with cellular abnormality of the cervix is the 30 to 49-year cohort.

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