Diagnosing Pre-Invasive Cervical Lesions – Experience With Pap Smear In A Nigerian Teaching Hospital

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Abstract

Pap smear is a tested screening method for detection of pre-invasive cervical lesions, and effective Pap screening has reduced the burden of cervical cancer in developed countries. The aim of this study is to highlight various indications for Pap smear and the prevalence of cytological abnormalities in Ilorin, Nigeria using the Bethesda system. This is a prospective study that was carried in the University of Ilorin Teaching Hospital between June 2011 and May 2013. A total 566 smears were reported and a mean age 43±10 years fell short of acceptable internationally recommended age of 18 years to commence Pap screening. The relative frequencies of indications for Pap smears include routine screening (58.1%), vaginal discharge (20.3%), postcoital bleeding (12.0%)and postmenopausal bleeding 43 (7.6%). Of the total smears reported, epithelial abnormalities seen include low grade SIL 30 (5.3%) and high grade SIL 9 (1.6%)respectively. Majority of the smear-positive cases were seen in women who came for routine screening and the prevalence of intraepithelial lesions reported from our study is higher than what have been documented from other parts of the world. Increased public awareness about Pap smear, a properly organized screening program and availability of treatment modality for screen-positive women will reduce the burden of cervical cancer in Nigeria.

Keywords: Pap smear, screening, cervical cancer.

Introduction

Cervical cancer is an important public health problem being the second most common cancer of the female genital tract worldwide and also because it is heralded by curable precancerous lesions.^{1,2} In most developing countries, it is the most common and leading cause of death among women in their most productive years. In Ilorin, invasive cervical cancer accounted for 63.1% of all gynaecological cancer and presentation was usually advanced.³

Correspondence to:

Dr. O. O. K. Ibrahim Department of Pathology, College of Health Sciences, University of Ilorin, Ilorin. Nigeria +234-803-3751-152 ookazeemibrahim@yahoo.co.uk, kazeemibrahim@unilorin.edu.ng However in developed countries, the incidence rates for cervical cancer as well as mortality resulting therefrom have reduced significantly in the past couple of decades due to widespread application of Papanicolaou smear screening.^{4,5} For instance, in the United States the expected death from cervical cancer has reduced significantly to 3,670 in 2007 when compared to 26,000 death reported annually up till 1941 following the introduction of Pap smear.⁶ In the absence of a reliable national population statistics, most data on cervical cancer in Nigeria were hospital based, and relative frequencies of cancer in women showed that it competes with breast cancer for number one position.⁷

There are several screening methods for detection of pre-cancerous cervical lesions and these include Pap screening, visual inspection with acetic acid, visual inspection with Lugol's iodine, and Human Papilloma Virus (HPV) screening. Several authors have reported varying sensitivity and specificity for the available screening methods, but the Pap's smear remains the most widely acceptable methods of detecting pre-cancerous cervical lesions.⁸ Several methods of reporting cervical smear have evolved over the years since George Papanicolaou described the identification of cancer cells in patients with uterine and ovarian malignancies in 1941.⁹ Bethesda system of reporting Pap smear was adopted in 1988, and has been reviewed thrice in 1991, 2001, and 2014.¹⁰⁻¹²

The main aim of cytologic cervical smear examinations is to detect abnormal cells with premalignant features or even malignant change amidst a multitude of normal cells. It may also reveal presence of infections and infestations. Well-organized cervical screening programmes have been shown to be effective in reducing the morbidity and mortality associated with late stage invasive cervical cancer.¹³

Perhaps, poor awareness among the populace in addition to limited facilities may probably explain dearth of information on this important but neglected aspect of our medical practice. There are few reports documenting findings from pap smears done in various health facilities across the country.^{14,15} In the light of the foregoing, we decided to adopt the Bethesda system of reporting Pap smear in the University of Ilorin Teaching Hospital following a series of meetings between departments of Obstetrics and Gynaecology and Pathology. We hereby report our findings on the cervical smears of patients who attend our gynaecologic facilities. This we hope would serve as a baseline data for Ilorin and environs and hopefully prepare the ground for a population based cervical smear screening programme in the nearest future.

Materials And Methods

This is a review of the indications and results of Pap smears in the University of Ilorin Teaching Hospital between June 2011 and May 2013. The pathology department of University of Ilorin Teaching Hospital is the major center in Ilorin, which provides cytopathological services to people of Ilorin and its environ.

At presentation, patient's bio data, indication for Pap smear, drug history including contraceptive device, previous Pap smear abnormality and other relevant medical history were noted on the request card. The cervical smears were taken routinely using cytobrush and spread out on 2 glass slides, then fixed in 95% ethanol, before being sent to the cytology unit of our laboratory. The smears were stained with Papanicolaou stain, screened by a senior resident, and reported by a consultant Pathologist with bias in gynaecologic cytopathology.

The smears were reported using Bethesda system of reporting, specifying smear adequacy, features of specific inflation, non-specific inflammation, atypical squamous cell of undetermined significance and both squamous and glandular intraepithelial lesions.¹¹

The data obtained were analyzed using simple frequency tables and percentages.

Results

A total of five hundred and sixty-six Pap smear slides were received from the patients during the study period. The age range was between 17 and 62 years, with a mean 43 ± 10 years. The peak age group was 41-50 years, with a total of 224 smears (39.6%). Most of the patients, 397 smears (70.2%) were between 31 and 50 years. Five hundred and sixty patients, representing 98.9%, indicated their religion. Three hundred and two (53.4%) were Christians, 258 (45.6%) Muslims and the remaining 6 (1.1%) did not specify their religion.

 Table 1: Indications for 566 Pap screening reported in Ilorin, Nigeria

Indications for Pap smear	Number	Percentage	
	of smears		
Routine screening	329	58.1%	
Postcoital bleeding	68	12.0%	
Postmenopausal bleeding	43	7.6%	
Vaginal discharge	115	20.3%	
Others	11	1.9%	
Total	566	100%	

From table 1, most of the patients, 329 (58.1%) came for routine screening. Sixty eight smears (12.0%) received were due to postcoital bleeding, 43 (7.6%) on account of postmenopausal bleeding and 115 (20.3%) smears were due to vaginal discharge. The remaining 11 smears (1.9%) were done due to other complaints.

Table 2 and Figure 1 show the various cytopathologic interpretations of the Pap smears reported. Out of the total five hundred and sixty-six smears reported, 341 (60.2%) were negative for squamous and glandular intraepithelial lesions as shown in figure 1. Unsatisfactory or unsuitable smears were 65 (11.5%) and inflammatory smear was reported in 122 (21.6%). There were 30 (5.3%) and 9 (1.6%) cases of low-grade squamous intraepithelial lesion (LSIL) and high-grade squamous intraepithelial lesion (HSIL) respectively.

Among the patients who had routine screening, 200 (60.8%) smears were negative for squamous and glandular lesions. There were 22 (6.7%) LSIL and 5 (1.5%) HSIL cases respectively. The rest consisted of 66 (20.1%) inflammatory and 35 (10.6%) unsatisfactory smears.

Discussion

Evolution of cervical cancer gives room for its control if the pre-cancerous lesions can be detected early and treated promptly. Cervical cancer has ceased to be a leading killer disease in industrialized nations as a result of well organized screening programs, leaving the poorest countries, including Nigeria, with lack or improperly utilized resources and infrastructure to bear the brunt of the disease.^{6, 7} In the US, the number of women that ever had Pap smear testing rose from 30% in 1961 to about 87% in 1987 due to increased patients' awareness and cytological services. This has resulted in further reduction of invasive cervical cancer from 32.4/100,000 in 1940 to 8.3/100,000 in 1984.6 Thus more women are detected at the preclinical stage and offered treatment with consequent reduction in the number of overt clinical stage disease and mortality. While there is consensus that all sexually active women should have regular Pap screening, the specific age to

Table 2: Cytopathological interpretations of the566 Pap smears reported in Ilorin, Nigeria

Cytopathological	Number	Percentage
interpretations	of smears	
Negative for intra-	341	60.2
epithelial lesion		
Unsatisfactory/Unsuitable	65	11.5
Inflammatory smears	122	21.6
Low-grade squamous	30	5.3
intraepithelial lesion		
High-grade squamous	9	1.6
intraepithelial lesion		
Total	566	100



start screening without sexual activity remains controversial. American cancer society prescribed that all women should begin annual Pap test at the onset of sexual activity or at 18 years of age, whichever occurs first. From our study, the mean age of 43 ± 10 years is far higher than the expected age a woman is expected to start screening with or without sexual activity. Majority of these smears were first attempt of these women at screening. This late presentation at screening observed from this study may explain the high prevalence of cervical cancer in our environment even as majority of our women are never screened until they present with invasive cervical carcinoma.³

There was no significant observable religious bias towards Pap screening from our study. About 53% of the women were Christians while 46% were Muslims.

Of the total Pap smears reported in this study, abnormal Pap smears constitute 6.9% (LSIL 5.3% and HSIL 1.6%). The positivity of 6.9% is slightly higher than 6.5% (ASCUS 4.5%, AGC 0.5% LSIL 1%, HSIL 0.5%) reported by Schnatz et al in a study involving rural women in Okene, Nigeria.¹⁶ Smear positivity for squamous intraepithelial lesion from this study is far higher than what was observed in Western region of Saudi Arabia where 1.66% abnormal smear was reported in a study involving 22,089 cases.¹⁷ Our positivity is lower than a 12.2% prevalence of abnormal smear reported by Leonard in Enugu, Nigeria.¹⁵

We further observed from our study that a substantial percentage, 11.5% of the reported smears during the years under review were unsuitable for evaluation using the Bethesda guideline. Our observations range from very hemorrhagic smears, airdrying artifacts, very thick smears with scanty cells, and absence of cells from the transformation zone. These problems can be minimized by using thin-prep smears or any of the liquid-based techniques instead of the conventional smear preparation in use in our centre. Among the several aetiological agents implicated in the causation of cervical cancers, HPV particularly the high risk types stand out in the carcinogenetic process though other co-factors are essential.¹⁸ Development of new and effective treatment modalities for HPV infections as well as primary prevention modalities such as HPV vaccine may in the nearest future reduce further the burden of cervical cancer worldwide.¹⁹

To achieve this goal in the developing countries, including Nigeria, requires a well organized screening program, treatment of screen-positive women and quality control measures to assess impact of the programs. The personnel needed for effective and smooth running of the screening program also requires high quality training, continuous education and proficiency testing to achieve reliable result.

In conclusion, increased awareness campaign on the benefits of Pap smear screening coupled with a properly organized population-based Pap screening program could reduce the burden of invasive cervical cancer in Nigeria.

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